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CITY OF SAINT PETER
WELLHEAD PROTECTION PLAN - PART 2
AMENDED PLAN

April 20, 2020

Stantec Project No. 193804535

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DOCUMENTATION LIST

STEP	DATE PERFORMED
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Public Hearing Conducted (4720.5350, subp. 4)	
Remaining Portion WHP Plan Submitted (4720.5360, subp. 1)	
Approved Review Notice Received	

PUBLIC WATER SUPPLY WELL INFORMATION

Local Name	Unique Number	Aquifer	Casing Depth (ft)	Well Depth (ft)	Date Constructed	Well Vulnerability*
Well 6	209906	Jordan	80	130	1972	Vulnerable
Well 7	433254	Mt. Simon	510	635	1987	Not Vulnerable
Well 8	473638	Wonewoc	362	410	1991	Not Vulnerable
Well 9	473639	Jordan	112	145	1991	Vulnerable
Well 10	473640	Tunnel City-Wonewoc	320	396	1991	Not Vulnerable
Well 11	770414	Jordan	188	233	2009	Vulnerable
Well 12	770415	Wonewoc	430	490	2009	Not Vulnerable
Well 13	770416	Mt. Simon	630	780	2009	Not Vulnerable
Well 14	770417	Mt. Simon	620	775	2009	Not Vulnerable

*See Chapter 3 of the Part 1 Wellhead Protection Plan report (Appendix I) for an explanation of the well vulnerability assessments.

PART 2 EXECUTIVE SUMMARY

This document represents the amended Wellhead Protection (WHP) Plan for the City of Saint Peter. The original plan was completed and approved in 2010. Plan amendments are required at least once every ten years. This amended incorporates any known changes that could impact the size, shape, vulnerability of the Plan, along with any proposed changes for management of the affected areas. This amended plan includes:

- The results of the Potential Contaminant Source Inventory,
- The Potential Contaminant Source Management Strategy,
- The Alternative Water Supply Contingency Plan, and
- The Wellhead Protection Program Evaluation Plan.

Part 1 of the wellhead protection plan presented the 1) delineation of the wellhead protection area (WHPA) and the drinking water supply management area (DWSMA) and 2) the vulnerability assessments for the system's wells and the aquifer within the DWSMA. Part 1 of the WHP plan was submitted to the Minnesota Department of Health (MDH) and approved in November 2018. The boundaries of the WHPA/DWSMA are shown in Figure 1.

The *vulnerability assessment* for the aquifers within the DWSMA was performed using available information and indicates that the vulnerability of the aquifers used by the system varies from high to low, as shown in Figure 2.

- In the highly vulnerable areas, some potential contaminants would be expected to reach the aquifer system within a few years of release at the surface.
- In the low vulnerable areas of the DWSMA, the aquifers are protected by confining layers of sediment that restrict vertical movement of contaminants.

The *principle potential sources of contamination* to the aquifer vary with the vulnerability rating:

- Low vulnerability areas - other wells that reach or penetrate confining layers and non-point sources in areas that drain to high vulnerability areas.
- High vulnerability areas - All land uses and potential contaminant sources.

This information was presented to the WHP Team during the Second Scoping meeting held with the MDH, December 5, 2018, when the necessary requirements for the content of Part 2 were outlined and discussed.

Sections 4-7 of this part of the WHP Plan (hereafter referred to as Plan) provide data and analysis in support of the approaches taken to address potential contamination sources. Section 8 of this report describes the approaches taken in terms of goals, objectives, and actions to be taken.

In Section 4, the required *data elements* indicated by MDH in the Scoping 2 Decision Notice are addressed. Pertinent data elements include information about hydrology, geology, water quality, and water quantity

A *potential contaminant source inventory* and general *land use* information is given in Section 5. The potential contaminant source and land use inventory reflects the vulnerability of the aquifer in each land parcel and what is known about the data elements in Section 4.

Section 6 addresses the possible impacts that *changes in the physical environment, land use, and water resources* may have on the public water supply. Continued land development and increases in

groundwater appropriations within the DWSMA are anticipated within the next ten-year period. The City of Saint Peter will update its Wellhead Protection Plan as new public water supply wells are added or when the plan reaches the end of its ten-year lifespan, as required by the Minnesota Wellhead Protection Rules.

The *problems and opportunities* concerning land use issues relating to the aquifer, well water, and the DWSMA are addressed in Section 7. The major concerns addressed in the plan are 1) wells located within the DWSMA that could become pathways for contamination to enter the aquifer; 2) runoff of contaminated stormwater which could infiltrate into the aquifer in highly vulnerable areas, and 3) the potential sources of contamination identified in Section 5 of this plan.

The drinking water protection *goals* that the public water supplier (PWS) would like to achieve with this plan are listed in Section 8. In essence, the PWS would like to:

- maintain the current drinking water quality
- increase public awareness of groundwater protection issues
- protect the aquifer
- continue to collect data on water quality
- practice water conservation

The *objectives and action plans* for managing potential sources of contamination are also contained in Section 8. Actions aimed toward educating the general public about groundwater and land use issues, gathering information about other wells and potential contaminant sources, using the collected data in water supply and land use planning, and collecting data relevant to wellhead protection planning are the general focus.

Section 9 contains *guidance for use* for Saint Peter staff, identifying areas of responsibility.

Section 10 contains a *guide to evaluate the implementation plan*. The wellhead protection program for Saint Peter will be evaluated every two years.

Section 11 references the *Contingency Plan* developed by the City to address water supply emergencies.

Section 12 discusses the *review process* and addresses any comments brought by local units of government and the public.

1.0 INTRODUCTION

Wellhead protection is a means of safeguarding public water supply wells by preventing contaminants from entering the area that contributes water to the well or well field over a period of time. This program is now required in Minnesota since the Minnesota Department of Health (MDH) implemented its Wellhead Protection Rules in November 1997. The MDH initiated its Wellhead Protection Program in response to the 1986 Amendments to the Safe Drinking Water Act and MDH's statutory authority is granted in the Minnesota Groundwater Protection Act of 1989. The City of Saint Peter completed their first round of wellhead protection planning in October 1997, with a second round completed in May 2010. This report is the culmination of Saint Peter's efforts to further update their wellhead protection plan for its water supply system, in order to reflect current pumping conditions and address current potential contamination sources.

The City of Saint Peter obtains its drinking water supply from nine wells open to three different bedrock aquifer units: the Jordan aquifer, the Tunnel City-Wonewoc (TCW) aquifer (formerly known as the Franconia-Ironton-Galesville or FIG), and the Mt. Simon aquifer. Detailed descriptions of the geologic and hydrogeologic setting of the water supply system, the delineation of the Wellhead Protection Area and Drinking Water Supply Area, and the well and aquifer vulnerability assessments are presented in *Wellhead Protection Plan, Part 1* (Stantec, 2018) which was approved by MDH in November 2018. (See Appendix I.) The rest of this report summarizes the information presented in the Part 1 report, presents additional data elements, outlines potential contamination sources, and presents the contents of the wellhead protection plan.

2.0 WELLHEAD PROTECTION AREA AND DRINKING WATER SUPPLY MANAGEMENT AREA

The wellhead protection area (WHPA) and drinking water supply management area (DWSMA) delineation analyses were conducted in accordance with Minnesota Rules. As a result, the following criteria were considered in making the delineation analysis: 1) Aquifer transmissivity, 2) groundwater flow directions, 3) the maximum average daily pumping rate for each of the wells, 4) hydrogeologic boundaries, and 5) time of travel. Each of these criteria was factored into the development of a groundwater flow model that was used to conduct the delineation analyses. The results of these analyses (the WHPA and DWSMA) are presented in Figure 1. Additional details on the delineation analysis are presented in the amended *Wellhead Protection Plan, Part 1* included in Appendix I of this plan.

3.0 VULNERABILITY ASSESSMENT

Two separate vulnerability assessments were undertaken as part of the Part 1 Plan. The first assessment consisted of an assessment of the vulnerability to contamination of the aquifer within the identified DWSMA. This assessment was completed according to MDH guidelines and recommended methodology. The second assessment was a well vulnerability assessment for each of the Saint Peter public water supply wells. The well vulnerability assessment was also completed using MDH guidelines. A description of the two assessments is presented in *Wellhead Protection Plan, Part I*, prepared by Stantec and included as Appendix I of this report. The groundwater portion of the DWSMA has a vulnerability ranking ranging from "low" vulnerability to "high" vulnerability (Figure 2). The surface water component of the DWSMA is highly vulnerable (Figure 3). Since the surface water portion of the DWSMA covers much of the groundwater portion of the DWSMA, most of the DWSMA is considered highly vulnerable.

Each of the nine public water supply wells was also ranked as either "vulnerable" or "non-vulnerable" during the well vulnerability assessment. (See the Public Water Supply Well Information table.) Wells 6, 9, and 11 were classified as vulnerable, largely due to their shallower depth, using the uppermost bedrock aquifer (Jordan) which is more vulnerable to contamination.

The results of these vulnerability assessments drove the need for a detailed evaluation of potential contaminant sources, which is presented later in this report.

4.0 DATA ELEMENTS

The state rules relating to wellhead protection require that wellhead protection plans include specific data elements. The required physical environment, water quantity and water quality data elements were addressed in the Part 1 Plan (Chapter 1, *Wellhead Protection Plan – Part 1*, Stantec, 2018). The Part 1 Plan also includes an assessment of the impact of these data elements on 1) the use of the wells, 2) the wellhead protection area delineation criteria and 3) the quality and quantity of water supplying the public water supply wells. Each of these elements was discussed specifically in the second scoping meeting with MDH and are presented briefly here.

4.1 Precipitation

Monthly and annual precipitation in Saint Peter, Minnesota is provided in the table below. Precipitation amounts were calculated using the Minnesota Climatology Working Group's gridded database. This method calculates a precipitation amount for a given location by locating the nearest monitoring stations and filling in any gaps in the precipitation data by using data from other nearby stations.

Average annual precipitation over the past decade is 32.32 inches. Normal precipitation for the Saint Peter area from 1981-2010 was 30.99 inches in comparison. The groundwater flow model developed to delineate the wellhead protection areas addresses the rate at which recharge occurs within the aquifer.

Saint Peter Area Precipitation (inches), 2009-2018

Year	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*Total*
2018	0.97	0.94	1.45	2.58	3.54	7.40	3.57	2.98	7.94	2.60	1.41	1.72	37.10
2017	0.73	0.72	0.64	3.98	4.65	3.79	3.29	6.22	2.37	4.24	0.04	0.56	31.23
2016	0.25	0.62	1.84	2.87	4.80	3.99	7.32	6.62	6.96	3.22	1.70	2.00	42.19
2015	0.49	0.49	0.86	2.41	5.45	3.81	6.51	4.99	5.47	2.32	3.39	2.60	38.79
2014	0.75	0.87	1.12	6.13	4.05	8.81	1.45	2.37	2.27	1.89	0.93	0.85	31.49
2013	0.85	1.16	1.25	4.76	3.77	4.84	2.82	1.14	1.79	3.12	0.62	1.07	27.19
2012	0.75	2.19	1.70	2.92	8.74	2.43	2.02	1.66	0.55	1.19	0.72	1.39	26.26
2011	0.93	1.47	2.18	2.53	4.32	5.91	4.55	1.13	0.65	0.80	0.15	1.19	25.81
2010	0.83	1.09	1.63	1.93	2.06	8.23	4.21	2.93	8.80	0.97	1.63	2.66	36.97
2009	0.55	1.21	2.36	1.75	1.43	2.91	1.45	4.50	0.60	5.91	1.18	2.29	26.14
Avg.	**0.71**	**1.08**	**1.50**	**3.19**	**4.28**	**5.21**	**3.72**	**3.45**	**3.74**	**2.63**	**1.18**	**1.63**	**32.32**

Since there appears to be some connection between the aquifer and the surface and because a large part of the DWSMA represents surface water runoff towards the well field, there exSSTS a potential that precipitation could impact the water quality through runoff and infiltration. Therefore, the potential impact of precipitation infiltration on water quantity and quality was addressed in the development of this Plan.

4.2 Geology

A description of geologic conditions in the wellhead protection area was provided in the Part 1 report. See Appendix I. The municipal wells are completed in three different bedrock aquifer units, the Jordan aquifer, the Tunnel City-Wonewoc (TCW) aquifer, and the Mt. Simon aquifer. The TCW aquifer was previously named the Franconia-Ironton-Galesville (FIG) aquifer in prior plan reports. The official naming for aquifer has been changed by the Minnesota Geological Survey since the last plan update.

The degree of geologic protection was an important factor in the DWSMA vulnerability assessment described in the Part 1 report. The level of vulnerability, in turn, determines the types of potential contaminants and land uses of concern and the appropriate level of management.

4.3 Soil Conditions

Because there is not a consistent protective layer of low permeability sediments throughout the DWSMA, local soil conditions and soil infiltration characteristics may impact groundwater quality. Soil survey data for Nicollet County are maintained by the Natural Resource Conservation Service of the USDA as a SSURGO version 2 database. These data include Geographic Information System (GIS) mapping data (Figure 4). It should be noted that disturbance or scalping of soils, particularly in developed areas, may have occurred since the soil survey was last updated.

The infiltration characteristics of soils are controlled primarily by soil texture, land cover/vegetation and other factors that affect soil structure, and land slope. In addition to soil infiltration characteristics, the potential rate of recharge to the water table is also controlled by the vertical permeability of the underlying sediments and the permeability and hydraulic gradient of the water table aquifer.

Drainage characteristics are summarized in the soil Hydrologic Group classifications (Figure 4). Descriptions of the classifications are as follows:

> Hydrologic Group A soils are have a high infiltration potential when thoroughly wet and consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.
>
> Hydrologic Group B soils have a moderate infiltration rate when thoroughly wet and consist of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.
>
> Hydrologic Group C soils have a slow infiltration rate when thoroughly wet and consist chiefly of soils having a layer that impedes the downward movement of water or have moderately fine to fine texture. These soils have a slow rate of water transmission.
>
> Hydrologic Group D soils have a very slow infiltration rate when thoroughly wet. These soils consist of clays, soils that have a claypan or clay layer near the surface, or soils that have a permanently high water table. These soils have a very slow rate of water transmission.

For soils with two hydrologic groups, the first letter refers to drained areas and the second letter refers to undrained areas.

Within the DWSMA for the City of Saint Peter, soil types in all hydrologic groups are found. However, the most commonly found soil types within the high vulnerability portion of the groundwater DWSMA closest to the wellheads for the municipal wells are comprised almost entirely of Class A and Class B soils. This implies that soils within the high vulnerability DWSMA near the wellheads have a relatively high rate of water transmission where they are drained, therefore increasing the potential for spills at the surface to infiltrate vertically into the soils and the underlying bedrock. Additionally, soils in the surface water DWSMA west of the escarpment tend to be lesser rates of water transmission, which could inhibit infiltration and increase runoff towards the more highly vulnerable portion of the DWSMA in the east, below the escarpment.

4.4 Water Resources

The City of Saint Peter Jordan aquifer wells draw from a relatively shallow groundwater flow system. This system has a direct or indirect hydraulic connection to surface water features. Therefore, surface waters have some impact on the quantity and quality of groundwater within the DWSMA. Typically, surface waters have the greatest impact when they drain towards and infiltrate into highly vulnerable portions of the DWSMA. The entire surface water component of the wellhead protection area has been deemed "high" in vulnerability, even if the vulnerability of the groundwater aquifers underlying portions of the DWSMA are "low" in vulnerability.

Surface waters within the DWSMA are managed by Nicollet County. Figure 5 shows wetlands in the National Wetlands Inventory and Minnesota Department of Natural Resources (DNR) designated public waters within the DWSMA. There is one designated public water within the DWSMA, an unnamed wetland to the southeast of Wells 9 and 10. Small areas of NWI (National Wetland Inventory) wetlands are located within the DWSMA, comprising less than 5% of the total DWSMA.

The only other significant surface water features within the DWSMA are drainage ditches, connectors, and streams that direct the flow of runoff from agricultural areas towards the east. The location of these drainage features was considered during the creation of the Part 1 plan, when delineating the surface water portion of the DWSMA. Since these ditches direct water towards the more highly vulnerably portions of the DWSMA, the ditches are thought to responsible for carrying nitrates-rich runoff from agricultural areas towards the Saint Peter municipal wells completed in the Jordan aquifer. Management of water quality within both the low and high vulnerability surface water delineation areas is vital towards any effort to reduce nitrates contamination in the Jordan aquifer.

4.5 Groundwater Quality

Routine monitoring data collected for the Public Water Supply Program are in the files of the Minnesota Department of Health. Routine monitoring by the Public Water Supply Program shows no contamination above existing Federal water quality standards within the water supply distribution system. A summary of the system's finished water quality is provided in the annual Consumer Confidence Report (Appendix C). Future changes in water chemistry reflected in routine monitoring results would be an indication that groundwater quality was affected by changes in the hydrologic

system.

Nitrates concentrations in three of the City's wells routinely exceed the maximum contaminant level of 10.0 mg/L. Average nitrates levels in these wells over the past decade are as follows:

Well Number	Nitrates (mg/L)
Well 6	12.4
Well 9	10.3
Well 11	17.4

Concentrations of nitrates in Wells 6 and 9 have remained fairly consistent over the past decade, with no clear trend upwards or downwards in concentrations. Concentrations in Well 11 have shown an increasing trend over the past decade, with average concentrations rising from 16 mg/L in 2013 to 19 mg/L in 2019.

Since the highest concentrations of nitrates are found in the more vulnerable Jordan aquifer wells, this is likely a result of runoff and infiltration of surface water from agricultural areas. The City is able to utilize these wells through a combination of blending with other wells and treatment to remove nitrates. While blended water meets the health standards, it does limit the ability to use the Jordan aquifer wells to periods when other wells are also being used, in order to achieve blending.

The deeper aquifer wells open to the TCW and Mt. Simon formations tend to have higher dissolved solids, chlorides, and sulfates, which are often unacceptable to the public from an aesthetic standpoint. Water from these wells is blended with Jordan aquifer water to make it more pleasing for the public. Additionally, Mt. Simon Well No. 7 has exceeded the radionuclide standard of 15 pci/L for gross alpha in the past, necessitating blending with other wells in order to ensure compliance with drinking water standards.

4.6 Groundwater Quantity

Other than the Saint Peter water supply wells, there are no significant large capacity wells in the immediate surrounding area that are covered by state groundwater appropriation permits. There are no known well interference problems in or around the Saint Peter DWSMA. Therefore, existing high capacity wells or groundwater use conflicts do not need to be addressed in the management plan at this time.

No new water supply wells are planned for the immediate future. The current wells and water treatment system is believed to be adequate to meet Saint Peter's water supply needs for the next decade.

4.7 Surface-Water Quality

While no large surface water features intersect the DWSMA (other than the Minnesota River and public water 52-1W, both of which lie within or adjacent to the non-vulnerable portion of the DWSMA), small surface water features such as drainage ditches, connectors, and stream play a significant role in both surface water and groundwater quality within the DWSMA. These features drain agricultural areas west of the groundwater capture zones and funnel this water as runoff that flows eastward towards the

Saint Peter municipal wells. This water then infiltrates into the more highly permeable soils east of the escarpments, with some portion of the water reaching the underlying Jordan aquifer.

Exact concentrations of nitrates and other nutrients within the drainage ditches and streams in the DWSMA are not known. Concentrations likely vary over time, depending on application schedules of fertilizers to the agricultural areas in the western half of the DWSMA. The lag time between application events and appearance of nutrients in the surface water features is unknown, but is most likely related to the occurrence and volume of storm water events/runoff. Additionally, the travel time of runoff between the agricultural areas and the groundwater capture zones is unknown, and may be affected by a number of variables, including discharge volumes, soil types, and infiltration rates.

Further study of nitrates contamination levels in surface water features may help establish trends in surface water quality that could lead to improved management of surface water runoff within the DWSMA.

4.8 Surface-Water Quantity

Surface water volumes in the drainage ditches, connectors, and streams within the DWSMA are not well quantified. Volumes likely fluctuate based largely on precipitation and snowmelt events, though some amount of base flow may be observed year-round in select features. Periods of greatest flow likely correlate with periods of greatest precipitation, as seen in Section 4.1. Volumes may even vary hour-by-hour, depending on the frequency and intensity of precipitation events.

5.0 CONTAMINANT SOURCE INVENTORY

As part of the City of Saint Peter wellhead protection planning process, an inventory of potential contaminant sources was conducted within the delineated Drinking Water Supply Management Area (DWSMA). The purpose behind this inventory was to develop a database listing potential sources of contamination that may affect the public water supply wells. The results of this effort provide the water supplier with information about contaminant sources identified in the DWSMA. Wellhead protection planning strategies can be directed in a manner that will deal with any potential sites before they become a problem or a threat to the drinking water supply.

5.1 Land Use

Understanding land use is important in determining key areas for concern in managing a wellhead protection area. For example, knowledge about the location of future development in relation to the DWSMA may reveal a need to closely manage the activity within more sensitive areas. Additionally, any land uses that currently pose a potential threat to the City's water supply need to be highlighted to increase awareness of any concerns. A current map of zoned land uses for the City of Saint Peter is provided as Figure 6. (Zones land uses for the townships are provided in Appendix C. Land uses within the City boundary are a mixture of institutional, commercial, residential, parks, and vacant properties. Land uses for the townships west of Saint Peter are largely residential and agricultural, with agricultural land uses comprising the majority of DWSMA west of the City Boundary.

Following a scoping meeting held with Minnesota Department of Health (MDH) staff in December 2018, Stantec and Saint Peter staff proceeded to locate and update information about land and water use within the delineated DWSMA for the Saint Peter wells. Any data which was relevant to the public water supply wells, the quality of the water being drawn into the wells, or land and groundwater uses around the wells was considered important in determining any potential threat to the water supply. The following criteria were used:

1. Wells must be inventoried in all portions of the DWSMA where the groundwater capture zone for the City's wells has been delineated.
2. All high vulnerability areas must also be evaluated for the presence of storage tanks and any other potential contamination sources, including septic systems, feedlots, hazardous waste generators, pipelines, and landfills.
3. All surface water DWSMA areas must be considered highly vulnerable for any contamination sources that may impact surface water quality, regardless of the groundwater vulnerability ranking assigned in the Part 1 plan.

Each of these elements is described separately below. Figure 8 shows the locations of wells, Figure 9 shows the locations of tanks, and Figure 10 shows other identified potential point sources of contamination. Figure 11 shows the locations of subsurface sewage treatment systems, otherwise known as septic systems. All potential contamination sources are listed by parcel in Appendix A.

5.2 Shallow Disposal Wells

Disposal wells are potential sources of contamination that must be inventoried for the entire DWSMA. The US EPA regulates shallow disposal wells (Class V injection wells). Automotive disposal wells have been banned in groundwater protection areas and cesspools have been banned throughout Minnesota. Furthermore, the Code of Federal Regulations (Title 40, Chapter I, Part 144.12(a)) states that "no owner or operator [of an injection well] shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR part 142 or may otherwise adversely affect the health of persons."

No likely shallow disposal well sites were identified within the DWSMA. This determination was made based on Saint Peter staff knowledge of land uses in the area. Should shallow disposal wells be identified during the course of the plan implementation, these sites will be included in the potential contamination source inventory and will be reported to relevant State and Federal agencies for potential rule enforcement activities.

5.3 Wells

An important component of the potential contaminant source inventory was the location of any known wells within the groundwater capture zones. Since wells may penetrate confining layers that protect an aquifer, they are potential pathways for contaminants to rapidly enter the aquifer. A search for active and unsealed abandoned wells was undertaken for the DWSMA.

The following sources were used to identify wells in the DWSMA:

1. Minnesota Geological Survey's County Well Index (CWI)
2. Well identified in the previous first version of the Wellhead Protection Plan.
3. Saint Peter staff knowledge about current and historical land uses.
4. Aerial photographs

The identified wells are plotted on the map in Figure 8, and listed in Appendix A. The results of the well search indicated that there are 43 wells known to be in the DWSMA, including the municipal supply wells. Known sealed wells were omitted from the inventory, as they are thought to pose no threat to the DWSMA. There may be additional wells within the DWSMA that are not part of the current databases, including both active wells and abandoned wells that were never properly sealed.

The accuracy of the locations of the wells as mapped in Figure 8 varies. Whenever possible, wells were mapped using verified coordinates obtained by the MGS or MDH. When accurate coordinates were not available, all wells were attempted to be mapped on the correct land parcel using an ortho-rectified digital air photo base map. Of the wells identified, there is a mix of private wells, monitoring wells, industrial wells, and public water supply wells.

Wells were not mapped within surface water portions of the DWSMA that are not within the groundwater capture zones of the City's wells. Mapping wells in these areas is not required as part of

the wellhead protection planning process.

5.4 Point Sources

An important component of the potential contaminant source inventory was to look for any potential point sources within the DWSMA that might be a threat to the quality of the public water supply. An example of a point source would be an underground storage tank or any facility that stores, handles, or disposes of materials that, if introduced into the environment, might degrade the quality of the water pumped from the aquifer. Identified potential point sources of contamination were identified according to the criteria listed above in Section 5.1. A listing of potential point sources by land parcel is presented in Appendix A. GIS data files containing the point source data are also available electronically. The locations are mapped in Figure 9, 10, 11, and 12.

The first step in the point-source search was to investigate available resources listing potential sites of concern. State databases for tanks, spills, and other potential contamination sources was utilitized to develop an initial inventory. County databases were utilized to locate and map septic systems. Some of this contaminant source data was compiled during the creation of the previous versions of the Wellhead Protection Plan for Saint Peter completed in 1997 and 2010. The resulting data was reviewed for accuracy, and the data points were associated with the correct land parcels.

Items located within the DWSMA were identified and inventoried according to the required criteria. Data points were located by the address information provided in the databases and through review by Saint Peter staff. Reconnaissance of certain sites was used to verify locations of mapped contaminant sources.

The majority of the DWSMA within the Saint Peter city boundary is served by the sanitary sewer system. See Figure 13 for the layout of the sanitary sewer system. Homes outside of Saint Peter, however, are largely served by subsurface sewage treatment systems (SSTS), otherwise known as septic systems. Failed SSTSs may be a threat to aquifer water quality, particularly in high vulnerability areas. Nitrate is a contaminant of particular concern that may derive from SSTS. The Minnesota Pollution Control Agency (MPCA) has developed technical standards and criteria for SSTS, which are contained in MN Rules Chapter 7080. MPCA standards, or more restrictive local standards, must be followed in wellhead protection areas. A total of 86 known septic systems were mapped within the DWSMA, as seen on Figure 9.

After septic systems, storage tanks were the second most numerous point sources located within the DWSMA. Nine sites were identified with storage tanks, which includes either underground and above ground tanks. Storage tanks are of particular concern because they represent a large volume and high concentration of potential pollutants that could feasibly be released into the environment within a short span of time. Underground tanks, and any associated piping to/from these tanks, pose additional concern because leakage can occur slowly over time, releasing a large quantity of contamination into the soil before the leak is eventually discovered. Proper management of storage tanks is critical towards preventing further leaks and spills within the DWSMA.

A total of two animal feedlots was located within the DWSMA. Feedlots can be a source of contamination to surface and groundwater, through runoff of nutrients associated with animal wastes.

All located feedlots were outside of the groundwater capture zone delineation, but were within the surface water capture zone and therefore can contribute to pollution in local ditches, connectors, and streams that flow towards the groundwater capture zone.

A total of 12 permitted hazardous waste generators were located within the DWSMA. These include properties that generate, store, or dispose of potentially hazardous compounds during their normal operations. Specific information about the nature of the hazardous wastes, and whether it poses a potential threat to groundwater, is not always immediately available. While it is assumed that proper handling and disposal of hazardous wastes is a condition of the permitting process, additional education efforts relating to groundwater protection are warranted among permit holders within the DWSMA. Identified storage and preparation areas within the DWSMA should also be included in these education efforts.

5.5 Non-Point Potential Contaminant Sources

Non-point sources of contamination are associated with land use not specific to a particular point or small area. Agricultural areas are often one of the largest sources of concern for non-point sources. The large amount of cultivated agricultural land in the Saint Peter DWSMA makes non point-source contamination a major concern for the implementation of the wellhead protection plan. It is estimated that approximately 60-70% of the DWSMA is currently agricultural. Runoff of nutrients, particularly nitrates, is the contaminant of greatest concern for these areas. The presence of nitrates in the City's Jordan aquifer wells indicates that contamination from these non-point sources have already impacted groundwater quality in the shallow aquifers.

Parking lots and roads may also be potential non-point sources of contamination to the aquifer if they drain to high vulnerability areas. Transportation corridors are discussed further below. The land use map provides a guide to areas within the City that may be non-point sources (Figure 6). Non-point sources are a concern throughout most of the Wellhead Protection Area because contaminants released at the surface within the WHPA may infiltrate into highly permeable soils and eventually migrate into the groundwater supply.

5.6 Public Utility Services

Infrastructure-related accidents are another potential contaminant source. Roadways, railways and oil pipelines are examples of transportation routes that may be the site of a leakage or spill that could threaten the aquifers.

US Highway 169 is the main transportation route through the City of Saint Peter. This highway falls outside of the current DWSMA boundary. Other State and County highways and roadways intersect the DWSMA, however, including State Highway 22, State Highway 99, County Highway 5, County Highway 40, County Highway 20, and County Road 51. All of these roadways either intersect highly-vulnerable portions of the DWSMA. Therefore, any spills along these roadways have the potential to contaminate the most vulnerable aquifers within the DWSMA.

There are no identified pipelines located within the DWSMA. A former railroad grade is located to the west of Saint Peter, but is no longer active within the DWSMA.

County ditches, connectors, and streams within the western half of the DWSMA offer a transportation route for surface water contamination to reach highly vulnerable portions of the DWSMA to the east. Management of contaminants that have the ability to impact water quality in these ditches and streams is the single biggest issue facing the Saint Peter wellhead protection team.

Public water supply wells are also components of the public utility infrastructure. The locations of the active wells are shown on Figure 1. At present, all active public water supply wells appear to meet the required setbacks set forth for the 200-foot radius around each well. There are no known inactive public water supply wells within the DWSMA that have not been properly abandoned and sealed.

5.7 Active Sites of Contamination

Figure 9 shows known spill or leak sites within the DWSMA. A total of ten spill sites were identified for the inventory. Of these sites, only one is still listed as "active" with the Minnesota Pollution Control Agency. This is the Mike's Countryside Body Shop, where records show that site remediation is still in place, even though the investigation of the site was completed in 1996.

Should any additional contamination sites be identified within the DWSMA, they will be prioritized in order of the threat they pose to the municipal wells. Site specific soil conditions, geology, surface runoff, and estimated time of travel to the public supply wells will be investigated to assess the level of threat to the City's water supply.

5.8 Summary

Proactive management of potential point sources of contamination within the 1-year groundwater capture zones, or Emergency Response Areas, in high vulnerability areas are of most immediate concern. These items would pose the greatest potential risk to the quality of water drawn from the public water supply wells.

Type of Potential Contaminant Source	**Total Identified Sites within DWSMA**	**Total Sites within the Emergency Response Area**
Aboveground Storage Tank	5	0
Animal Feedlots	2	0
Hazardous Water Generator Permit	15	3
Underground Storage Tank	4	0
SSTS (Subsurface sewage treatment system)	87	0
Solid Waste Management Site	3	1
Groundwater Wells	43	11*
Class V wells	None identified	None identified
Transportation routes	State Highways, County Highways	County Highway 5
Voluntary Investigative Cleanup sites	3 (inactive)	0

*including municipal wells

The land use and zoning maps provide a tool for understanding the scope of land uses in the DWSMA. The inventory was made as complete as practicable at the time of the development of this Plan. Further data collection issues and the other problems and opportunities associated with land uses are addressed in Chapter 7. Plan goals, objectives, and actions are addressed in Chapter 8.

6.0 PROJECTED CHANGES TO THE ENVIRONMENT, LAND USE, AND SURFACE AND GROUNDWATER

General land uses within the western portion of the City are expected to change over time, including areas that are currently within the Townships that will be annexed by the City. Figure 7 shows the projected future land uses for these areas. Specific land uses consistent with the current zoning may be developed in the future. The biggest change to these areas will be a shift from agricultural land uses to residential land uses and parks. While these changes may help reduce nitrates loading from agricultural land uses, fertilization and establishment of residential lawns can also contribute to nutrient contamination. As this area develops, there exists an opportunity to better control stormwater runoff in these areas, diverting nitrates rich water away from sensitive groundwater capture zones. Current plans (shown on Figure 7) call for the construction of lined stormwater ponds in the highly vulnerable portions of the DWSMA. These ponds will help the City reduce the amount of nitrates-impacted stormwater that infiltrates into the soils within the highly vulnerable groundwater capture zones.

Land use changes in the portions of the townships that are not to be annexed are not expected to change significantly. Agricultural land uses in this portion of the DWSMA are expected to remain largely unchanged in the immediate future. No up-to-date maps of projected future land uses exist for the townships at this time. Nicollet County's Comprehensive Plan is expected to be updated in 2021, by which time any changes in future land uses will be identified.

7.0 PROBLEMS AND OPPORTUNITIES

7.1 Problems

1. Large portions of the DWSMA for the City of Saint Peter are vulnerable to contamination.
2. Over half of the DWSMA is located outside of Saint Peter.
3. Nitrates contamination is currently impacting the existing Jordan aquifer wells. Most of this contamination is thought to originate in agricultural areas outside of the City boundary.
4. A network of drainage ditches, connectors, and streams carries nutrient-contaminated water from agricultural areas in the western DWSMA to highly vulnerable groundwater capture zones in the eastern DWSMA.
5. Water quality from the deeper TCW and Mt. Simon aquifers is often not aesthetically pleasing to residents, resulting in the need for treatment and blending with Jordan aquifer wells. Also, radionuclide levels in Mt. Simon Well No. 7 necessitate treatment and blending to meet drinking water standards.
6. The soils nearest to the wellheads are rapidly permeable and allow for infiltration of contaminants.

7.2 Opportunities

1. The treated water is in compliance with all primary and secondary drinking water regulations.
2 The City of Saint Peter has already had a Wellhead Protection Plan in place since 1997 that conforms roughly to the same land area as the amended DWSMA. Existing activities occurring to protect groundwater within this area can continue without interruption.
3. An opportunity exists to continue working with local units of government intersected by the DWSMA in planning land uses in order to protect the area's groundwater resources.
4. Expansion of residential land uses to the west and construction of stormwater ponds provides an opportunity to decrease the input of nitrogen to the groundwater.
5. The use of three different aquifers allows the City some level of flexibility, should one of the aquifers become contaminated to the point where it can no longer be used.
6. There is an opportunity to become involved in the One Watershed, One Plan development for the Middle Minnesota River Watershed, to help ensure that wellhead protection goals are considered for the planning effort.

7.3 Status of Existing Governmental Controls Concerning Water and Related Land Use

<u>City of Saint Peter</u>

Zoning ordinances and special use permits are the primary means by which the City of Saint Peter controls water and land use within the city.

<u>Nicollet County</u>

The Nicollet County Environmental Services Department (ESD) is responsible for land use planning and in areas of the DWSMA that are outside of the City of Saint Peter. The ESD is

responsible for the permitting, inspection, and management of individual sewage treatment systems, feedlots, and solid waste disposal. The ESD also works in cooperation with the Nicollet Soil and Water Conservation district to administer the Wetland Conservation Act on behalf of the State.

Nicollet County has also developed their fourth generation Local Water Management Plan, which was in effect for the period from September 2008 to August 2018. The Plan has since been given a 5-year extension. The plan guides land management activities that can have an impact on water quality and quantity within the County, identifying opportunities and action items among cooperators to improve water and natural resources.

Watershed planning will transition to a new planning effort known as the One Watershed, One Plan (1W1P) over the coming years. The 1W1P that will be developed for the Middle Minnesota River Watershed will cover the DWSMA for the City of Saint Peter.

State and Federal Regulations

Many of the state and federal regulations for potential sources of pollution are design and operation standards. Examples are regulations concerning on-site sewer systems, large storage tanks, and wells. It should be noted that the state's design and operation standards would be adequate for most contaminant sources within the Saint Peter DWSMA.

Land use authority that addresses the location of potential sources of contamination within the Saint Peter DWSMA rests with local units of government according to Minnesota law. The Saint Peter DWSMA falls within the jurisdiction of the City of Saint Peter and Nicollet County.

State and federal governmental units regulate:

- Well construction – MDH;
- Well sealing – MDH;
- State groundwater appropriation permits – DNR;
- Public water supply quality – MDH;
- Setbacks for specific contaminant sources from a well – MDH and local governments through conditional use permitting;
- Tank control program – MPCA, MDA
- Ag Chemicals and Fertilizers - MDA
- Shallow disposal wells - U.S. EPA.

Any of the permitted activities which have the potential to affect the wellhead protection area and/or the quality or quantity of the Saint Peter water supply should be reviewed by the respective state agency before a permit can be approved.

8.0 WELLHEAD PROTECTION GOALS, OBJECTIVES AND IMPLEMENTATION PLAN

Goals and objectives have been developed based on the results of the vulnerability analysis, the results of the potential contaminant source inventory, and the projected changes to the environment, land use, and surface and ground water. In general, goals and objectives are ranked in order of priority.

8.1 Goals

The following goals form the framework within which the information generated during delineation and source inventory activities is evaluated and upon which the planning activities are based:

1. To continue to provide water that meets state and federal drinking water standards.
2. Employ best management practices for properties containing potential contaminant sources to avoid adversely impacting the quality of the water drawn from the aquifer.
3. To work cooperatively with Nicollet County and state government on aquifer protection actions.
4. To work cooperatively with Nicollet County to ensure land use planning and zoning takes into account protection of the aquifer.
5. Build awareness of wellhead protection goals and disseminate information about wellhead protection plan implementation to City staff and property owners in the DWSMA.

8.2 Objectives

To meet these goals, the following specific objectives were developed:

1. Monitor the 200-foot Inner Wellhead Management Zones and one-year time of travel delineations to prevent contamination in the areas immediately surrounding the wellheads.
2. Work with Nicollet County and other cooperators to promote better nitrogen management within the DWSMA. Educate landowners on best practices regarding fertilizers, agricultural chemicals, and land applications. Increase awareness of impacts to groundwater quality, both for the City wells and for local private wells.
3. Locate missing or previously unidentified wells in the groundwater DWSMA.
4. Seal abandoned or unused wells located in the groundwater DWSMA.
5. Cooperate with other programs and agencies to manage stormwater quality.
6. Work with tank owners and hazardous waste generators in the DWSMA to ensure best management practices are being followed.
7. Identify new spills or potential contaminant sources within the DWSMA.
8. Request that Nicollet County educate the property owners about the need for having complying onsite sewage treatment systems in the DWSMA.
9. Protect the aquifer from possible contamination resulting from spills and leaks.
10. Educate residential property owners about proper use of lawn and garden chemicals.
11. Work with local units of government to ensure that land use planning and zoning take into account protection of the aquifer underneath the DWSMA.
12. Work with Nicollet County to implement local requirements for feedlots and manure management located in WHP areas.
13. Be involved in the development and/or implementation of surface and groundwater planning

activities for Nicollet County and the Watershed District to help manage surface water flow and infiltration issues.

14. Educate the public about hazardous waste and household hazardous waste.
15. Increase public awareness of groundwater protection and local water quality issues. Develop public support and understanding of wellhead protection goals.
16. Collect water data that will improve the understanding of groundwater recharge and flow within the DWSMA.
17. Maintain up-to-date information about wells and potential contaminant sources within the DWSMA.

8.3 Implementation Plan

Objective 1: Monitor the 200-foot Inner Wellhead Management Zones and one-year time of travel delineations to prevent contamination in the areas immediately surrounding the wellheads.

<u>Action 1A</u>: Continue to monitor setbacks for all potential sources of contamination located within Inner Wellhead Management Zones. Update IWMZ inventory.

Who: City of Saint Peter
Cooperators: MDH
When: 2021, 2027
Cost: Staff time
How: The wellhead protection manager will ensure that any new regulated activities will meet the required setbacks.
Status: Last update completed in 2015. Updates required every six years. Next update due in 2021.

<u>Action 1B</u>: Conduct more frequent updates and reviews to the potential contaminant source inventory for the ERAs.

Who: City of Saint Peter
Cooperators: MDH
When: Every two years
Cost: Staff time
How: SCPU staff will conduct a review every two years of any new potential sources of contamination within one-year Emergency Response Areas. The status of previously identified PCSI sites will also be reviewed to determine if a change in land use has occurred.
Status: Inventory updated in 2020 for plan development. Next review due in 2022.

Objective 2: Work with Nicollet County and other cooperators to promote better nitrogen management within the DWSMA. Educate landowners on best practices regarding fertilizers, agricultural chemicals, and land applications. Increase awareness of impacts to groundwater quality, both for the City wells and for local private wells.

Action 2A:	Reach out to farmers to communicate BMPs for nitrogen management.
Who:	MDA Nicollet County Extension, Brown Nicollet Cottonwood Water Quality Board
Cooperators:	City of Saint Peter
When:	2023
Cost:	Staff time, printing and distribution costs
How:	Update nitrogen management newsletter/booklet prepared by County extension and send to local farmers and fertilizer dealers/applicators.
Status:	Previously implemented with former plan implementation. Next round to be completed by 2023.

Action 2B:	Enforce new Groundwater Protection Rule requirements within the DWSMA.
Who:	MDA
Cooperators:	City of Saint Peter, Nicollet County Extension
When:	2020 and ongoing
Cost:	Staff time
How:	Part 1 of the rule limits fall fertilization in vulnerable groundwater areas, which includes the entire Saint Peter DWSMA. Part 2 of the rule will take action to reduce nitrogen in groundwater in areas that would impact public wells. Part 2 will include voluntary and regulatory mitigation levels, with stricter enforcement in areas where voluntary enactment of BMPs are not occurring or where nitrates levels in wells are increasing.
Status:	Part 1 to be enforced starting September 2020. Part 2 expected to be enforced approximately three years after rule takes effect.

Action 2C:	Include overlay of wellhead protection area in County planning and zoning considerations for agricultural areas.
Who:	Nicollet County Planning and Zoning
Cooperators:	City of Saint Peter, MDA Nicollet County Extension
When:	2021, then every five years or as needed
Cost:	Staff time
How:	Include wellhead protection DWSMA as a consideration for County's upcoming comprehensive plan update. Consider impacts of land uses on groundwater quality.
Status:	Comprehensive plan to be updated in 2021.

Objective 3: Locate missing or previously unidentified wells in the DWSMA.

Action 3A: Make direct contact with potential well owners in the DWSMA to determine location and status of each well.
Who: City of Saint Peter
When: 2022
Cost: Staff time, printing and postage costs
How: The survey will be mailed to property owners of parcels identified as containing a well and to other addresses not served by a public water supply.
Status: Not currently implemented.

Objective 4: Seal abandoned or unused wells located in the groundwater DWSMA and encourage proper well maintenance.

Action 4A: Provide MDH with a list of abandoned and unsealed well locations as Saint Peter personnel discover them.
Who: City of Saint Peter
Cooperators: MDH, Nicollet SWCD, Nicollet ESD
When: Ongoing
Cost: Saint Peter staff time
How: Prepare written report for distribution to the MDH, Nicollet County, and other impacted LGUs.
Status: Currently implemented

Action 4B: Make property owners aware of financial and technical resources available to assist in securing grant funding for properly sealing wells.
Who: City of Saint Peter
Cooperators: Nicollet County, Nicollet SWCD, MDH
When: 2022 or as needed
Cost: Staff time
How: Research types of grants and loans available for permanent well sealing and distribute this information to appropriate well owners, as requested. Apply for grants to assist property owners with sealing wells.
Status: Not currently implemented.

Action 4C: Send reminder notices to well owners reminding them of proper well maintenance.
Who: City of Saint Peter
When: 2022
Cost: Staff time, printing and postage costs
How: Notices will be sent to addresses identified in the DWSMA well inventory. Mailing will contain best management practices for well maintenance.
Status: Not currently implemented.

Action 4D: Include public education information on wells on City's website
Who: City of Saint Peter
Cooperators: MDH
When: Ongoing
Cost: Staff time
How: Publish information on well management and sealing requirements.
Status: Currently implemented.

Objective 5: Cooperate with other programs and agencies to manage stormwater quality.

Action 5A: Work in cooperation with the NPDES program in areas overlapping the DWSMA
Who: City of Saint Peter
Cooperators: MPCA, Nicollet County, Watershed District
When: Ongoing, as needed
Cost: Staff time
How: Ensure that NPDES permitting is also taking into account wellhead protection planning as a consideration.
Status: Currently implemented

Action 5B: Design and maintain stormwater systems or improvements with wellhead protection as a consideration
Who: City of Saint Peter
Cooperators: City' engineering consultant, Nicollet County, MPCA
When: Ongoing, as needed
Cost: Staff time
How: Consider design of future stormwater systems or improvements to minimize the infiltration of contaminated stormwater within the highly vulnerable groundwater capture zones for the City's wells. Consider adding lined ponds in highly vulnerable areas of the DWSMA to capture potentially contaminated runoff before it can infiltrate. Monitor existing stormwater pipes and ponds to ensure they are performing as designed, particularly within the IWMZ and ERA for the wells. Repair or replace failing stormwater infrastructure as needed.
Status: Currently implemented

Action 5C: Follow the MDH and MPCA Stormwater Guidance to assist with management of stormwater within the DWSMA
Who: City of Saint Peter
Cooperators: MDH, MPCA, Nicollet County, Watershed District
When: Ongoing, as needed
Cost: Staff time
How: Review any proposed updates or additions to stormwater infrastructure to ensure that the MDH and MPCA guidance is being followed. Limit the designed infiltration of stormwater in highly vulnerable areas of the DWSMA.
Status: Currently implemented

Objective 6: Work with tank owners and hazardous waste generators in the DWSMA to ensure best management practices are being followed.

Action 6A: Contact inventoried storage tank owners and make them aware of their placement within the City's wellhead protection area. Survey tank sites to determine current status.
Who: City of Saint Peter
Cooperators: MPCA, MDH
When: 2023
Cost: Staff time
How: Send educational mailing and survey to property owners. Provide contact numbers for appropriate government agencies if requested. Notify MPCA if survey results differ from State database information.
Status: Not currently implemented.

Action 6B: Contact hazardous waste generators and enlist support of wellhead protection plan goals.
Who: City of Saint Peter
Cooperators: MPCA
When: 2023
Cost: Staff time
How: Sending mailing to hazardous waste generators within the DWSMA. Educate property owners of wellhead protection plan goals. Provide best management practices and resources to assist with waste management.
Status: Not currently implemented.

Action 6C: Monitor City-owned tanks within the IWMZ at Well 7 to check for leakage or spills.
Who: City of Saint Peter
Cooperators: MPCA
When: Ongoing
Cost: Staff time
How: Periodically check tanks for signs of leakage or spills. Check MPCA website for information regarding tank maintenance. Report observed spills or leaks to State Duty Officer. Take measures to repair or replace leaking tanks and contain spill material. Follow MPCA requirements to clean up spilled material.
Status: Not currently implemented.

Objective 7: Identify new spills or potential contaminant sources within the DWSMA.

Action 7A: Determine if state agencies have knowledge of new spills or potential contaminant sources in the DWSMA.
Who: City of Saint Peter
Cooperators: MPCA, MDA, MDH
When: 2022, 2026
Cost: Staff time
How: Contact designated staff at MDH, MPCA, and Department of Agriculture staff acting as a liaison to the wellhead protection program. Search available online databases for spills and leaks.
Status: Not currently implemented.

Objective 8: Request that Nicollet County educate the property owners about the need for having complying onsite sewage treatment systems in the DWSMA.

Action 8A: Provide information to SSTS owners identifying wellhead protection as a concern and provide pertaining to proper ISTS maintenance
Who: Nicollet County ESD
Cooperators: City of Saint Peter
When: 2022
Cost: Staff time
How: Request that Nicollet County send letters to SSTS owners to indicate their location within the wellhead protection area. Obtain packets from the University of Minnesota Extension Service that provide information on septic system maintenance. Make these packets available to SSTS owners upon request.
Status: Not currently implemented.

Action 8B: Encourage SSTS owners to have a compliance inspection completed for their system, if one has not recently been conducted.
Who: Nicollet County ESD
Cooperators: City of Saint Peter staff, Nicollet SWCD.
When: 2021
Cost: Staff time
How: Send letters to SSTS owners to make them aware of the importance of keeping their systems within compliance. Provide contact information to SSTS owners to have a compliance inspection completed. Send results of compliance inspection to Saint Peter.
Status: Not currently implemented.

Action 8C: Assist landowners with removal of septic systems in newly serviced areas.
Who: City of Saint Peter
Cooperators: Nicollet ESD.
When: Ongoing
Cost: Staff time, SSTS abandonment costs
How: As city sewer expands, explore assisting landowners with abandonment of their septic systems. Pursue available grants to assist with financial costs of SSTS abandonment.
Status: Currently implemented.

Objective 9: Protect the aquifer from possible contamination resulting from spills and leaks.

Action 9A: Develop a Wellhead Protection Spill Response Plan for the DWSMA.
Who: City of Saint Peter
Cooperators: MPCA, MDA
When: 2024
Cost: Staff time, engineering consultant fees
How: Create a Spill Response Plan to reflect current management boundaries and aquifer vulnerability. Work with affected parties to develop improved response capability to spills and emergency events.
Status: Not currently implemented

Action 9B: Coordinate and support spill response training for staff and other local responders who would react to a spill event.
Who: City of Saint Peter
Cooperators: MPCA, MDA
When: 2024
Cost: Staff time, training fees
How: Organize a training session so all potential spill responders can learn of potential issues related to groundwater contamination. Consider organizing a simulated spill event as a tabletop exercise, so all parties can identify their roles and know the procedures for proper spill response.
Status: Not currently implemented

Objective 10: Educate residential property owners about proper use of lawn and garden chemicals.

Action 10A: Use existing website to educate property owners about the advantages and disadvantages of the use of chemicals for lawn care and about ways to minimize the potential adverse environmental effect of the chemicals if they choose to use them.
Who: City of Saint Peter
Cooperators: Nicollet County SWCD, MDA Nicollet County Extension
When: Ongoing, with annual review
Cost: Staff time
How: Obtain existing educational materials from cooperators. Publish relevant information on website. Update periodically as new information becomes available.
Status: Currently implemented.

Objective 11: Work with local units of government to ensure that land use planning and zoning take into account protection of the aquifer underneath the DWSMA.

Action 11A: Request input with the County, City, and Township regarding land use planning decisions within the DWSMA that may affect aquifer quality.
Who: City of Saint Peter
Cooperators: Townships, Nicollet County Planning and Zoning
When: Ongoing, as needed
Effort: Staff time
How: Send letters to the County, City, and Township requesting input into land use planning decisions within DWSMA and review of any changes in the land use or zoning. Request that Saint Peter be notified of changes in land uses. Provide recommendations on acceptable land uses within DWSMA. Identify concerns with addition of more potential contaminant sources within the DWSMA. Explore ordinances to prohibit certain potential contaminant sources from being introduced into the DWSMA
Status: Not currently implemented.

Objective 12: Implement state and local requirements for feedlots and manure management located in WHP areas.

Action 12A: Inform appropriate Nicollet County staff of Saint Peter's wellhead protection efforts and the location of the DWSMA.
Who: City of Saint Peter
Cooperators: Nicollet County ESD, Nicollet County SWCD
When: Ongoing
Cost: Staff time
How: Send mailing to Nicollet County ESD showing boundaries of DWSMA along with current inventory of feedlots in the area. Request that inspections take place for feedlots within the DWSMA and have copies of the inspection reports sent to Saint Peter.
Status: Currently implemented

Objective 13: Be involved in the development and/or implementation of surface and groundwater plans for Nicollet County and the Watershed District.

Action 13A: Inform appropriate county, neighboring community, and Watershed District staff of City of Saint Peter wellhead protection efforts and request that they notify City of Saint Peter of land or water management practices or modifications that are germane to the effort.
Who: City of Saint Peter
Cooperators: Nicollet County ESD, Watershed District, Nicollet County SWCD
When: Ongoing, as needed
Effort: Staff time
How: Send letters to Nicollet County and the Watershed District.
Status: Not currently implemented.

Action 13B: Support and participate with the planning for the One Watershed One Plan (1W1P) and cooperate to ensure that planning activities take the DWSMA into account.
Who: City of Saint Peter
Cooperators: Watershed District, 1W1P Cooperators, Other impacted local units of government
When: Ongoing, as needed
Effort: Staff time
How: Actively support the 1W1P planning effort and participate when appropriate. Provide review and feedback for planning effort. Cooperate with management strategies and goals, communicating issues related to the Saint Peter DWSMA that should be considered as part of the plan implementation. Assist with plan implementation efforts as needed.
Status: Currently partially implemented.

Objective 14: Educate the public about hazardous waste and household hazardous waste.

Action 14A: Use utility bill inserts, website, or newspaper to encourage residents to use hazardous waste collection sites.
Who: City of Saint Peter
Cooperators: Nicollet County ESD, Tri-County
When: Update annually or as needed
Cost: Staff time
How: Include information about wellhead protection and the importance of proper disposal of household hazardous wastes in the mailing. Provide BMPs for handling, storage, and disposal of waste. Promote usage of Tri-County Household Hazardous Waste Facility in Mankato. Provide facility address, operational hours, and web site information.
Status: Currently implemented

Action 14B: Provide information to residents about proper disposal of pharmaceuticals.
Who: City of Saint Peter
Cooperators: Nicollet County ESD
When: Annually
Cost: Staff time
How: Provide information on website about proper disposal of pharmaceutical products. Advertise drop-off locations for disposal.
Status: Currently implemented

Objective 15: Increase public awareness of groundwater protection and local water quality issues. Develop public support and understanding of wellhead protection goals.

Action 15A: Develop information related to wellhead protection for the website, explaining the issues involved in protecting water quality in the DWSMA.
Who: City of Saint Peter
Cooperators: MDH, Watershed District
When: Completed
Cost: Staff time
How: Identify and obtain existing materials available from MDH and others. Targeted topics include household hazardous wastes, well management, stormwater management, lawn and turf applications, nitrates management. Publish information on website.
Status: Currently implemented

Action 15B:	Update or repair signage at edge of DWSMA.
Who:	City of Saint Peter
Cooperators:	MDH, MPCA
When:	2021
Cost:	Staff time, sign repair or replacement costs
How:	Update or repair display signs at outer limits of vulnerable DWSMA areas, notifying residents to take precaution in handling/transporting hazardous chemicals. Supply phone number for emergency spill response.
Status:	Currently implemented

Action 15C:	Educate the public about wellhead protection in the Consumer Confidence Report.
Who:	City of Saint Peter
Cooperators:	MDH
When:	Annually
Cost:	Staff time
How:	Use the annual Consumer Confidence Report to remind residents of the Wellhead Protection Plan. Provide details for how residents can help with plan implementation efforts and manage their own properties to assist with plan goals.
Status:	Currently implemented

Action 15D:	Educate the public about wellhead protection during tours of the water treatment plants.
Who:	City of Saint Peter
Cooperators:	MDH
When:	Annually
Cost:	Display board creation (or update) at treatment plants
How:	Emphasize wellhead protection when providing tours of the water treatments plants to the public, including reaching out to children during annual school tours. Inform the public how they can help with aquifer protection.
Status:	Currently implemented

Objective 16: Collect water data that will improve the understanding of groundwater recharge and flow within the DWSMA.

Action 16A: Maintain water quality sampling requirements mandated by MDH and analyze trends in water chemistry, looking for any further degradation of quality.
Who: City of Saint Peter
Cooperators: MDH
When: Annually
Cost: Staff time, associated sampling costs
How: Sample wells at required intervals. Assess any changes in water chemistry to determine trends. Adjust well usage, blending, and treatment accordingly to stay within regulated limits.
Status: Currently implemented

Action 16B: Sample select City of Saint Peter wells for parameters to better help establish aquifer vulnerability.
Who: MDH
Cooperators: City of Saint Peter
When: 2026
Cost: Staff time, associated sampling costs
How: Sample TCW aquifer wells for parameters to better establish age of water and vulnerability of the aquifer. Parameters may include, but not be limited to, tritium and Carbon-14. Review any other potential parameters with the MDH that would provide useful information on aquifer vulnerability.
Status: Not currently implemented

Objective 17: Maintain up-to-date information about wells and potential contaminant sources within the DWSMA.

Action 17A: Maintain and update the inventory of wells, tank, and other point sources of contamination within the DWSMA.
Who: City of Saint Peter
Cooperators: MDH
When: 2025 or as new potential contamination sources are discovered.
Cost: Staff time
How: Examine State's databases for potential contamination sources that have been added, removed, or changed since the inventory was last updated. Updates maps and inventory database for wellhead protection management plan. Prioritize future management activities on potential contamination sources that are of greatest concern.
Status: Last update completed in 2020. Complete next full update by 2025.

9.0 GUIDANCE FOR USE BY SAINT PETER STAFF FOR WELLHEAD PROTECTION PLANNING

To ensure that wellhead protection planning is viable for the City of Saint Peter, City staff should understand the nature of the Saint Peter Wellhead Protection Plan and how their day-to-day actions pertain to the Wellhead Protection program

Wellhead Protection Manager: Saint Peter Water Resource Superintendent (Jeff Knutson)

9.1 Activities Affecting Wellhead Protection

The list presented below reflects the type of information or activities that City staff may encounter or manage as part of their normal functions that should be communicated to the Wellhead Protection Manager.

City of Saint Peter

- Well siting
- Well sampling and analysis results
- Contamination noted during construction
- Change in pumping of municipal wells
- Review of new construction within Inner Wellhead Management Zone
- Annual review of land use changes within one-year capture zone

Fire and Police Department

- Reported spills
- Security of public water supplies (wells, tanks, distribution system, treatment plant)
- Discovered hazardous waste dumping

Wellhead Protection Manager

- Internal coordination and plan management
- Interaction with external cooperators
- Biannual evaluation of WHP activities accomplished, with report to governing authority

When City staff and the Wellhead Protection Manager encounter activities that fall under the above categories, an effort should be made to tie in those activities with the Wellhead Protection Plan, ensuring that the protection of the groundwater resources within the DWSMA are accounted for when these activities take place. Certain activities may also trigger "as needed" management strategies listed in Chapter 8.

10.0 PROGRAM EVALUATION

The City of Saint Peter will evaluate the progress of the implementation plan every two years. The Wellhead Protection Manager will prepare a progress report to be completed by December 31st on odd-numbered years while this Plan is in effect. The progress report will briefly discuss the actions implemented by the City or any cooperators during the year, and actions that will be completed in the next two years. The progress report will be distributed to the Saint Peter City Council for their review after which it will be submitted to MDH.

According to Minnesota wellhead protection rules, this wellhead protection plan will be updated every 10 years from date of adoption or with the installation of any new municipal well to the water supply system.

11.0 EMERGENCY PREPAREDNESS AND CONTINGENCY PLAN

Saint Peter's updated *Water Supply Plan* was approved by the Department of Natural Resources on _____. See Appendix E for the notice of the plan approval. This plan fulfills the Wellhead Protection Rule requirements for an emergency preparedness and contingency plan. The plan may be reviewed at the Saint Peter offices in Saint Peter, MN.

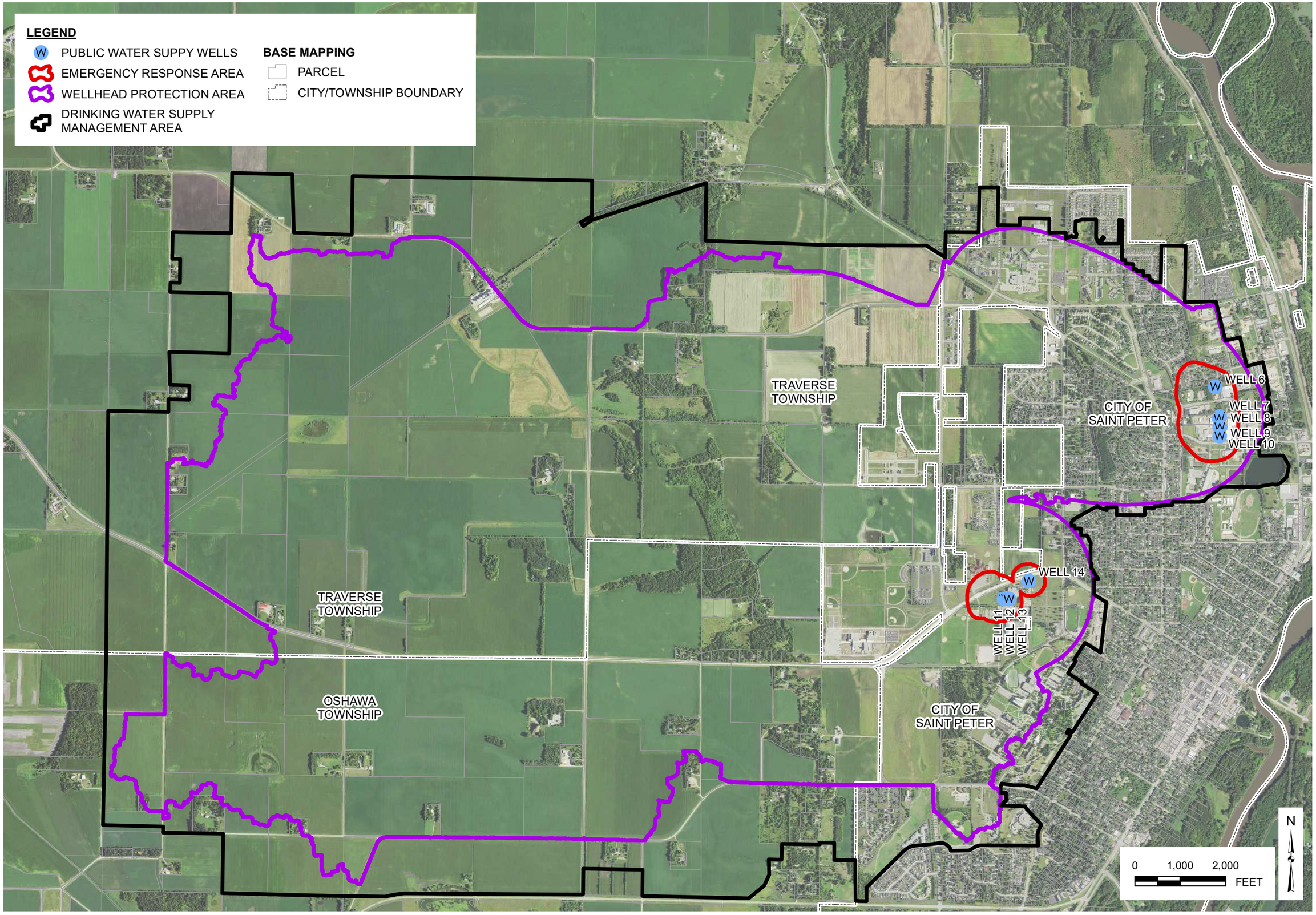
12.0 LOCAL GOVERNMENT REVIEW AND PUBLIC HEARING

(Note: This section will be completed following the review period and public hearing.)

The draft Saint Peter wellhead protection plan was submitted to local units of government for their review and comments on _____. The required 60-day review period ended on _____. Comments were received from local units of government during the review period included the following: _____

Saint Peter held a public hearing on the Wellhead Protection Plan on _____. Documentation from the public hearing is included in Appendix G. Comments received from the public hearing included the following: _____.

FIGURES



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V:\1938\active\193804535\GIS\Projects\P12 Fig 1 - WHPA and DWSMA.mxd

FIGURE 1 - WHPA AND DWSMA DELINEATION

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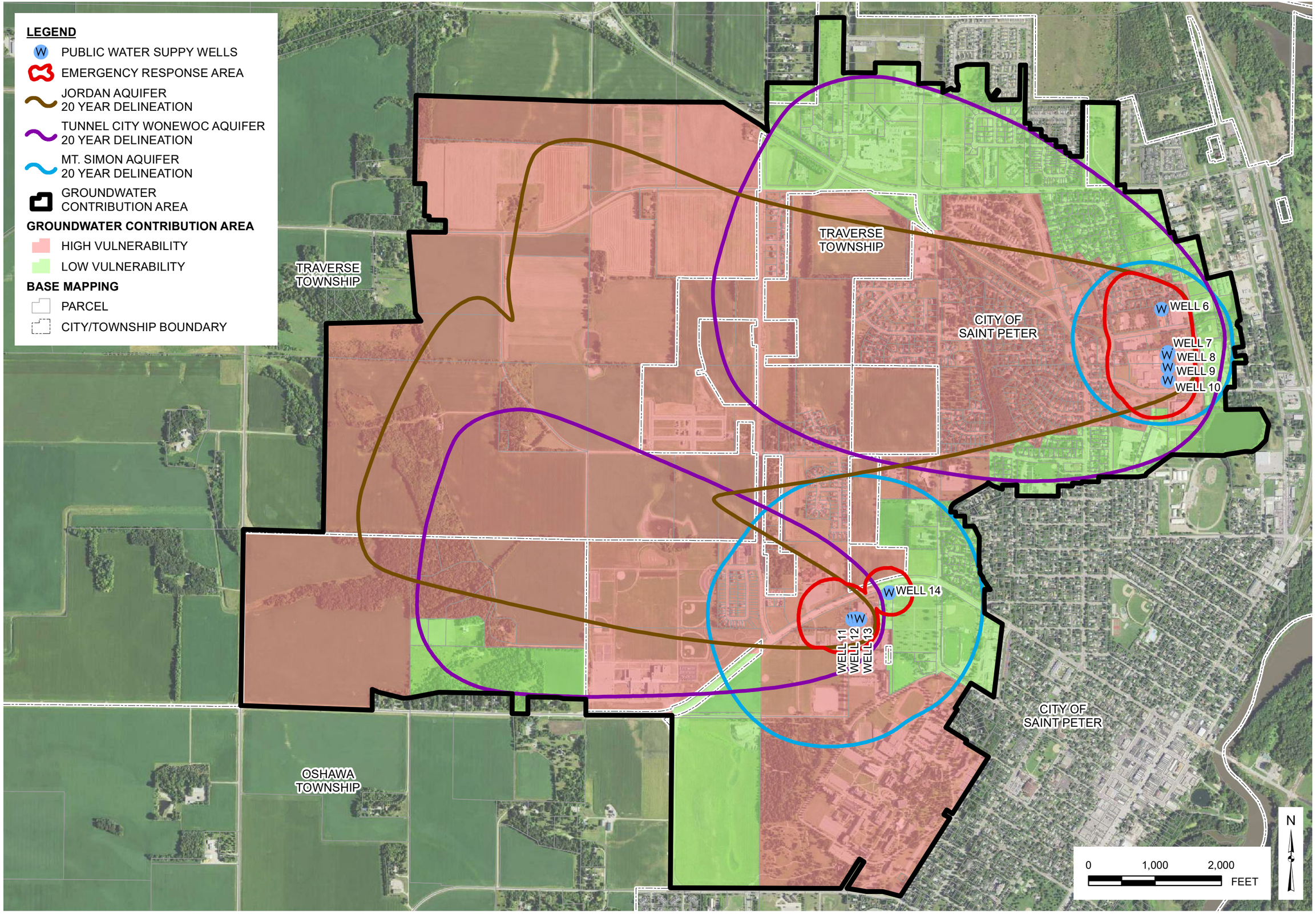

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V:\1938\active\193804535\GIS\Projects\Pl2 Fig 2 - GWCAVUL.mxd

FIGURE 2 - GROUNDWATER CONTRIBUTION AREA VULNERABILITY

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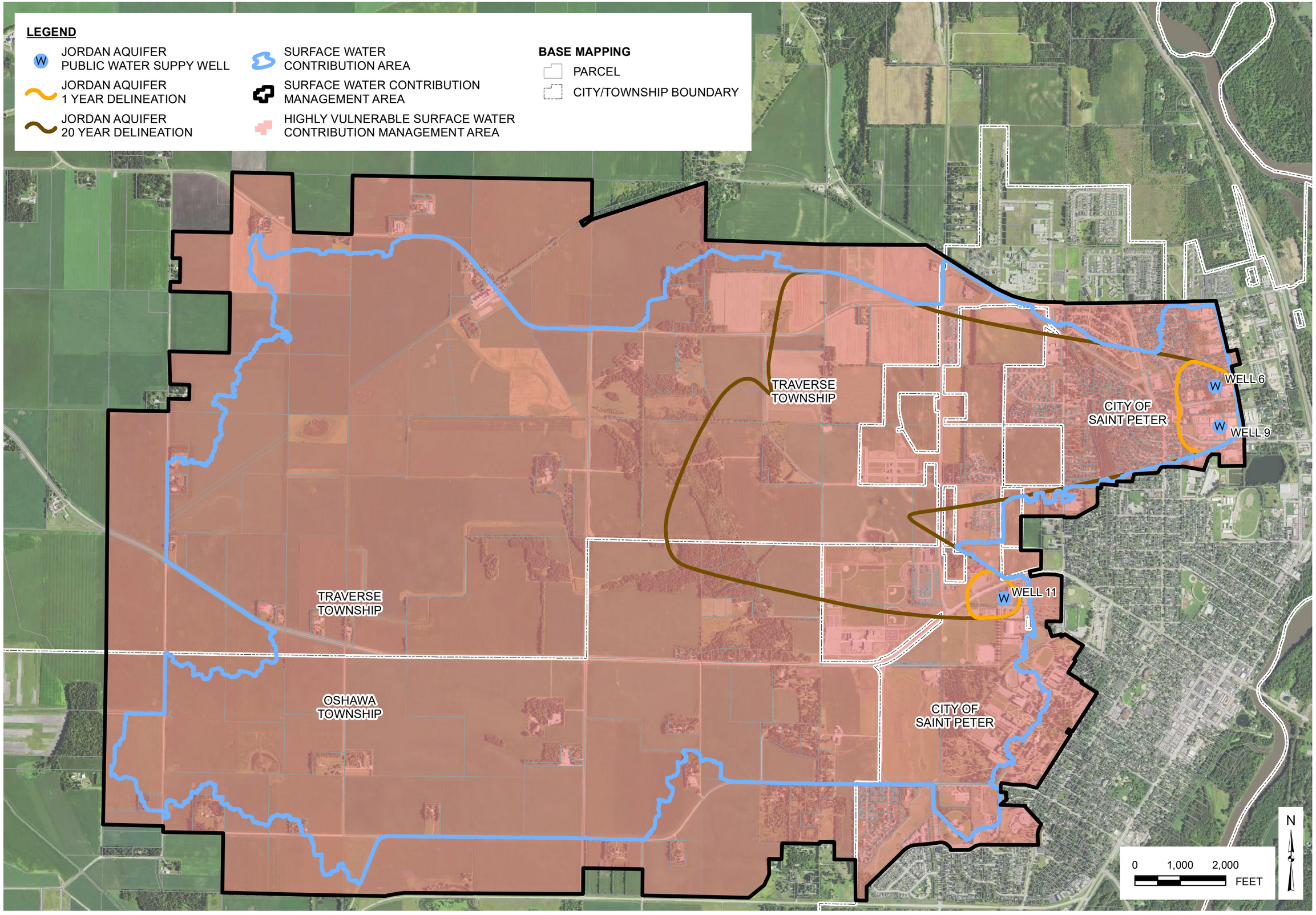

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V:\1938\active\193804535\GIS\Projects\P12 Fig 3 - SWCAVUL.mxd

FIGURE 3 - SURFACE WATER CONTRIBUTION AREA VULNERABILITY

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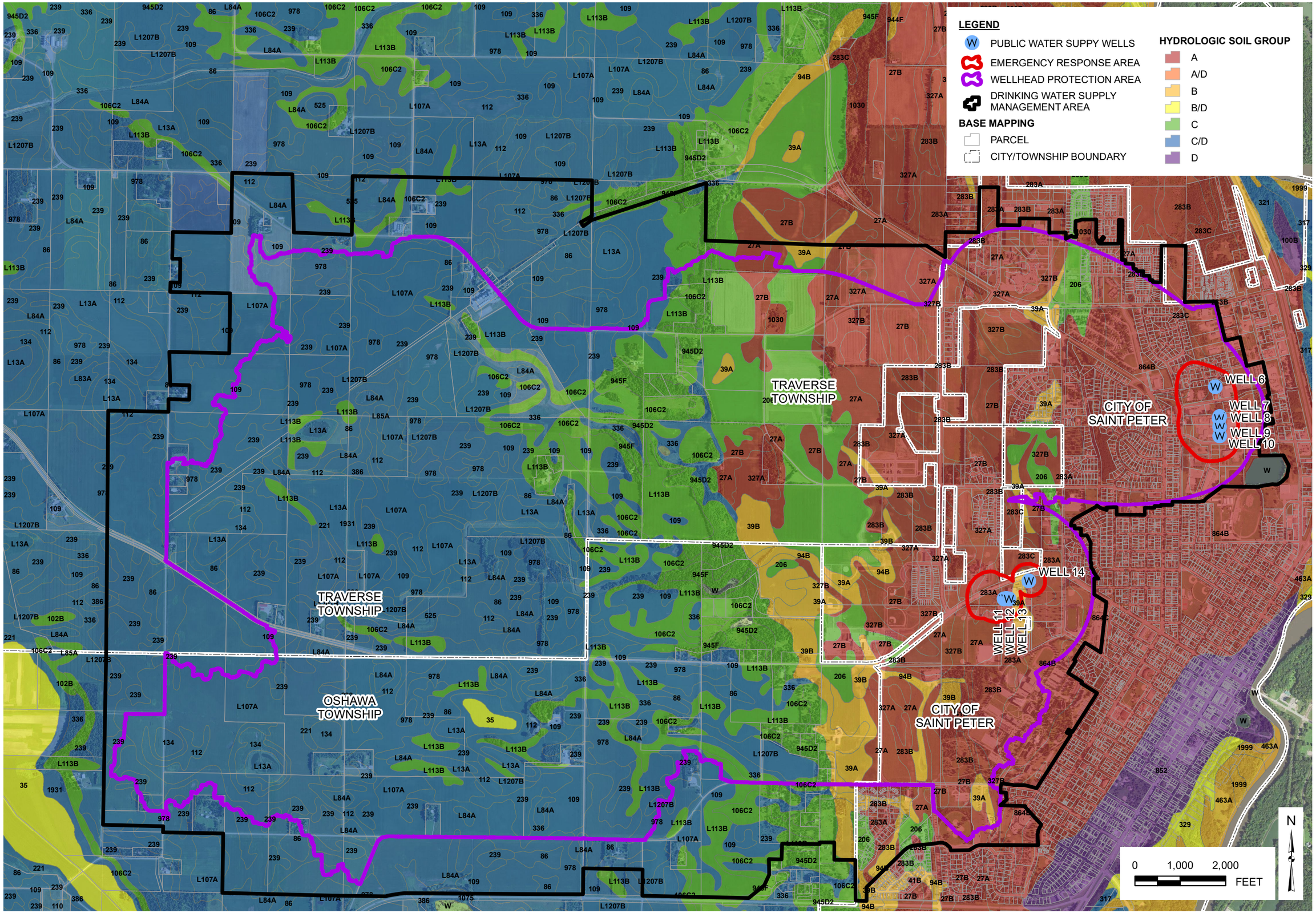

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V:\19398\active\193804535\GIS\Projects\Pt2 Fig 4 - Soils.mxd

FIGURE 4 - SOILS

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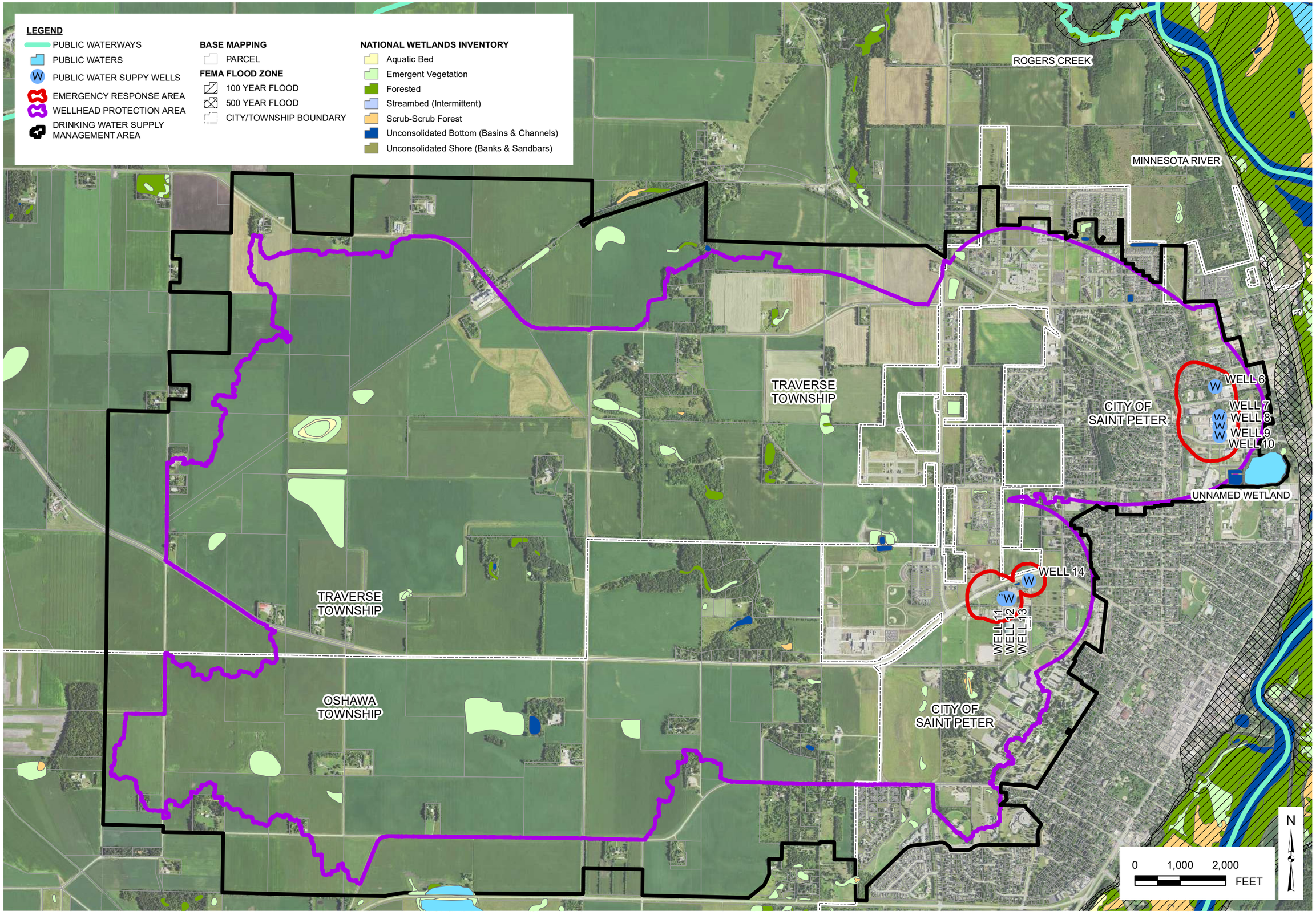

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FIGURE 5 - WATER RESOURCES

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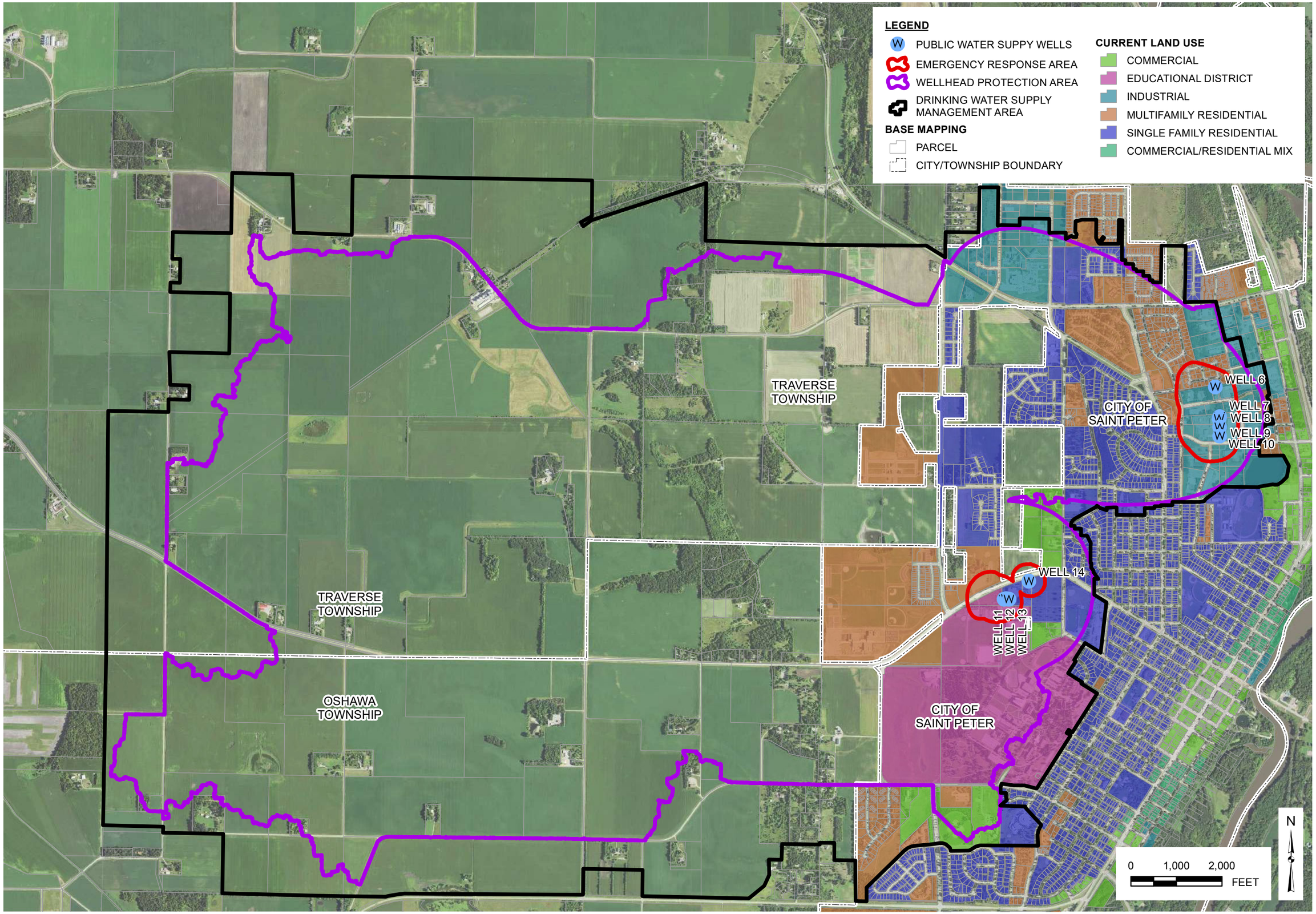

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V:\1938\active\193804535\GIS\Projects\Pl2 Fig 6 - Existing Land Use.mxd

FIGURE 6 - CURRENT LAND USE

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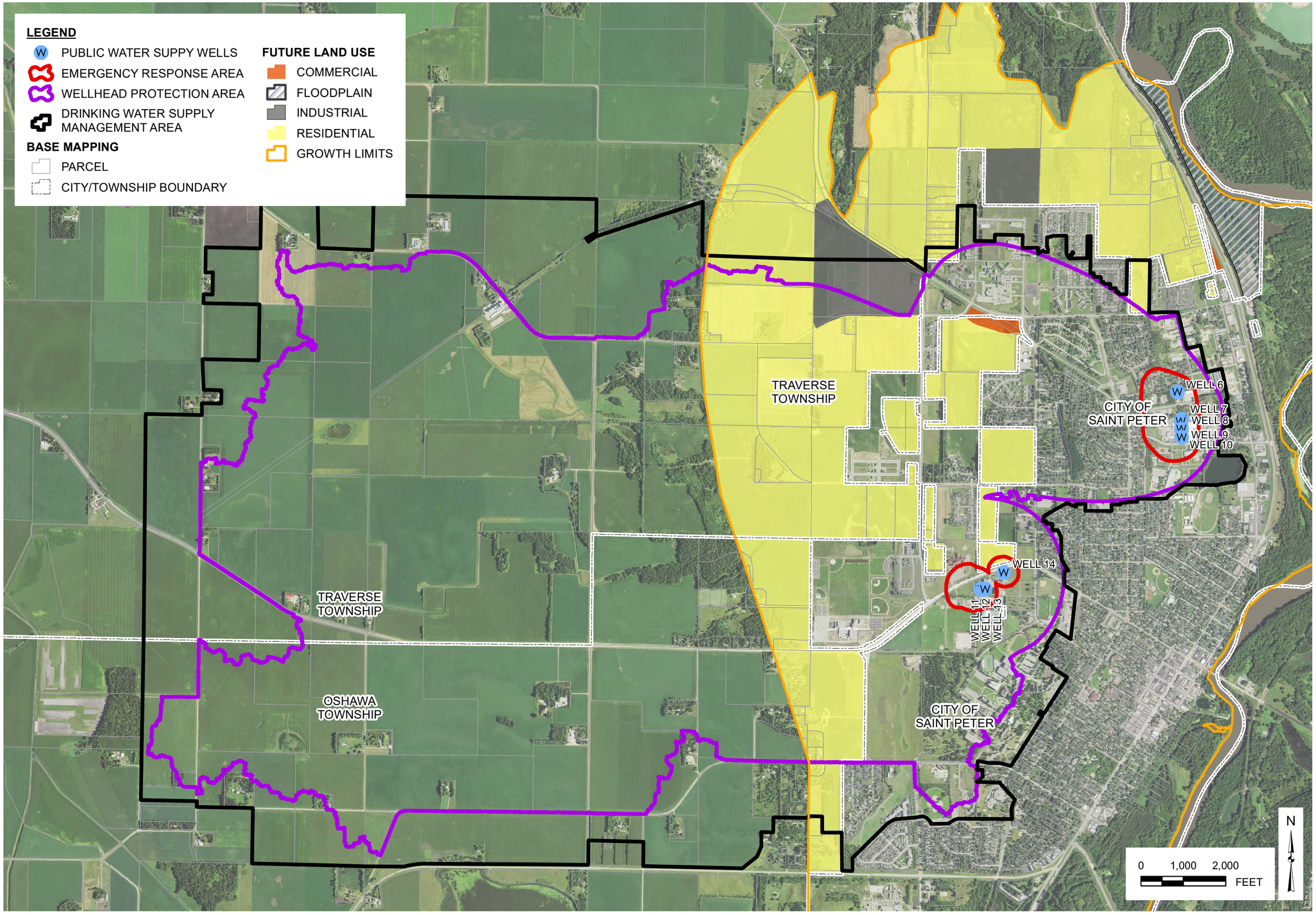

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V:\1938\active\193804535\GIS\Projects\Pt2 Fig 7 - Future Land Use.mxd

FIGURE 7 - FUTURE LAND USE

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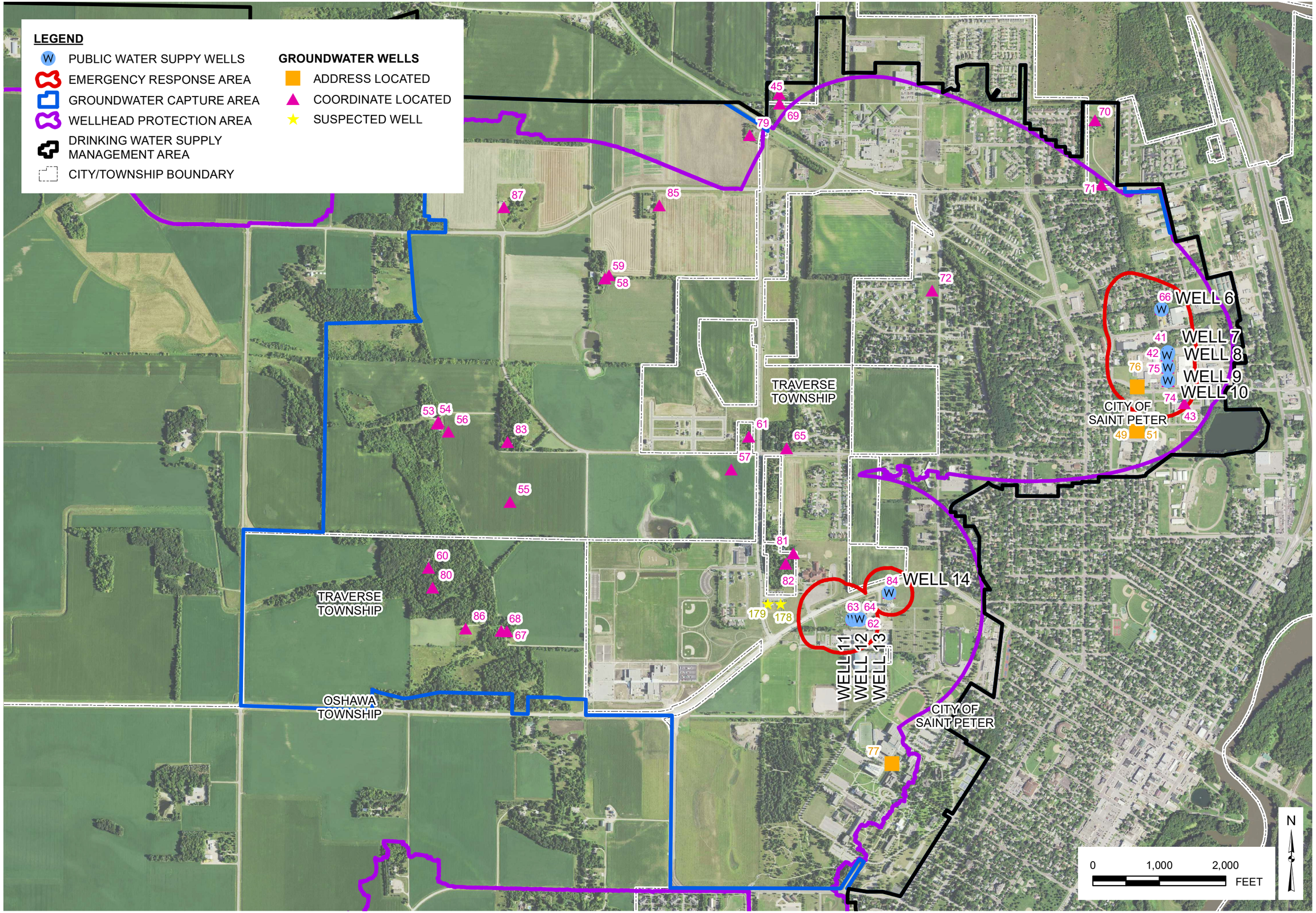

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V:\1938\active\193804535\GIS\Projects\Pt2 Fig 8 - Wells.mxd

FIGURE 8 - GROUNDWATER WELLS

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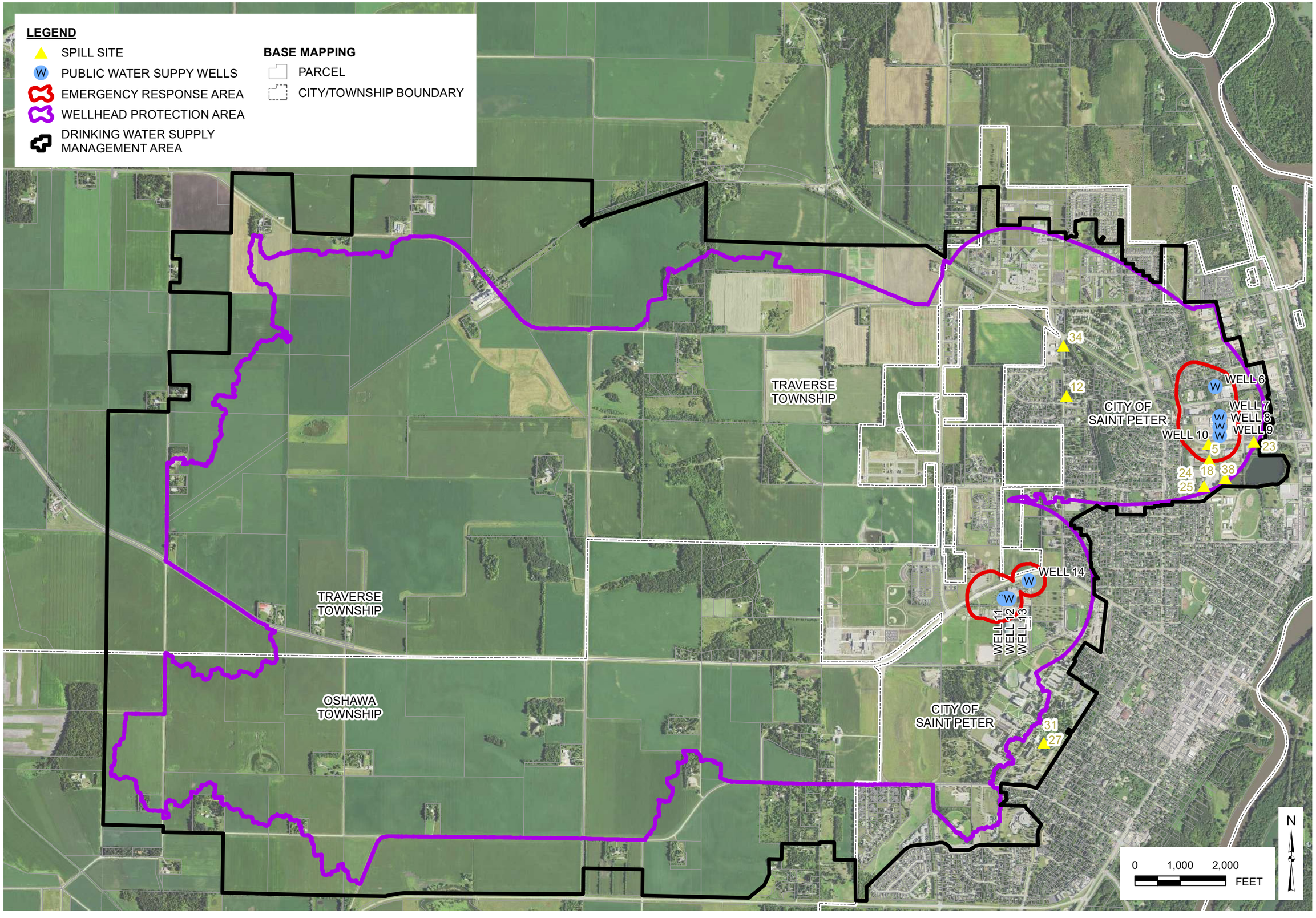

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V:\1938\active\193804535\GIS\Projects\Pt2 Fig 9 - Spills.mxd

FIGURE 9 - SPILLS

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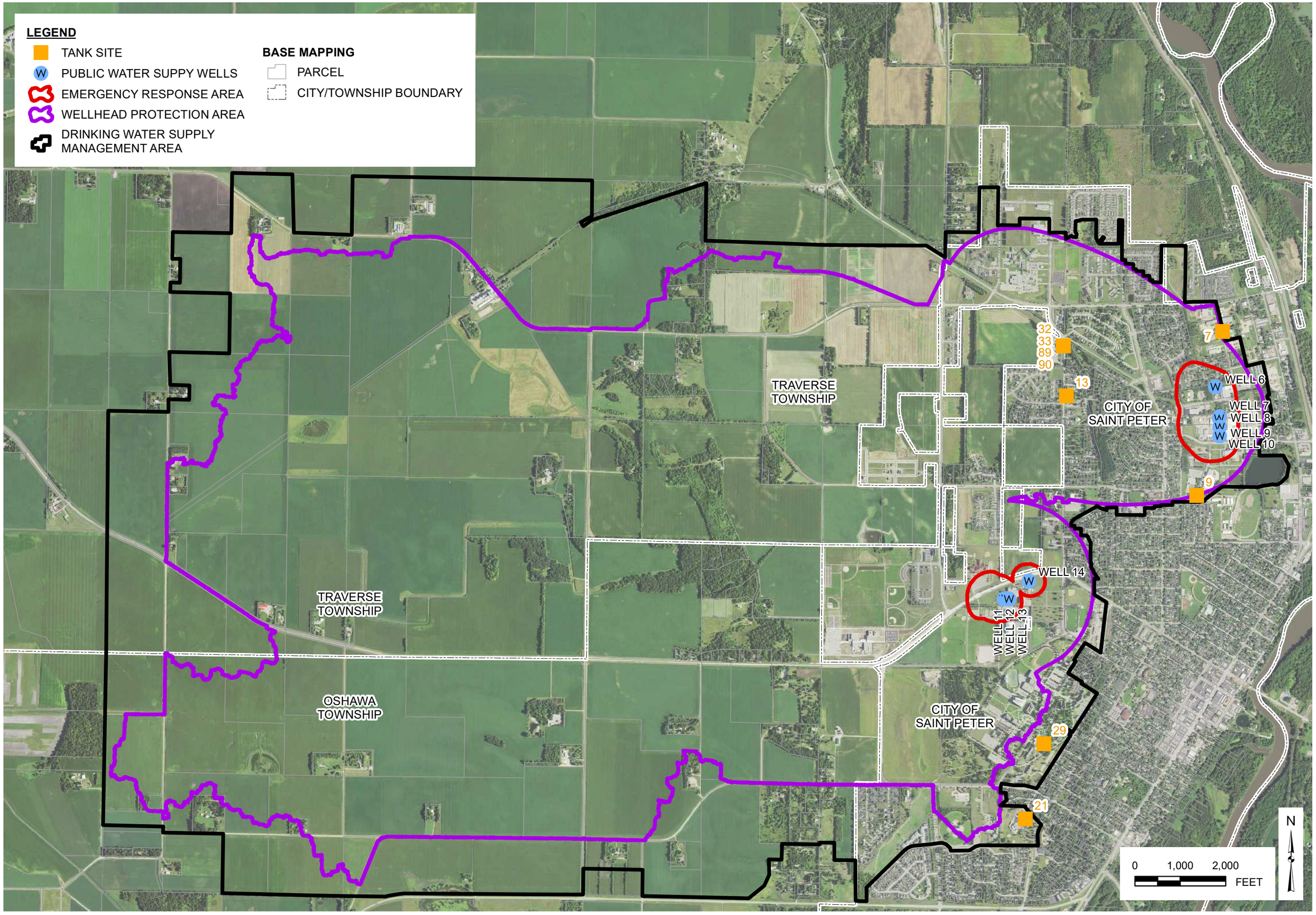

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V:\1938\active\193804535\GIS\Projects\Pt2 Fig 10 - Tanks.mxd

FIGURE 10 - TANKS

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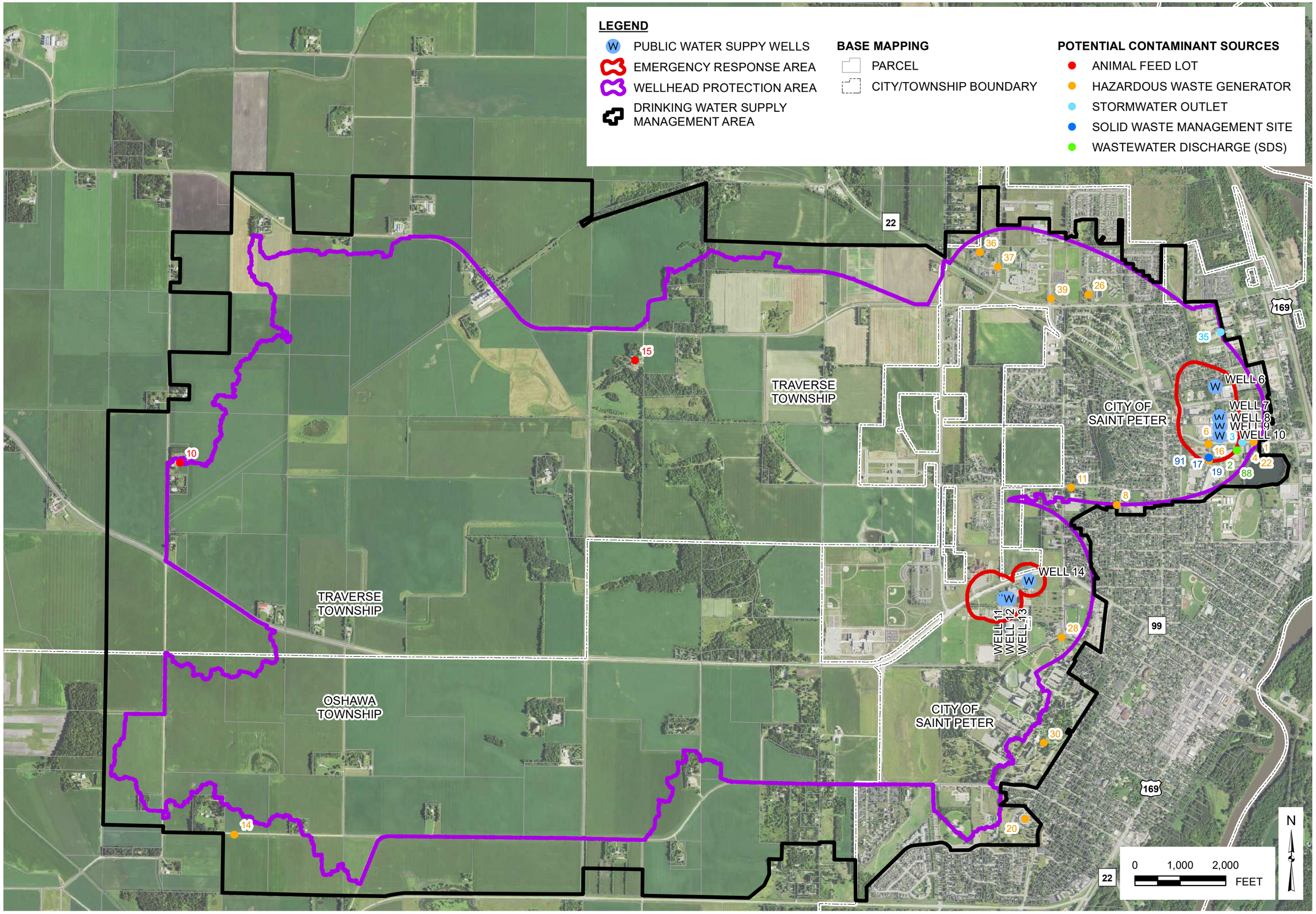

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V:\1938\active\193804535\GIS\Projects\PI2 Fig 11 - PCS.mxd

FIGURE 11 - POTENTIAL CONTAMINANT SOURCES

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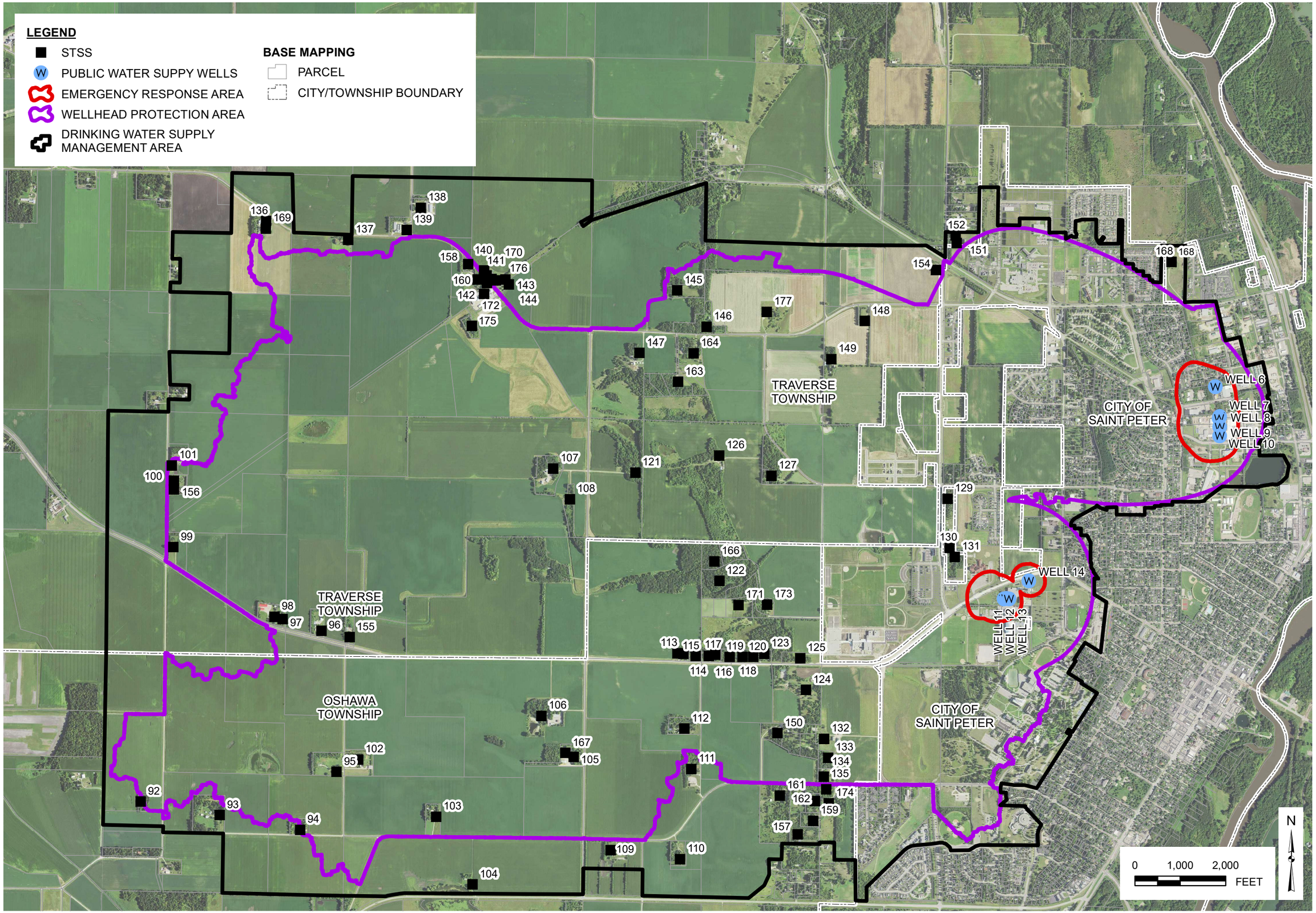

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V:\1938\active\193804535\GIS\Projects\P12 Fig 12 - STSS.mxd

FIGURE 12 - SUBSURFACE SEWAGE TREATMENT SYSTEMS

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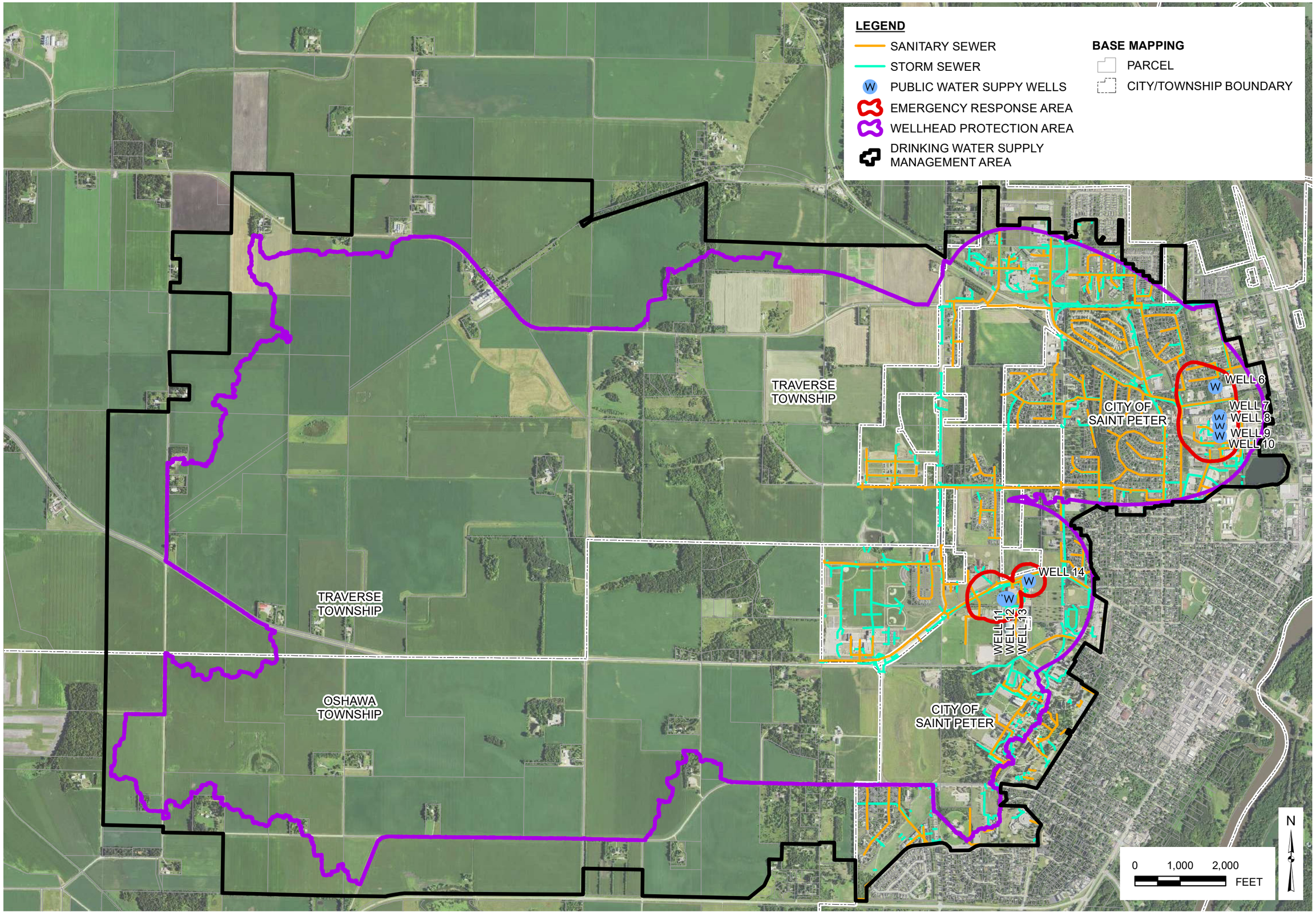

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V:\1938\active\193804535\GIS\Projects\Pt2 Fig 13 - Storm and Sewer.mxd

FIGURE 13 - STORM AND SANITARY SEWERS

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APPENDIX A

WELLS AND POTENTIAL CONTAMINANT SOURCES INVENTORY

TABLE A-1: SAINT PETER POTENTIAL CONTAMINATION SOURCE INVENTORY

PCSI MAP ID	OBJECT ID	PARCEL ID	FACILITY NAME	ADDRESS	CITY	ZIP	CONTAMINANT SOURCE CODE	STATUS	MATERIAL CODE	PROGRAM_ID	TOTAL	COMMENTS	DWSMA ID	DWSMA TYPE CODE	GW VULNERABILITY	SW VULNERABILITY
1	776	19.804.0050	Alumacraft Boat Co	315 Saint Julien St	Saint Peter	56082	HWG	ACTIVE		MND050731637		Hazardous Waste Generator	1092	SW	HIGH	HIGH
2	777	19.804.0050	Saint Peter, City of	400 W Saint Julien St	Saint Peter	56082	WWDS	ACTIVE		MN0022535		Wastewater Disposal Site	1092	SW	HIGH	HIGH
3	778	19.804.0050	Alumacraft Boat Co	315 Saint Julien St	Saint Peter	56082	SROUT	ACTIVE		MNR0539H4		Stormwater Outlet	1092	SW	HIGH	HIGH
4	779	19.804.0050	Saint Peter, City of	400 W Saint Julien St	Saint Peter	56082	HWG	ACTIVE		MNS000159731		Hazardous Waste Generator	1092	SW	HIGH	HIGH
5	780	19.804.0030	Saint Peter, City of	405 W Saint Julien St	Saint Peter	56082	SPL	INACTIVE		LS0008161		Spill Site	1092	GS	HIGH	HIGH
6	781	19.804.0030	Saint Peter, City of	405 W Saint Julien St	Saint Peter	56082	HWG	ACTIVE		MNS000207456		Hazardous Waste Generator	1092	SW	HIGH	HIGH
7	782	19.475.0070	Tate Construction	1721 Gault St	Saint Peter	56082	AST	ACTIVE	F000	TS0055569	1	Above Ground Storage Tank	1092	SW	LOW	HIGH
8	783	19.594.0090	ISD 508 North Intermediate School	815 N 9th St	Saint Peter	56082	HWG	ACTIVE		MNS000214866		Hazardous Waste Generator	1092	SW	LOW	HIGH
9	784	19.796.0060	Onan Power Electronics	922 N Swift	Saint Peter	56082	AST	ACTIVE	F000	TS0055711	1	Above Ground Storage Tank	1092	SW	LOW	HIGH
10	785	12.014.0400	Tim Enz Farm - Sec 14	42297 387th Ave	Traverse Township	56082	AFL	ACTIVE		103-97673		Animal Feedlot	1092	SW	LOW	HIGH
11	786	19.473.0410	First Lutheran Church	1114 W Traverse Rd	Saint Peter	56082	HWG	ACTIVE		MNS000122895		Hazardous Waste Generator	1092	SW	HIGH	HIGH
12	787	19.702.0010	Greenhill Reservoir	Sunrise Dr	Saint Peter	56082	SPL	INACTIVE		LS0000645		Spill Site	1092	GS	HIGH	HIGH
13	788	19.702.0010	Greenhill Reservoir	Sunrise Dr	Saint Peter	56082	AST	ACTIVE	F000	TS0010715	1	Above Ground Storage Tank	1092	SW	HIGH	HIGH
14	789	10.123.1205	Minnesota School Boards Association	1900 W Jefferson Ave	Oshawa Township	56082	HWG	ACTIVE		MNS000206862		Hazardous Waste Generator	1092	SW	LOW	HIGH
15	790	12.107.1105	Jerry Kuehn Farm - Sec 7	36923 County Road 15	Traverse Township	56082	AFL	ACTIVE		103-98191		Animal Feedlot	1092	SW	LOW	HIGH
16	791	19.796.0065	St Peter TACC	1120 Swift St	Saint Peter	56082	HWG	ACTIVE		MND980682231		Hazardous Waste Generator	1092	SW	LOW	HIGH
17	792	19.796.0065	Saint Peter Compost Site	1128 Swift St	Saint Peter	56082	SWMS	ACTIVE		PBR000694		Solid Waste Management Site	1092	SW	LOW	HIGH
18	793	19.796.0065	St Peter TACC	1120 Swift St	Saint Peter	56082	SPL	INACTIVE		VP16450		Spill Site	1092	GS	LOW	HIGH
19	794	19.796.0065	Saint Peter Compost Site	1128 Swift St	Saint Peter	56082	SWMS	ACTIVE		PBR001034		Solid Waste Management Site	1092	SW	LOW	HIGH
20	795	19.020.0093	South Elementary School	1405 S 7th St	Saint Peter	56082	HWG	ACTIVE		MNS000215665		Hazardous Waste Generator	1092	SW	LOW	HIGH
21	796	19.020.0093	South Elementary School	1405 S 7th St	Saint Peter	56082	UST	ACTIVE	F000	TS0008522	1	Underground Storage Tank	1092	GW	LOW	HIGH
22	797	19.841.0100	Mike's Countryside Body Shop Inc	312 Saint Julien St	Saint Peter	56082	HWG	ACTIVE		MND095961264		Hazardous Waste Generator	1092	SW	LOW	HIGH
23	798	19.841.0100	Mike's Countryside Body Shop Inc	312 Saint Julien St	Saint Peter	56082	SPL	ACTIVE		MND095961264		Spill Site	1092	GS	LOW	HIGH
24	799	19.796.0100	Onan Power Electronics - St Peter	922 Swift St N	Saint Peter	56082	SPL	INACTIVE		VP13070		Spill Site	1092	GS	LOW	HIGH
25	800	19.796.0100	Onan Power Electronics - St Peter	922 Swift St N	Saint Peter	56082	SPL	INACTIVE		VP13071		Spill Site	1092	GS	LOW	HIGH
26	801	19.755.0010	Sand Prairie	700 Knight St	Saint Peter	56082	HWG	ACTIVE		MNS000311744		Hazardous Waste Generator	1092	SW	LOW	HIGH
27	802	19.701.0125	Gustavus Adolphus College	800 College Ave	Saint Peter	56082	SPL	INACTIVE		LS0018119		Spill Site	1092	GS	HIGH	HIGH
28	803	19.701.0125	St Peter Family Dental Center	402 Sunrise Dr	Saint Peter	56082	HWG	ACTIVE		MNR000011700		Hazardous Waste Generator	1092	SW	HIGH	HIGH
29	804	19.701.0125	Gustavus Adolphus College	800 W College Ave	Saint Peter	56082	UST	ACTIVE	F000	TS0008497	3	Underground Storage Tank	1092	GW	HIGH	HIGH
30	805	19.701.0125	Gustavus Adolphus College	800 College Ave	Saint Peter	56082	HWG	ACTIVE		MND985684232		Hazardous Waste Generator	1092	SW	HIGH	HIGH
31	806	19.701.0125	Gustavus Adolphus College	800 College Ave	Saint Peter	56082	SPL	INACTIVE		VP6902L		Spill Site	1092	GS	HIGH	HIGH
32	807	19.008.0405	Nicollet County Meth Lab	1700 Sunrise Dr	Saint Peter	56082	UST	ACTIVE	F000	TS0008510	3	Underground Storage Tank	1092	GW	HIGH	HIGH
33	808	19.008.0405	Nicollet County Meth Lab	1700 Sunrise Dr	Saint Peter	56082	AST	ACTIVE	F000	TS0008510	1	Above Ground Storage Tank	1092	SW	HIGH	HIGH
34	809	19.008.0405	Nicollet County Meth Lab	1700 Sunrise Dr	Saint Peter	56082	SPL	INACTIVE		LS0003085		Spill Site	1092	GS	HIGH	HIGH
35	810	19.475.0030	Jarraff Industries Inc	1720 Gault St	Saint Peter	56082	SROUT	ACTIVE		MNR05396H		Stormwater Outlet	1092	SW	LOW	HIGH
36	811	19.666.0050	Prairie Hill Memory Care	1305 Marshall St	Saint Peter	56082	HWG	ACTIVE		MNS000311736		Hazardous Waste Generator	1092	SW	LOW	HIGH
37	812	19.666.0070	Valley View Dental Inc	1302 Marshall	Saint Peter	56082	HWG	ACTIVE		MNS000105437		Hazardous Waste Generator	1092	SW	LOW	HIGH
38	813	19.804.0060	Former Walters Property	Swift	Saint Peter	56082	SPL	INACTIVE		LS0014050		Spill Site	1092	GS	LOW	HIGH
39	814	19.802.0050	Pheasants Ridge Assisted Living	1807 Sunrise Dr	Saint Peter	56082	HWG	ACTIVE		MNS000168112		Hazardous Waste Generator	1092	SW	LOW	HIGH
41	863	19.571.0040	ST. PETER 7	ST. JULIEN	St Peter	56082	WEL	ACTIVE		00433254		Well (Coordinate Located)	1092	GW	HIGH	HIGH
42	864	19.571.0040	ST. PETER 8	ST. JULIEN	St Peter	56082	WEL	ACTIVE		00473638		Well (Coordinate Located)	1092	GW	HIGH	HIGH
43	865	19.804.0050	CITY OF ST. PETER	400 ST. JULIEN	St Peter	56082	WEL	ACTIVE		00659718		Well (Coordinate Located)	1092	GW	HIGH	HIGH
45	867	12.108.0800	WOLFE, DONALD	RR 3	St Peter	56082	WEL	ACTIVE		00190650		Well (Coordinate Located)	1092	GW	LOW	HIGH
47	869	19.796.0060	LMW-5	922 SWIFT STN	St Peter	56082	WEL	ACTIVE		00661509		Well (Address Located)	1092	GW	LOW	HIGH
48	870	19.796.0060	LMW-7	922 SWIFT STN	St Peter	56082	WEL	ACTIVE		00661507		Well (Address Located)	1092	GW	LOW	HIGH
49	871	19.796.0060	LMW-3	922 SWIFT STN	St Peter	56082	WEL	ACTIVE		00661506		Well (Address Located)	1092	GW	LOW	HIGH
50	872	19.796.0060	LMW-4	922 SWIFT STN	St Peter	56082	WEL	ACTIVE		00661505		Well (Address Located)	1092	GW	LOW	HIGH
51	873	19.796.0060	LMW-2	922 SWIFT STN	St Peter	56082	WEL	ACTIVE		00661504		Well (Address Located)	1092	GW	LOW	HIGH
52	874	19.796.0060	LMW-1	922 SWIFT STN	St Peter	56082	WEL	ACTIVE		00661510		Well (Address Located)	1092	GW	LOW	HIGH
53	875	12.118.0200	MOGENSEN, ALLEN	RR 1 BOX 123	St Peter	56082	WEL	ACTIVE		00574978		Well (Coordinate Located)	1092	GW	HIGH	HIGH
54	876	12.118.0200			St Peter	56082	WEL	ACTIVE		1000009944		Well (Coordinate Located)	1092	GW	HIGH	HIGH
55	877	12.118.0200			St Peter	56082	WEL	ACTIVE		1000009943		Well (Coordinate Located)	1092	GW	HIGH	HIGH

TABLE A-1: SAINT PETER POTENTIAL CONTAMINATION SOURCE INVENTORY

PCSI MAP ID	OBJECT ID	PARCEL ID	FACILITY NAME	ADDRESS	CITY	ZIP	CONTAMINANT SOURCE CODE	STATUS	MATERIAL CODE	PROGRAM_ID	TOTAL	COMMENTS	DWSMA ID	DWSMA TYPE CODE	GW VULNERABILITY	SW VULNERABILITY
56	878	12.118.0200			St Peter	56082	WEL	ACTIVE		1000009945		Well (Coordinate Located)	1092	GW	HIGH	HIGH
57	879	12.117.0400			St Peter	56082	WEL	ACTIVE		1000010241		Well (Coordinate Located)	1092	GW	HIGH	HIGH
58	880	12.108.1800			St Peter	56082	WEL	ACTIVE		1000009035		Well (Coordinate Located)	1092	GW	HIGH	HIGH
59	881	12.108.1800	KIENLEN, RAY & PAT	36097 15	St Peter	56082	WEL	ACTIVE		00788169		Well (Coordinate Located)	1092	GW	HIGH	HIGH
60	882	10.218.1500	O'BRIEN, WILLIAM	36778 GRANLUND	St Peter	56082	WEL	ACTIVE		00682295		Well (Coordinate Located)	1092	GW	HIGH	HIGH
61	883	12.117.0205	STARK, RAY	RR 3	St Peter	56082	WEL	ACTIVE		00471786		Well (Coordinate Located)	1092	GW	HIGH	HIGH
62	884	19.017.0550	ST. PETER 13	1300 BROADWAY	St Peter	56082	WEL	ACTIVE		00770416		Well (Coordinate Located)	1092	GW	HIGH	HIGH
63	885	19.017.0550	ST. PETER 11	1300 BROADWAY	St Peter	56082	WEL	ACTIVE		00770414		Well (Coordinate Located)	1092	GW	HIGH	HIGH
64	886	19.017.0550	ST. PETER 12	227 SOUTH FRONT	St Peter	56082	WEL	ACTIVE		00770415		Well (Coordinate Located)	1092	GW	HIGH	HIGH
65	887	19.017.0500			St Peter	56082	WEL	ACTIVE		1000009036		Well (Coordinate Located)	1092	GW	HIGH	HIGH
66	888	19.753.0020	ST. PETER 6	405 ST. JULIEN	St Peter	56082	WEL	ACTIVE		00209906		Well (Coordinate Located)	1092	GW	HIGH	HIGH
67	889	10.218.1615			St Peter	56082	WEL	ACTIVE		1000009975		Well (Coordinate Located)	1092	GW	HIGH	HIGH
68	890	10.218.1615	IDSO, BOB	RR 1 BOX 120	St Peter	56082	WEL	ACTIVE		00605838		Well (Coordinate Located)	1092	GW	HIGH	HIGH
69	891	19.666.0320	ESSE, BOB	RR 3	St Peter	56082	WEL	ACTIVE		00186137		Well (Coordinate Located)	1092	GW	LOW	HIGH
70	892	12.109.0305	BELL, DAVE	RR 2	St Peter	56082	WEL	ACTIVE		00554007		Well (Coordinate Located)	1092	GW	LOW	HIGH
71	893	12.109.0305	DRANTTEL, GEORGE		St Peter	56082	WEL	ACTIVE		00211798		Well (Coordinate Located)	1092	GW	LOW	HIGH
72	894	19.008.0400	ST. PETER POULTRY FARM		St Peter	56082	WEL	ACTIVE		00209905		Well (Coordinate Located)	1092	GW	HIGH	HIGH
74	896	19.804.0020	ST. PETER 10	ST. JULIEN	St Peter	56082	WEL	ACTIVE		00473640		Well (Coordinate Located)	1092	GW	HIGH	HIGH
75	897	19.804.0020	ST. PETER 9	405 ST. JULIEN	St Peter	56082	WEL	ACTIVE		00473639		Well (Coordinate Located)	1092	GW	HIGH	HIGH
76	898	19.804.0020	LMW-6	922 SWIFT STN	St Peter	56082	WEL	ACTIVE		00661508		Well (Address Located)	1092	GW	HIGH	HIGH
77	899	19.701.0125	GUSTAVUS ADOLPHUS COLLEG	800 COLLEGE AVW	St Peter	56082	WEL	ACTIVE		00644512		Well (Address Located)	1092	GW	HIGH	HIGH
79	901	12.108.0500	GEORGE, JOE	41334 20	St Peter	56082	WEL	ACTIVE		00644446		Well (Coordinate Located)	1092	GW	HIGH	HIGH
80	902	10.218.1610	GRANLAND, PAUL	RR 1 BOX 93	St Peter	56082	WEL	ACTIVE		00433308		Well (Coordinate Located)	1092	GW	HIGH	HIGH
81	903	10.217.0357			St Peter	56082	WEL	ACTIVE		1000010239		Well (Coordinate Located)	1092	GW	HIGH	HIGH
82	904	10.217.0357			St Peter	56082	WEL	ACTIVE		1000009972		Well (Coordinate Located)	1092	GW	HIGH	HIGH
83	905	12.118.0400	WETTERGREN, RICHARD	RR 1	St Peter	56082	WEL	ACTIVE		00433334		Well (Coordinate Located)	1092	GW	HIGH	HIGH
84	906	19.017.0625	ST. PETER 14	1300 BROADWAY	St Peter	56082	WEL	ACTIVE		00770417		Well (Coordinate Located)	1092	GW	LOW	HIGH
85	907	12.108.1700	KIENLEN, PAT	RR 3	St Peter	56082	WEL	ACTIVE		00186115		Well (Coordinate Located)	1092	GW	HIGH	HIGH
86	908	10.218.2000	BUFFINGTON, BRYAN	36433 GRANLUND	St Peter	56082	WEL	ACTIVE		00793268		Well (Coordinate Located)	1092	GW	LOW	HIGH
87	909	12.107.1700	STADICK, COREY	36536 15	St Peter	56082	WEL	ACTIVE		00793252		Well (Coordinate Located)	1092	GW	HIGH	HIGH
88	910	19.804.0050	Saint Peter, City of	400 W Saint Julien St	Saint Peter	56082	WWDS	ACTIVE		MN0022535		Wastewater Disposal Site	1092	SW	HIGH	HIGH
89	911	19.008.0405	Nicollet County Meth Lab	1700 Sunrise Dr	Saint Peter	56082	UST	ACTIVE	F000	TS0008510		Underground Storage Tank	1092	GW	HIGH	HIGH
90	912	19.008.0405	Nicollet County Meth Lab	1700 Sunrise Dr	Saint Peter	56082	AST	ACTIVE	F000	TS0008510		Above Ground Storage Tank	1092	SW	HIGH	HIGH
91	913	19.796.0065	Saint Peter Compost Site	1128 Swift St	Saint Peter	56082	SWMS	ACTIVE		PBR001034		Solid Waste Management Site	1092	SW	LOW	HIGH
92	914	10.123.0800	RALPH JAEGER	43530 387th Ave	St Peter	56082	STSS	ACTIVE		43530		Septic System	1092	SW	LOW	HIGH
93	915	10.123.1200	SHAYNE M NARJES	38518 436th St	St Peter	56082	STSS	ACTIVE		38518		Septic System	1092	SW	LOW	HIGH
94	916	10.123.1400	STEVEN J SCHOENER	38238 436th St	St Peter	56082	STSS	ACTIVE		38238		Septic System	1092	SW	LOW	HIGH
95	917	10.123.0410	BRADLEY J ADAMS	43386 381st Ave	St Peter	56082	STSS	ACTIVE		43386		Septic System	1092	SW	LOW	HIGH
96	918	12.014.1510	MICHAEL L VOLK	38186 Fort Rd	St Peter	56082	STSS	ACTIVE		38186		Septic System	1092	SW	LOW	HIGH
97	919	12.014.1700	THOMAS J BURG	38294 Fort Rd	St Peter	56082	STSS	ACTIVE		38294		Septic System	1092	SW	LOW	HIGH
98	920	12.014.1600	BAC HOME LOAN SERVICING	38340 Fort Rd	St Peter	56082	STSS	ACTIVE		38340		Septic System	1092	SW	LOW	HIGH
99	921	12.014.1000	JEFFREY D VOLK	42565 387th Ave	St Peter	56082	STSS	ACTIVE		42565		Septic System	1092	SW	LOW	HIGH
100	922	12.014.0700	TIMOTHY S ENZ	42297 387th Ave	St Peter	56082	STSS	ACTIVE		42297		Septic System	1092	SW	LOW	HIGH
101	923	12.014.0400	HERBERT T BROWN	42215 387th Ave	St Peter	56082	STSS	ACTIVE		42215		Septic System	1092	SW	LOW	HIGH
102	924	10.124.0200	JAMES C RODNING	43353 381st Ave	St Peter	56082	STSS	ACTIVE		43353		Septic System	1092	SW	LOW	HIGH
103	925	10.124.0600	THOMAS L KENNEDY	37546 436th St	St Peter	56082	STSS	ACTIVE		37546		Septic System	1092	SW	LOW	HIGH
104	926	10.124.0800	ROBERT E MEYER II	37372 State Hwy 99	St Peter	56082	STSS	ACTIVE		37372		Septic System	1092	SW	LOW	HIGH
105	927	10.124.0505	JEFFREY J BEAUDRY	43332 371st Ave	St Peter	56082	STSS	ACTIVE		43332		Septic System	1092	SW	LOW	HIGH
106	928	10.124.0300	ROBERT E MEYER II	37237 Fort Rd	St Peter	56082	STSS	ACTIVE		37237		Septic System	1092	SW	LOW	HIGH
107	929	12.013.0300	MARK W WETTERGREN	42238 371st Ave	St Peter	56082	STSS	ACTIVE		42238		Septic System	1092	SW	LOW	HIGH
108	930	12.013.0215	SUSAN E LUMSDEN	42266 371st Ave	St Peter	56082	STSS	ACTIVE		42266		Septic System	1092	SW	LOW	HIGH
109	931	10.219.1300	RONALD C ILLING	36877 436th St	St Peter	56082	STSS	ACTIVE		36877		Septic System	1092	SW	LOW	HIGH

TABLE A-1: SAINT PETER POTENTIAL CONTAMINATION SOURCE INVENTORY

PCSI MAP ID	OBJECT ID	PARCEL ID	FACILITY NAME	ADDRESS	CITY	ZIP	CONTAMINANT SOURCE CODE	STATUS	MATERIAL CODE	PROGRAM_ID	TOTAL	COMMENTS	DWSMA ID	DWSMA TYPE CODE	GW VULNERABILITY	SW VULNERABILITY
110	932	10.219.1200	RAYMOND A VULCAN	36609 436th St	St Peter	56082	STSS	ACTIVE		36609		Septic System	1092	SW	LOW	HIGH
111	933	10.219.1105	WILLIAM C LAMBERT	36478 436th St	St Peter	56082	STSS	ACTIVE		36478		Septic System	1092	SW	LOW	HIGH
112	934	10.219.0200	ROBERT DUTTON	36611 Fort Rd	St Peter	56082	STSS	ACTIVE		36611		Septic System	1092	SW	LOW	HIGH
113	935	10.218.0200	GARY L MILLER	36706 Fort Rd	St Peter	56082	STSS	ACTIVE		36706		Septic System	1092	SW	LOW	HIGH
114	936	10.218.0300	BRUCE W WENNER	36676 Fort Rd	St Peter	56082	STSS	ACTIVE		36676		Septic System	1092	SW	LOW	HIGH
115	937	10.218.0400	MATHEW J VOLK	36652 Fort Rd	St Peter	56082	STSS	ACTIVE		36652		Septic System	1092	SW	LOW	HIGH
116	938	10.218.0700	DEAN C WAHLUND	36570 Fort Rd	St Peter	56082	STSS	ACTIVE		36570		Septic System	1092	SW	LOW	HIGH
117	939	10.218.0800	STANLEY L MUELLERLEILE	36528 Fort Rd	St Peter	56082	STSS	ACTIVE		36528		Septic System	1092	SW	LOW	HIGH
118	940	10.218.0900	BLES PROPERTIES,LLC	36484 Fort Rd	St Peter	56082	STSS	ACTIVE		36484		Septic System	1092	SW	LOW	HIGH
119	941	10.218.1000	THOMAS E WARREN	36432 Fort Rd	St Peter	56082	STSS	ACTIVE		36432		Septic System	1092	SW	LOW	HIGH
120	942	10.218.1100	DAVID GUNDERSON	36390 Fort Rd	St Peter	56082	STSS	ACTIVE		36390		Septic System	1092	SW	LOW	HIGH
121	943	12.118.0100	ROGER WOLFE	42199 371st Ave	St Peter	56082	STSS	ACTIVE		42199		Septic System	1092	SW	LOW	HIGH
122	944	10.218.1610	CHARLES R CHRISTENSEN	36799 Granlund Ln	St Peter	56082	STSS	ACTIVE		36799		Septic System	1092	SW	HIGH	HIGH
123	945	10.218.1200	JEFFERY S & KIMBERLY J BEECHER ENGELHARDT	36360 Fort Rd	St Peter	56082	STSS	ACTIVE		36360		Septic System	1092	SW	LOW	HIGH
124	946	10.219.0405	ROBERT LAMBERT	36233 Fort Rd	St Peter	56082	STSS	ACTIVE		36233		Septic System	1092	SW	LOW	HIGH
125	947	10.218.0600	CHRISTOPHER M LIND	36206 Fort Rd	St Peter	56082	STSS	ACTIVE		36206		Septic System	1092	SW	LOW	HIGH
126	948	12.118.0200	LOREN STAUFF	36113 Traverse Rd	St Peter	56082	STSS	ACTIVE		36113		Septic System	1092	SW	HIGH	HIGH
127	949	12.118.0300	RICHARD C WETTERGREN	36179 Traverse Rd	St Peter	56082	STSS	ACTIVE		36179		Septic System	1092	SW	HIGH	HIGH
129	951	10.217.0105	KEITH J DEVLAEMINCK	1906 W Traverse Rd	St Peter	56082	STSS	ACTIVE		1906		Septic System	1092	SW	HIGH	HIGH
130	952	10.217.0120	JOHN M WARREN	1920 W Traverse Rd	St Peter	56082	STSS	ACTIVE		1920		Septic System	1092	SW	HIGH	HIGH
131	953	10.217.0357	JAMES FRANCISCO BONILLA	1930 W Traverse Rd	St Peter	56082	STSS	ACTIVE		1930		Septic System	1092	SW	HIGH	HIGH
132	954	10.220.0100	DONALD L GARDNER	2222 W Jefferson Ave	St Peter	56082	STSS	ACTIVE		2222		Septic System	1092	SW	LOW	HIGH
133	955	10.220.0300	RICHARD GARDNER	36104 436th St	St Peter	56082	STSS	ACTIVE		36104		Septic System	1092	SW	LOW	HIGH
134	956	10.220.0400	RODNEY FORBROOK	36140 436th St	St Peter	56082	STSS	ACTIVE		36140		Septic System	1092	SW	LOW	HIGH
135	957	10.220.0905	PERRY E CLARK	43631 361st Ln	St Peter	56082	STSS	ACTIVE		43631		Septic System	1092	SW	LOW	HIGH
136	958	12.011.0800	JOSEPH PANKRATZ	38373 Co Rd 15	St Peter	56082	STSS	ACTIVE		38373		Septic System	1092	SW	LOW	HIGH
137	959	12.011.1000	THOMPSON LOUIS	38105 Co Rd 15	St Peter	56082	STSS	ACTIVE		38105		Septic System	1092	SW	LOW	HIGH
138	960	12.012.0200	CHARLES R WENNER	41147 377th Ave	St Peter	56082	STSS	ACTIVE		41147		Septic System	1092	SW	LOW	HIGH
139	961	12.012.0100	CHARLES WENNER	41222 377th Ave	St Peter	56082	STSS	ACTIVE		41222		Septic System	1092	SW	LOW	HIGH
140	962	12.012.1200	BARTLETT, MARK S	37572 Co Rd 15	St Peter	56082	STSS	ACTIVE		37572		Septic System	1092	SW	LOW	HIGH
141	963	12.012.1300	TERRY ZIESMER	37554 Co Rd 15	St Peter	56082	STSS	ACTIVE		37554		Septic System	1092	SW	LOW	HIGH
142	964	12.012.1400	GERALD HEATH	37544 Co Rd 15	St Peter	56082	STSS	ACTIVE		37544		Septic System	1092	SW	LOW	HIGH
143	965	12.012.1600	SCOTT D VICKSTROM	37524 Co Rd 15	St Peter	56082	STSS	ACTIVE		37524		Septic System	1092	SW	LOW	HIGH
144	966	12.012.1800	SCOTT C HARDING	37486 Co Rd 15	St Peter	56082	STSS	ACTIVE		37486		Septic System	1092	SW	LOW	HIGH
145	967	12.107.0400	DUANE DEBLIECK	36910 Co Rd 15	St Peter	56082	STSS	ACTIVE		36910		Septic System	1092	SW	LOW	HIGH
146	968	12.107.1605	THOMAS JOHN HERGERT	36706 Co Rd 15	St Peter	56082	STSS	ACTIVE		36706		Septic System	1092	SW	LOW	HIGH
147	969	12.107.1105	JERALD H KUEHN REV TRUST	36923 Co Rd 15	St Peter	56082	STSS	ACTIVE		36923		Septic System	1092	SW	LOW	HIGH
148	970	12.108.1900	PATRICK L KIENLEN	35907 Co Rd 15	St Peter	56082	STSS	ACTIVE		35907		Septic System	1092	SW	HIGH	HIGH
149	971	12.108.1800	RAYMOND M KIENLEN	36097 Co Rd 15	St Peter	56082	STSS	ACTIVE		36097		Septic System	1092	SW	HIGH	HIGH
150	972	10.219.0905	DANIEL H WITTE	36306 436th St	St Peter	56082	STSS	ACTIVE		36306		Septic System	1092	SW	LOW	HIGH
151	973	12.108.0800	JAMES C MOSHER	41225 Co Rd 20	St Peter	56082	STSS	ACTIVE		41225		Septic System	1092	SW	LOW	HIGH
152	974	12.108.0700	JOHN C GILBERTSON	41217 Co Rd 20	St Peter	56082	STSS	ACTIVE		41217		Septic System	1092	SW	LOW	HIGH
154	976	12.108.0500	JOSEPH J GEORGE	41334 Co Rd 20	St Peter	56082	STSS	ACTIVE		41334		Septic System	1092	SW	HIGH	HIGH
155	977	12.013.0400	DANIEL A BRENKE	38084 Fort Rd	St Peter	56082	STSS	ACTIVE		38084		Septic System	1092	SW	LOW	HIGH
156	978	12.014.0600	CRAIG ECKERT	42347 387th Ave	St Peter	56082	STSS	ACTIVE		42347		Septic System	1092	SW	LOW	HIGH
157	979	10.219.2405	RONALD D VEITH	43764 361st Ln	St Peter	56082	STSS	ACTIVE		43764		Septic System	1092	SW	LOW	HIGH
158	980	12.012.0600	LARS FROM ETAL	37629 Co Rd 15	St Peter	56082	STSS	ACTIVE		37629		Septic System	1092	SW	LOW	HIGH
159	981	10.219.2100	RICHARD A PROSOSKI	43708 361st Ln	St Peter	56082	STSS	ACTIVE		43708		Septic System	1092	SW	LOW	HIGH
160	982	12.012.0500	THOMAS L ENZ	37561 Co Rd 15	St Peter	56082	STSS	ACTIVE		37561		Septic System	1092	SW	LOW	HIGH
161	983	10.219.1700	JAMES W ANDRESEN	36253 436th St	St Peter	56082	STSS	ACTIVE		36253		Septic System	1092	SW	LOW	HIGH
162	984	10.219.2400	KENNETH J JOHNSON	43662 361st Ln	St Peter	56082	STSS	ACTIVE		43662		Septic System	1092	SW	LOW	HIGH
163	985	12.107.1400	DALE A HAACK REV TRUST	36815 Co Rd 15	St Peter	56082	STSS	ACTIVE		36815		Septic System	1092	SW	LOW	HIGH

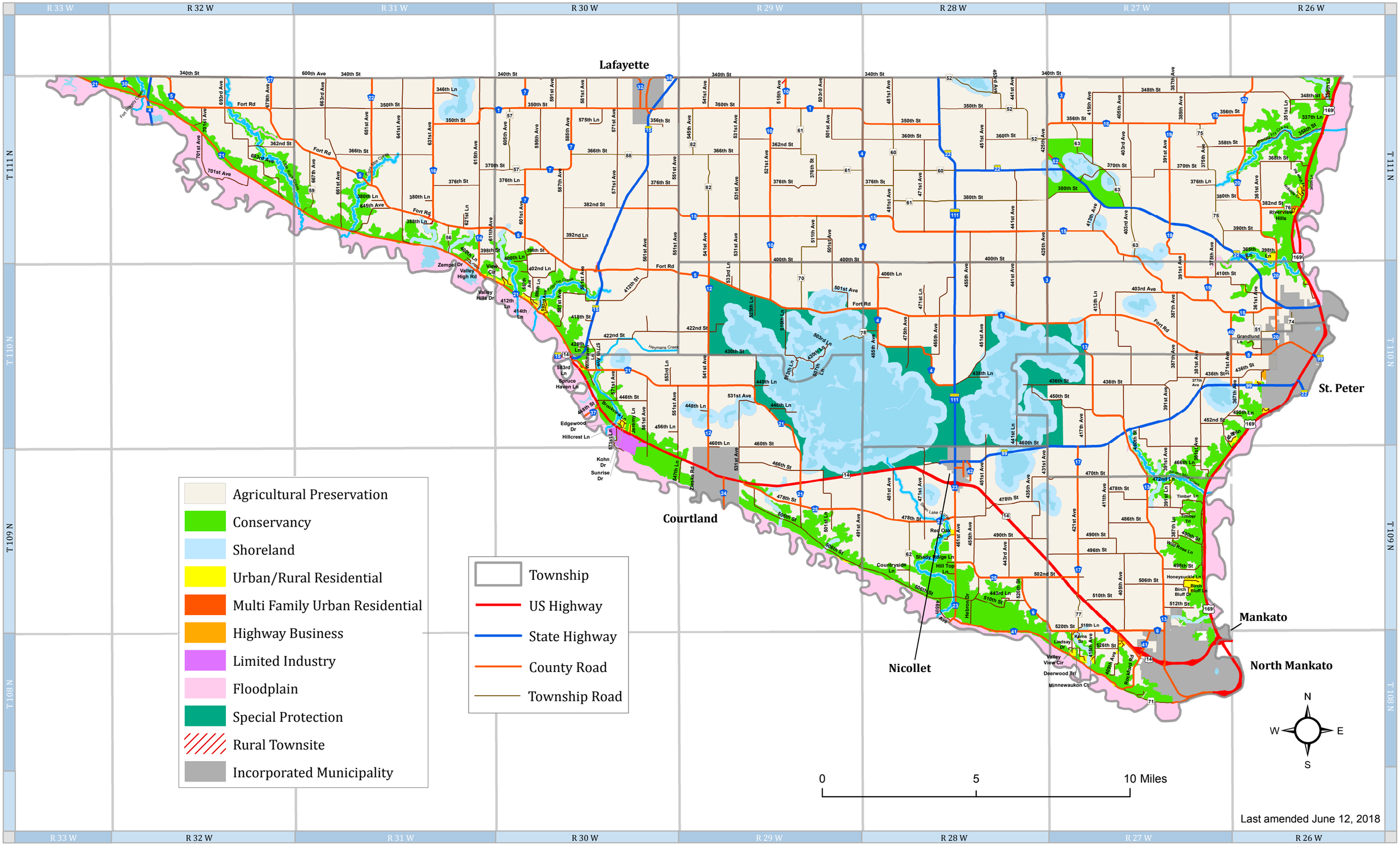
TABLE A-1: SAINT PETER POTENTIAL CONTAMINATION SOURCE INVENTORY

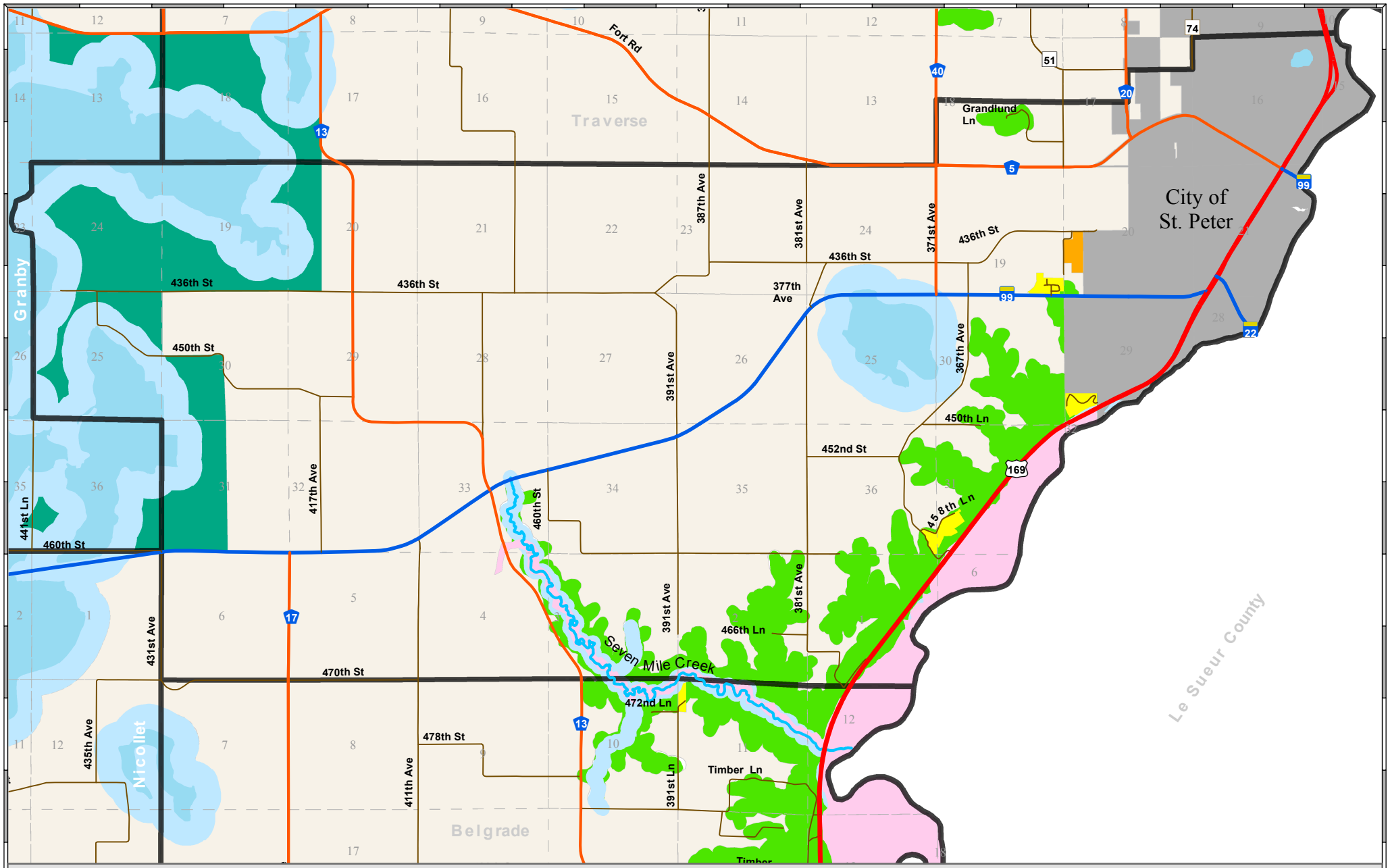
PCSI MAP ID	OBJECT ID	PARCEL ID	FACILITY NAME	ADDRESS	CITY	ZIP	CONTAMINANT SOURCE CODE	STATUS	MATERIAL CODE	PROGRAM_ID	TOTAL	COMMENTS	DWSMA ID	DWSMA TYPE CODE	GW VULNERABILITY	SW VULNERABILITY
164	986	12.107.1000	VERL A PETTIS	36753 Co Rd 15	St Peter	56082	STSS	ACTIVE		36753		Septic System	1092	SW	LOW	HIGH
166	988	10.218.1500	WILLIAM P OBRIEN	36778 Granlund Ln	St Peter	56082	STSS	ACTIVE		36778		Septic System	1092	SW	HIGH	HIGH
167	989	10.124.0500	PALMER BUS SERVICE INC	43336 371st Ave	St Peter	56082	STSS	ACTIVE		43336		Septic System	1092	SW	LOW	HIGH
168	990	12.109.0305	DAVID D BELL	605 Dodd Ave	St Peter	56082	STSS	ACTIVE		605		Septic System	1092	SW	LOW	HIGH
169	991	12.011.0900	TERRY D PANKRATZ &	38349 Co Rd 15	St Peter	56082	STSS	ACTIVE		38349		Septic System	1092	SW	LOW	HIGH
170	992	12.012.1700	DONALD HARMAN	37510 Co Rd 15	St Peter	56082	STSS	ACTIVE		37510		Septic System	1092	SW	LOW	HIGH
171	993	10.218.2000	BRYAN BUFFINGTON	36433 Granlund Ln	St Peter	56082	STSS	ACTIVE		36433		Septic System	1092	SW	LOW	HIGH
172	994	12.012.2300	FARMERS ELEVATOR COOP	37491 Co Rd 15	St Peter	56082	STSS	ACTIVE		37491		Septic System	1092	SW	LOW	HIGH
173	995	10.218.1615	ROBERT A IDSO	36326 Granlund Ln	St Peter	56082	STSS	ACTIVE		36326		Septic System	1092	SW	HIGH	HIGH
174	996	10.220.0800	KENNETH V DEZEEUW	43631 361st ST	St Peter	56082	STSS	ACTIVE		43631		Septic System	1092	SW	LOW	HIGH
175	997	12.012.2100	CURTIS J HOLZ	37431 Co Rd 15	St Peter	56082	STSS	ACTIVE		37431		Septic System	1092	SW	LOW	HIGH
176	998	12.012.1000	PATRICIA M VANDENBERG	37535 Co Rd 15	St Peter	56082	STSS	ACTIVE		37535		Septic System	1092	SW	LOW	HIGH
177	999	12.107.1705	STADICH	36536 Co Rd 15	St Peter	56082	STSS	ACTIVE		36536		Septic System	1092	SW	HIGH	HIGH
178	1000	19.491.0030	SUSPECTED WELL		St Peter	56082	WEL	UNKNOWN				Suspected Well	1092	GW	HIGH	HIGH
179	10001	19.491.0020	SUSPECTED WELL		St Peter	56082	WEL	UNKNOWN				Suspected Well	1092	GW	HIGH	HIGH

APPENDIX B

NICOLLET COUNTY ZONING MAPS

Official Zoning Map of Nicollet County



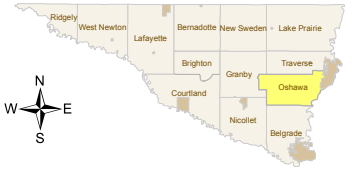


Oshawa Township

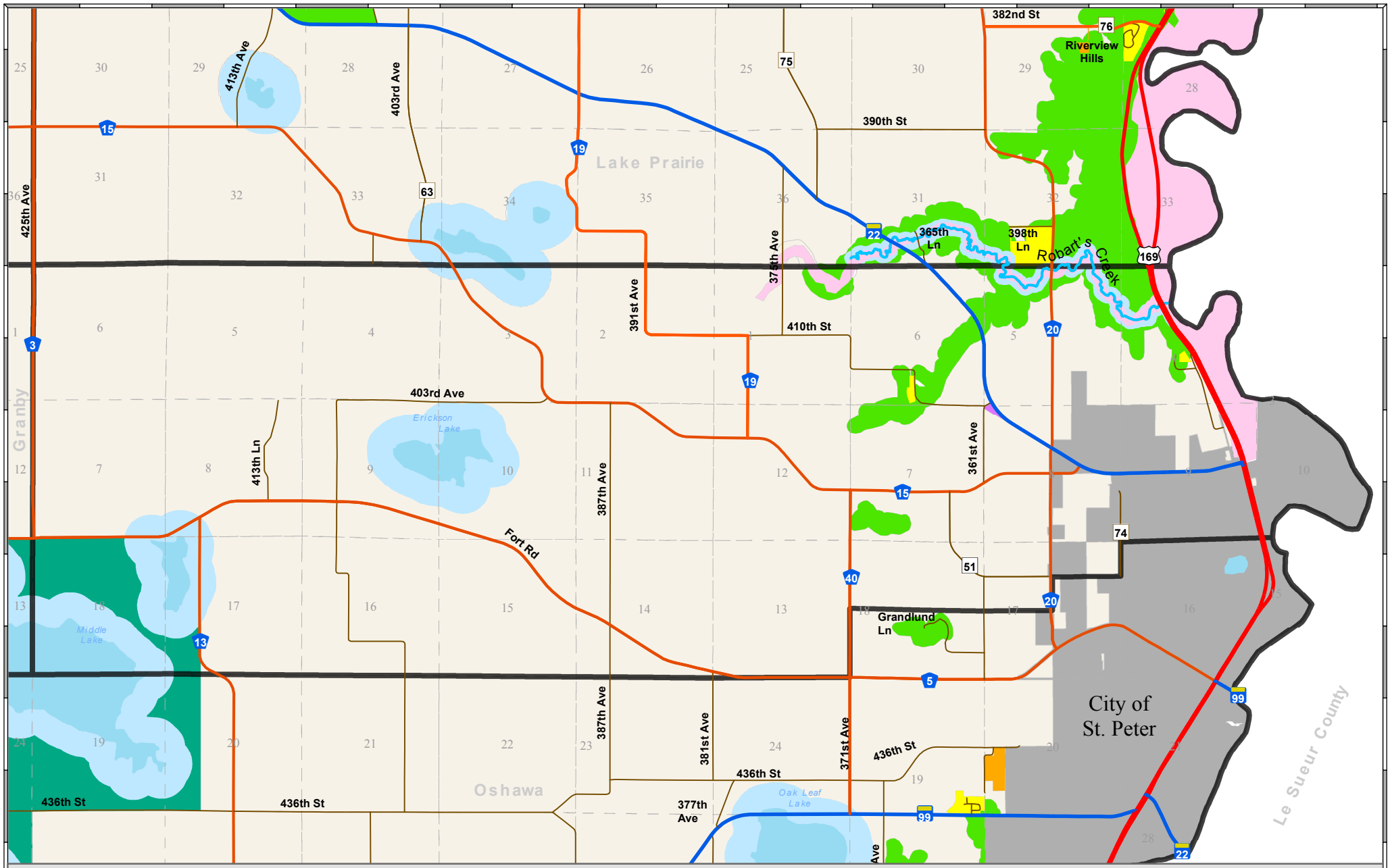
T 109 - 110 N - R 26 - 28 W

Last amended June 12, 2018

- Agricultural Preservation
- Conservancy
- Shoreland
- Urban/Rural Residential
- Multi Family Urban Residential
- Highway Business
- Limited Industry
- Floodplain
- Special Protection
- Rural Townsite
- Incorporated Municipality
- Township
- US Highway
- State Highway
- County Road
- Township Road



This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of information from various sources and is to be used for reference purposes only. Nicollet County is not responsible for any inaccuracies herein contained. If discrepancies are found, please contact the Nicollet County Office of Property Services.

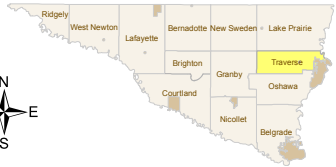


Traverse Township

T 110 N - R 26 - 27 W

Last amended June 12, 2018

- Agricultural Preservation
- Conservancy
- Shoreland
- Urban/Rural Residential
- Multi Family Urban Residential
- Highway Business
- Limited Industry
- Floodplain
- Special Protection
- Rural Townsite
- Incorporated Municipality
- Township
- US Highway
- State Highway
- County Road
- Township Road



N W E S

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NICOLLET COUNTY

APPENDIX C

SUPPORTING DATA

(NOT INCLUDED IN THIS DRAFT)

APPENDIX D

CITY OF SAINT PETER
CONSUMER CONFIDENCE REPORT

Consumer Confidence Report 2018

We are proud to present to you the Saint Peter 2018 Consumer Confidence Report.

The City of Saint Peter is dedicated to providing residents with high-quality, safe, reliable drinking water that meets every federal and state water quality requirement. This report contains information about the water source, treatment, consumer demand, contaminants detected, and other information of interest. The City of Saint Peter is issuing the results of monitoring done on its drinking water for the period January 1 to December 31, 2018.

The purpose of this report is to advance consumers' understanding of drinking water and heighten awareness of the need to protect precious water resources.

We are happy to report that no contaminants were detected at levels that violated federal drinking water standards. However, some contaminants were detected in trace amounts last year. (Some contaminants are sampled less frequently than once a year; as a result, not all contaminants were sampled for 2018. If any of these contaminants were detected the last time they were sampled for, they are included in the table on page three along with the date that the detection occurred.

As new challenges to drinking water safety emerge, we remain vigilant in meeting source water protection, water conservation, and community education goals while continuing to serve the needs of all our water users.

Saint Peter Water Utility

Saint Peter

2018 DRINKING WATER REPORT

This report contains important information about your drinking water. Have someone translate it for you, or speak with someone who understands it.

Información importante. Si no la entiende, haga que alguien se la traduzca ahora.

هذا التقرير يحتوي على معولمات مهمة عن ماء الشرب
الذي تسخدمه. اطلب من شخص ما ان يترجمه لك او
يستطيع فهمه.

Warbixintan waxay wadataa macluumaad muhiim ah ee la xiriira biyaha aad cabtid. Cid ha kuu tarjunto ama la hadl cid fahmaysa.

Making Safe Drinking Water

Your drinking water comes from a groundwater source: nine wells ranging from 130 to 780 feet deep, that draw water from the Wonewoc Sandstone, Mt. Simon, Mt. Simon-Hinckley, Tunnel City-Wonewoc and Jordan aquifers.

Saint Peter works hard to provide you with safe and reliable drinking water that meets federal and state water quality requirements. The purpose of this report is to provide you with information on your drinking water and how to protect our precious water resources.

Contact Chris Voeltz, Water Foreman, at 507 934-0670 or chrisv@saintpetermn.gov if you have questions about Saint Peter's drinking water. You can also ask for information about how you can take part in decisions that may affect water quality.

The U.S. Environmental Protection Agency sets safe drinking water standards. These standards limit the amounts of specific contaminants allowed in drinking water. This ensures that tap water is safe to drink for most people. The U.S. Food and Drug Administration regulates the amount of certain contaminants in bottled water. Bottled water must provide the same public health protection as public tap water.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Saint Peter Monitoring Results

This report contains our monitoring results from January 1 to December 31, 2018.

We work with the Minnesota Department of Health to test drinking water for more than 100 contaminants. It is not unusual to detect contaminants in small amounts. No water supply is ever completely free of contaminants. Drinking water standards protect Minnesotans from substances that may be harmful to their health.

Learn more by visiting the Minnesota Department of Health's webpage Basics of Monitoring and Testing of Drinking Water in Minnesota (https://www.health.state.mn.us/communities/environment/water/factsheet/sampling.html).

How to Read the Water Quality Data Tables

The tables below show the contaminants we found last year or the most recent time we sampled for that contaminant. They also show the levels of those contaminants and the Environmental Protection Agency's limits. Substances that we tested for but did not find are not included in the tables.

We sample for some contaminants less than once a year because their levels in water are not expected to change from year to year. If we found any of these contaminants the last time we sampled for them, we included them in the tables below with the detection date.

We may have done additional monitoring for contaminants that are not included in the Safe Drinking Water Act. To request a copy of these results, call the Minnesota Department of Health at 651-201-4700 or 1-800-818-9318 between 8:00 a.m. and 4:30 p.m., Monday through Friday.

Definitions

- **AL (Action Level)**: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **EPA:** Environmental Protection Agency
- **MCL (Maximum contaminant level)**: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- **MCLG (Maximum contaminant level goal)**: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **Level 1 Assessment**: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
- **Level 2 Assessment**: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.
- **MRDL (Maximum residual disinfectant level):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

- **MRDLG (Maximum residual disinfectant level goal)**: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **NA (Not applicable)**: Does not apply.
- **NTU (Nephelometric Turbidity Units)**: A measure of the cloudiness of the water (turbidity).
- **pCi/l (picocuries per liter)**: A measure of radioactivity.
- **ppb (parts per billion)**: One part per billion in water is like one drop in one billion drops of water, or about one drop in a swimming pool. ppb is the same as micrograms per liter (µg/l).
- **ppm (parts per million)**: One part per million is like one drop in one million drops of water, or about one cup in a swimming pool. ppm is the same as milligrams per liter (mg/l).
- **PWSID**: Public water system identification.
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.
- **Variances and Exemptions**: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

Monitoring Results – Regulated Substances

LEAD AND COPPER – Tested at customer taps.

Contaminant (Date, if sampled in previous year)	**EPA's Action Level**	**EPA's Ideal Goal** (MCLG)	**90% of Results Were Less Than**	**Number of Homes with High Levels**	**Violation**	**Typical Sources**
Copper (06/19/17)	90% of homes less than 1.3 ppm	0 ppm	0.16 ppm	0 out of 30	NO	Corrosion of household plumbing.
Lead (06/19/17)	90% of homes less than 15 ppb	0 ppb	1.6 ppb	1 out of 30	NO	Corrosion of household plumbing.

BACTERIA – Tested in the distribution system.

Contaminant	EPA's Limit (MCL)	EPA's Ideal Goal (MCLG)	Number of Test Results with E. coli	Number of Treatment Technique Exceedances	Violation	Typical Sources
Total coliform bacteria	TT	N/A	N/A	1	NO	Naturally present in the environment

INORGANIC & ORGANIC CONTAMINANTS – Tested in drinking water.

Contaminant (Date, if sampled in previous year)	EPA's Limit (MCL)	EPA's Ideal Goal (MCLG)	Highest Average or Highest Single Test Result	Range of Detected Test Results	Violation	Typical Sources
Nitrate	10.4 ppm	10 ppm	0.94 ppm	0.44 - 0.94 ppm	NO	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

CONTAMINANTS RELATED TO DISINFECTION – Tested in drinking water.

Substance (Date, if sampled in previous year)	EPA's Limit (MCL or MRDL)	EPA's Ideal Goal (MCLG or MRDLG)	Highest Average or Highest Single Test Result	Range of Detected Test Results	Violation	Typical Sources
Total Trihalomethanes (TTHMs)	80 ppb	N/A	41.7 ppb	16.60 - 41.70 ppb	NO	By-product of drinking water disinfection.
Total Haloacetic Acids (HAA)	60 ppb	N/A	3.7 ppb	2.30 - 3.70 ppb	NO	By-product of drinking water disinfection.
Total Chlorine	4.0 ppm	4.0 ppm	0.78 ppm	0.62 - 0.94 ppm	NO	Water additive used to control microbes.

Total HAA refers to HAA5

OTHER SUBSTANCES – Tested in drinking water.						
Substance (Date, if sampled in previous year)	**EPA's Limit** (MCL)	**EPA's Ideal Goal** (MCLG)	**Highest Average or Highest Single Test Result**	**Range of Detected Test Results**	**Violation**	**Typical Sources**
Fluoride	4.0 ppm	4.0 ppm	0.64 ppm	0.61 - 0.66 ppm	NO	Erosion of natural deposits; Water additive to promote strong teeth.

Potential Health Effects and Corrective Actions (If Applicable)

Fluoride: If your drinking water fluoride levels are below the optimal concentration range of 0.7 to 1.2 ppm, please talk with your dentist about how you can protect your teeth and your family's teeth from tooth decay and cavities. For more information, visit: MDH Drinking Water Fluoridation (http://www.health.state.mn.us/divs/eh/water/com/fluoride/index.html).

Lead: Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Total coliform bacteria: Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

Copper: During the year, we failed to provide lead results to persons served at the sites that were tested as required by the Lead and Copper Rule during the timeframe allowed

Lead: During the year, we failed to provide lead results to persons served at the sites that were tested as required by the Lead and Copper Rule during the timeframe allowed

Total coliform bacteria: During the past year we were required to conduct one Level 1 assessment(s). One Level 1 assessment(s) were completed. In addition, we were required to take zero corrective actions, but the issue was fixed.

Some People Are More Vulnerable to Contaminants in Drinking Water

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. The developing fetus and therefore pregnant women may also be more vulnerable to contaminants in drinking water. These people or their caregivers should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Learn More about Your Drinking Water

Drinking Water Sources

Minnesota's primary drinking water sources are groundwater and surface water. Groundwater is the water found in aquifers beneath the surface of the land. Groundwater supplies 75 percent of Minnesota's drinking water. Surface water is the water in lakes, rivers, and streams above the surface of the land. Surface water supplies 25 percent of Minnesota's drinking water.

Contaminants can get in drinking water sources from the natural environment and from people's daily activities. There are five main types of contaminants in drinking water sources.

- **Microbial contaminants,** such as viruses, bacteria, and parasites. Sources include sewage treatment plants, septic systems, agricultural livestock operations, pets, and wildlife.
- **Inorganic contaminants** include salts and metals from natural sources (e.g. rock and soil), oil and gas production, mining and farming operations, urban stormwater runoff, and wastewater discharges.
- **Pesticides and herbicides** are chemicals used to reduce or kill unwanted plants and pests. Sources include agriculture, urban stormwater runoff, and commercial and residential properties.
- **Organic chemical contaminants** include synthetic and volatile organic compounds. Sources include industrial processes and petroleum production, gas stations, urban stormwater runoff, and septic systems.
- **Radioactive contaminants** such as radium, thorium, and uranium isotopes come from natural sources (e.g. radon gas from soils and rock), mining operations, and oil and gas production.

The Minnesota Department of Health provides information about your drinking water source(s) in a source water assessment, including:

- How Saint Peter is protecting your drinking water source(s);
- Nearby threats to your drinking water sources;
- How easily water and pollution can move from the surface of the land into drinking water sources, based on natural geology and the way wells are constructed.

Find your source water assessment at Source Water Assessments (https://www.health.state.mn.us/communities/environment/water/swp/swa) or call 651-201-4700 or 1-800-818-9318 between 8:00 a.m. and 4:30 p.m., Monday through Friday.

Lead in Drinking Water

You may be in contact with lead through paint, water, dust, soil, food, hobbies, or your job. Coming in contact with lead can cause serious health problems for everyone. There is no safe level of lead. Babies, children under six years, and pregnant women are at the highest risk.

Lead is rarely in a drinking water source, but it can get in your drinking water as it passes through lead service lines and your household plumbing system. Saint Peter provides high quality drinking water, but it cannot control the plumbing materials used in private buildings.

Read below to learn how you can protect yourself from lead in drinking water.

1. **Let the water run** for 30-60 seconds before using it for drinking or cooking if the water has not been turned on in over six hours. If you have a lead service line, you may need to let the water run longer. A service line is the underground pipe that brings water from the main water pipe under the street to your home.
   - You can find out if you have a lead service line by contacting your public water system, or you can check by following the steps at: https://www.mprnews.org/story/2016/06/24/npr-find-lead-pipes-in-your-home
   - The only way to know if lead has been reduced by letting it run is to check with a test. If letting the water run does not reduce lead, consider other options to reduce your exposure.
2. **Use cold water** for drinking, making food, and making baby formula. Hot water releases more lead from pipes than cold water.
3. **Test your water.** In most cases, letting the water run and using cold water for drinking and cooking should keep lead levels low in your drinking water. If you are still concerned about lead, arrange with a laboratory to test your tap water. Testing your water is important if young children or pregnant women drink your tap water.
   - Contact a Minnesota Department of Health accredited laboratory to get a sample container and instructions on how to submit a sample:
     Environmental Laboratory Accreditation Program
     (https://eldo.web.health.state.mn.us/public/accreditedlabs/labsearch.seam)
     The Minnesota Department of Health can help you understand your test results.
4. **Treat your water** if a test shows your water has high levels of lead after you let the water run.
   - Read about water treatment units:
     Point-of-Use Water Treatment Units for Lead Reduction
     (https://www.health.state.mn.us/communities/environment/water/factsheet/poulead.html)

Learn more:

- Visit Lead in Drinking Water
  (https://www.health.state.mn.us/communities/environment/water/contaminants/lead.html)
- Visit Basic Information about Lead in Drinking Water (http://www.epa.gov/safewater/lead)
- Call the EPA Safe Drinking Water Hotline at 1-800-426-4791.To learn about how to reduce your contact with lead from sources other than your drinking water, visit Lead Poisoning Prevention: Common Sources (https://www.health.state.mn.us/communities/environment/lead/sources.html).

Help Protect Our Most Precious Resource – Water

The Value of Water

Drinking water is a precious resource, yet we often take it for granted.

Throughout history, civilizations have risen and fallen based on access to a plentiful, safe water supply. That's still the case today. Water is key to healthy people and healthy communities.

Water is also vital to our economy. We need water for manufacturing, agriculture, energy production, and more. One-fifth of the U.S. economy would come to a stop without a reliable and clean source of water.

Systems are in place to provide you with safe drinking water. The state of Minnesota and local water systems work to protect drinking water sources. For example, we might work to seal an unused well to prevent contamination of the groundwater. We treat water to remove harmful contaminants. And we do extensive testing to ensure the safety of drinking water.

If we detect a problem, we take corrective action and notify the public. Water from a public water system like yours is tested more thoroughly and regulated more closely than water from any other source, including bottled water.

Conservation

Conservation is essential, even in the land of 10,000 lakes. For example, in parts of the metropolitan area, groundwater is being used faster than it can be replaced. Some agricultural regions in Minnesota are vulnerable to drought, which can affect crop yields and municipal water supplies.

We must use our water wisely. Below are some tips to help you and your family conserve – and save money in the process.

- Fix running toilets—they can waste hundreds of gallons of water.
- Turn off the tap while shaving or brushing your teeth.
- Shower instead of bathe. Bathing uses more water than showering, on average.
- Only run full loads of laundry, and set the washing machine to the correct water level.
- Only run the dishwasher when it's full.
- Use water-efficient appliances (look for the WaterSense label).
- Use water-friendly landscaping, such as native plants.
- When you do water your yard, water slowly, deeply, and less frequently. Water early in the morning and close to the ground.
- Learn more
  - Minnesota Pollution Control Agency's Conserving Water webpage (https://www.pca.state.mn.us/living-green/conserving-water)
  - U.S. Environmental Protection Agency's WaterSense webpage (https://www.epa.gov/watersense)

APPENDIX E

NOTICE OF APPROVAL OF WATER SUPPLY PLAN

(NOT INCLUDED IN THIS DRAFT)

APPENDIX F

INNER WELLHEAD MANAGEMENT ZONE INVENTORIES

MINNESOTA MDH DEPARTMENT of HEALTH
Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID 1520006 **COMMUNITY**
NAME Saint Peter
ADDRESS Water Superintendent, St. Peter Public Works, 405 West St. Julien Street, St. Peter, MN 560821874

FACILITY (WELL) INFORMATION

NAME Well #6
FACILITY ID S03
UNIQUE WELL NO. 209906
COUNTY Nicollet

IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?
☐ YES (Please attach a copy)
☐ NO ☐ UNDETERMINED

PWS ID / FACILITY ID	1520006 S03	UNIQUE WELL NO.	209906

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1520006 S03	UNIQUE WELL NO.	209906

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		N		
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		

PWS ID / FACILITY ID	1520006 S03	UNIQUE WELL NO.	209906

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	Y	75	N
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1520006 S03	UNIQUE WELL NO.	209906

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.

	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			
Is the system monitoring existing nonconforming sources of contamination?			

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Voz, Karen (SWP)	DATE	5 - 12 - 2015

PWS ID / FACILITY ID	1520006 S03	UNIQUE WELL NO.	209906

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED

COMMENTS

9/7/2003 - Location for PCSI Type PLE (bearing = 0, distance = 0 , inventory date: 11/2/1998) could not be determined.

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1520006	**COMMUNITY**
NAME	Saint Peter	
ADDRESS	Water Superintendent, St. Peter Public Works, 405 West St. Julien Street, St. Peter, MN 560821874	

FACILITY (WELL) INFORMATION

NAME	Well #7	**IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?**
FACILITY ID	S04	☐ **YES** (Please attach a copy)
UNIQUE WELL NO.	433254	☐ **NO** ☐ **UNDETERMINED**
COUNTY	Nicollet	

PWS ID / FACILITY ID	1520006 S04	**UNIQUE WELL NO.**	433254

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1520006 S04	UNIQUE WELL NO.	433254

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		Y	40	N
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		N		
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		

PWS ID / FACILITY ID	1520006 S04	UNIQUE WELL NO.	433254

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
PSA	Petroleum storage tank, above ground, less than 1100 gals.	50	20		Y	200	N**
PSA	Petroleum storage tank, above ground, less than 1100 gals.	50	20		Y	5	N

* New potential contaminant source.

** This number is the estimated distance that this potential source is from this well even though it was identified during an inventory for an adjacent well.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

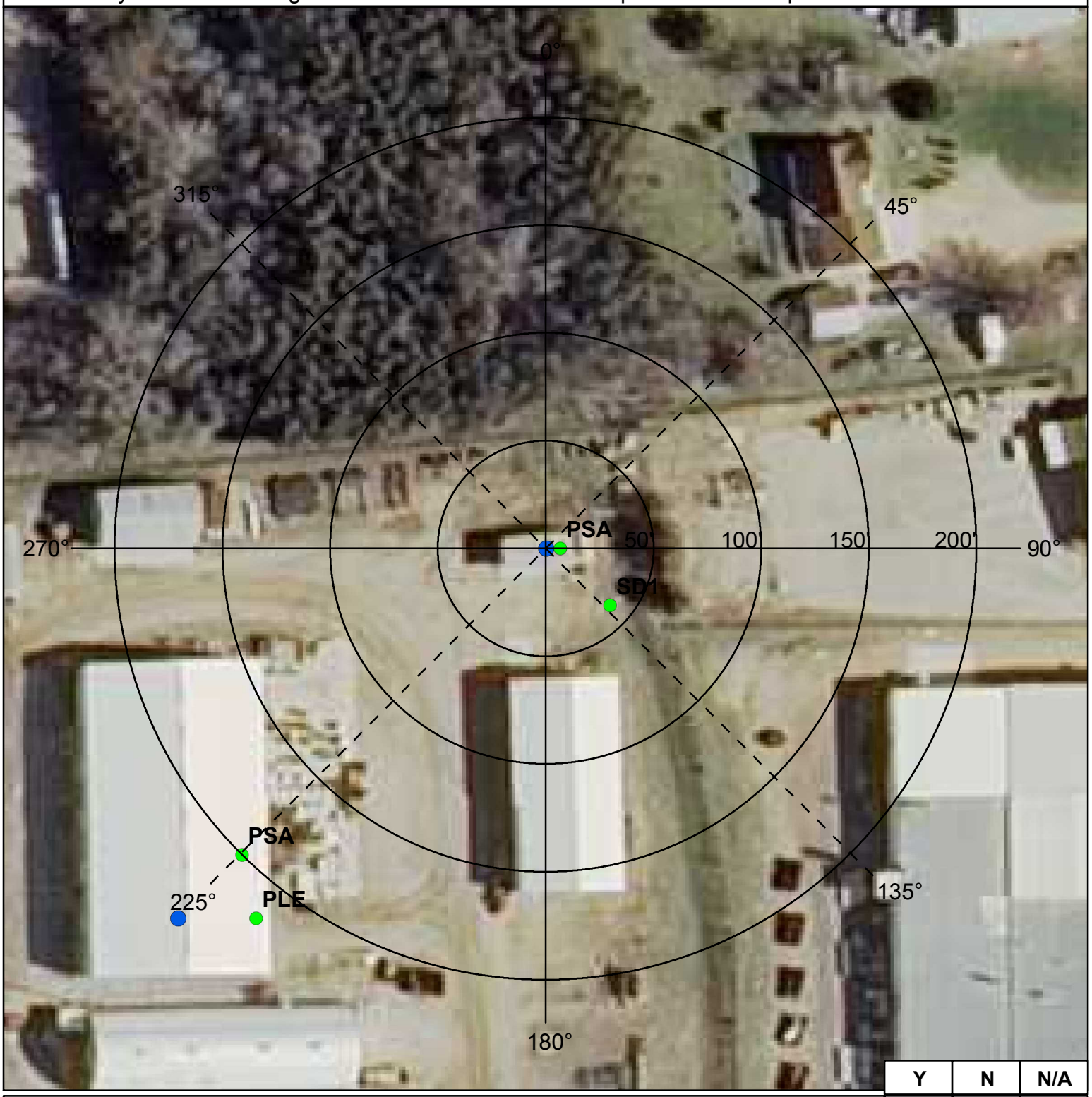
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1520006 S04	UNIQUE WELL NO.	433254

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			
Is the system monitoring existing nonconforming sources of contamination?			

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Voz, Karen (SWP)	DATE	5 - 12 - 2015

PWS ID / FACILITY ID	1520006 S04	UNIQUE WELL NO.	433254

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
Tanks should be monitored, or regularly inspected, for leakage. See: http://www.pca.state.mn.us/index.php/waste/waste-and-cleanup/waste-management/index.html for information, or call the Minnesota Pollution Control Agency at 1-800-657-3864.		
The stormwater pipe should be managed to insure optimal performance. Information on stormwater management can be found on the Minnesota Pollution Control Agency website.		

COMMENTS

9/7/2003 - Location for PCSI Type PLE (bearing = 0, distance = 35 , inventory date: 11/2/1998) could not be determined.

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1520006	**COMMUNITY**
NAME	Saint Peter	
ADDRESS	Water Superintendent, St. Peter Public Works, 405 West St. Julien Street, St. Peter, MN 560821874	

FACILITY (WELL) INFORMATION

NAME	Well #9	**IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?**
FACILITY ID	S07	☐ **YES** (Please attach a copy)
UNIQUE WELL NO.	473639	☐ **NO** ☐ **UNDETERMINED**
COUNTY	Nicollet	

PWS ID / FACILITY ID	1520006 S07	**UNIQUE WELL NO.**	473639

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1520006 S07	UNIQUE WELL NO.	473639

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		Y	151	
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		

PWS ID / FACILITY ID	1520006 S07	UNIQUE WELL NO.	473639

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
SWD	Storm water drain pipe, 12 inches or greater	50	20		Y	136	N**
HSP	Hazardous substance storage or prep. area, > 25 gals., or 100 lbs. dry weight	150	150		Y	85	N
PLE	Property line or easement	50	N/A		Y	179	N**
PLE	Property line or easement	50	N/A		Y	150	N**

* New potential contaminant source.

** This number is the estimated distance that this potential source is from this well even though it was identified during an inventory for an adjacent well.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

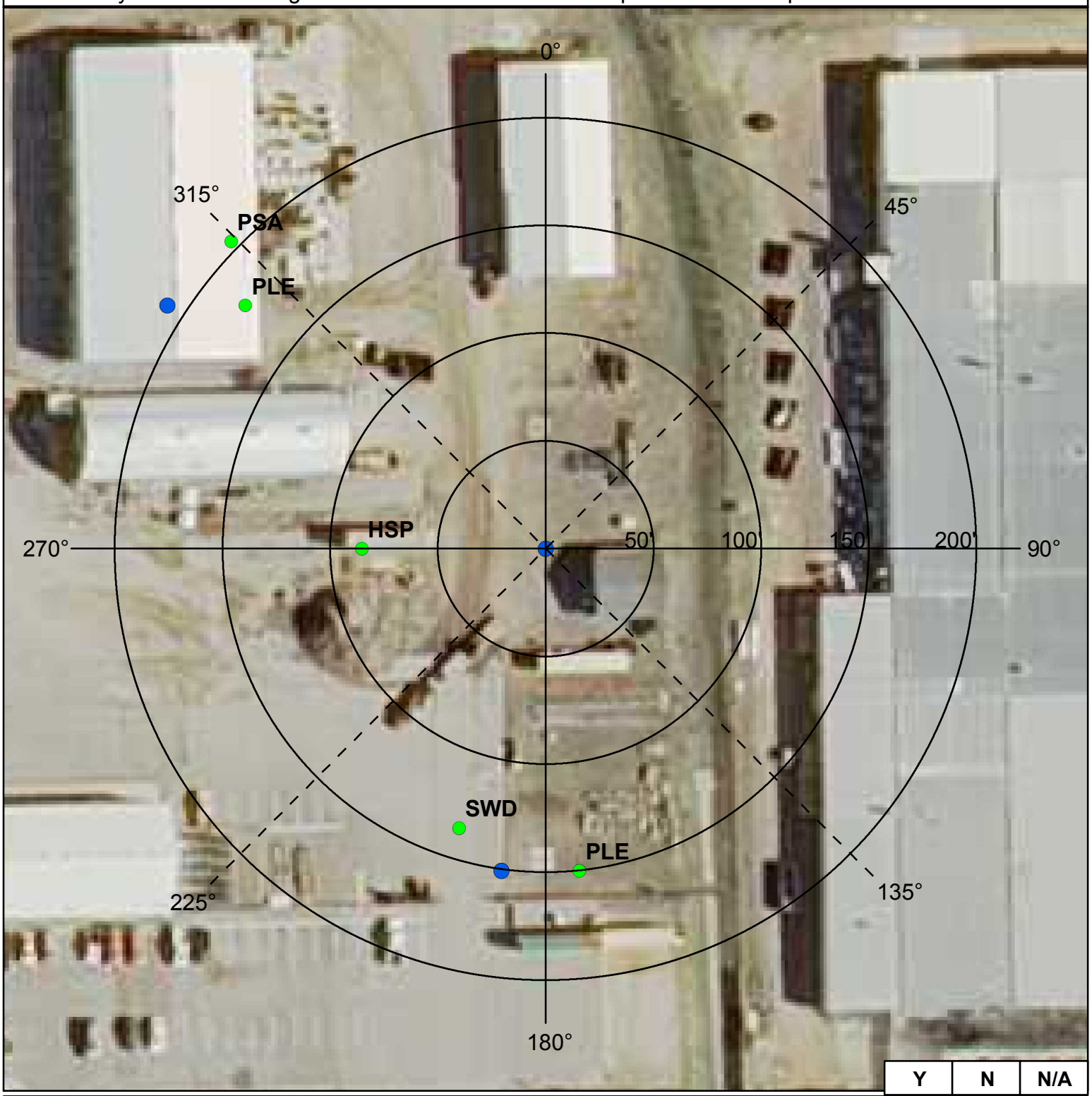
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1520006 S07	UNIQUE WELL NO.	473639

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			
Is the system monitoring existing nonconforming sources of contamination?			

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Voz, Karen (SWP)	DATE	5 - 12 - 2015

PWS ID / FACILITY ID	1520006 S07	UNIQUE WELL NO.	473639

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
An emergency response plan should be adopted for hazardous material spills; it should include contacting the Minnesota Duty Officer at 1-800-422-0798 or 651-649-5451.		
The stormwater pipe should be managed to insure optimal performance. Information on stormwater management can be found on the Minnesota Pollution Control Agency website.		

COMMENTS

9/7/2003 - Location for PCSI Type PLE (bearing = 0, distance = 0 , inventory date: 11/2/1998) could not be determined.

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1520006	**COMMUNITY**
NAME	Saint Peter	
ADDRESS	Water Superintendent, St. Peter Public Works, 405 West St. Julien Street, St. Peter, MN 560821874	

FACILITY (WELL) INFORMATION

NAME	Well #9	**IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?**
FACILITY ID	S07	☐ **YES** (Please attach a copy)
UNIQUE WELL NO.	473639	☐ **NO** ☐ **UNDETERMINED**
COUNTY	Nicollet	

PWS ID / FACILITY ID	1520006 S07	**UNIQUE WELL NO.**	473639

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1520006 S07	UNIQUE WELL NO.	473639

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		Y	151	
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		

PWS ID / FACILITY ID	1520006 S07	UNIQUE WELL NO.	473639

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
SWD	Storm water drain pipe, 12 inches or greater	50	20		Y	136	N**
HSP	Hazardous substance storage or prep. area, > 25 gals., or 100 lbs. dry weight	150	150		Y	85	N
PLE	Property line or easement	50	N/A		Y	179	N**
PLE	Property line or easement	50	N/A		Y	150	N**

* New potential contaminant source.

** This number is the estimated distance that this potential source is from this well even though it was identified during an inventory for an adjacent well.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

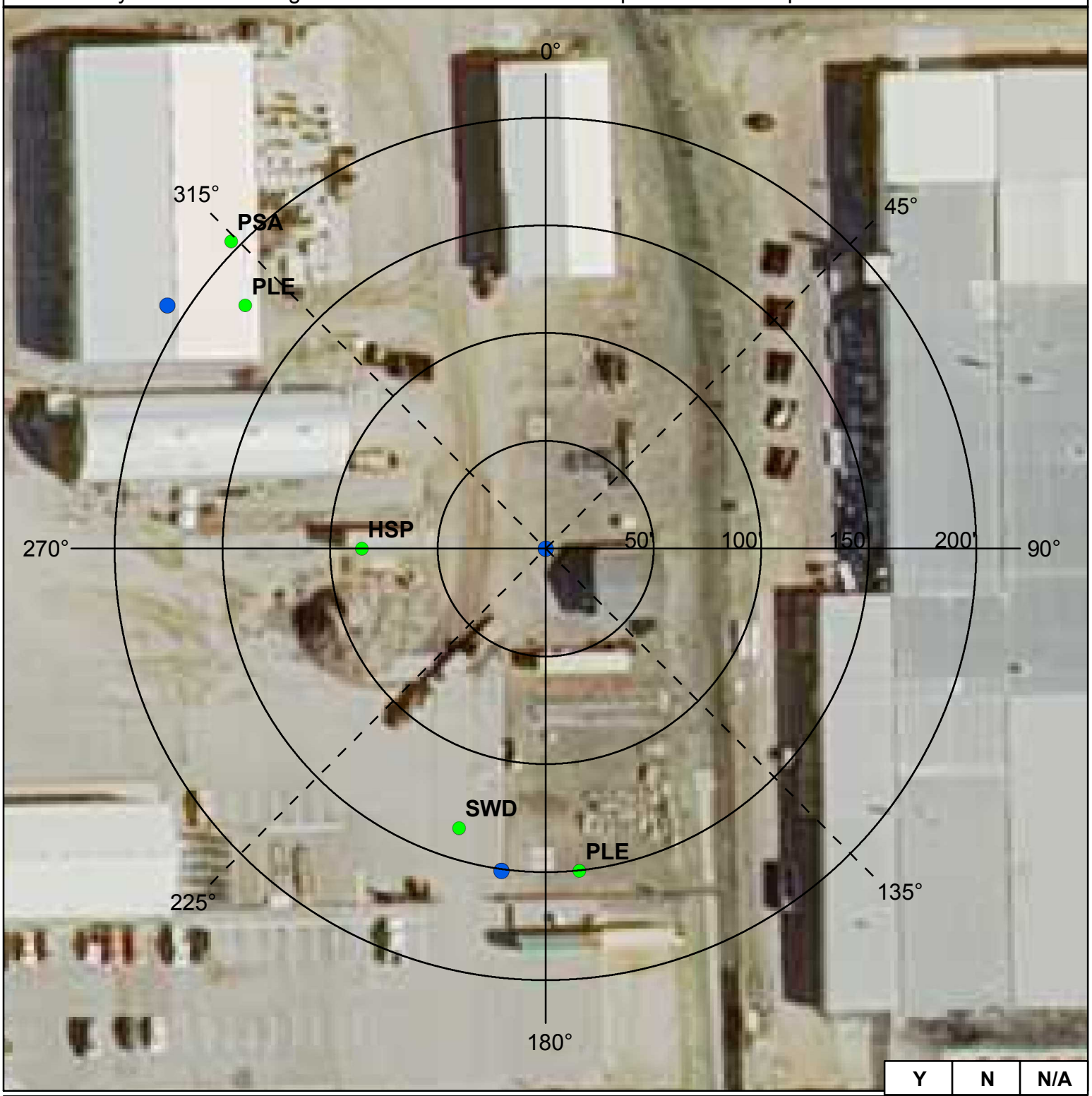
[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1520006 S07	UNIQUE WELL NO.	473639

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.



	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			
Is the system monitoring existing nonconforming sources of contamination?			

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Voz, Karen (SWP)	DATE	5 - 12 - 2015

PWS ID / FACILITY ID	1520006 S07	UNIQUE WELL NO.	473639

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
An emergency response plan should be adopted for hazardous material spills; it should include contacting the Minnesota Duty Officer at 1-800-422-0798 or 651-649-5451.		
The stormwater pipe should be managed to insure optimal performance. Information on stormwater management can be found on the Minnesota Pollution Control Agency website.		

COMMENTS

9/7/2003 - Location for PCSI Type PLE (bearing = 0, distance = 0 , inventory date: 11/2/1998) could not be determined.

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1520006	**COMMUNITY**
NAME	Saint Peter	
ADDRESS	Water Superintendent, St. Peter Public Works, 405 West St. Julien Street, St. Peter, MN 560821874	

FACILITY (WELL) INFORMATION

NAME	Well #10	**IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?**
FACILITY ID	S08	☐ **YES** (Please attach a copy)
UNIQUE WELL NO.	473640	☐ **NO** ☐ **UNDETERMINED**
COUNTY	Nicollet	

PWS ID / FACILITY ID	1520006 S08	**UNIQUE WELL NO.**	473640

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1520006 S08	UNIQUE WELL NO.	473640

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		Y	151	
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		

PWS ID / FACILITY ID	1520006 S08	UNIQUE WELL NO.	473640

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
SWD	Storm water drain pipe, 12 inches or greater	50	20		Y	30	N
HSP	Hazardous substance storage or prep. area, > 25 gals., or 100 lbs. dry weight	150	150		Y	163	N**
PLE	Property line or easement	50	N/A		Y	35	N

* New potential contaminant source.

** This number is the estimated distance that this potential source is from this well even though it was identified during an inventory for an adjacent well.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1520006 S08	UNIQUE WELL NO.	473640

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.

	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			
Is the system monitoring existing nonconforming sources of contamination?			

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Voz, Karen (SWP)	DATE	5 - 12 - 2015

PWS ID / FACILITY ID	1520006 S08	UNIQUE WELL NO.	473640

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
Proper storage and containment of hazardous materials could be implemented.		
The stormwater pipe should be managed to insure optimal performance. Information on stormwater management can be found on the Minnesota Pollution Control Agency website.		

COMMENTS

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1520006	**COMMUNITY**
NAME	Saint Peter	
ADDRESS	Water Superintendent, St. Peter Public Works, 405 West St. Julien Street, St. Peter, MN 560821874	

FACILITY (WELL) INFORMATION

NAME	Well #11	**IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?**
FACILITY ID	S09	☐ YES (Please attach a copy)
UNIQUE WELL NO.	770414	☐ NO ☐ UNDETERMINED
COUNTY	Nicollet	

PWS ID / FACILITY ID	1520006 S09	**UNIQUE WELL NO.**	770414

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1520006 S09	UNIQUE WELL NO.	770414

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		Y	113	N
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		Y	55	
WEL	Operating well	record dist.	record dist.		Y	55	N
WEL	Operating well	record dist.	record dist.		Y	100	N
WEL	Operating well	record dist.	record dist.		Y	104	
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		Y	135	N
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		

PWS ID / FACILITY ID	1520006 S09	UNIQUE WELL NO.	770414

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		Y	168	N
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		Y	170	N
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1520006 S09	UNIQUE WELL NO.	770414

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.

	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			
Is the system monitoring existing nonconforming sources of contamination?			

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Voz, Karen (SWP)	DATE	8 - 19 - 2016

PWS ID / FACILITY ID	1520006 S09	UNIQUE WELL NO.	770414

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
The portable toilet should be pumped and serviced regularly by a licensed maintenance business in accordance with local, state, and federal requirements. To prevent spills, portable toilets should be located in an area that is easily accessible by a pump truck under all weather conditions.		
An emergency response plan should be adopted for tank spills; it should include contacting the Minnesota Duty Officer at 1-800-422-0798 or 651-649-5451.		

COMMENTS

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1520006	**COMMUNITY**
NAME	Saint Peter	
ADDRESS	Water Superintendent, St. Peter Public Works, 405 West St. Julien Street, St. Peter, MN 560821874	

FACILITY (WELL) INFORMATION

NAME	Well #11	**IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?**
FACILITY ID	S09	☐ YES (Please attach a copy)
UNIQUE WELL NO.	770414	☐ NO ☐ UNDETERMINED
COUNTY	Nicollet	

PWS ID / FACILITY ID	1520006 S09	**UNIQUE WELL NO.**	770414

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1520006 S09	UNIQUE WELL NO.	770414

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		Y	113	N
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		Y	55	
WEL	Operating well	record dist.	record dist.		Y	55	N
WEL	Operating well	record dist.	record dist.		Y	100	N
WEL	Operating well	record dist.	record dist.		Y	104	
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		Y	135	N
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		

PWS ID / FACILITY ID	1520006 S09	UNIQUE WELL NO.	770414

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		Y	168	N
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		Y	170	N
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1520006 S09	UNIQUE WELL NO.	770414

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.

	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			
Is the system monitoring existing nonconforming sources of contamination?			

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Voz, Karen (SWP)	DATE	8 - 19 - 2016

PWS ID / FACILITY ID	1520006 S09	UNIQUE WELL NO.	770414

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
The portable toilet should be pumped and serviced regularly by a licensed maintenance business in accordance with local, state, and federal requirements. To prevent spills, portable toilets should be located in an area that is easily accessible by a pump truck under all weather conditions.		
An emergency response plan should be adopted for tank spills; it should include contacting the Minnesota Duty Officer at 1-800-422-0798 or 651-649-5451.		

COMMENTS

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

MINNESOTA MDH DEPARTMENT of HEALTH
Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1520006	**COMMUNITY**
NAME	Saint Peter	
ADDRESS	Water Superintendent, St. Peter Public Works, 405 West St. Julien Street, St. Peter, MN 560821874	

FACILITY (WELL) INFORMATION

NAME	Well #12	**IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?**
FACILITY ID	S10	☐ **YES** (Please attach a copy)
UNIQUE WELL NO.	770415	☐ **NO** ☐ **UNDETERMINED**
COUNTY	Nicollet	

PWS ID / FACILITY ID	1520006 S10	**UNIQUE WELL NO.**	770415

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1520006 S10	UNIQUE WELL NO.	770415

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		Y	152	N**
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		Y	55	
WEL	Operating well	record dist.	record dist.		Y	2	N**
WEL	Operating well	record dist.	record dist.		Y	45	N**
WEL	Operating well	record dist.	record dist.		Y	50	
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		Y	137	N**
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		

PWS ID / FACILITY ID	1520006 S10	UNIQUE WELL NO.	770415

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		Y	164	N**
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		Y	165	N**
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

** This number is the estimated distance that this potential source is from this well even though it was identified during an inventory for an adjacent well.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1520006 S10	UNIQUE WELL NO.	770415

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.

	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			
Is the system monitoring existing nonconforming sources of contamination?			

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Voz, Karen (SWP)	DATE	8 - 19 - 2016

PWS ID / FACILITY ID	1520006 S10	UNIQUE WELL NO.	770415

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
An emergency response plan should be adopted for tank spills; it should include contacting the Minnesota Duty Officer at 1-800-422-0798 or 651-649-5451.		

COMMENTS

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1520006	**COMMUNITY**
NAME	Saint Peter	
ADDRESS	Water Superintendent, St. Peter Public Works, 405 West St. Julien Street, St. Peter, MN 560821874	

FACILITY (WELL) INFORMATION

NAME	Well #13	**IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?**
FACILITY ID	S11	☐ **YES** (Please attach a copy)
UNIQUE WELL NO.	770416	☐ **NO** ☐ **UNDETERMINED**
COUNTY	Nicollet	

PWS ID / FACILITY ID	1520006 S11	**UNIQUE WELL NO.**	770416

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1520006 S11	UNIQUE WELL NO.	770416

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		Y	196	N**
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		Y	104	
WEL	Operating well	record dist.	record dist.		Y	49	N**
WEL	Operating well	record dist.	record dist.		Y	4	N**
WEL	Operating well	record dist.	record dist.		Y	50	
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		Y	159	N**
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		

PWS ID / FACILITY ID	1520006 S11	UNIQUE WELL NO.	770416

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		Y	173	N**
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		Y	173	N**
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

** This number is the estimated distance that this potential source is from this well even though it was identified during an inventory for an adjacent well.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1520006 S11	UNIQUE WELL NO.	770416

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.

	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			
Is the system monitoring existing nonconforming sources of contamination?			

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Voz, Karen (SWP)	DATE	8 - 19 - 2016

PWS ID / FACILITY ID	1520006 S11	UNIQUE WELL NO.	770416

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
The portable toilet should be pumped and serviced regularly by a licensed maintenance business in accordance with local, state, and federal requirements. To prevent spills, portable toilets should be located in an area that is easily accessible by a pump truck under all weather conditions.		
An emergency response plan should be adopted for tank spills; it should include contacting the Minnesota Duty Officer at 1-800-422-0798 or 651-649-5451.		

COMMENTS

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

MINNESOTA MDH DEPARTMENT of HEALTH
Environmental Health Division
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE (IWMZ) - POTENTIAL CONTAMINANT SOURCE INVENTORY (PCSI) REPORT

PUBLIC WATER SYSTEM INFORMATION

PWS ID	1520006	**COMMUNITY**
NAME	Saint Peter	
ADDRESS	Water Superintendent, St. Peter Public Works, 405 West St. Julien Street, St. Peter, MN 560821874	

FACILITY (WELL) INFORMATION

NAME	Well #14	**IS THERE A WELL LOG OR ADDITIONAL CONSTRUCTION INFORMATION AVAILABLE?**
FACILITY ID	S12	☐ **YES** (Please attach a copy)
UNIQUE WELL NO.	770417	☐ **NO** ☐ **UNDETERMINED**
COUNTY	Nicollet	

PWS ID / FACILITY ID	1520006 S12	**UNIQUE WELL NO.**	770417

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
Agricultural Related							
*AC1	Agricultural chemical buried piping	50	50		N		
*AC2	Agricultural chemical multiple tanks or containers for residential retail sale or use, no single tank or container exceeding, but aggregate volume exceeding 56 gal. or 100 lbs. dry weight	50	50		N		
ACP	Agricultural chemical tank or container with 25 gal. or more or 100 lbs. or more dry weight, or equipment filling or cleaning area without safeguards	150	150		N		
ACS	Agricultural chemical storage or equipment filling or cleaning area with safeguards	100	100		N		
ACR	Agricultural chemical storage or equipment filling or cleaning area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well[2] (Class V well - illegal[3])	50	50		N		
AAT	Anhydrous ammonia tank (stationary tank)	50	50		N		
AB1	Animal building, feedlot, confinement area, or kennel, 0.1 to 1.0 animal unit (stockyard)	50	20	100/40	N		
AB2	Animal building or poultry building, including a horse riding area, more than 1.0 animal unit	50	50	100	N		
ABS	Animal burial area, more than 1.0 animal unit	50	50		N		
FWP	Animal feeding or watering area within a pasture, more than 1.0 animal unit	50	50	100	N		
AF1	Animal feedlot, unroofed, 300 or more animal units (stockyard)	100	100	200	N		
AF2	Animal feedlot, more than 1.0, but less than 300 animal units (stockyard)	50	50	100	N		
AMA	Animal manure application	use discretion	use discretion		N		
REN	Animal rendering plant	50	50		N		
MS1	Manure (liquid) storage basin or lagoon, unpermitted or noncertified	300	300	600	N		
MS2	Manure (liquid) storage basin or lagoon, approved earthen liner	150	150	300	N		
MS3	Manure (liquid) storage basin or lagoon, approved concrete or composite liner	100	100	200	N		
MS4	Manure (solid) storage area, not covered with a roof	100	100	200	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SSTS Related							
AA1	Absorption area of a soil dispersal system, average flow greater than 10,000 gal./day	300	300	600	N		
AA2	Absorption area of a soil dispersal system serving a facility handling infectious or pathological wastes, average flow 10,000 gal./day or less	150	150	300	N		
AA3	Absorption area of a soil dispersal system, average flow 10,000 gal./day or less	50	50	100	N		
AA4	Absorption area of a soil dispersal system serving multiple family residences or a non-residential facility and has the capacity to serve 20 or more persons per day (Class V well)[2]	50/300/150[4]	50/300/150[4]	100/600/300[4]	N		
CSP	Cesspool	75	75	150	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
*FD1	Floor drain, grate, or trough connected to a buried sewer	50	50		N		
*FD2	Floor drain, grate, or trough if buried sewer is air-tested, approved materials, serving one building, or two or less single-family residences	50	20		N		
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal)[2]	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal)[2]	illegal	illegal		N		

PWS ID / FACILITY ID	1520006 S12	UNIQUE WELL NO.	770417

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PR1	Privy, nonportable	50	50	100	N		
PR2	Portable (privy) or toilet	50	20		N		
*SF1	Watertight sand filter; peat filter; or constructed wetland	50	50		N		
SET	Septic tank	50	50		N		
HTK	Sewage holding tank, watertight	50	50		N		
SS1	Sewage sump capacity 100 gal. or more	50	50		N		
SS2	Sewage sump capacity less than 100 gal., tested, conforming to rule	50	20		N		
*ST1	Sewage treatment device, watertight	50	50		N		
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		N		
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		N		
*WB1	Water treatment backwash holding basin, reclaim basin, or surge tank with a direct sewer connection	50	50		N		
*WB2	Water treatment backwash holding basin, reclaim basin, or surge tank with a backflow protected sewer connection	20	20		N		
Land Application							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
Solid Waste Related							
COS	Commercial compost site	50	50		N		
CD1	Construction or demolition debris disposal area	50	50	100	N		
*HW1	Household solid waste disposal area, single residence	50	50	100	N		
LF1	Landfill, permitted demolition debris, dump, or mixed municipal solid waste from multiple persons	300	300	600	N		
SVY	Scrap yard	50	50		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well[2] (Class V well - illegal[3])	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		Y	200	N
Wells and Borings							
*EB1	Elevator boring, not conforming to rule	50	50		N		
*EB2	Elevator boring, conforming to rule	20	20		N		
MON	Monitoring well	record dist.	record dist.		N		
WEL	Operating well	record dist.	record dist.		N		
UUW	Unused, unsealed well or boring	50	50		N		
General							
*CR1	Cistern or reservoir, buried, nonpressurized water supply	20	20		N		
PLM	Contaminant plume	50	50		N		
*CW1	Cooling water pond, industrial	50	50	100	N		
DC1	Deicing chemicals, bulk road	50	50	100	N		
*ET1	Electrical transformer storage area, oil-filled	50	50		N		
GRV	Grave or mausoleum	50	50		N		
GP1	Gravel pocket or French drain for clear water drainage only	20	20		N		
*HS1	Hazardous substance buried piping	50	50		N		
HS2	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight, without safeguards	150	150		N		
HS3	Hazardous substance tank or container, above ground or underground, 56 gal. or more, or 100 lbs. or more dry weight with safeguards	100	100		N		
HS4	Hazardous substance multiple storage tanks or containers for residential retail sale or use, no single tank or container exceeding 56 gal. or 100 lbs., but aggregate volume exceeding	50	50		N		
HWF	Highest water or flood level	50	N/A		N		
*HG1	Horizontal ground source closed loop heat exchanger buried piping	50	50		N		
*HG2	Horizontal ground source closed loop heat exchanger buried piping and horizontal piping, approved materials and heat transfer fluid	50	10		N		
IWD	Industrial waste disposal well (Class V well)[2]	illegal[3]	illegal[3]		N		
IWS	Interceptor, including a flammable waste or sediment	50	50		N		
OH1	Ordinary high water level of a stream, river, pond, lake, reservoir, or drainage ditch (holds water six months or more)	50	35		N		
*PP1	Petroleum buried piping	50	50		N		
*PP2	Petroleum or crude oil pipeline to a refinery or distribution center	100	100		N		

PWS ID / FACILITY ID	1520006 S12	UNIQUE WELL NO.	770417

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well[1]	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
PT1	Petroleum tank or container, 1100 gal. or more, without safeguards	150	150		N		
PT2	Petroleum tank or container, 1100 gal. or more, with safeguards	100	100		N		
PT3	Petroleum tank or container, buried, between 56 and 1100 gal.	50	50		N		
PT4	Petroleum tank or container, not buried, between 56 and 1100 gal.	50[5]	20		N		
PU1	Pit or unfilled space more than four feet in depth	20	20		N		
PC1	Pollutant or contaminant that may drain into the soil	50	50	100	N		
SP1	Swimming pool, in-ground	20	20		N		
*VH1	Vertical heat exchanger, horizontal piping conforming to rule	50	10		N		
*VH2	Vertical heat exchanger (vertical) piping, conforming to rule	50	35		N		
*WR1	Wastewater rapid infiltration basin, municipal or industrial	300	300	600	N		
*WA1	Wastewater spray irrigation area, municipal or industrial	150	150	300	N		
*WS1	Wastewater stabilization pond, industrial	150	150	300	N		
*WS2	Wastewater stabilization pond, municipal, 500 or more gal./acre/day of leakage	300	300	600	N		
*WS3	Wastewater stabilization pond, municipal, less than 500 gal./acre/day of leakage	150	150	300	N		
*WT1	Wastewater treatment unit tanks, vessels and components (Package plant)	100	100		N		
*WT2	Water treatment backwash disposal area	50	50	100	N		
Additional Sources (If there is more than one source listed above, please indicate here).							
Potential Contamination Sources and Codes Based on Previous Versions of this Form							
	none found within 200' of this well.						

* New potential contaminant source.

[1] A sensitive well has less than 50 feet of watertight casing, and which is not cased below a confining layer or confining materials of at least 10' in thickness.

[2] These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

[3] These sources are classified as illegal by Minnesota Rules, Chapter 4725.

[4] Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

[5] A community public water-supply well must be a minimum of 50 feet from a petroleum tank or container, unless the tank or container is used for emergency pumping and is located in a room or building separate from the community well; and is of double-wall construction with leak detection between walls; or is protected with secondary containment.

This form is based on the new isolation distances in Minnesota Rules, Chapter 4725, related to wells and borings adopted August 4, 2008, and Minnesota Rules, Chapter 4720, related to wellhead protection.

PWS ID / FACILITY ID	1520006 S12	UNIQUE WELL NO.	770417

SETBACK DISTANCES	All potential contaminant sources must be noted on sketch.

Record the distance and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code". Unlabeled points on the map are unsealed wells.

	Y	N	N/A
Were the isolation distances maintained for the new sources of contamination?			
Is the system monitoring existing nonconforming sources of contamination?			

Reminder Question: Were the wellhead protection measure(s) implemented?

INSPECTOR	Voz, Karen (SWP)	DATE	8 - 19 - 2016

PWS ID / FACILITY ID	1520006 S12	UNIQUE WELL NO.	770417

RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES	WHP MEASURE IMPLEMENTED? Y or N	DATE VERIFIED
The stormwater pond should be managed to insure optimal performance. Information on stormwater management can be found on the Minnesota Pollution Control Agency website.		

COMMENTS

For further information, please contact:

Minnesota Department of Health
Drinking Water Protection Section
Source Water Protection Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975

Section Receptionist: 651-201-4700
Division TDD: 651-201-5797 or MN Relay Service @ 1-800-627-3529 and ask for 651-201-5000

APPENDIX G

CORRESPONDENCE

DEPARTMENT OF HEALTH

Protecting, Maintaining and Improving the Health of All Minnesotans

December 18, 2018

Mr. Jeff Knutson, Water Resources Superintendent
City of St. Peter
405 West St. Julien Street
St. Peter, Minnesota 56082

Dear Mr. Knutson:

Subject: Scoping 2 Decision Notice and Meeting Summary – City of St. Peter – PWSID 1520006

This letter provides notice of the results of the second scoping meeting held with you and Chris Voeltz (city of St. Peter) and me (Minnesota Department of Health) on December 5, 2018, at St. Peter Public Works Office regarding Part II of your wellhead protection (WHP) plan. During the meeting, we discussed data elements that must be compiled and assessed to prepare the part of the WHP plan related to the management of potential contaminants in the approved drinking water supply management area. The enclosed Scoping 2 Decision Notice lists the data elements discussed at the meeting. The data elements must be compiled and assessed in terms of their present and future implications on the 1) use of the well(s), 2) quality and quantity of water supplying the public water supply wells(s), and 3) land and groundwater uses in the drinking water supply management areas. We also discussed a summary of planning issues identified during the Part I WHP Plan development process which should be considered for inclusion in your Part II WHP Plan.

The city of St. Peter has met the requirements to distribute copies of the first part of the WHP plan to local units of government and hold an informational meeting for the public. The city of St. Peter will have until February 21, 2020, to complete its WHP plan.

If a data element is marked on the enclosed notice as a data element that must be used and it does not exist, it is helpful if your plan notes this. MDH understands a consultant will be working with you to develop a draft of the remainder of the WHP plan. I will be contacting you to review the progress of the development of Part II of your plan. If you have any questions regarding the enclosed notice, contact me by email at karen.s.voz@state.mn.us or by phone at 320-223-7322.

Sincerely,

Karen S. Voz, Principal Planner
Source Water Protection Unit
St. Cloud District Office
3333 West Division Street, Suite #212
St. Cloud, Minnesota 56301-4557

KSV:ds-b
Enclosures
cc: Chris Voeltz, Water Operator, City of St. Peter
Amy Lynch, MDH Engineer, Mankato District Office
Luke Stuewe, Minnesota Department of Agriculture

SCOPING 2 DECISION NOTICE
Variable Vulnerable DWSMA and SWCA

Remainder of the Wellhead Protection Plan

Name of Public Water Supply: **City of St. Peter** **PWSID: 1520006**		**Date:** December 18, 2018
Name of the Wellhead Protection Manager: Mr. Jeff Knutson, Water Resources Superintendent		
Address: 405 West St. Julien Street	**City:** St. Peter	**Zip:** 56082
Unique Well Numbers: 209906 (Well #6), 433254 (Well #7), 473638 (Well #8), 473639 (Well #9), 473640 (Well #10), 770414 (Well #11), 770415 (Well #12), 770416 (Well #13), 770417 (Well #14)		**Phone:** 507-934-0670

Instructions for Completing the Scoping 2 Form

N	R	S	
X			**N = Not required.** If this box is checked, this data element is **NOT** necessary for your wellhead protection plan because it is not needed or it has been included in the first scoping decision notice. **Please go to the next data element**.

N	R	S	
	X		**R = Required for the remainder of the plan.** If this box is checked, this data **MUST** be used for the "**remainder of the plan**."

N	R	S	
		X	**S = Submit to MDH.** If this box is checked, this data element **MUST** be included in your **wellhead protection plan and submitted to MDH**. If there is **NO** check mark in the **"S"** box but there is an **"X"** in the **"R"** box, this data element **MUST** be included in your plan, but should **NOT be submitted to MDH**. This box will only be checked if MDH does not have access to this data element. This will help to reduce the cost by reducing the amount of paper and time to reproduce the data element.

Note: Any data elements required in the first scoping decision notice must also be used to complete the remainder of the wellhead protection plan.

DATA ELEMENTS ABOUT THE PHYSICAL ENVIRONMENT

PRECIPITATION

N	R	S	
	X	X	An existing map or list of local precipitation gauging stations.

Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	
	X	X	An existing table showing the average monthly and annual precipitation in inches for the preceding five years.

Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

GEOLOGY

N	R	S	
	X		An existing geologic map and a description of the geology, including aquifers, confining layers, recharge areas, discharge areas, sensitive areas as defined in Minnesota Statutes, section 103H.005, subdivision 13, and groundwater flow characteristics.

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements.

N	R	S	
	X		Existing records of the geologic materials penetrated by wells, borings, exploration test holes, or excavations, including those submitted to the department.

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements.

N	R	S	
	X		Existing borehole geophysical records from wells, borings, and exploration test holes.

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect the geology of the areas.

N	R	S	
	X		Existing surface geophysical studies.

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect the geology of the areas.

SOILS

N	R	S	
	X	X	Existing maps of the soils and a description of soil infiltration characteristics.

Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	
	X	X	A description or an existing map of known eroding lands that are causing sedimentation problems.

Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

WATER RESOURCES			
N	**R**	**S**	An existing map of the boundaries and flow directions of major watershed units and minor watershed units.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing map and a list of public waters as defined in Minnesota Statutes, section 103G.005, subdivision 15, and public drainage ditches.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	The shoreland classifications of the public waters listed under subitem (2), pursuant to part 6120.3000 and Minnesota Statutes, sections 103F.201 to 103F.221.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing map of wetlands regulated under Chapter 8420 and Minnesota Statutes, section 103G.221 to 103G.2373.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing map showing those areas delineated as floodplain by existing local ordinances.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			

DATA ELEMENTS ABOUT THE LAND USE

LAND USE			
N	**R**	**S**	An existing map of parcel boundaries.
	X	**X**	
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing map of political boundaries.
	X	**X**	
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing map of public land surveys including township, range, and section.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			

Land Use: Ground Water and Surface Water Contribution Vulnerability

N	R	S	
	X	X	A map and an inventory of the current and historical agricultural, residential, commercial, industrial, recreational, and institutional land uses and potential contaminant sources.

Technical Assistance Comments: The inventory, mapping, and management of land uses and potential sources of contamination for all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements, as follows:

Groundwater and Surface Water Contribution Vulnerability

1) All potential contaminant sources as listed below. Two DWSMA Vulnerability Figures for the city of St. Peter are attached for reference to identify the different areas of vulnerability and the Surface Water Contribution Area.
2) A land use/land cover map and table.
3) An inventory of the Inner Wellhead Management Zone(s) (IWMZ).

☒ Areas with Combination Low Vulnerability Groundwater and Highly Vulnerable SWCA
1) All potential contaminant sources as listed on the attachment: Potential Contaminant Source Inventory Requirements for Low Vulnerable DWSMA.
A: Inventory all wells that are 80 feet indicated under Groundwater **Low Vulnerability rating**.
2) All potential contaminant sources as listed on the attachment: Potential Contaminant Source Inventory Requirements for Highly Vulnerable Surface Water Contribution DWSMA.

☒ Areas with High Vulnerability Groundwater
1) All potential contaminant sources as listed on the attachment: Potential Contaminant Source Inventory Requirements for Highly and Very Highly Vulnerable DWSMA.

☒ Areas with Combination High Vulnerability Groundwater and Highly Vulnerable SWCA
1) All potential contaminant sources as listed on the attachment: Potential Contaminant Source Inventory Requirements for Highly and Very Highly Vulnerable DWSMA.

As a starting point, MDH will provide a land cover map and table from federal data bases. This data set must be used unless an alternative electronic data set that is more current and detailed is available. Management strategies must be developed for all land uses and potential sources of contamination.

N	R	S	
	X	X	An existing comprehensive land-use map.

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	
	X	X	An existing zoning map.

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

PUBLIC UTILITY SERVICES			
N	**R**	**S**	An existing map of transportation routes or corridors.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing map of storm sewers, sanitary sewers, and public water supply systems.
	X	**X**	
Technical Assistance Comments: It is not necessary to include a map of your public water supply system in your plan if you feel it would pose a threat to the security of your system. An existing map of the storm sewers and sanitary sewers in the Drinking Water Supply Management Area(s) must be included in the wellhead protection plan and must also be submitted to MDH as part of the approval.			
N	**R**	**S**	An existing map of the gas and oil pipeline used by gas and oil suppliers.
	X	**X**	
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing map or list of public drainage systems.
	X	**X**	
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing record of construction, maintenance, and use of the public water supply well and other wells within the drinking water supply management area.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			

DATA ELEMENTS ABOUT WATER QUANTITY

SURFACE WATER QUANTITY			
N	**R**	**S**	An existing description of high, mean, and low flows on streams.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing list of lakes where the state has established ordinary high water marks.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing list of permitted withdrawals from lakes and streams, including source, use, and amounts withdrawn.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing list of lakes and streams for which state protected levels or flows have been established.
	X		
Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing description of known water-use conflicts, including those caused by groundwater pumping.
	X	**X**	
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
GROUNDWATER QUANTITY			
N	**R**	**S**	An existing list of wells covered by state appropriation permits, including amounts of water appropriated, type of use, and aquifer source.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing description of known well interference problems and water-use conflicts.
	X	**X**	
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	**R**	**S**	An existing list of state environmental bore holes, including unique well number, aquifer measured, years of record, and average monthly levels.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			

DATA ELEMENTS ABOUT WATER QUALITY

SURFACE WATER QUALITY

N	R	S	
	X		An existing map or list of the state water quality management classification for each stream and lake.

Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	
	X		An existing summary of lake and stream water quality monitoring data, including: 1. bacteriological contamination indicators; 2. inorganic chemicals; 3. organic chemicals; 4. sedimentation; 5. dissolved oxygen; and 6. excessive growth or deficiency of aquatic plants.

Technical Assistance Comments: The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

GROUNDWATER QUALITY

N	R	S	
	X		An existing summary of water quality data, including: 1. bacteriological contamination indicators; 2. inorganic chemicals; and 3. organic chemicals.

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	
	X		An existing list of water chemistry and isotopic data from wells, springs, or other groundwater sampling points.

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	
	X		An existing report of groundwater tracer studies.

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	
	X		An existing site study and well water analysis of known areas of groundwater contamination.

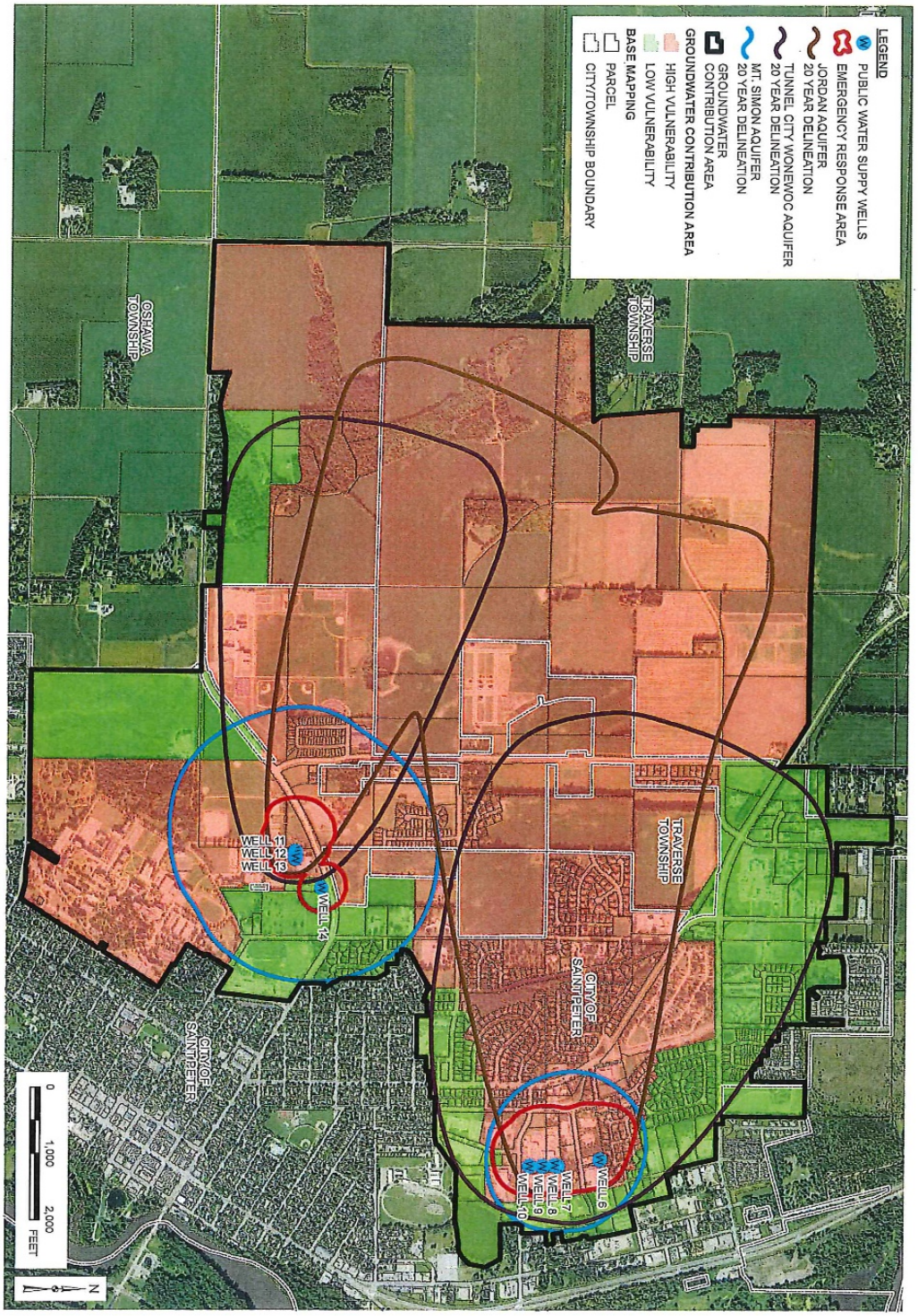
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements.

N	R	S	
	X		An existing property audit identifying contamination.

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.

N	R	S	
	X		An existing report to the Minnesota Department of Agriculture and the Minnesota Pollution Control Agency of contaminant spills and releases.

Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.



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Stantec Consulting Services
2335 Highway 36 West
Saint Paul, MN 55113
651.636.4600

FIGURE 4 - GROUNDWATER CONTRIBUTION AREA VULNERABILITY

SAINT PETER WELLHEAD PROTECTION PLAN

August 2018

The information on this map has been compiled by Stantec staff from a variety of sources and is subject to change without notice. Stantec makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information.

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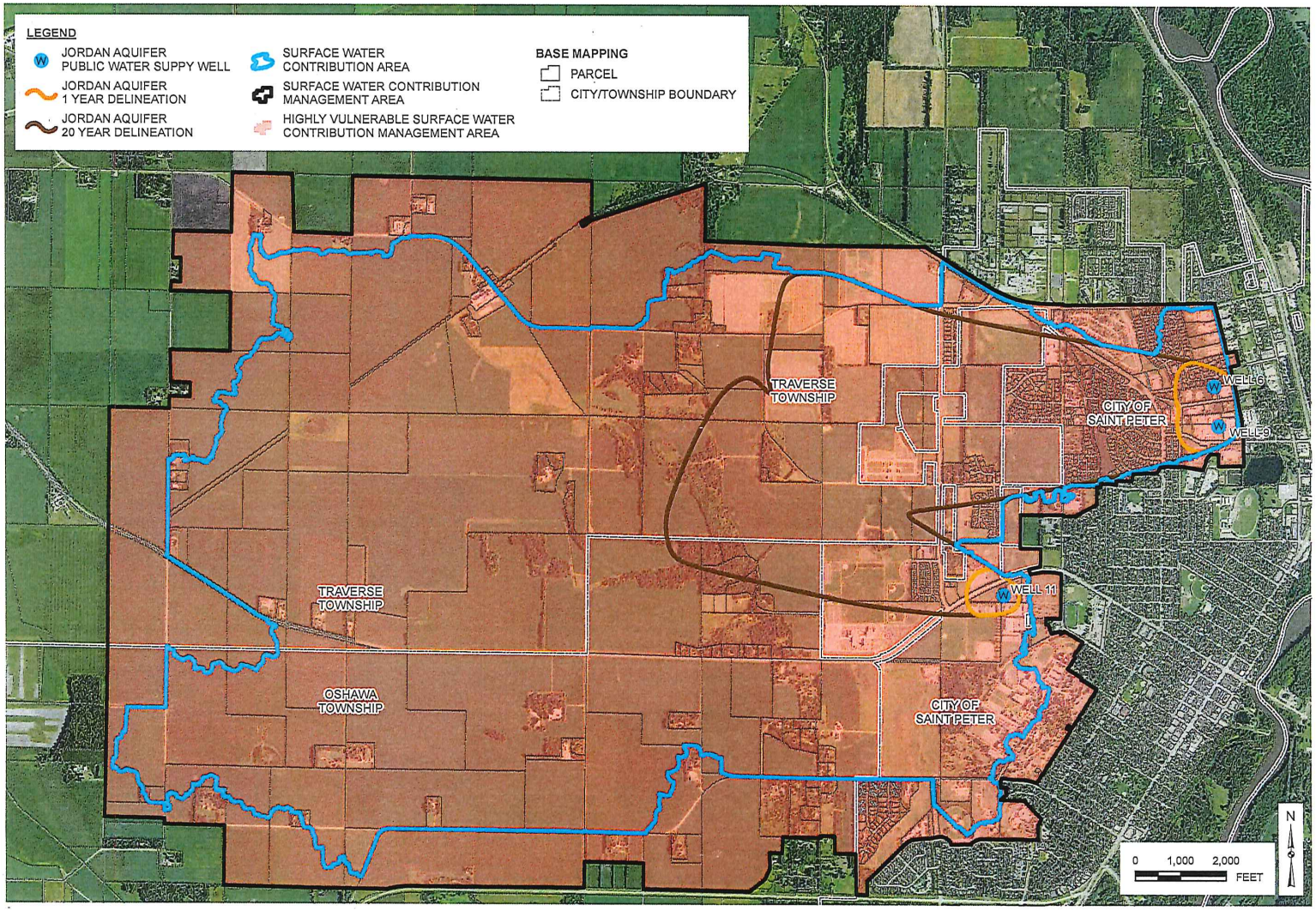

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Saint Paul, MN 55113
651.636.4600

FIGURE 5 - SURFACE WATER CONTRIBUTION AREA VULNERABILITY

SAINT PETER WELLHEAD PROTECTION PLAN

September 2018

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City of St. Peter Scoping 2 Meeting
Wellhead Protection (WHP) Planning Issues Summary

NOTE: This document is intended to be a summary of issues identified to date and is **not intended to replace the required data elements identified in the Scoping 2 Decision Notice** nor is it intended to be an exhaustive list of all potential drinking water issues.

Drinking Water Protection Issues Identified to Date:

- The DWSMA changed slightly in area with the addition of the newest well field and the sealing of the old wells.
- Surface Water contribution area has been identified in the DWSMA.
- A 20 year time of travel was used for the delineation.
- Wells 11, 12, 13, & 14 were constructed after the 2008 amended WHP plan.
- The multi-aquifer Wells 4 and 5 were sealed.
- RO nitrate removal treatment system has been installed since the previous WHP plan was completed.

Water Quality Detections and Implications:

- Water quality in the Jordon aquifer wells has been degraded over time by the presence of nitrate contamination from drainage from row crops agriculture to the west of the city.
- The detection of tritium and the elevated nitrates in the Jordon Aquifer demonstrate the impact that infiltration has on the water quality of the Jordon aquifer.
- Chloride is elevated (see Table 7 in Part I Plan). The chloride/bromide ratio suggests that the elevated chloride is likely due to road salt (Mullaney et. al., 2009).

Old Municipal Well Information:

- The Minnesota Department of Health has compiled historical information for use in the planning process.

Sanborn Maps:

☒ Sanborn Maps are not available for this area.

Recommended WHP Strategies:

- Include any recommendations within the Part 1 plan, For example: Sampling the Tunnel City Wonewoc aquifer wells to determine age of the water supplying the aquifer. This could be done either tritium or Carbon 14 testing.
- Historical data could be collected and compiled into a single report identifying the work done and all data related to the past 20 years of WHP implementation.
- Use the information from a single report to monitor groundwater and to target future implementation activities.
- Additional Management Strategies could include:
    - Spill response in the Emergency Response Areas (ERA)
    - Potential contaminants located within or near the 200' Inner Well Management Zone, (i.e. Gustavus Adolphus College maintenance facility).
    - Work with Spring Touch Lawn & Pest Control to reduce any potential risk of contamination through education and best management practices.
    - Educate agricultural fuel tank owners of the potential risk to the Jordon Aquifer.
    - Continue to partner and support work that is being done by the Nicolette County SWCD on Ditch # 33.
    - Support and partner with initiatives done in the DWSMA as they relate to work being done for Rogers Creek.

Scoping 2 Decision Notice Attachment
Potential Contaminant Source Inventory Requirements

Low Vulnerable DWSMA

The following current and historical potential contaminant sources and related codes and activity status and related codes are required to be included in the potential contaminant source inventory. All potential contaminant sources must be assigned an activity status and related code using state program descriptors or local knowledge.

Potential Contaminant Sources (PCS)	PCS Codes
Large Capacity Cesspool (potential Class V)	CVLCC
Large Capacity Waste Water Disposal Site (potential Class V)	CVWWD
Motor Vehicle Waste Disposal Well (potential Class V)	CVMVW
Wells	WEL

Activity Status; Codes; and Descriptions

Status	Code	Description
Active	A	PCS is operative or in use. Examples: Animal feedlot is active. Well is in use or has maintenance permit.
Closed	C	PCS is inactive and is not open from a regulatory viewpoint. Example: Leaking storage tank site or landfill is closed.
Inactive	I	PCS is present but not currently active. Examples: Gravel pit is inactive. Well is un-used.
Removed	R	PCS has been removed. Example: Underground storage tank has been removed.
Unknown	U	Activity status of the PCS is not known definitely or has not been evaluated. Examples: Class V site status unknown. Well is thought to be sealed, but no official sealing record has been identified.

Scoping 2 Decision Notice Attachment
Potential Contaminant Source Inventory Requirements

Highly and Very Highly Vulnerable DWSMA

The following current and historical potential contaminant sources and related codes, materials and related codes, and activity status and related codes are required to be included in the potential contaminant source inventory. In cases where a materials identification is required, a materials designation and code must be assigned. All potential contaminant sources must be assigned an activity status and related code using state program descriptors or local knowledge.

Potential Contaminant Sources (PCS)	**PCS Codes**
Material	**Material Codes**
Above-Ground Storage Tank	AST
Chemicals	C000
Fertilizers	A050
Fuels, gases, and oils	F000
Hazardous substances	C001
Solvents and coatings	S000
Waste	W000
Agricultural Drainage Well (potential Class V)	ADW
Animal Burial Site	ABS
Animal Feedlot	AFL
Ash Disposal Site	ASHD
Disposal Well (potential Class V)	DISWLL
Drainage Ditch (non-public, non-roadway)	DITCH
Dump (unpermitted)	DMP
Grave(s)	GRV
Hazardous Waste Generator	HWG
Hazardous Waste Handler	HWH
Industrial Drainage Well (potential Class V)	INDW
Land Application	LAPP
Agricultural chemicals	C010
Chemicals (unspecified)	C000
Fertilizers	A050
Minerals and metals (unspecified)	M000
Waste (used unless one of the materials listed below apply)	W000
Solid waste	W100
Animal manure	W520
Biolsolids	W200
Septage	W720
Industrial	W740

Large Capacity Cesspool (potential Class V)	CVLCC
Large Capacity Waste Water Disposal Site (potential Class V)	CVWWD
Leaking Underground Storage Tank	LUST
Misc. Injection Well (potential Class V)	INJWLL
Motor Vehicle Waste Disposal Well (potential Class V)	CVMVW
Nuclear Reactor	NR
Pipeline Crossing Over Water	PIPEX
Pipeline Facility	PLFAC
Pit (aggregate)	PIT
Potential Contamination Site[1]	PCS
Rail Crossing Over Water	RAILX
Recharge Well (potential Class V)	RWLL
Reinjection Well (potential Class V)	RIWLL
Road Crossing Over Water	ROADX
Sinkhole	SINK
Sludge Disposal Site	SLDG
Solid Waste Management Site	SWMS
Special Drainage Well (potential Class V)	SPDW
Spills	SPL
Storage or Preparation Area	STOR
Agricultural chemicals	C010
Chemicals (include RMP facilities here)	C000
Fertilizers	A050
Fuels, gases, and oils	F000
Hazardous substances (include TRIS facilities here)	C001
Road salt	C020
Solvents and coatings	S000
Pressure-treated wood	C220
Waste (used unless one of the materials listed below apply)	W000
Solid waste	W100
Animal manure	W520
Waste oils	W700
Motor vehicle waste	W710
Tires	W120
Stormwater Basin	SWB
Stormwater Injection Well (potential Class V)	SWI
Stormwater Outlet	SROUT
Subsurface Sewage Treatment System	SSTS
Suspected Contaminant of Concern	SCC
Chemical	C000
Food, agricultural, and consumer products	A000
Fuels, gases, and oils	F000

Materials and minerals	M000
Pathogens	P000
Solvents and coatings	S000
Waste	W000
Underground Storage Tank	UST
Chemicals	C000
Fertilizers	A050
Fuels, gases, and oils	F000
Hazardous substances	C001
Solvents and coatings	S000
Waste	W000
Waste - Metro Area	IWS
Wastewater Disposal Site[2]	WWDS
Wastewater Stabilization Pond	WSP
Wastewater Treatment Pond	WWTD
Wells	WEL

Footnotes:

[1]Potential Contamination Sites (PCS) include the following:

Brownfields (BMS)
Delisted State Superfund Sites (DPLP)
Federal Superfund Sites (NPL)
Hazardous Waste Investigative/cleanup (HWIC)
No Further Remedial Action Planned (NFRAP)
State Superfund Sites (PLP)
Suspected Hazardous Waste Site (CERCL)
Voluntary Investigative Cleanup (VIC)
State Assessment Site (SAS)

[2]Wastewater Disposal Sites (WWDS) include the following:

National Pollutant Discharge Elimination System (NDPES)
State Disposal System Permit (SDS)

Activity Status; Codes; and Descriptions

Status	Code	Description
Active	A	PCS is operative or in use. Examples: Animal feedlot is active. Well is in use or has maintenance permit.
Closed	C	PCS is inactive and is not open from a regulatory viewpoint. Example: Leaking storage tank site or landfill is closed.
Inactive	I	PCS is present but not currently active. Examples: Gravel pit is inactive. Well is un-used.
Removed	R	PCS has been removed. Example: Underground storage tank has been removed.
Unknown	U	Activity status of the PCS is not known definitely or has not been evaluated. Examples: Class V site status unknown. Well is thought to be sealed, but no official sealing record has been identified.

Revised: December 1, 2015

Scoping 2 Decision Notice Attachment
Potential Contaminant Source Inventory Requirements

Highly Vulnerable Surface Water Contribution Area

The following current and historical potential contaminant sources and related codes, materials and related codes, and activity status and related codes are required to be included in the potential contaminant source inventory. In cases where a materials identification is required, a materials designation and code must be assigned. All potential contaminant sources must be assigned an activity status and related code using state program descriptors or local knowledge.

Potential Contaminant Sources (PCS) Material	PCS Codes	Material Codes	Comments / Caveats
Above-Ground Storage Tank	AST		Outdoor, spills and runoff; note presence or absence of containment
Chemicals		C000	
Fertilizers		A050	
Fuels, gases, and oils		F000	
Hazardous substances		C001	
Solvents and coatings		S000	
Waste		W000	
Animal Feedlot	AFL		Aboveground storage and runoff ; note if it is an open lot
Ash Disposal Site	ASHD		Runoff and flooding potential
Drainage Ditch (non-public, non-roadway)	DITCH		Runoff movement through any public or other drainage ditch system toward lake or streams
Hazardous Waste Generator with Outside Storage	HWG		For aboveground outside storage
Hazardous Waste Handler	HWH		Aboveground storage and runoff, spills

Potential Contaminant Sources (PCS) Material	PCS Codes	Material Codes	Comments / Caveats
Land Application	LAPP		Runoff and flooding potential
Agricultural chemicals		C010	
Chemicals (unspecified)		C000	
Fertilizers		A050	
Minerals and metals (unspecified)		M000	
Waste (used unless one of the materials listed below apply)		W000	
Solid waste		W100	
Animal manure		W520	
Biosolids		W200	
Septage		W720	
Industrial		W740	
Large Capacity Cesspool (potential Class V)	CVLCC		Runoff and flooding potential
Large Capacity Waste Water Disposal Site (potential Class V)	CVWWD		Runoff and flooding potential
Pipeline Crossing Over Water	PIPEX		
Pit (aggregate)	PIT		Runoff and flooding potential
Potential Contamination Site[1]	PCS		Likely to be highly plume- and site-dependent, driven by how much of a surface water issue the contaminant is
Rail Crossing Over Water	RAILX		
Road Crossing Over Water	ROADX		
Sludge Disposal Site	SLDG		
Solid Waste Management Site	SWMS		Aboveground storage runoff issues
Spills	SPL		Aboveground, runoff and ponding at surface

Potential Contaminant Sources (PCS) Material	PCS Codes	Material Codes	Comments / Caveats
Storage or Preparation Area	STOR		Aboveground, runoff potential; note if site is subject to an industrial stormwater permit
Agricultural chemicals		C010	
Chemicals (include Risk Management Plan facilities here)		C000	
Fertilizers		A050	
Fuels, gases, and oils		F000	
Hazardous substances (include Toxic Release Inventory Site facilities here)		C001	
Road salt		C020	
Solvents and coatings		S000	
Pressure-treated wood		C220	
Waste (used unless one of the materials listed below apply)		W000	
Solid waste		W100	
Animal manure		W520	
Waste oils		W700	
Motor vehicle waste		W710	
Tires		W120	
Stormwater Basin	SWB		Runoff out of basins during storm events could reach lakes. Also could be area of focused recharge to aquifer.
Stormwater Outlet	SROUT		
Subsurface Sewage Treatment Center	SSTS		

Suspected Contaminant of Concern	SCC		These would be inventoried in a groundwater high or moderate vulnerability area, but should be inventoried anywhere there's a potential for travel via runoff events. To be used when no other potential contaminant source is appropriate.
Chemical		C000	
Food, agricultural, and consumer products		A000	
Fuels, gases, and oils		F000	
Materials and minerals		M000	
Pathogens		P000	
Solvents and coatings		S000	
Waste		W000	
Wastewater Disposal Site[2]	WWDS		If site discharge would likely interact with stormwater runoff; one example could be industrial wastewater from a food processing facility. Include wastewater discharges to streams or lakes that contribute to the source aquifer.
Wastewater Stabilization Pond	WSP		Flooding risk
Wastewater Treatment Pond	WWTD		

Footnotes:

[1]Potential Contamination Sites (PCS) include the following:

Brownfields (BMS)
Delisted State Superfund Sites (DPLP)
Federal Superfund Sites (NPL)
Hazardous Waste Investigative/cleanup (HWIC)
No Further Remedial Action Planned (NFRAP)
State Superfund Sites (PLP)
Suspected Hazardous Waste Site (CERCL)
Voluntary Investigative Cleanup (VIC)
State Assessment Site (SAS)

[2]Wastewater Disposal Sites (WWDS) include the following:

National Pollutant Discharge Elimination System (NDPES)
State Disposal System Permit (SDS)

Activity Status; Codes; and Descriptions

Status	Code	Description
Active	A	PCS is operative or in use. Examples: Animal feedlot is active. Well is in use or has maintenance permit.
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Unknown	U	Activity status of the PCS is not known definitely or has not been evaluated. Examples: Class V site status unknown. Well is thought to be sealed, but no official sealing record has been identified.

APPENDIX H

PUBLIC HEARING DOCUMENTATION

(NOT INCLUDED IN THIS DRAFT)

APPENDIX I

PART 1 WELLHEAD PROTECTION PLAN

CITY OF SAINT PETER
WELLHEAD PROTECTION PLAN - PART 1
AMENDED PLAN

September 25, 2018

Stantec Project No. 193804535

CITY OF SAINT PETER

WELLHEAD PROTECTION PLAN – PART 1 (AMENDMENT)

SEPTEMBER 25, 2018

WELLHEAD PROTECTION AREA AND DRINKING WATER SUPPLY MANAGEMENT AREA DELINEATION AND VULNERABILITY ASSESSMENTS

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Geologist under the laws of the State of Minnesota.

Print Name: MARK JANOVEC

Signature: _____

Date: SEPTEMBER 25, 2018 License # 45625

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Table 2 Historic and Modeled Saint Peter Well Pumping Rates
Table 3 Aquifer Parameters
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Figure 4 Groundwater Contribution Area Vulnerability
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Figure 6 Wellhead Protection Area and Drinking Water Supply Management Area

APPENDICES

Appendix A City of Saint Peter Well Logs
Appendix B Well Vulnerability Assessment Worksheets
Appendix C Model Calibration Results
Appendix D Assessment of Data Elements

EXECUTIVE SUMMARY

This report documents the amended delineation of the wellhead protection area (WHPA) and drinking water supply management area (DWSMA) and the well and DWSMA vulnerability assessments for the City of Saint Peter drinking water supply Well Nos. 6, 7, 8, 9, 10, 11, 12, 13, and 14 (Table 1). Well logs are presented in Appendix A. The delineation was performed in accordance with rules (Minnesota Rules 4720.5100 to 4720.5580) for preparing and implementing wellhead protection measures for public water supply wells. The rules are administered by the Minnesota Department of Health (MDH), and the results described in this report were prepared by Stantec on behalf of the City of Saint Peter.

The City of Saint Peter obtains its drinking water supply from nine primary wells completed in the Jordan, Tunnel City-Wonewoc (TCW, formerly known as the Franconia-Ironton Galesville or FIG), and Mt. Simon aquifers. The first round of WHPA and DWSMA delineations and well and DWSMA vulnerability assessments for Saint Peter's wells were performed (and approved) by the MDH in 1993 and are documented in the report Wellhead Protection Plan for the City of Saint Peter, Minnesota (Bolton and Menk, Inc., October 1997). A second round of delineations was performed by Stantec in July 2008 (under the former name Bonestroo), seen in *City of Saint Peter Wellhead Protection Plan – Part 1* (Bonestroo, July 2008). Since the delineations presented in that report are now 10 years old, the MDH requires that the City of Saint Peter update the delineations using the latest information available regarding geology, well usage, and surface water drainage. Also, in the past 10 years, the City has removed two multi-aquifer wells (Wells 4 and 5) and installed four new wells (Wells 11, 12, 13, and 14). This amended delineation report takes those changes into account.

The WHPA for the wells open to the Jordan Aquifer was delineated using the computer groundwater model developed by the MDH for the Saint Peter Wellhead Protection Plan in 1993. Updates to the model were made by Stantec in 2008 to better simulate groundwater flow conditions in the Jordan Aquifer, through the use of updated model elements and a more updated version of the MLAEM modeling platform. Further updates to the model have been made for the latest delineation analysis. Model updates are covered in greater detail in Chapter 2.

For the Jordan aquifer wells, a conjunctive delineation was developed to determine which portions of land might contribute overland flow of surface waters that might infiltrate within the delineated 20-year capture zones for these wells. LIDAR data was mapped on ArcView using a watershed delineation tool to determine which portions of land drain towards the Jordan Aquifer WHPAs.

The WHPAs for the wells open to the TCW and Mt. Simon aquifers was delineated using the same modeling approach that was used in the 1993 and 2008 delineations. However, the WHPA Model (version 2.2) developed by the U.S. EPA that was used to determine the capture zones for these wells in 1993 and 2008 was replaced by using a single layer modeling approach on the MLAEM platform. The modeled parameters remained largely unchanged from those used in the 1993 and 2008 delineations, with the exception that the modeled pumping rates were updated to simulate the last five years worth of pumping records.

During the 1993 and 2008 delineations, Wells 6 and 9 were classified as "vulnerable" to contamination. These rankings were based on factors such as the amount of geologic protection overlying the aquifer, age dating testing of the water, and the presence of any contaminants in the wells. For the amended wellhead protection plan, Well 6, 9, and 11 are considered "vulnerable" to contamination. All other Saint Peter municipal wells are considered to be "non-vulnerable."

Aquifer vulnerability for the DWSMA ranges from high to low, based on the amount of geologic protection between the water bearing unit and the surface. The Jordan aquifer was classified as “high” in vulnerability, reflecting the same approach used in the 2008 delineation analysis. While some glacial till does overlie the Jordan aquifer in the St. Peter area, particularly west of the bluff line, water chemistry shows a high concentration of nitrates. These nitrates indicate that human-sourced contamination from agricultural activities is reaching the Jordan aquifer. The Tunnel City-Wonewoc and Mt. Simon aquifers were classified as “low” in vulnerability, due to the presence of one or more bedrock confining units separating these aquifers from the land surface. Additionally, the absence of nitrates in the Tunnel City-Wonewoc and Mt. Simon aquifers confirms that little or no contamination from human activities is reaching these aquifers in the Saint Peter area.

CHAPTER ONE
DATA ELEMENTS and ASSESSMENT (4720.5200)

PART 1 - REQUIRED DATA ELEMENTS

A. Physical Environment Data Elements

Precipitation, geology, soils, and water resources data elements are provided in *Wellhead Protection Plan for the City of Saint Peter* (Bolton and Menk, October, 1997) and *City of Saint Peter Wellhead Protection Plan – Part 1* (Bonestroo, July 2008). Those data elements apply to the entire geographic area of the amended WHPA and DWSMA delineations. Geologic information from the construction of the new wells (11, 12, 13, and 14) was utilized for amended modeling, showing variations in aquifer depths and thickness observed at the new wells. Table 4 summarizes the aquifer elevation and thickness data.

B. Land Use Data Elements

1. **Land use** – Land use is not considered for the Part 1 wellhead protection activities, with the exception of parcel and roadway boundaries which are used for the delineation of the Drinking Water Supply Management Area. Land use will be covered in greater detail in the amended Part 2 plan.

2. **Public utility services** – The only public utilities that play a role in the Part 1 wellhead protection plan are the municipal water supply wells in Saint Peter. Since the 1993 and 2008 delineations, the City has sealed two multi-aquifer wells (Wells 4 and 5) and added four new wells (Wells 11, 12, 13, and 14) to replace the sealed wells and to accommodate future water supply demands.

   Information on the Saint Peter wells is presented in Table 1. These wells are also addressed in Part 2 of this chapter.

C. Water Quantity Data Elements

1. **Surface water quantity** - Regional discharge for Jordan and surficial aquifers is to the Minnesota River and its tributaries. The groundwater model created by the MDH for the Jordan aquifer simulates this discharge. Documentation of model parameters is presented in *Wellhead Protection Plan for the City of Saint Peter* (Bolton and Menk, October, 1997) and *City of Saint Peter Wellhead Protection Plan – Part 1* (Bonestroo, July 2008).

2. **Groundwater quantity** - Review of groundwater appropriations permits in the State Water Use Data System (SWUDS) database was performed to identify high capacity wells in the area that might affect delineation of the wellhead protection area. No other high capacity wells were identified within the aquifer units that were thought to impact the size or shape of Saint Peter's wellhead protection delineations.

   For the delineation of the wellhead protection area for the City's own water supply wells, a comparison was made using the last five years of available pumping data from the City's wells (2012-2017) and projected well usage for five years into the future (2022). The highest single rate for each well was utilized for the delineation modeling. Table 2 illustrates historic and projected pumping rates for the City's wells.

D. Water Quality Data Elements

1. **Surface water quality** – Surface water bodies in the Saint Peter area appear to be connected with the Jordan Aquifer system. Water quality in the Jordan aquifer wells

has been degraded over time by the presence of nitrates contamination, which is thought to infiltrate into the aquifer from drainage from row crop agriculture located to the west of the City. As such, a surface water component to the delineation was added to account for the contribution of surface waters to the delineated WHPAs. See Chapter 2 for more information regarding the surface water component of the Jordan aquifer delineation.

2. **Groundwater quality** - Routine monitoring by the Public Water Supply Program between 2012 and 2018 shows nitrates levels in the Saint Peter Jordan aquifer wells to range from 10.2-14.0 mg/L in Well No. 6, 7.5-11.2 mg/L in Well No. 9, and 14.0-19.6 mg/L in Well 11. Nitrates management is a major component of the Part 2 Wellhead Protection Plan. However, since the last plan amendment, the City has added a water treatment plant capable of nitrates removal, allowing the City to utilize the Jordan aquifer wells despite nitrates that exceed the maximum contaminant level. Management of nitrates contamination will be re-evaluated as part of the updates that will be made to the Part 2 Wellhead Protection plan.

   Tritium levels collected in the Jordan aquifer wells range from 12.9 TU in Well 9 (2006) to 29.2 TU in Well 6 (1997). Tritium sampled from the TCW aquifer showed a result of <0.8 TU in Well 8 (2006). Tritium sampled from the Mt. Simon aquifer showed a reading of 0.9 TU from Well 7 (2005). This indicates that water in the Jordan aquifer has a high percentage of recently infiltrated water, while water in the TCW and Mt. Simon aquifers is generally older and less connected to the land surface.

PART 2 - ASSESSMENT OF DATA ELEMENTS USED TO DELINEATE THE WELLHEAD PROTECTION AREA

A. Use of the Wells – Saint Peter Wells 6, 7, 8, 9, 10, 11, 12, 13, and 14 serve as the city's primary source of potable water. Pumping from the wells is rotated based on water demand and seasonal usage. Information about these wells is presented in Table 1 and Appendix A.

B. Wellhead Protection Area Delineation Criteria

1. **Time of travel** – The MDH mandates that public water suppliers delineate their wellhead protection areas using a minimum of 10-year time-of-travel capture zones. The City of Saint Peter decided to use 20-year capture zones when completing the first round of wellhead protection planning in the 1990s. One reason for extending the capture zone time-of-travel was to include more upgradient area outside the 10-year capture zones that may be contributing nitrates to the Jordan aquifer. The 20-year time-of-travel delineation is being maintained for the current plan amendment.

2. **Hydrologic flow boundaries** – Hydrologic flow boundaries that were applied to the delineation analysis conducted by the MDH in 1993 were retained for delineation updates presented in this report. More detail on flow boundaries can be found in *Wellhead Protection Plan for the City of Saint Peter* (Bolton and Menk, October, 1997) and *City of Saint Peter Wellhead Protection Plan – Part 1* (Bonestroo, July 2008).

3. **Daily volume** – Historic annual pumping volumes from the Saint Peter wells for 2012-2017 were compared with projected pumping volumes for the year 2022. The maximum observed or projected pumping rate was applied to the groundwater model, per MDH guidelines for delineating wellhead protection areas. Table 2 illustrates the historic and projected data and highlights the selected pumping volume modeled for each well.

4. **Groundwater flow field** – The groundwater flow field was calculated by the groundwater

flow model. Model calibration and ambient flow-field simulation results are described in *Wellhead Protection Plan for the City of Saint Peter* (Bolton and Menk, October, 1997) and *City of Saint Peter Wellhead Protection Plan – Part 1* (Bonestroo, July 2008). The MDH updated the Jordan aquifer model in 2007 in order to re-delineate the the WHPAs for Wells 4, 5, 6, and 9. Additional update have since been made to reflect the observed geology and water pumping from the newest wells. Calibration results are presented in Appendix C.

5. **Aquifer transmissivity** – Aquifer pumping tests were conducted on Wells 11, 12, 13, and 14 following their construction in 2009. Analysis of these tests indicates that Jordan aquifer at Well 11 has a conductivity in the range of 57.6-59.9 ft/day. The previous modeling efforts for the Jordan aquifer used a conductivity of 35.1 ft/day. For the amended delineation, a range of values between 35.1 ft/day and 59.9 ft/day will be utilized, as part of the uncertainty analysis.

   The aquifer test at Well 12 indicated a range of conductivity in the Wonewoc aquifer between 22.1 ft/day and 29.1 ft/day. For the delineation effort, the larger value of 29.1 ft/day was used as it will provide the largest delineation.

   The aquifer tests at Wells 13 and 14 showed a range of conductivity values for the Mt. Simon aquifer to be 12.2 ft/day to 15.4 ft/day. For the delineation effort, the larger value of 15.4 ft/day was used as it will provide the largest delineation.

C. Quality and Quantity of Water Supplying the Public Water Supply Well - Water in the City of Saint Peter water distribution system is regularly sampled and analyzed for contaminants regulated under the federal Safe Drinking Water Act. Routine monitoring by the Public Water Supply Program at MDH indicates that nitrates contamination is present within the Jordan aquifer and has been increasing gradually since 1994. Nitrates levels in all three Jordan wells now routinely exceed the regulated maximum contaminant level of 10.0 mg/L. A combination of water treatment and blending is utilized to bring the nitrates levels down to a safe level for human consumption. The 2017 Consumer Confidence Report noted that the range of nitrates found in water supplied to residents is 0.38-0.87 mg/L.

The three aquifer units utilized by the City for their water supply system appear to have sufficient transmissivity and recharge to remain a long-term source of drinking water for the City of Saint Peter. Growth in water demand is relatively slow, but steady. The existing wells should be capable of supplying the water supply demands for the duration of this amended wellhead protection plan.

D. The Land Uses in the Drinking Water Supply Management Area – Land uses in the DWSMA for the Saint Peter wells is a mixture of residential, commercial, park, industrial, and agricultural land uses. The western half of the DWSMA is largely agricultural. Land uses will be discussed in greater detail in the Part 2 Wellhead Protection Plan, which will include the contaminant source inventory and management strategies considered for parcels within the DWSMA.

CHAPTER TWO
WELLHEAD PROTECTION AREA AND DRINKING WATER SUPPLY MANAGEMENT AREA DELINEATION (4720.5205)

A. Physical setting and subsurface hydrogeology – The City of Saint Peter's municipal wells draw water from the Jordan, TCW, and Mt. Simon aquifers. Well information is presented in Table 1 and Appendix A of this report. Groundwater flow and the hydrogeologic setting are described in *Wellhead Protection Plan for the City of Saint Peter* (Bolton and Menk, October, 1997) and *City of Saint Peter Wellhead Protection Plan – Part 1* (Bonestroo, July 2008).

B. Delineation of the Wellhead Protection Area – Since the Saint Peter wells draw their water from three different aquifer units, the delineation analysis for each aquifer was handled separately. Below is a description of the methodology and uncertainty for each of the aquifers that were analyzed.

Jordan Aquifer

Delineation Method - The groundwater flow model used for the first wellhead protection area delineations for St. Peter's Jordan Wells was developed in 1993. Documentation of the development and calibration of this model is provided in the original wellhead plan for the City of St. Peter (*Wellhead Protection Plan for the City of Saint Peter* , Bolton and Menk, October 1997).

A review of this model was done in 2008 and 2018 as part of the preparation for amended WHPA delineations for the City of Saint Peter. The following improvements were made to the model in 2008:

- Model coordinates were changed to UTM, meters, NAD83, zone 15 from state plane, feet, NAD27;
- Model input was modified to work with latest version of the MLAEM GUI (version 5.1.08). The earlier version ran in MLAEM version 2.5.
- The reference point was moved to a point far from the area of interest; and
- Additional line-elements were added to the model input to represent rivers, streams, and lakes in the intermediate to far field that were not included in the original dataset. This additional detail was necessary to establish sufficiently stable conditions for evaluating the new generation of doublet elements in MLAEM 5.1.08;
- The size of a given-strength area element used to provide baseline recharge was enlarged to accommodate the larger model domain;
- St. Peter city well locations were adjusted to reflect locations currently in MDH databases;
- Resistance values of selected area elements used to represent the Minnesota River were increased to achieve better simulated head values;
- The geographic representation of the new doublets is simplified relative to what was used earlier. The old style doublets did not exert the same degree of control over the analytic solution as newer versions do. Greater control was achieved by using multiple segments of doublets. This level of detail is not needed with the doublets implemented in MLAEM 5.1.08 and, indeed, can result in numerical instability when implemented using the doublets in MLAEM 5.1.08. Accordingly, the general areas of the many doublets in the original model are preserved in the current model implementation, but the exact geometry differs slightly.

Additional improvement made in 2018 include the following:

- Layer depths and thickness were adjusted to represent geology observed in the City's newest wells.
- A new calibration database was constructed using the most recent database of well information available for the model domain. Calbration results are presented in Appendix C.
- Pumping rates for the Saint Peter wells were adjusted to reflect historic data from the past five years or the predicted pumping rate five years into the future, whichever was higher.

Pumping rates used to make the delineations are shown in Table 2. These values were selected in accordance with criteria in the wellhead protection rule. Specifically, the values used for the wells are listed below:

- Well No. 6 = 28.5 MG/Y
- Well No. 9 = 28.7 MG/Y
- Well No. 11 = 30.5 MG/Y

Particle tracing in MLAEM was utilized to simulate the capture zones for each well, with a minimum of 40 particle traces used per well. The modeled delineation of Jordan aquifer capture zones is shown in Figure 1. The inner line represents the 1-year time-of-travel while the outer line represents the 20-year time-of-travel for the City's Jordan aquifer wells.

Uncertainty Analysis – Using computer models to simulate ground-water flow necessarily involves representing a complicated natural system in a simplified manner. These simplifications are a result of incomplete knowledge or understanding of part of the natural system and the limitations of mathematical models implemented in groundwater modeling computer codes. The necessary simplifications give rise to uncertainty in the model results. A reasonable attempt to account for the most significant causes of model uncertainty was made in the delineation of the WHPA.

At least one modeling uncertainty that existed with the original delineation analysis in 1993 and 2008 is still largely present in the amended delineation. The modeled extent of the Jordan aquifer becomes less likely to exist the further west one moves from the Glacial River Warren escarpment, as the Jordan aquifer is missing locally in that area. For the sake of the delineation effort, it is assumed that a water-bearing unit exists in this area that can supply water to the Jordan aquifer and its associated wells.

Other uncertainties identified in the 1993 and 2008 analysis include:

- Doublets in model that cross areal elements may lead to model instability
- Use of state plane coordinates in model results in large numbers can lead to loss of numerical accuracy within the model

Both of these uncertainties have been corrected, to some degree, in the updated groundwater model. The use of UTM coordinates and the reconfiguration of the doublets in the updated model are thought to both increase model stability and model accuracy.

Another source of uncertainty is the range of hydraulic conductivity that is present in the Jordan aquifer. For the modeling effort the range of conductivity measured in the municipal wells, from

35.1 ft/day to 59.9 ft/day was utilized to account for aquifer variability. The capture zones displayed in Figure 1 are a composite of the model runs with the range of values simulated. Also, since groundwater flow direction may not be accurately simulated in all areas of the delineation, the capture zones were expanded to include a +/- 10 degree variation in flow direction. This helps to ensure that small variations in flow direction are accounted for.

Based on the available hydrogeologic data, the groundwater model and uncertainty analysis used to delineate the wellhead protection area appear to be reasonable. The groundwater modeling described in this report is adequate for wellhead protection purposes for the City of Saint Peter water supply wells and meets the requirements of Minnesota rules for preparing wellhead protection measures for public water supply wells.

Tunnel City-Wonewoc (TCW) Aquifer

Delineation Method – The method used in the 1993 and 2008 delineation analysis used to model the TCW aquifer (formerly known as the Franconia-Ironton-Galesville, or FIG, aquifer) capture zones for the Saint Peter wells was used again for this amended delineation. A more detailed explanation of the delineation approach is provided in *Wellhead Protection Plan for the City of Saint Peter* (Bolton and Menk, October 1997). The WHPA Model (version 2.2) developed by the U.S. EPA was, however, replaced by using a single-layer model in MLAEM, as the WHPA Model software is no longer compatible with current Windows operating systems. Model parameters are as specified below:

- Hydraulic conductivity = A conductivity of 8.9 m/day (29.1 ft/day) was used, reflecting the highest conductivity observed at the pumping test for Wells 12.
- Aquifer Thickness = Modeled thickness was 16.8 meters (55.1 feet), representing the thickness of the Wonewoc formation. While Well 10 is technically a Tunnel City-Wonewoc well, only the bottom 14 feet of the Tunnel City formation are open to this well. It is not believed this lower interval of the Tunnel City is a productive portion of the aquifer. Also, Wells 8 and 12 are open to the Wonewoc only. For the sake of the modeling analysis, only the Wonewoc portion of the aquifer was included.
- Aquifer porosity = Modeled porosity was 0.20, which is on the conservative end of the range for sandstone aquifers.
- Ambient Groundwater Flow Angle = An angle of 345 degrees was used, with a +/- 10 degree correction factor used as part of the uncertainty analysis
- Modeled Well Discharge (based on Table 2):
    - Well 8 = 58.3 MG/Y
    - Well 10 = 50.1 MG/Y
    - Well 12 = 59.3 MG/Y

Particle tracing in MLAEM was utilized to simulate the capture zones for each well, with a minimum of 40 particle traces used per well. The modeled delineation of the TCW aquifer capture zones is shown in Figure 2. The inner line represents the 1-year time-of-travel while the outer line represents the 20-year time-of-travel for the City's TCW aquifer wells.

Uncertainty Analysis - Using computer models to simulate ground-water flow necessarily involves representing a complicated natural system in a simplified manner. These simplifications are a result of incomplete knowledge or understanding of part of the natural system and the limitations of mathematical models implemented in groundwater modeling computer codes. The

necessary simplifications give rise to uncertainty in the model results. A reasonable attempt to account for the most significant causes of model uncertainty was made in the delineation of the WHPA.

The variation of hydraulic conductivity across the model domain is not well known, with only three available data points (the three City wells) to provide information. Therefore, the highest conductivity value observed was the one used for the delineation effort, as it would produce the longest delineation. Also, since groundwater flow direction may not be accurately simulated in all areas of the delineation, the capture zones were expanded to include a +/- 10 degree variation in flow direction. This helps to ensure that small variations in flow direction are accounted for.

The portion of water provided by the Tunnel City formation to the wells was not accounted for in the delineation, with the model only simulating flow in the Wonewoc formation. Additionally, no recharge was applied to the Wonewoc, since the recharge amount in not known. By using this approach, a more conservative delineation was produced.

Based on the available hydrogeologic data, the groundwater model and uncertainty analysis used to delineate the wellhead protection area appear to be reasonable. The groundwater modeling described in this report is adequate for wellhead protection purposes for the City of Saint Peter water supply wells and meets the requirements of Minnesota rules for preparing wellhead protection measures for public water supply wells.

Mt. Simon Aquifer

Delineation Method - The method used in the 1993 and 2008 delineation analysis used to model the Mt. Simon aquifer capture zones for the Saint Peter wells was used again for this amended delineation. A more detailed explanation of the delineation approach is provided in *Wellhead Protection Plan for the City of Saint Peter* (Bolton and Menk, October 1997). The WHPA Model (version 2.2) developed by the U.S. EPA was, however, replaced by using a single-layer model in MLAEM, as the WHPA Model software is no longer compatible with current Windows operating systems. Model parameters are as specified below:

- Hydraulic conductivity = A conductivity of 4.7 m/day (15.4 ft/day) was used, reflecting the highest conductivity observed at the pumping tests for Wells 13 and 14.
- Aquifer Thickness = Modeled thickness was 56.3 meters (184.7 feet), representing the thickness of the Mt. Simon formation.
- Aquifer porosity = Modeled porosity was 0.20, which is on the conservative end of the range for sandstone aquifers.
- Ambient Groundwater Flow Angle = An angle of 0 degrees was used, with a +/- 10 degree correction factor used as part of the uncertainty analysis
- Modeled Well Discharge (based on Table 2):
    - Well 7 = 55.8 MG/Y
    - Well 13 = 80.4 MG/Y
    - Well 14 = 85.0 MG/Y

Particle tracing in MLAEM was utilized to simulate the capture zones for each well, with a minimum of 40 particle traces used per well. The modeled delineation of the Mt. Simon aquifer capture zones is shown in Figure 3. The inner line represents the 1-year time-of-travel while the outer line represents the 20-year time-of-travel for the City's Mt. Simon aquifer wells.

Uncertainty Analysis - Using computer models to simulate ground-water flow necessarily involves representing a complicated natural system in a simplified manner. These simplifications are a result of incomplete knowledge or understanding of part of the natural system and the limitations of mathematical models implemented in groundwater modeling computer codes. The necessary simplifications give rise to uncertainty in the model results. A reasonable attempt to account for the most significant causes of model uncertainty was made in the delineation of the WHPA.

The same uncertainty that was identified in the 1993 delineation analysis applies to the amended delineation analysis. Specifically, the angle of the ambient direction of groundwater was based on a regional analysis. The lack of local data makes it difficult to accurately define the angle of groundwater flow near the Saint Peter wells. If more site-specific data becomes available, it should be utilized the next time the delineation is amended. A +/- 10 degree variation was applied to the capture zones produced by the model, though they had little effect since the capture zones for the Mt. Simon wells were largely circular.

The variation of hydraulic conductivity across the model domain is not well known, with only three available data points (the three City wells) to provide information. Therefore, the highest conductivity value observed was the one used for the delineation effort, as it would produce the longest delineation.

Based on the available hydrogeologic data, the groundwater model and uncertainty analysis used to delineate the wellhead protection area appear to be reasonable. The groundwater modeling described in this report is adequate for wellhead protection purposes for the City of Saint Peter water supply wells and meets the requirements of Minnesota rules for preparing wellhead protection measures for public water supply wells.

C. Delineation of Surface Water Component – Geologic data and water chemistry results indicate that the Jordan aquifer in the St. Peter area has a connection with surface water. The presence of tritium and elevated levels of nitrates in the Jordan aquifer wells demonstrates the impact that infiltration can play on the water quality of the Jordan aquifer. As such, it was decided, as part of the 1993 and 2008 delineation analysis, to delineate the portion of the land surface that direct run-off or drainage towards the groundwater capture zones of the wells open to the Jordan aquifer. The MDH and City of Saint Peter worked together to delineate the area that drained towards the Jordan groundwater delineations, using data collected in the field and local topography information. The greatest emphasis was placed on areas west of the Glacial River Warren escarpment, since those agricultural areas are thought to contribute the greatest amount of nitrates contamination to the Jordan aquifer.

For the amended delineation analysis, data from a LIDAR flyover was imported into ArcView and a detailed map of the surface topography was created. This surface topography was processed through the Watershed Delineator tool developed by ESRI. This tool analyzes topographic data in order to produce streamlines showing the path and direction of surface water flow over a variable-elevation land surface. Based on the streamlines produced using the LIDAR data, a delineation of the land area that drains towards the Jordan aquifer delineations (presented in Figure 1) was developed. Figure 5 shows the results of that analysis. While not all surface water within this delineation will necessarily pass through or infiltrate into the delineated Jordan aquifer 20-year capture zone, this delineation represents the area that has the possibility of contributing water that will be infiltrated into the groundwater capture zones of the Jordan aquifer. As such, adding this area to the Jordan aquifer delineation helps to identify areas in the Part 2 planning process that impact the water quality of the Jordan aquifer.

D. Delineation of the WHPA and DWSMA – The Wellhead Protection Area (WHPA) is a composite of all groundwater capture zones presented in Figures 1, 2, and 3, along with the surface water contribution area mapped in Figure 5. The WHPA is shown on Figure 6. The Drinking Water Supply Management Area (DWSMA) is shown as the outlined area on Figure 6. This area includes all of the wellhead protection areas and was delineated using a combination of parcel boundaries, street and road centerlines, Public Land Survey System section and quarter section lines, and municipal boundaries. The delineated DWSMA, like that from the 1993 and 2008 analysis, goes beyond the Saint Peter city limits and includes portions of both Traverse Township and Oshawa Township.

CHAPTER THREE
VULNERABILITY ASSESSMENT

This chapter documents the vulnerability assessments of the wells and drinking water supply management area for the City of Saint Peter Wells 6, 7, 8, 9, 10, 11, 12, 13, and 14. This assessment was performed in accordance with rules (Minnesota Rule 4720.5210) for preparing and implementing wellhead protection measures for public water supply wells.

The vulnerabilities of the wells were determined by evaluating available information on the 1) geology, 2) well construction, 3) pumping rates, and 3) chemical composition of the well water and comparing these results with the criteria in Minnesota Rule 4720.5550.

The vulnerability of the drinking water supply management area (DWSMA) for the City of Saint Peter was determined by evaluating available information on 1) the lateral continuity of protective geologic materials overlying the aquifer and 2) the chemical and isotopic composition of well water from the aquifer. A primary source of information for the DWSMA vulnerability assessment was from well log information obtained in the County Well Index. Sensitivity ratings in the atlas are based on the presence of confining layers above the aquifer, the composition of unconsolidated sediments, and the depth to bedrock.

The DWSMA vulnerability assessment for the previously approved DWSMA is described in detail in *Wellhead Protection Plan for the City of Saint Peter* (Bolton and Menk, October 1997) and *City of Saint Peter Wellhead Protection Plan – Part 1* (Bonestroo, July 2008). The data and methods applied to the vulnerability assessment reported here are the same as reported previously.

Well vulnerability assessment - A vulnerability score was calculated for each well based on factors such as well construction, geology at the well site, and chemical data; higher scores correlate to greater perceived vulnerability. A numeric cutoff (of 40 and below) is used to identify vulnerable from non-vulnerable wells (MDH, 1997). Vulnerable wells are also identified based on the presence of contamination, such as nitrate-nitrogen in excess of 10 mg/l, or young (post-1953) water, as indicated by the presence of 1 tritium unit or greater in the well water. The results of this assessment for the Saint Peter wells are described below. The well vulnerability assessment worksheets are provided in Appendix B.

Wells 6, 9, and 11 are designated as vulnerable due to the lack of geologic protection above the Jordan aquifer, the elevated nitrates readings in both wells, and the high tritium reading in Well 6 (47.4 TU).

The remaining Saint Peter wells are designated as non-vulnerable, because of the sufficient level of geologic protection over the TCW and Mt. Simon aquifers. Additionally, Carbon 14 age dating testing in Well 7 indicates “ancient” water in the well. Levels of nitrates in all three wells remain below detection limits at the time of this plan amendment

Drinking Water Supply Management Area Vulnerability Assessment - The vulnerability of land parcels located within the drinking water supply management area (DWSMA) for the City of Saint Peter wells was evaluated primarily on the basis of 1) existing geologic maps, 2) well logs from County Well Index and 3) chemistry data from samples taken from the Saint Peter Municipal wells. The discussion of DWSMA vulnerability is broken down by aquifer unit below. Since vulnerability for groundwater contribution areas and surface water contribution areas are determined separately, two sets of vulnerability maps are provided. Figure 4 shows the vulnerability of the groundwater contribution areas. Figure 5 shows the vulnerability of the surface water contribution areas. Since surface water can move rapidly across the land surface before infiltrating, all parcels within the surface water contribution area are considered to be highly vulnerable from the runoff standpoint.

Groundwater vulnerability for Figure 4 was determined on an aquifer-by-aquifer basis.

Jordan Aquifer – The 1993 and 2008 delineation analysis is documented in Chapter 3 of the report *Wellhead Protection Plan for the City of Saint Peter* (Bolton and Menk, October 1997) and *City of Saint Peter Wellhead Protection Plan – Part 1* (Bonestroo, July 2008). The vulnerability of the DWSMA was originally determined by analyzing well log data from County Well Index and assigning the vulnerability of the DWSMA based on interpolation of well log data. Figures 3.1 and 3.6 in the 1997 report show the distribution of wells with available geologic log data within and near the DWSMA. A recent review of County Well Index data in 2008 indicated that no additional wells with geologic log data was available to update the 1993 MDH vulnerability study. The results of the study showed that the portions of the DWSMA were more highly vulnerable than others. The eastern edge of the DWSMA, where terrace deposits are located, showed less geologic protection overlying the Jordan aquifer. In some cases, no low permeable units separate the land surface from the Jordan aquifer. The area to the west of the terrace, but east of the escarpment, was originally classified as "moderate" in vulnerability for the Jordan aquifer wells, since the available well logs did some varying thicknesses of clay-containing units. Areas west of the escarpment were classified as "very low" in vulnerability due to the thick layer of clay separating the land surface from the Jordan aquifer.

For the amended delineation in 2008, this vulnerability assessment was re-visited to ascertain whether the vulnerability of the aquifer should remain the same or be updated to reflect current understanding of the geologic setting of the Jordan aquifer wells. After review, it was determined that the groundwater portion of the Jordan aquifer groundwater DWSMA should be re-classified as "high" in vulnerability. There are several reasons for this change:

- The coverage of well log and geologic data over the area represented by the Jordan aquifer delineation is relatively sparse. In some areas, a wide separation between wells necessitates the interpolation of data. Since glacial sediments can be highly variable over short distances, it is not possible at this time to assign areas of "moderate" or "low" vulnerability to the aquifer with great certainty.
- Some of the well logs used in the 1993 vulnerability analysis included clay as one component of the till layer, but not necessarily the major component of the till unit. Current methodology for assigning vulnerability calls for using only units which are predominantly made up of clay.
- Water chemistry data from the Jordan aquifer wells indicated high levels of nitrates, which continue to increase over time. Combined with the high tritium readings taken in the early 1990s, this indicates the wells are receiving significant recharge of young water.
- Water chemistry data from nearby wells (showing in Figure 3.7 of the 1997 report) shows that many wells located in the areas classified as "moderate" in vulnerability also show contamination impacts from recent recharge. Therefore, it points to there being "windows" within the till unit that allow infiltration of younger water to the aquifer.

For the current delineation update, it is noted that Well 11, which was completed west of the escarpment, has over 100 feet of unconsolidated material overlying the Prairie du Chien formation, much of which is clay till in nature. Despite this apparent geologic protection, Well 11 has the highest nitrates concentrations (up to 19.6 mg/L) of all three Saint Peter Jordan aquifer wells. Therefore, the assumptions that the clay till are not a suitable protective layer appear to remain valid.

TCW Aquifer – The vulnerability of the TCW aquifer within the delineated areas remains unchanged from the 1993 and 2008 analysis, as presented in *Wellhead Protection Plan for the City of Saint Peter* (Bolton and Menk, October 1997) and *City of Saint Peter Wellhead Protection Plan – Part 1* (Bonestroo, July 2008). The same well logs that were used in the 1993 analysis were available for the current amendment, along with the addition of the log for Well 12 drilled in 2009. The full thickness, or nearly full thickness, of the St. Lawrence bedrock unit is thought to overlie the TCW aquifer in this area of Saint Peter. The St. Lawrence formation is a shale-bearing dolomitic sandstone which acts as a confining unit, hydraulically separating the Jordan aquifer from the TCW aquifer. The apparent lack of nitrates migration from the Jordan aquifer to the TCW aquifer appears to confirm that the St. Lawrence is a suitable protective layer.

Mt. Simon Aquifer - The vulnerability of the Mt. Simon aquifer within the delineated areas remains unchanged from the 1993 and 2008 analysis, as presented in *Wellhead Protection Plan for the City of Saint Peter* (Bolton and Menk, October 1997) and *City of Saint Peter Wellhead Protection Plan – Part 1* (Bonestroo, July 2008). The same well logs that were used in the 1993 analysis were available for the current amendment, along with the addition of the logs for Wells 13 and 14 drilled in 2009. The full thickness of the Eau Claire bedrock unit is thought to overlie the Mt. Simon aquifer in this area of Saint Peter. The Eau Claire formation is a shale-bearing siltstone which acts as a confining unit, hydraulically separating the TCW aquifer from the Mt. Simon aquifer. In addition, the Mt. Simon aquifer also benefits from the geologic protection of the St. Lawrence formation, which also protects the TCW aquifer. The apparent lack of nitrates migration from the Jordan aquifer to the TCW aquifer appears to confirm that the St. Lawrence is a suitable protective layer.

Carbon 14 age dating testing of water from Mt. Simon Aquifer Well 7 also indicates that water from this aquifer is "ancient" in age, further confirming that this aquifer is well separated from the surface in the Saint Peter area.

The results of the groundwater vulnerability assessment are shown on Figure 4, as different color shadings applied to the DWSMA map. Where the Jordan aquifer groundwater delineation was present, a "high" level of vulnerability was assigned. Where the TCW and Mt. Simon aquifer delineations were present, with no overlapping areas of Jordan or surface water delineations, a "low" vulnerability level was assigned to the DWSMA. Higher levels of vulnerability always take precedence over lower levels of vulnerability. As such, if a parcel contains areas of multiple delineations, the delineation with the highest vulnerability level is considered representative of the entire parcel.

Recommendations – Assessing vulnerability requires periodic sampling for age-dating compounds and potential contaminants to ensure that the water meets established standards and that the designated vulnerability levels are appropriate. To date, water chemistry and tritium results appear conclusive that the Jordan aquifer water is highly vulnerable. Likewise, testing at Well 7 has demonstrated that the Mt. Simon aquifer water is ancient in nature. Future sampling of wells could be concentrated on TCW aquifer wells, in order to determine the age of water supplying these aquifers. This could include either tritium testing or Carbon 14 testing.

REFERENCES

Bolton and Menk, *Wellhead Protection Plan for the City of Saint Peter, Minnesota*, October 1997.

Bonestroo, *City of Saint Peter Wellhead Protection Plan – Part 1 (Amendment),* July 2008.

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Strack, Otto D., *MLAEM Version 5.1.08 Dev.*, Strack Consulting, Inc.,

TABLES

TABLE 1: SAINT PETER WATER SUPPLY WELL INFORMATION

Well Name	Unique Number	Status	UTM E Coordinate	UTM N Coordinate	Aquifer	Casing Diameter (in)	Casing Depth (feet)	Well Depth (feet)	Year Constructed	Well Vulnerability*
Well 4	209911	Sealed			Jordan-Mt. Simon	24x16	120	667	1951	NA
Well 5	209910	Sealed			Jordan-Mt. Simon	24x16	140	752	1957	NA
Well 6	209906	Primary	423725	4910427	Jordan	24x12	80	130	1972	Vulnerable
Well 7	433254	Primary	423755	4910229	Mt. Simon	24x18	510	635	1987	Not Vulnerable
Well 8	473638	Primary	423750	4910216	Wonewoc	18x12	362	410	1991	Not Vulnerable
Well 9	473639	Primary	423754	4910160	Jordan	18x12	112	145	1991	Vulnerable
Well 10	473640	Primary	423755	4910099	Tunnel City-Wonewoc	18x12	320	396	1991	Not Vulnerable
Well 11	770414	Primary	422310	4909007	Jordan	24x18	188	233	2009	Vulnerable
Well 12	770415	Primary	422326	4909008	Wonewoc	24x18	430	490	2009	Not Vulnerable
Well 13	770416	Primary	422342	4909007	Mt. Simon	24x18	630	780	2009	Not Vulnerable
Well 14	770417	Primary	422477	4909127	Mt. Simon	24x18	620	775	2009	Not Vulnerable

* vulnerability status based on review of well construction, geologic materials encountered during drilling, well use, and water quality.

TABLE 2: HISTORIC AND MODELED SAINT PETER WELL PUMPING RATES

Well Name	Unique Number	Recorded Pumping Volumes (MG/Y)					Predicted 2022 Pumping (MG/Y)*	Modeled Pumping Rate (MG/Y)	Modeled Pumping Rate (m^3/day)
		2013	2014	2015	2016	2017			
Well 6	209906	28.5	28.4	27.5	27.8	25.8	25.0	28.5	295.8
Well 7	433254	48.1	40.6	55.8	53.5	53.8	55.0	55.8	579.1
Well 8	473638	55.0	58.3	53.6	51.8	52.3	55.0	58.3	605.0
Well 9	473639	28.2	27.5	20.8	24.1	28.7	25.0	28.7	297.8
Well 10	473640	48.1	49.1	50.1	48.9	48.2	50.0	50.1	519.9
Well 11	770414	30.5	25.0	22.0	22.2	25.2	30.0	30.5	316.5
Well 12	770415	59.3	52.0	44.7	44.4	50.0	55.0	59.3	615.4
Well 13	770416	75.3	80.4	56.7	74.4	70.4	80.0	80.4	834.4
Well 14	770417	79.7	67.5	73.5	56.8	72.4	85.0	85.0	882.1
Total		452.7	428.8	404.7	403.9	426.8	460.0	476.6	4946.1

*Calculated based on a predicted population of 12,619 and a per capita daily usage of 100 gallons

TABLE 3 – AQUIFER PARAMETERS, CITY OF SAINT PETER

Parameter	Value	Data Source
Aquifer Name	Jordan	Saint Peter Well Logs, County Well Index
Aquifer Material	Sandstone	Nicollet County Geologic Atlas
Primary Porosity	0.20	Standard MDH porosity for WHP delineations
Aquifer Thickness	83-92 feet	Saint Peter Well Logs, County Well Index
Stratigraphic Top Elevation	736-774 feet	Saint Peter Well Logs, County Well Index
Stratigraphic Bottom Elevation	640-681 feet	Saint Peter Well Logs, County Well Index
Hydraulic Confinement	Unconfined	County Well Index
Transmissivity (T)	5,295-5,515 ft^2/day	Saint Peter Well 11 Pumping Test (2009)
Hydraulic Conductivity	57.6-59.9 ft/day	Saint Peter Well 11 Pumping Test (2009)
Groundwater Flow Field	East Flow Direction	Nicollet County Geologic Atlas

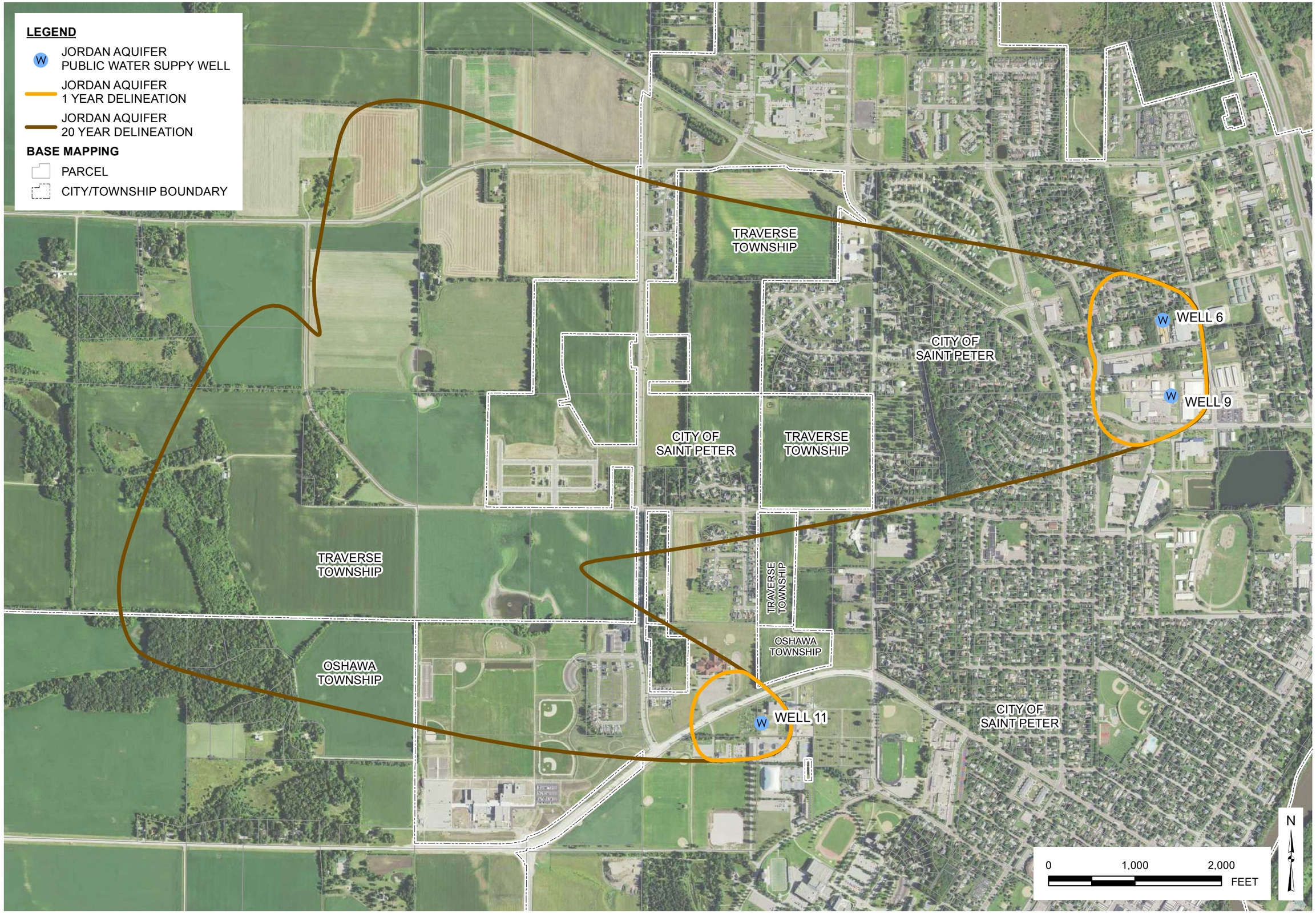
Parameter	Value	Data Source
Aquifer Name	Wonewoc	Saint Peter Well Logs, County Well Index
Aquifer Material	Sandstone	Nicollet County Geologic Atlas
Primary Porosity	0.20	Standard MDH porosity for WHP delineations
Aquifer Thickness	53-65 feet	Saint Peter Well Logs, County Well Index
Stratigraphic Top Elevation	446-484 feet	Saint Peter Well Logs, County Well Index
Stratigraphic Bottom Elevation	393-422 feet	Saint Peter Well Logs, County Well Index
Hydraulic Confinement	Confined	County Well Index
Transmissivity (T)	1,215-1,600 ft^2/day	Saint Peter Well 12 Pumping Test (2009)
Hydraulic Conductivity	22.1-29.1 ft/day	Saint Peter Well 12 Pumping Test (2009)
Groundwater Flow Field	East Flow Direction	Nicollet County Geologic Atlas

Parameter	Value	Data Source
Aquifer Name	Mt. Simon	Saint Peter Well Logs, County Well Index
Aquifer Material	Sandstone	Nicollet County Geologic Atlas
Primary Porosity	0.20	Standard MDH porosity for WHP delineations
Aquifer Thickness	176-192 feet	Saint Peter Well Logs, County Well Index
Stratigraphic Top Elevation	298-323 feet	Saint Peter Well Logs, County Well Index
Stratigraphic Bottom Elevation	106-137 feet	Saint Peter Well Logs, County Well Index
Hydraulic Confinement	Confined	County Well Index
Transmissivity (T)	2,150-2,860 ft^2/day	Saint Peter Wells 13 and 14 Pumping Tests (2009)
Hydraulic Conductivity	12.2-15.4 ft/day	Saint Peter Wells 13 and 14 Pumping Tests (2009)
Groundwater Flow Field	East Flow Direction	Nicollet County Geologic Atlas

TABLE 4: GEOLOGIC LAYER ELEVATIONS AND THICKNESS

Well Name	Unique Number	Well Depth (feet)	Well Elevation (ft)	PDC Top Elevation (ft)	Jordan Top Elevation (ft)	St. Lawrence Top Elevation (ft)	Wonewoc Top Elevation (ft)	Eau Claire Top Elevation (ft)	Mt. Simon Top Elevation (ft)	Mt. Simon Bottom Elevation (ft)	Thickness PDC (ft)	Thickness Jordan (ft)	Thickness Wonewoc (ft)	Thickness Mt. Simon (ft)
Well 4	209911	667	829	820	774	689	474	409	299		46	85	65	
Well 5	209910	752	825	807	769	681	470	408	316	73	38	88	62	243
Well 6	209906	130	788	763	756						7			
Well 7	433254	635	791	746	736	646	466	411	298	106	10	90	55	192
Well 8	473638	410	792		741	652	446	393				89	53	
Well 9	473639	145	790		738	649						89		
Well 10	473640	396	788		731	640	454	397			57	91	57	
Well 11	770414	233	909	803	770	678					33	92		
Well 12	770415	490	909	804	764	681	484				40	83		
Well 13	770416	780	909	799	763	680	466	409	310	134	36	83	57	176
Well 14	770417	775	912	797	769	680	476	422	323	137	28	89	54	186
			Average	**792.4**	**755.5**	**667.6**	**467.0**	**407.0**	**309.2**	**112.5**	**32.8**	**87.9**	**57.6**	**199.3**

FIGURES



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V:\1938\active\193804535\GIS\Projects\Fig 1 - Jordan.mxd

FIGURE 1 - JORDAN AQUIFER GROUNDWATER CONTRIBUTION AREA

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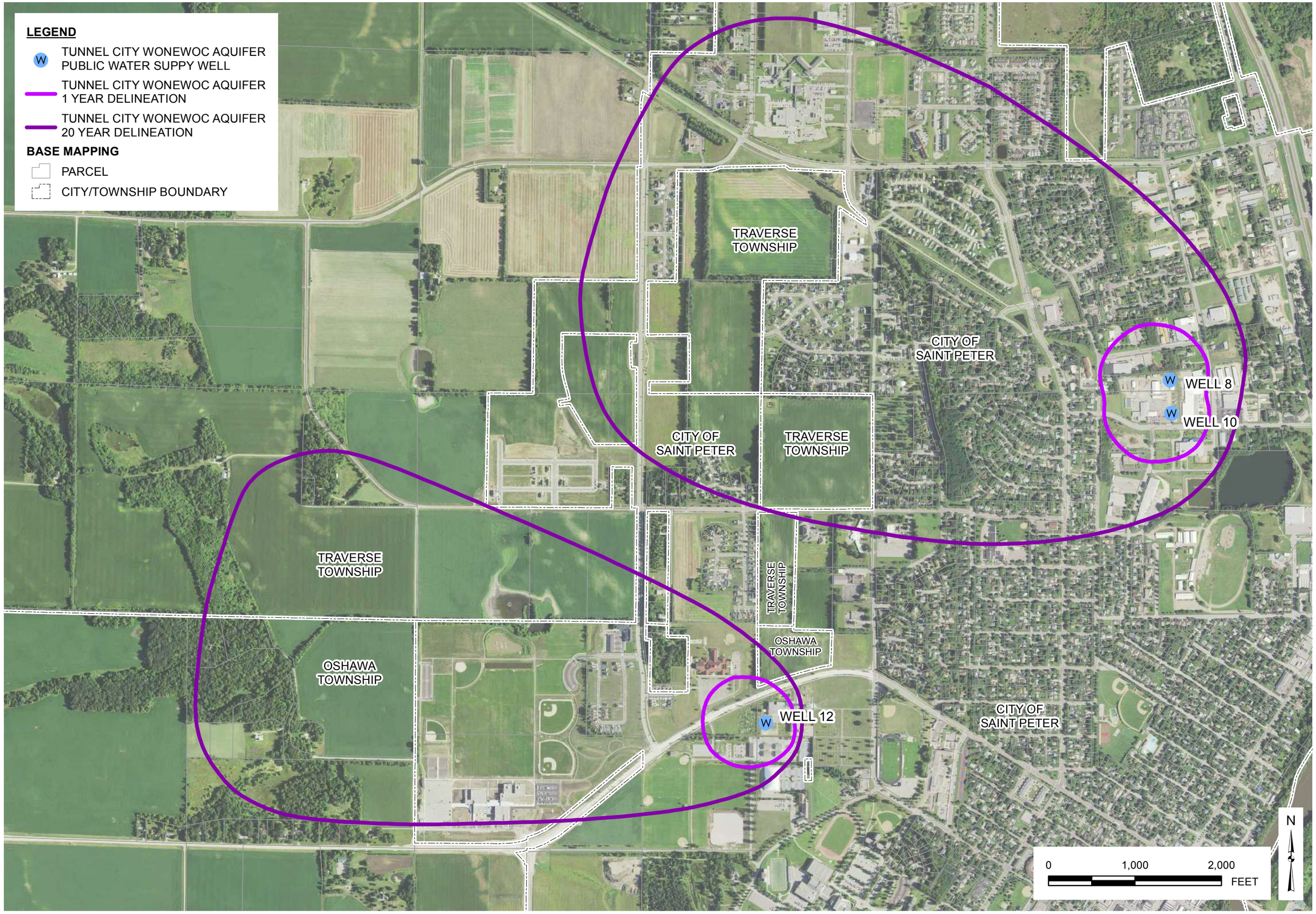

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V:\1938\active\193804535\GIS\Projects\Fig 2 - TCW.mxd

FIGURE 2 - TUNNEL CITY WONEWOC AQUIFER CONTRIBUTION AREA

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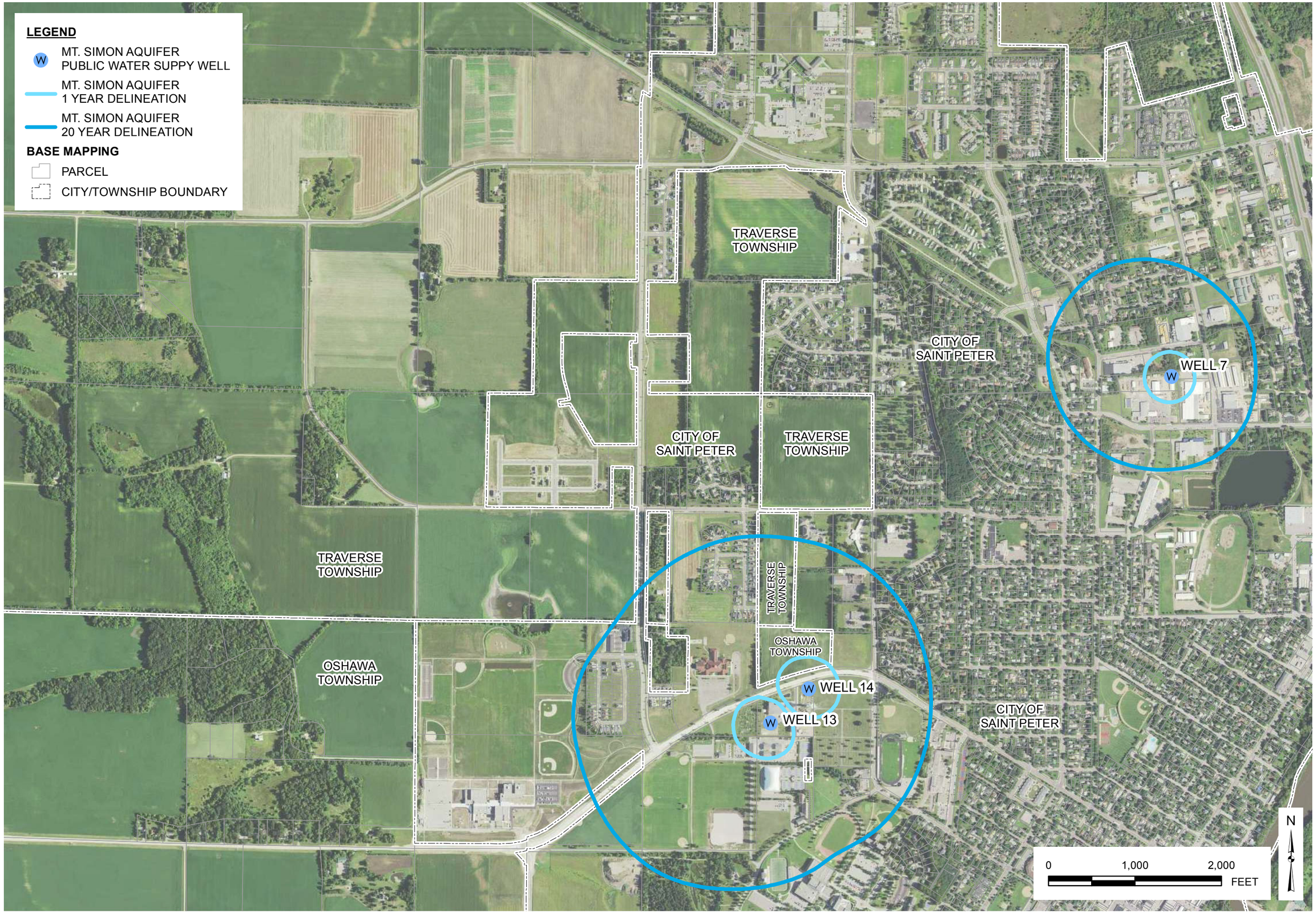

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V:\1938\active\193804535\GIS\Projects\Fig 3 - MtSimon.mxd

FIGURE 3 - MT. SIMON AQUIFER GROUNDWATER CONTRIBUTION AREA

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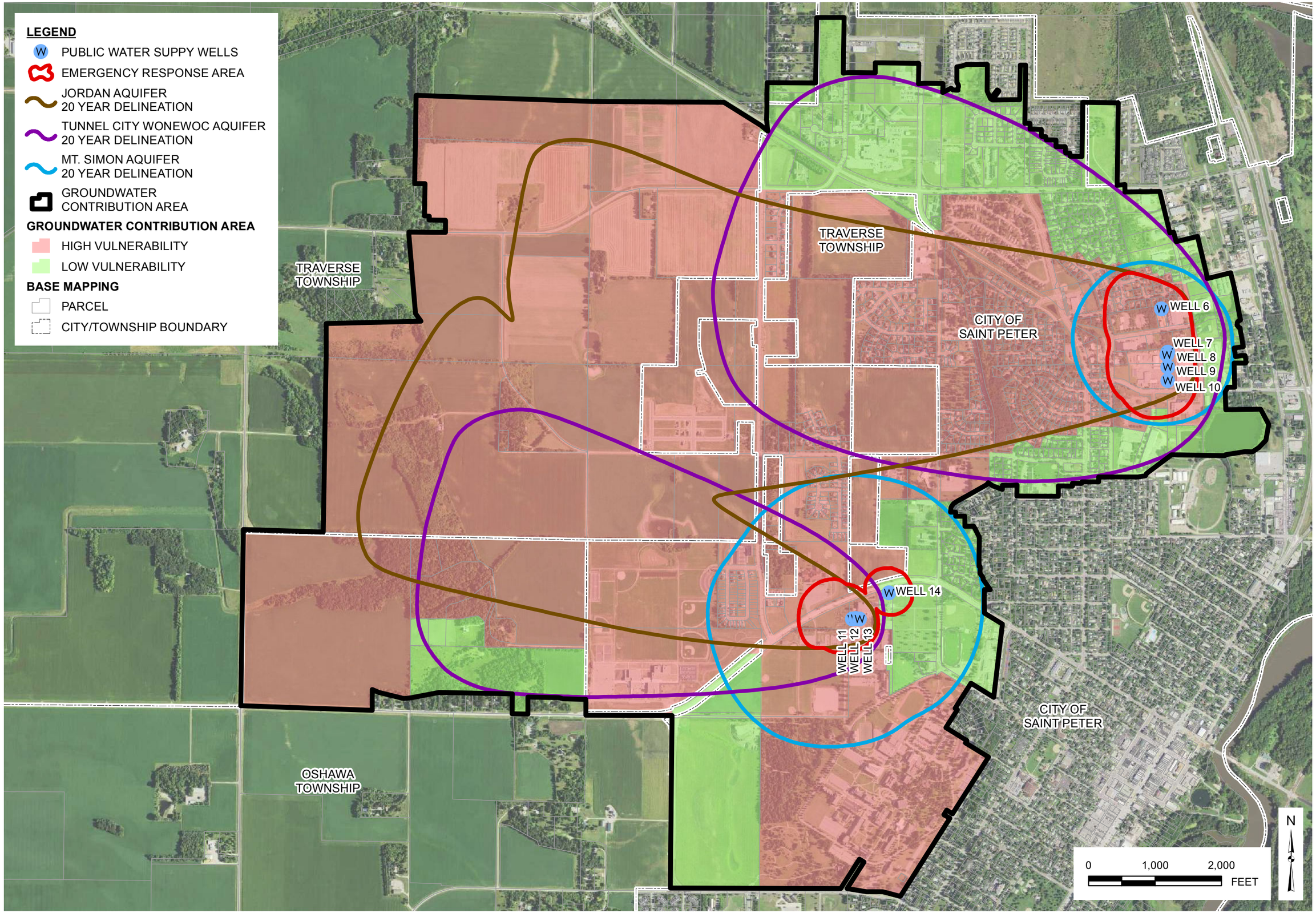

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V:\1938\active\193804535\GIS\Projects\Fig 4 - GWCAVUL.mxd

FIGURE 4 - GROUNDWATER CONTRIBUTION AREA VULNERABILITY

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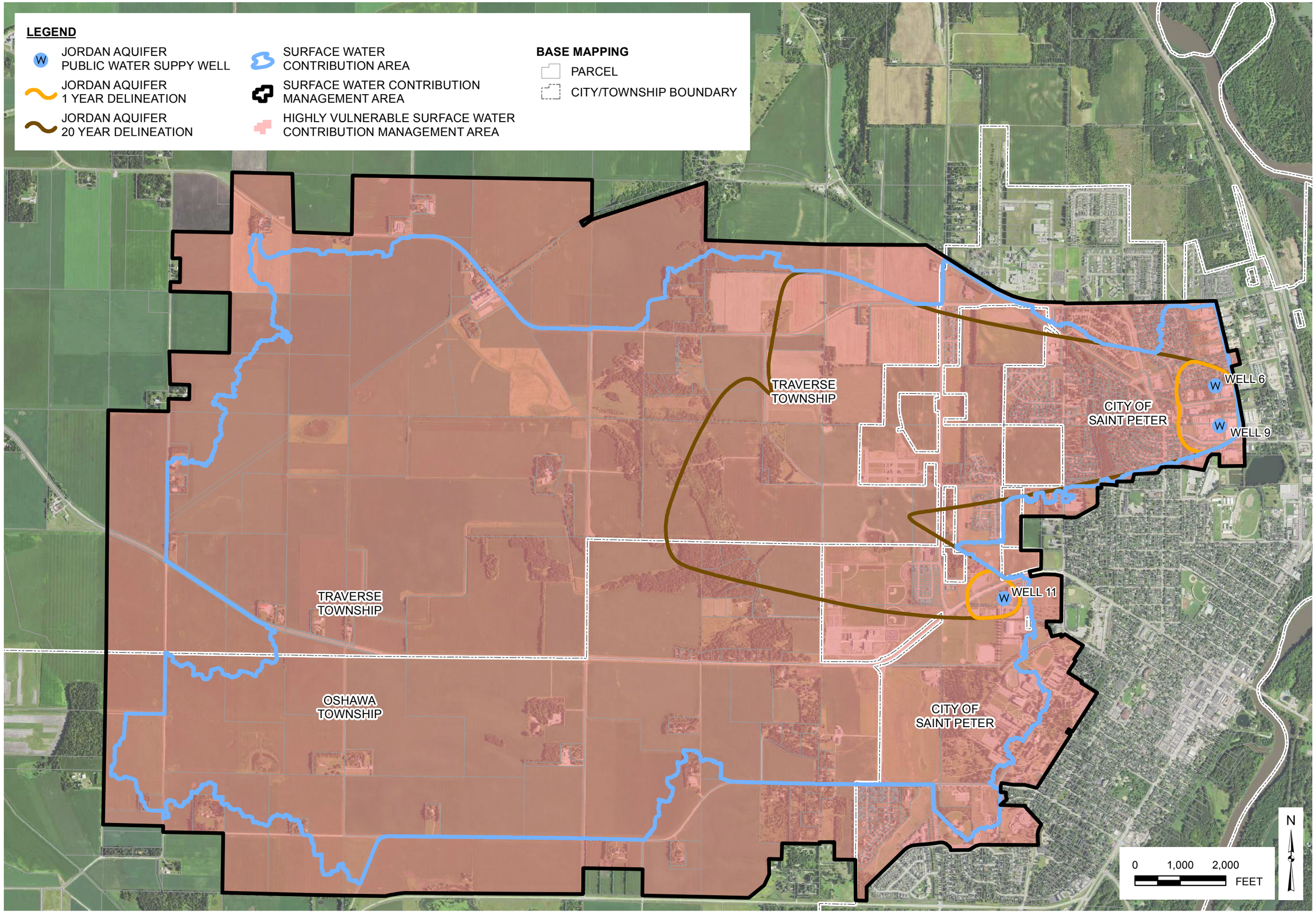

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V:\1938\active\193804535\GIS\Projects\Fig 5 - SWCAVUL.mxd

FIGURE 5 - SURFACE WATER CONTRIBUTION AREA VULNERABILITY

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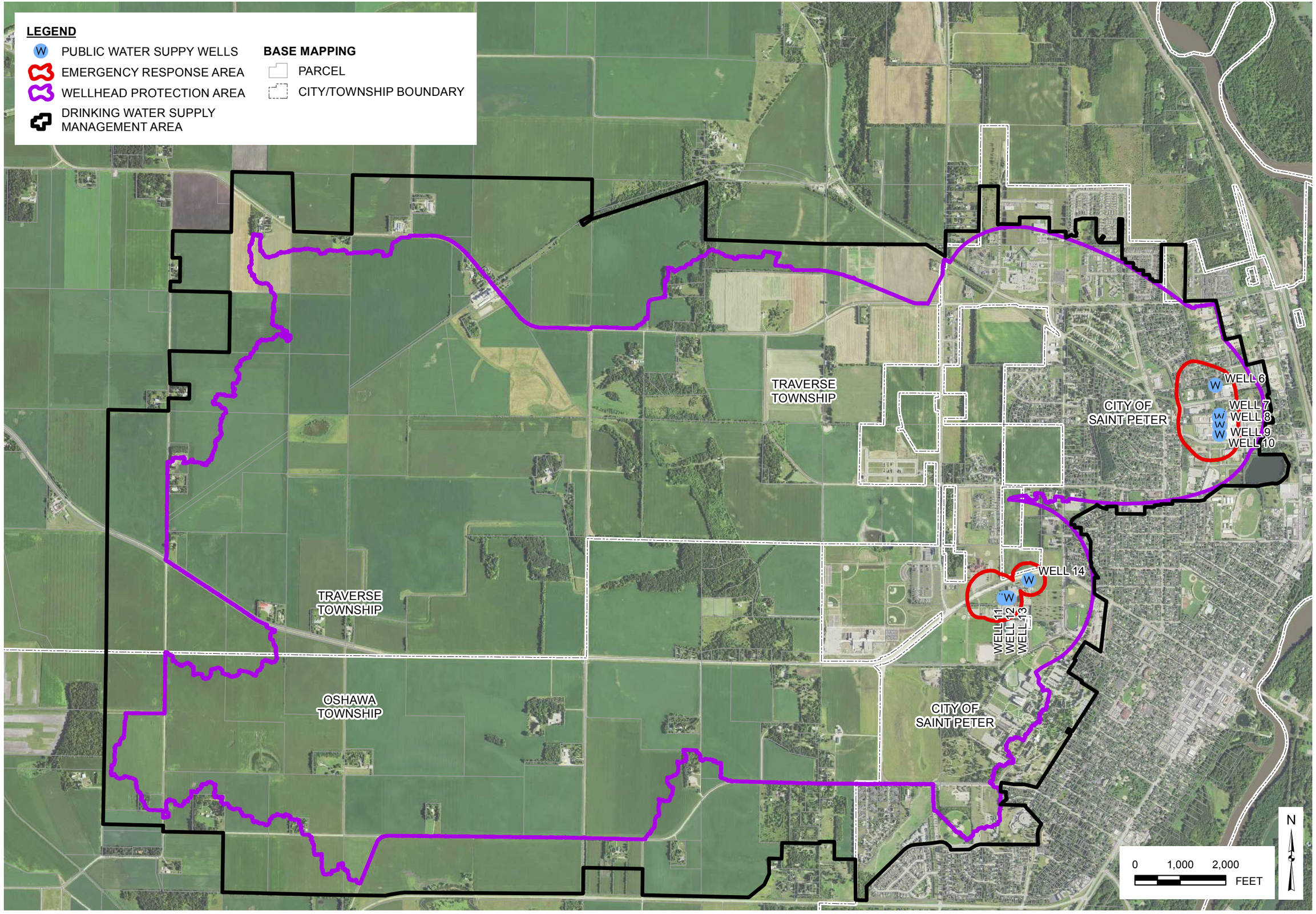

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V:\1938\active\193804535\GIS\Projects\Fig 6 - DWSMA.mxd

FIGURE 6 - WELLHEAD PROTECTION AREA AND DRINKING WATER SUPPLY MANAGEMENT AREA

SAINT PETER WELLHEAD PROTECTION PLAN

September 2018

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APPENDIX A

CITY OF SAINT PETER WELL LOGS

Unique No. 00209906	MINNESOTA DEPARTMENT OF HEALTH	Update Date 2014/03/10
County Name Nicollet	**WELL AND BORING RECORD**	Entry Date 1988/04/13
	Minnesota Statutes Chapter 1031	

Township Name	Township	Range	Dir	Section	Subsection
	110	26	W	9	DCACBC

Well Depth	Depth Completed	Date Well Completed
130 ft.	130 ft.	1972/00/00

Well Name ST. PETER 6

Drilling Method Cable Tool

Well Owner's Name ST. PETER 6
405 ST. JULIEN W ST
ST PETER MN 56082

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No
From ft. to ft.

Contact's Name CITY OF ST. PETER

ST PETER MN 56082

Use community supply(municipal)

Casing **Drive Shoe?** ☐ Yes ☐ N

Hole Diameter

0 in. t 82 ft
0 in. t 130 ft

Casing Diameter **Weight(lbs/ft)**

24 in. t 69 ft
12 in. t 80 ft

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
TOPSOIL AND SAND			0	9
COARSE GRAVEL, STONES			9	25
SHALE			25	32
SANDSTONE			32	130

Screen Y

Open Hole From ft. to ft.

Make Type L

Diameter	Slot	Length	Set		Fitting
12		50	80	ft. to 130 ft	

Static Water Level 26 ft. from Land surface Date 1972/03/07

PUMPING LEVEL (below land surface)
ft. after hrs. pumping g.p.m.

Well Head Completion
Pitless adapter mfr Model
Casing Protection ☐ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☐ Yes ☐ No

Nearest Known Source of Contamination
ft. direction type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed
Mfr nam
Model HP Volts
Drop Pipe Length ft. Capacity g.p.m
Type

REMARKS, ELEVATION, SOURCE OF DATA, etc.

GRAVEL PACKED WELL.

Any not in use and not sealed well(s) on property? ☐ Yes ☐ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

USGS Quad St Peter Elevation 788
Aquifer: CJDN Alt Id: 79-4341

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. MGS
License Business Name
Name of Driller

Report Copy

HE-01205-06 (Rev. 9/96)

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Unique No. 00433254

County Name Nicollet

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2014/08/18

Entry Date 1992/08/11

Township Name	Township	Range	Dir	Section	Subsection
	110	26	W	9	DCDCBD

Well Depth	Depth Completed	Date Well Completed
798 ft.	635 ft.	1987/12/17

Well Name ST. PETER 7

Drilling Method Cable Tool

Well Owner's Name ST. PETER 7
ST. JULIEN ST
ST PETER MN 56082

Drilling Fluid

Well Hydrofractured? ☐ Yes ☐ No
From ft. to ft.

Contact's Name CITY OF ST. PETER
405 ST. JULIEN W ST
ST PETER MN 56082

Use community supply(municipal)

Casing **Drive Shoe?** ☑ Yes ☐ N

Hole Diameter
0 in. t 710 ft
0 in. t 798 ft

Casing Diameter **Weight(lbs/ft)**
24 in. t 146 ft
18 in. t 510 ft

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
DRIFT	GRAY	SOFT	0	30
DRIFT	GRAY		30	45
DRIFT	GRAY		45	55
DRIFT	GRAY		55	60
SANDROCK (JORDAN)	YEL/T	SOFT	60	132
SHALE (ST. LAWRENCE)	GREE	MEDIUM	132	145
SHALE (ST. LAWRENCE)	GREE	MEDIUM	145	180
SHALE (ST. LAWRENCE)	GREE	MEDIUM	180	197
SANDSTONE & SHALE (FRA	GREE	MEDIUM	197	325
SANDSTONE & SHALE (FRA	GREE	MEDIUM	325	347
SANDSTONE (IRONTON)	GREE	MEDIUM	347	380
SANDSTONE (IRONTON)	GREE	MEDIUM	380	391
SHALE (EAU CLAIRE)	WHT/R	MEDIUM	391	493
SANDSTONE (MT. SIMON)	TAN/P	MEDIUM	493	635
SANDSTONE & SHALE (HIN	RED/P	MEDIUM	635	685
SANDSTONE & SHALE (HIN	RED/P	MEDIUM	685	798

Screen N

Open Hole From 510 ft. to 798 ft.

Make Type

Static Water Level -3 ft. from Land surface Date 1987/12/10

PUMPING LEVEL (below land surface)
99.83 ft. after 24 hrs. pumping 1254 g.p.m.

Well Head Completion
Pitless adapter mfr Model
Casing Protection ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G	0	510	30	Y

Nearest Known Source of Contamination
2000 ft. direction E type BOW
Well disinfected upon completion? ☑ Yes ☐ No

Pump ☐ Not Installed Date Installed Y
Mfr nam FAIRBANKS-MORSE
Model 12M HP 40 Volts 230
Drop Pipe Length 130 ft. Capacity 750 g.p.m
Type T

REMARKS, ELEVATION, SOURCE OF DATA, etc.

M.G.S. NO. 2785. WELL FLOWS.

CITY INDICATED TO MDH STAFF IN MAY 200 WELL THAT WELL HAS BEEN GROUTED TO 635'

USGS Quad St Peter Elevation 791
Aquifer: CMSH Alt Id: 79-4341

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 62012
License Business Name
Name of Driller KEYS, G.

Report Copy

Unique No. 00473638	MINNESOTA DEPARTMENT OF HEALTH	Update Date 2014/08/18
County Name Nicollet	**WELL AND BORING RECORD**	Entry Date 1992/08/11
	Minnesota Statutes Chapter 1031	

Township Name	Township	Range	Dir	Section	Subsection
	110	26	W	9	DCCDDD

Well Depth	Depth Completed	Date Well Completed
423 ft.	410 ft.	1991/05/23

Well Name ST. PETER 8

Drilling Method Non-specified Rotary

Well Owner's Name ST. PETER 8
ST. JULIEN ST
ST PETER MN 56082

Drilling Fluid Bentonite

Well Hydrofractured? ☐ Yes ☐ No
From ft. to ft.

Contact's Name CITY OF ST. PETER
405 JULIEN W ST
ST PETER MN 56082

Use community supply(municipal)

Casing **Drive Shoe?** ☐ Yes ☑ N

Casing Diameter				Weight(lbs/ft)
18	in. t	150	ft	70.59
12	in. t	362	ft	49.56

Hole Diameter

0	in. t	152	ft
0	in. t	363	ft
0	in. t	410	ft

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
GRAVEL FILL	BROW		0	4
ROCK AND GRAVEL	BROW		4	25
ROCK	GRAY		25	26
FINER SAND	BROW		26	34
SANDY SHALE	RED/B		34	43
SANDY SHALE COLORED			43	51
SANDSTONE	WHITE		51	140
SANDY SHALE / SOFT ROC	GRN/R		140	151
ROCK	GRN/R		151	156
HARD SHALE AND SOFT R	VARIE		156	203
SANDY SHALE	PNK/G		203	295
VERY SANDY SHLE	GREE		295	305
VERY SANDY SHALE/LENS	GREE		305	320
SANDSTONE	GREE		320	324
VERY SANDY SHALE/LENS	GRN/G		324	346
DIRTY SANDSTONE	GRY/G		346	364
SANDSTONE	GRAY		364	374
SANDSTONE	GRAY		374	399
SANDSTONE	GRY/G		399	408
SHALE	BRN/G	HARD	408	423

Screen N
Make Type

Open Hole From 362 ft. to 410 ft.

Static Water Level -1 ft. from Land surface Date 1991/05/23

PUMPING LEVEL (below land surface)
140 ft. after 24 hrs. pumping 608 g.p.m.

Well Head Completion
Pitless adapter mfr Model
Casing Protection ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G	0	150	9.5	Y
G	0	360	11.5	Y

Nearest Known Source of Contamination
ft. direction type
Well disinfected upon completion? ☑ Yes ☐ No

Pump ☑ Not Installed Date Installed N
Mfr nam
Model HP Volts
Drop Pipe Length ft. Capacity g.p.m
Type

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

REMARKS, ELEVATION, SOURCE OF DATA, etc.
WELL FLOWS.

USGS Quad St Peter Elevation 792
Aquifer: CWOC Alt Id: 79-4341

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 91353
License Business Name
Name of Driller HEJTMANEK, D.

Report Copy

Unique No. 00473639

County Name Nicollet

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2014/03/10

Entry Date 1992/08/11

Township Name	Township	Range	Dir	Section	Subsection
	110	26	W	16	ABABBD

Well Depth	Depth Completed	Date Well Completed
146 ft.	145 ft.	1991/05/06

Well Name ST. PETER 9

Drilling Method Non-specified Rotary

Well Owner's Name ST. PETER 9
405 ST. JULIEN ST
ST PETER MN 56082

Drilling Fluid Bentonite

Well Hydrofractured? ☐ Yes ☐ No
From ft. to ft.

Contact's Name CITY OF ST. PETER
405 JULIEN W ST
ST PETER MN 56082

Use community supply(municipal)

Casing **Drive Shoe?** ☐ Yes ☑ N

Hole Diameter

0	in. t	60	ft
0	in. t	146	ft

Casing Diameter **Weight(lbs/ft)**

18	in. t	60	ft	70.59
12	in. t	112	ft	49.56

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
GRAVEL FILL	BROW		0	3
GRAVEL W/ROCK	BROW		3	21
ROCK W/GRAVEL	VARIE		21	23
GRAVEL	VARIE		23	27
FINE SAND	BROW		27	30
SANDY SHALE W/LENSES	BRN/R		30	52
SANDSTONE	WHITE		52	103
SANDSTONE	WHITE		103	141
SANDY SHALE	RED		141	146

Screen Y

Open Hole From ft. to ft.

Make JOHNSON Type L

Diameter	Slot	Length	Set		Fitting
12	40	30	115	ft. to 145 ft	

Static Water Level 38 ft. from Land surface Date 1991/05/06

PUMPING LEVEL (below land surface)
108.4 ft. after 24 hrs. pumping 308 g.p.m.

Well Head Completion
Pitless adapter mfr Model
Casing Protection ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G	0	60	5.5	Y
G	0	112	2.8	Y

Nearest Known Source of Contamination
ft. direction type
Well disinfected upon completion? ☑ Yes ☐ No

Pump ☑ Not Installed Date Installed N
Mfr nam
Model HP Volts
Drop Pipe Length ft. Capacity g.p.m
Type

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

USGS Quad St Peter Elevation 790
Aquifer: CJDN Alt Id: 79-4341

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 91353
License Business Name
Name of Driller HEJTMANEK, D.

Report Copy

Unique No. 00473640	MINNESOTA DEPARTMENT OF HEALTH	Update Date 2014/08/18
County Name Nicollet	**WELL AND BORING RECORD**	Entry Date 1992/08/11
	Minnesota Statutes Chapter 1031	

Township Name	Township	Range	Dir	Section	Subsection
	110	26	W	16	ABABCD

Well Depth	Depth Completed	Date Well Completed
413 ft.	396 ft.	1991/05/19

Well Name ST. PETER 10

Drilling Method Non-specified Rotary

Well Owner's Name ST. PETER 10
ST. JULIEN ST
ST PETER MN 56082

Drilling Fluid Bentonite

Well Hydrofractured? ☐ Yes ☐ No
From ft. to ft.

Contact's Name CITY OF ST. PETER
405 JULIEN W ST
ST PETER MN 56082

Use community supply(municipal)

Casing **Drive Shoe?** ☐ Yes ☐ N

Hole Diameter
0 in. t 160 ft
0 in. t 324 ft

Casing Diameter **Weight(lbs/ft)**
18 in. t 160 ft 70.59
12 in. t 320 ft 49.56

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
GRAVEL	BROW		0	8
ROCK AND GRAVEL	BROW		8	21
SAND W/LENSES OF SAND	RED/G		21	33
LENSES OF SANDY SHALE-	TAN/B		33	58
LENSES OF SANDY SHALE-	TAN/B		57	58
SANDSTONE	WHITE		58	148
SANDY SHALE W/LENSES	RED/B		148	157
HARD SHALE AND SOFT R	VARIE		157	198
SANDY SHALE	GRN/R		198	297
VERY SANDY SHALE-LENS	GREE		297	315
SANDSTONE	GRN/G		315	328
SANDSTONE	GRAY		328	334
SANDSTONE	GRAY		334	366
SANDY SHALE	GRN/G		366	368
SANDSTONE	GRAY		368	379
DIRTY SANDSTONE	GRAY		379	383
SANDSTONE	GRY/G		383	391
DIRTY SANDSTONE-LENSE	GRAY		391	396
SANDY SHALE W/LENSES	GRN/G		396	413

Screen N
Make Type

Open Hole From 320 ft. to 396 ft.

Static Water Level -1 ft. from Land surface Date 1991/05/19

PUMPING LEVEL (below land surface)
189 ft. after 26 hrs. pumping 608 g.p.m.

Well Head Completion
Pitless adapter mfr Model
Casing Protection ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G	0	160	9.5	Y
G	0	320	10.2	Y

Nearest Known Source of Contamination
ft. direction type
Well disinfected upon completion? ☑ Yes ☐ No

Pump ☑ Not Installed Date Installed N
Mfr nam
Model HP Volts
Drop Pipe Length ft. Capacity g.p.m
Type

REMARKS, ELEVATION, SOURCE OF DATA, etc.

FLOWING WELL.

TV AND GAMMA LOGGED 7-10-2009. LOGGED BY JIM TRAEN.

USGS Quad St Peter Elevation 788
Aquifer: CTCW Alt Id: 79-4341

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 91353
License Business Name
Name of Driller HEJTMANEK, D.

Report Copy

Unique No. 00770414	MINNESOTA DEPARTMENT OF HEALTH	Update Date 2016/08/23
County Name Nicollet	**WELL AND BORING RECORD**	Entry Date 2009/04/14
	Minnesota Statutes Chapter 1031	

Township Name	Township	Range	Dir	Section	Subsection
	110	26	W	17	DACCBC

Well Depth	Depth Completed	Date Well Completed
233 ft.	233 ft.	2009/05/00

Well Name ST. PETER 11

Drilling Method Dual Rotary

Well Owner's Name ST. PETER 11
1300 BROADWAY ST
ST PETER MN 56082

Drilling Fluid Water

Well Hydrofractured? ☐ Yes ☑ No
From ft. to ft.

Contact's Name CITY OF ST. PETER
227 FRONT S ST
ST PETER MN 56082

Use community supply(municipal)

Casing **Drive Shoe?** ☑ Yes ☐ N

Hole Diameter
in. t 233 ft

Casing Diameter				Weight(lbs/ft)
24	in. t	114	ft	94.62
18	in. t	188	ft	70.59

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
TOP SOIL	BLACK	SOFT	0	1
FINE SAND	BROW	SOFT	1	5
FINE TO MED. SAND	BROW	SOFT	5	10
MED. TO COARSE SAND/G		SOFT	10	15
MED. SAND, GRAVEL LENS		SOFT	15	33
MED. SAND, GRAVEL & CLA		SOFT	33	34
MED. SAND FEW GRAVEL &		SOFT	34	57
MED. SAND, GRAVEL CLAY		SFT-MED	57	59
SANDY CLAY W/GRAVEL L		MEDIUM	59	87
SILTY MOTTLED CLAY	BLU/G	MED-HRD	87	96
SANDY CLAY & GRAVEL	BROW	MEDIUM	96	99
SANDY CLAY	BROW	MEDIUM	99	102
SANDY CLAY/GRAVEL	BROW	MEDIUM	102	106
LIMESTONE (SOME FRACT	BROW	MED-HRD	106	134
LIMESTONE (FEW FRACTU	BROW	HARD	134	139
DECOMPOSED LIMESTONE	BRN/W	MEDIUM	134	134
50/50 SHALE & SANDSTON	GRN/	MEDIUM	139	141
CEMENTED SANDSTONE	WHITE	MEDIUM	141	150
SANDSTONE & SHALE LEN	WHT/G	SFT-MED	150	160
SANDSTONE	WHITE	MEDIUM	160	165
SANDSTONE	WHITE	SFT-MED	165	185
SANDSTONE	TAN	SFT-MED	185	195
SHALE & SANDSTONE LEN	GRN/T	SFT-MED	195	198
SANDSTONE	TAN	SFT-MED	198	223
SHALE	GREE	MEDIUM	223	224
CEMENTED SANDSTONE-S	PNK/G	MEDIUM	224	231
SHALE	GREE	MEDIUM	231	232
SHALE	RED	MEDIUM	232	233

Screen Y

Open Hole From ft. to ft.

Make JOHNSON Type L

Diameter	Slot	Length	Set		Fitting
12	40	50	183	ft. to 233 ft	

Static Water Level 123 ft. from Land surface Date 2009/05/13

PUMPING LEVEL (below land surface)
153 ft. after 30 hrs. pumping 375 g.p.m.

Well Head Completion
Pitless adapter mfr Model
Casing Protection ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G		178	16	Y

Nearest Known Source of Contamination
500 ft. direction N type SDF
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☑ Not Installed Date Installed N
Mfr nam
Model HP Volts

Drop Pipe Length ft. Capacity g.p.m
Type

REMARKS, ELEVATION, SOURCE OF DATA, etc.

GAMMA LOGGED 8-31-2009. M.G.S. NO. 4926. LOGGED BY JIM TRAEN.

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

USGS Quad	St Peter	Elevation	908.8
Aquifer:	CJDN	Alt Id:	4926

Report Copy

Was a variance granted from the MDH for this Well? ☐ Yes ☑ No

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 1404

License Business Name

Name of Driller ED/BUTCH

HE-01205-06 (Rev. 9/96)

Unique No.	00770415	MINNESOTA DEPARTMENT OF HEALTH	Update Date	2016/08/23
County Name	Nicollet	**WELL AND BORING RECORD**	Entry Date	2009/06/16
		Minnesota Statutes Chapter 1031		

Township Name	Township	Range	Dir	Section	Subsection
	110	26	W	17	DACCBD

Well Depth	Depth Completed	Date Well Completed
490 ft.	490 ft.	2009/00/00

Well Name ST. PETER 12

Drilling Method Dual Rotary

Contact's Name CITY OF ST. PETER
227 SOUTH FRONT ST
ST PETER MN 56082

Drilling Fluid Water

Well Hydrofractured? ☐ Yes ☑ No
From ft. to ft.

Well Owner's Name ST. PETER 12
ST PETER MN 56082

Use community supply(municipal)

Casing **Drive Shoe?** ☑ Yes ☐ N

Hole Diameter
in. t 490 ft

Casing Diameter				Weight(lbs/ft)
24	in. t	115	ft	94.62
18	in. t	430	ft	70.59

Screen N
Make Type

Open Hole From 430 ft. to 490 ft.

Static Water Level 129 ft. from Land surface Date 2009/10/00

PUMPING LEVEL (below land surface)
195.72 ft. after 24 hrs. pumping 500 g.p.m.

Well Head Completion
Pitless adapter mfr Model
Casing Protection ☑ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)	
G			29	Y

Nearest Known Source of Contamination
154 ft. direction S type TAN
Well disinfected upon completion? ☑ Yes ☐ No

Pump ☑ Not Installed Date Installed N
Mfr nam
Model HP Volts

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
TOP SOIL	BLACK	SOFT	0	1
FINE SAND	BROW	SOFT	1	5
FINE TO MED. SAND	BROW	SOFT	5	10
MED TO COARSE SAND W/	GRAY	SOFT	10	15
MED SAND, GRAVEL LENS	GRAY	SOFT	15	33
MED SAND GRAVEL LENSE	GRAY	SOFT	33	34
MED SAND FEW GRAVEL &	BROW	SOFT	34	57
MED SAND GRAVEL CLAY L	BROW	SFT-MED	57	61
SANDY CLAY W/GRAVEL L	GRAY	MEDIUM	61	89
SILTY MODELED CLAY	BLU/G	MED-HRD	89	103
SILTY MODLED CLAY & SA	GRY/B	MEDIUM	103	105
SILTY MODLED CLAY & SA	GRY/B	MEDIUM	105	107
DECOMPOSED LIMESTONE	TAN/B	MED-HRD	107	109
LIMESTONE-FEW FRACTUR	BROW	HARD	109	141
SS-LIMESTONE & SHALE L	WHT/B	MED-HRD	141	145
SS-LIMESTONE & SHALE L	WHT/B	MED-HRD	145	150
SANDSTONE	WHT/T	MED-HRD	150	165
SANDSTONE	WHITE	SFT-MED	165	175
SANDSTONE	TAN	SFT-MED	175	195
SHALE & S.S. LENSES	GRN/T	SFT-MED	195	200
SANDSTONE & SHALE LEN	TAN/G	SFT-MED	200	223
SHALE	PNK/G	MEDIUM	223	228
SHALE	PNK/G	MEDIUM	228	234
SHALE	RED/T	SFT-MED	234	235
SHALE-LAYERED BRN TAN	VARIE	MED-HRD	235	250
SHALE GLAUCONITE LAYE	VARIE	MED-HRD	250	291
SHALE W/GLAUCONITE LA	VARIE	MEDIUM	291	294
SHALE W/GLAUCONITE LA	VARIE	MEDIUM	294	310
SHALE GLAUCONITE LAYE	VARIE	MEDIUM	310	425
SANDSTONE & SHALE LAY	GRY/G	SFT-MED	425	430
SANDSTONE & GLAUCONIT	GRY/B	SFT-MED	430	440
SANDSTONE	WHITE	SFT-MED	440	441

SANDSTONE	WHITE	SFT-MED	441	457
SANDSTONE SHALE LAYER	WHT/G	SFT-MED	457	460
SANDSTONE	WHITE	SFT-MED	460	475
SANDSTONE SHALE LAYER	WHT/G	SFT-MED	475	485
SANDSTONE SHALE LAYER	TAN/G	SFT-MED	485	490

REMARKS, ELEVATION, SOURCE OF DATA, etc.

GAMMA LOGGED 12-18-2009 M.G.S. NO. 4940. LOGGED BY JIM TRAEN.

NAMES OF DRILLER: ED FEIA AND BUTCH GAUSTAD

USGS Quad St Peter Elevation 908.8

Aquifer: CWOC Alt Id: 79-4341

Report Copy

Drop Pipe Length ft. Capacity g.p.m

Type

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

Was a variance granted from the MDH for this Well? ☐ Yes ☐ No

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 1404

License Business Name

Name of Driller SEE REMARKS

HE-01205-06 (Rev. 9/96)

Unique No. 00770416

County Name Nicollet

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING RECORD

Minnesota Statutes Chapter 1031

Update Date 2016/08/23

Entry Date 2009/09/02

Township Name	Township	Range	Dir	Section	Subsection
	110	26	W	17	DACCBD

Well Depth	Depth Completed	Date Well Completed
780 ft.	780 ft.	2009/08/28

Well Name ST. PETER 13

Drilling Method Dual Rotary

Well Owner's Name ST. PETER 13
1300 BROADWAY
ST PETER MN 56082

Drilling Fluid Water

Well Hydrofractured? ☐ Yes ☑ No
From ft. to ft.

Use community supply(municipal)

Contact's Name CITY OF ST. PETER
227 FRONT S ST
ST PETER MN 56082

Casing **Drive Shoe?** ☑ Yes ☐ N

Hole Diameter

in. t 670 ft
in. t 780 ft

Casing Diameter **Weight(lbs/ft)**

24 in. t 115 ft 94.62
18 in. t 630 ft 70.59

Screen N

Open Hole From 630 ft. to 780 ft.

Make Type

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
NO RECORD			0	15
MED. SAND, GRAVEL LENS	GRAY	SOFT	15	33
MED. SAND, FEW GRAVEL	GRAY	SOFT	33	34
MED. SAND, FEW GRAVEL	BROW	SOFT	34	57
MED. SAND, GRAVEL, CLAY	BROW	SFT-MED	57	61
SANDY CLAY W/GRAVEL L	GRAY	MEDIUM	61	89
SILTY MODLED CLAY, BLUE		MED-HRD	89	105
SHALE, CLY, LIMSTON, GR	BROW	SFT-MED	105	110
SHALE, LIMESTONE LAYER		SFT-MED	110	115
FRACTURED LIMESTONE	BROW	MED-HRD	115	137
LIMESTONE, SHALE, SAND	TAN/B	MEDIUM	137	144
CEMENTED SANDSTONE T	VARIE	MEDIUM	144	146
CEMENTED SANDSTONE T	VARIE	MEDIUM	146	150
SANDSTONE	TAN/W	SFT-MED	150	155
SANDSTONE & SHALE LEN	WHT/G	SFT-MED	155	164
SANDSTONE	WHT/T	MED-HRD	164	169
SANDSTONE	WHT/T	SFT-MED	169	175
SANDSTONE	WHITE	MED-HRD	175	190
SANDSTONE	TAN	MED-HRD	190	197
SHALE W/SANDSTONE LEN	GRN/T	MED-HRD	197	201
SANDSTONE	TAN	MED-HRD	201	205
SANDSTONE	WHITE	MED-HRD	205	225
SANDSTONE SHALE LAYER	GRN/B	MED-HRD	225	229
SANDSTONE SHALE LAYER	PNK/G	MED-HRD	229	236
SHALE	RED	MED-HRD	236	237
SHALE	RED/G	MED-HRD	237	240
SHALE, GREY GREEN RED	VARIE	MED-HRD	240	255
SHALE W/GLAUCONTIE LE	VARIE	MED-HRD	255	295
SHALE W/GLAUCONITIC LA	VARIE	MEDIUM	295	297
SHALE W/GLAUCONITE LA	VARIE	MEDIUM	297	415
SHALE, GLAUCONITE W/SA	VARIE	SFT-MED	415	425
SANDSTONE & SHALE LEN	GRN/G	SFT-MED	425	430

Static Water Level 115 ft. from Land surface Date 2009/08/00

PUMPING LEVEL (below land surface)

234 ft. after 24 hrs. pumping 1500 g.p.m.

Well Head Completion

Pitless adapter mfr Model

Casing Protection ☑ 12 in. above grade

☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)
G	630	41	Y

Nearest Known Source of Contamination

155 ft. direction S type TAN

Well disinfected upon completion? ☑ Yes ☐ No

Pump ☑ Not Installed Date Installed N

Mfr nam

Model HP Volts

SANDSTONE W/GLAUCONI	GRY/B	SFT-MED	430	440
SANDSTONE	WHITE	SFT-MED	440	443
SANDSTONE	WHITE	SFT-MED	443	457
SHALE, SANDSTONE LENS	WHITE	SFT-MED	457	460
SANDSTONE W/FEW SHAL	WHT/G	SFT-MED	460	465
SANDSTONE	WHITE	SFT-MED	465	475
SANDSTONE W/FEW SHAL	WHT/G	SFT-MED	475	490
SHALE	WHT/G	MEDIUM	490	495
SHALE, SANDSTONE, IRON	VARIE	MEDIUM	495	497
SHALE, SANDSTONE LAYE	GRN/T	MED-HRD	497	500
SHALE, SANDSTONE LAYE	GRN/T	MEDIUM	500	520
SHALE	RED/B	MED-HRD	520	525
SHALE, SANDSTONE LAYE	TAN/G	MEDIUM	525	535
SANDSTONE & SHALE LAY	VARIE	MEDIUM	535	590
SHALE-SANDSTONE LAYER	VARIE	SFT-MED	590	599
SHALE-SANDSTONE LAYER	VARIE	SFT-MED	599	615
SANDSTONE, SHALE LAYE	VARIE	SFT-MED	615	620
SANDSTONE	WHITE	SFT-MED	620	630
SANDSTONE W/SHALE LEN	WHT/G	SFT-MED	630	635
SANDSTONE W/SHALE LEN	VARIE	SFT-MED	635	655
SANDSTONE	PNK/W	SFT-MED	655	670
SANDSTONE	RED/W	SFT-MED	670	700
SANDSTONE	PNK/W	SFT-MED	700	715
SANDSTONE/SHALE	GREE	MEDIUM	715	720
SANDSTONE	PNK/W	SFT-MED	720	725
SANDSTONE, SHALE	PNK/W	HARD	725	735
SANDSTONE	PNK/W	SFT-MED	735	753
SANDSTONE, SHALE	WHT/P	SFT-MED	753	774
SANDSTONE, SHALE	RED	HARD	774	775
SANDSTONE, SHALE	RED	HARD	775	780

REMARKS, ELEVATION, SOURCE OF DATA, etc.

GAMMA LOGGED 8-31-2009. M.G.S. NO. 4959. LOGGED BY JIM TRAEN.

NAMES OF DRILLER: ED FEIA AND BUTCH GAUSTAD

USGS Quad St Peter Elevation 908.8

Aquifer: CMTS Alt Id: 79-4341

Drop Pipe Length ft. Capacity g.p.m

Type

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

Was a variance granted from the MDH for this Well? ☐ Yes ☑ No

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 1404

License Business Name

Name of Driller SEE REMARKS

Report Copy

HE-01205-06 (Rev. 9/96)

Unique No. 00770417	MINNESOTA DEPARTMENT OF HEALTH	Update Date 2016/08/24
County Name Nicollet	**WELL AND BORING RECORD**	Entry Date 2009/03/23
	Minnesota Statutes Chapter 1031	

Township Name	Township	Range	Dir	Section	Subsection
	110	26	W	17	DACAAD

Well Depth	Depth Completed	Date Well Completed
775 ft.	775 ft.	2009/04/20

Well Name ST. PETER 14

Drilling Method Dual Rotary

Well Owner's Name ST. PETER 14
1300 BROADWAY W AV
ST PETER MN 56082

Drilling Fluid Water

Well Hydrofractured? ☐ Yes ☑ No
From ft. to ft.

Use community supply(municipal)

Contact's Name CITY OF ST. PETER
227 FRONT S ST
ST PETER MN 56082

Casing **Drive Shoe?** ☑ Yes ☐ N

Casing Diameter				Weight(lbs/ft)
24	in. t	118	ft	94.62
18	in. t	620	ft	70.59

Hole Diameter

in. t	620	ft
in. t	775	ft

Screen N
Make Type

Open Hole From 620 ft. to 775 ft.

Static Water Level 113 ft. from Land surface Date 2009/04/20

PUMPING LEVEL (below land surface)
ft. after 6 hrs. pumping 500 g.p.m.

Well Head Completion
Pitless adapter mfr Model
Casing Protection ☐ 12 in. above grade
☐ At-grade(Environmental Wells and Borings ONLY)

Grouting Information Well grouted? ☑ Yes ☐ No

Material	From	To (ft.)	Amount(yds/bags)
G		43	Y

Nearest Known Source of Contamination
75 ft. direction W type SDF
Well disinfected upon completion? ☑ Yes ☐ No

Pump ☑ Not Installed Date Installed N
Mfr nam
Model HP Volts

GEOLOGICAL MATERIAL	COLOR	HARDNESS	FROM	TO
SOIL	BLACK	SOFT	0	1
SILTY SAND	BROW	SOFT	1	5
FINE SAND	BROW	SOFT	5	10
CLAY	BROW	SOFT	10	12
MED. SAND	BROW	SOFT	12	18
MED. SAND & GRAVEL	BROW	SOFT	18	64
ROCK & CLAY	GRAY	SFT-MED	64	65
CLAY & GRAVEL	GRAY	SOFT	65	71
ROCK	BLACK	HARD	71	74
SANDY CLAY & GRAVEL	GRAY	SOFT	74	85
CLAY & GRAVEL	BLU/G	SOFT	85	95
CLAY	BLUE	SOFT	95	110
SHALE & DECOMPOSED LI	BROW	SFT-MED	110	115
SHALE & DECOMPOSED LI	BROW	SFT-MED	115	122
LIMESTONE & SHALE LAYE	BROW	MED-HRD	122	131
FRACTURED LIMESTONE	BROW	HARD	131	141
SHALE & SANDSTONE	GRN/T	MEDIUM	141	143
SANDSTONE & SHALE	TAN/G	SFT-MED	143	200
SANDSTONE & SHALE	WHT/G	SOFT	200	230
SANDSTONE & SHALE	PNK/G	MEDIUM	230	232
SANDSTONE & SHALE	PNK/G	MEDIUM	232	234
SHALE LAYERS	BROW	SFT-HRD	234	239
SHALE LAYERS	GRN/P	HARD	239	241
SHALE LAYERS TAN, GREE	VARIE	MED-HRD	241	300
SANDSTONE & SHALE GRE	VARIE	MED-HRD	300	390
SANDSTONE & SHALE	GRY/G	MED-HRD	390	435
SANDSTONE	WHITE	SOFT	435	436
SANDSTONE	WHITE	SOFT	436	490
SANDSTONE & SHALE	TAN/G	MEDIUM	490	520
SHALE	RED/B	HARD	520	524
SHALE	TAN/G	HARD	524	545
SHALE & SANDSTONE GRN	VARIE	SFT-MED	545	583

SANDSTONE & SHALE	TAN/G	SFT-MED	583	589
SANDSTONE & SHALE	WHT/G	SFT-MED	589	610
SANDSTONE & SHALE WHT	VARIE	SFT-MED	610	615
SANDSTONE & SHALE	PNK/G	SFT-MED	615	620
SANDSTONE	WHITE	SOFT	620	630
SANDSTONE	PNK/W	SOFT	630	720
SANDSTONE	PURPL	SOFT	720	724
SHALE & SANDSTONE PUR/	VARIE	SOFT	724	727
SHALE GREEN, PURPLE, B	VARIE	SOFT	727	732
SANDSTONE	YEL/T	SOFT	732	740
SANDSTONE	YEL/P	SOFT	740	745
SHALE	VARIE	SOFT	745	750
SANDSTONE	YEL/P	SFT-MED	750	755
NO RECORD			755	767
HINKLEY SANDSTONE SAL		HARD	767	771
SANDSTONE	DK. RE	MEDIUM	771	775

REMARKS, ELEVATION, SOURCE OF DATA, etc.

GAMMA LOGGED 3-19-2009. M.G.S. NO. 4908. LOGGED BY JIM TRAEN.

NAMES OF DRILLER: TONY TRAUT AND DAN POHLKAMP

USGS Quad St Peter Elevation 912.1

Aquifer: CMSH Alt Id: 4908

Report Copy

Drop Pipe Length ft. Capacity g.p.m

Type

Any not in use and not sealed well(s) on property? ☐ Yes ☑ No

Was a variance granted from the MDH for this Well? ☐ Yes ☑ No

Well CONTRACTOR CERTIFICATION Lic. Or Reg. No. 1404

License Business Name

Name of Driller SEE REMARKS

HE-01205-06 (Rev. 9/96)

APPENDIX B

WELL VULNERABILITY ASSESSMENT WORKSHEETS

MINNESOTA DEPARTMENT OF HEALTH
SECTION OF DRINKING WATER PROTECTION
SWP Vulnerability Rating

625 Robert St. N. St. Paul MN 55155
P.O. Box 64975 St. Paul MN 55164 - 0975

PWSID: 1520006 | TIER: 2
SYSTEM NAME: Saint Peter | WHP RANK:
WELL NAME: Well #6 | UNIQUE WELL #: 00209906

COUNTY: Nicollet | TOWNSHIP NUMBER: 110 | RANGE: 26 W | SECTION: 9 | QUARTERS: DCAC

CRITERIA		DESCRIPTION	POINTS
Aquifer Name(s)	:	Jordan	
DNR Geologic Sensitivity Rating	:	Low	20
L Score	:	2	
Geologic Data From	:	Well Record	
Year Constructed	:	1972	
Construction Method	:	Cable Tool/Bored	0
Casing Depth	:	80	10
Well Depth	:	130	
Casing grouted into borehole?		Unknown	0
Cement grout between casings?		Unknown	5
All casings extend to land surface?		Yes	0
Gravel - packed casings?		No	0
Wood or masonry casing?		No	0
Holes or cracks in casing?		No	0
Isolation distance violations?			0
Pumping Rate	:	250	5
Pathogen Detected?			0
Surface Water Characteristics?			0
Maximum nitrate detected	:	11 02/26/2002	VULNERABLE
Maximum tritium detected	:	29.2 04/15/1997	VULNERABLE
Non-THMS VOCs detected?			0
Pesticides detected?			0
Carbon 14 age	:	M	0
Wellhead Protection Score	:		40
Wellhead Protection Vulnerability Rating	:		VULNERABLE

Vulnerability Overridden :

COMMENTS

MINNESOTA DEPARTMENT OF HEALTH
SECTION OF DRINKING WATER PROTECTION
SWP Vulnerability Rating

625 Robert St. N. St. Paul MN 55155
P.O. Box 64975 St. Paul MN 55164 - 0975

PWSID: 1520006
SYSTEM NAME: Saint Peter
WELL NAME: Well #7

TIER: 2
WHP RANK:
UNIQUE WELL #: 00433254

COUNTY: Nicollet TOWNSHIP NUMBER: 110 RANGE: 26 W SECTION: 9 QUARTERS:

CRITERIA		DESCRIPTION	POINTS
Aquifer Name(s)	:	Mt. Simon-Hinckley	
DNR Geologic Sensitivity Rating	:	Very low	0
L Score	:	16	
Geologic Data From	:	Well Record	
Year Constructed	:	1987	
Construction Method	:	Cable Tool/Bored	0
Casing Depth	:	510	0
Well Depth	:	635	
Casing grouted into borehole?		Yes	0
Cement grout between casings?		Yes	0
All casings extend to land surface?		Yes	0
Gravel - packed casings?		No	0
Wood or masonry casing?		No	0
Holes or cracks in casing?		Unknown	0
Isolation distance violations?			0
Pumping Rate	:	400	5
Pathogen Detected?			NOT VULNERABLE
Surface Water Characteristics?			NOT VULNERABLE
Maximum nitrate detected	:	<.4 10/18/1991	NOT VULNERABLE
Maximum tritium detected	:	.9 09/07/2005	NOT VULNERABLE
Non-THMS VOCs detected?			0
Pesticides detected?			0
Carbon 14 age	:	A	-20
Wellhead Protection Score	:		-15
Wellhead Protection Vulnerability Rating	:		NOT VULNERABLE

Vulnerability Overridden :

COMMENTS

MINNESOTA DEPARTMENT OF HEALTH
SECTION OF DRINKING WATER PROTECTION
SWP Vulnerability Rating

625 Robert St. N. St. Paul MN 55155
P.O. Box 64975 St. Paul MN 55164 - 0975

PWSID: 1520006
SYSTEM NAME: Saint Peter
WELL NAME: Well #8

TIER: 2
WHP RANK:
UNIQUE WELL #: 00473638

COUNTY: Nicollet | TOWNSHIP NUMBER: | RANGE: | SECTION: | QUARTERS:

CRITERIA		DESCRIPTION	POINTS
Aquifer Name(s)	:	Wonewoc Sandstone	
DNR Geologic Sensitivity Rating	:	Very low	15
L Score	:	6	
Geologic Data From	:	Well Record	
Year Constructed	:	1991	
Construction Method	:	Rotary/Drilled	0
Casing Depth	:	362	5
Well Depth	:	410	
Casing grouted into borehole?		Yes	0
Cement grout between casings?		Yes	0
All casings extend to land surface?		Yes	0
Gravel - packed casings?		No	0
Wood or masonry casing?		No	0
Holes or cracks in casing?		Unknown	0
Isolation distance violations?			0
Pumping Rate	:	400	5
Pathogen Detected?			0
Surface Water Characteristics?			0
Maximum nitrate detected	:	<.4 06/26/1991	0
Maximum tritium detected	:	Unknown	0
Non-THMS VOCs detected?			0
Pesticides detected?			0
Carbon 14 age	:	Unknown	0
Wellhead Protection Score	:		25
Wellhead Protection Vulnerability Rating	:		NOT VULNERABLE

Vulnerability Overridden :

COMMENTS
ASSUMED 60' OF CSTL BASED ON OTHER WELLS IN SYSTEM

MINNESOTA DEPARTMENT OF HEALTH
SECTION OF DRINKING WATER PROTECTION
SWP Vulnerability Rating

625 Robert St. N. St. Paul MN 55155
P.O. Box 64975 St. Paul MN 55164 - 0975

PWSID: 1520006
SYSTEM NAME: Saint Peter
WELL NAME: Well #9

TIER: 2
WHP RANK:
UNIQUE WELL #: 00473639

COUNTY: Nicollet | TOWNSHIP NUMBER: | RANGE: | SECTION: | QUARTERS:

CRITERIA		DESCRIPTION	POINTS
Aquifer Name(s)	:	Jordan	
DNR Geologic Sensitivity Rating	:	High	0
L Score	:	0	
Geologic Data From	:	Well Record	
Year Constructed	:	1991	
Construction Method	:	Rotary/Drilled	0
Casing Depth	:	112	10
Well Depth	:	142	
Casing grouted into borehole?		Yes	0
Cement grout between casings?		Yes	0
All casings extend to land surface?		Yes	0
Gravel - packed casings?		No	0
Wood or masonry casing?		No	0
Holes or cracks in casing?		Unknown	0
Isolation distance violations?			0
Pumping Rate	:	250	5
Pathogen Detected?			0
Surface Water Characteristics?			0
Maximum nitrate detected	:	9.8 03/09/2016	30
Maximum tritium detected	:	12.9 09/27/2006	VULNERABLE
Non-THMS VOCs detected?			0
Pesticides detected?			0
Carbon 14 age	:	Unknown	0
Wellhead Protection Score	:		45
Wellhead Protection Vulnerability Rating	:		VULNERABLE
Vulnerability Overridden	:		

COMMENTS
GEOLOGY INFERRED FROM OTHER WELLS IN THE SYSTEM

625 Robert St. N. St. Paul MN 55155
P.O. Box 64975 St. Paul MN 55164 - 0975

MINNESOTA DEPARTMENT OF HEALTH
SECTION OF DRINKING WATER PROTECTION
SWP Vulnerability Rating

PWSID: 1520006
SYSTEM NAME: Saint Peter
WELL NAME: Well #10

TIER: 2
WHP RANK:
UNIQUE WELL #: 00473640

COUNTY: Nicollet | TOWNSHIP NUMBER: | RANGE: | SECTION: | QUARTERS:

CRITERIA		DESCRIPTION	POINTS
Aquifer Name(s)	:	Tunnel City-Wonewoc	
DNR Geologic Sensitivity Rating	:	Very low	15
L Score	:	6	
Geologic Data From	:	Well Record	
Year Constructed	:	1991	
Construction Method	:	Rotary/Drilled	0
Casing Depth	:	320	5
Well Depth	:	396	
Casing grouted into borehole?		Yes	0
Cement grout between casings?		Yes	0
All casings extend to land surface?		Yes	0
Gravel - packed casings?		No	0
Wood or masonry casing?		No	0
Holes or cracks in casing?		Unknown	0
Isolation distance violations?			0
Pumping Rate	:	400	5
Pathogen Detected?			NOT VULNERABLE
Surface Water Characteristics?			NOT VULNERABLE
Maximum nitrate detected	:	<.4 08/02/1990	NOT VULNERABLE
Maximum tritium detected	:	<.8 09/27/2006	NOT VULNERABLE
Non-THMS VOCs detected?			0
Pesticides detected?			0
Carbon 14 age	:	Unknown	0
Wellhead Protection Score	:		25
Wellhead Protection Vulnerability Rating	:		NOT VULNERABLE

Vulnerability Overridden :

COMMENTS
GEOLOGY INFERRED FROM OTHER WELLS IN THE SYSTEM

625 Robert St. N. St. Paul MN 55155
P.O. Box 64975 St. Paul MN 55164 - 0975

MINNESOTA DEPARTMENT OF HEALTH
SECTION OF DRINKING WATER PROTECTION
SWP Vulnerability Rating

PWSID: 1520006
SYSTEM NAME: Saint Peter
WELL NAME: Well #11

TIER: 2
WHP RANK:
UNIQUE WELL #: 00770414

COUNTY: Nicollet | TOWNSHIP NUMBER: | RANGE: | SECTION: | QUARTERS:

CRITERIA		DESCRIPTION	POINTS
Aquifer Name(s)	:	Jordan	
DNR Geologic Sensitivity Rating	:	Medium	25
L Score	:	0	
Geologic Data From	:	Well Record	
Year Constructed	:	2009	
Construction Method	:	Rotary/Drilled	0
Casing Depth	:	188	10
Well Depth	:	233	
Casing grouted into borehole?		Yes	0
Cement grout between casings?		Yes	0
All casings extend to land surface?		Yes	0
Gravel - packed casings?		No	0
Wood or masonry casing?		No	0
Holes or cracks in casing?		Unknown	0
Isolation distance violations?			0
Pumping Rate	:	260	5
Pathogen Detected?			0
Surface Water Characteristics?			0
Maximum nitrate detected	:	19 06/06/2018	VULNERABLE
Maximum tritium detected	:	Unknown	0
Non-THMS VOCs detected?			0
Pesticides detected?			0
Carbon 14 age	:	Unknown	0
Wellhead Protection Score	:		40
Wellhead Protection Vulnerability Rating	:		VULNERABLE

Vulnerability Overridden :

COMMENTS

625 Robert St. N. St. Paul MN 55155
P.O. Box 64975 St. Paul MN 55164 - 0975

MINNESOTA DEPARTMENT OF HEALTH
SECTION OF DRINKING WATER PROTECTION
SWP Vulnerability Rating

PWSID: 1520006
SYSTEM NAME: Saint Peter
WELL NAME: Well #12

TIER: 2
WHP RANK:
UNIQUE WELL #: 00770415

COUNTY: Nicollet | TOWNSHIP NUMBER: | RANGE: | SECTION: | QUARTERS:

CRITERIA		DESCRIPTION	POINTS
Aquifer Name(s)	:	Wonewoc Sandstone	
DNR Geologic Sensitivity Rating	:	Very low	0
L Score	:	20	
Geologic Data From	:	Well Record	
Year Constructed	:	2009	
Construction Method	:	Rotary/Drilled	0
Casing Depth	:	430	0
Well Depth	:	490	
Casing grouted into borehole?		Yes	0
Cement grout between casings?		Yes	0
All casings extend to land surface?		Yes	0
Gravel - packed casings?		No	0
Wood or masonry casing?		No	0
Holes or cracks in casing?		Unknown	0
Isolation distance violations?			0
Pumping Rate	:	500	5
Pathogen Detected?			0
Surface Water Characteristics?			0
Maximum nitrate detected	:	<.05 05/14/2014	0
Maximum tritium detected	:	Unknown	0
Non-THMS VOCs detected?			0
Pesticides detected?			0
Carbon 14 age	:	Unknown	0
Wellhead Protection Score	:		5
Wellhead Protection Vulnerability Rating	:		NOT VULNERABLE

Vulnerability Overridden :

COMMENTS

625 Robert St. N. St. Paul MN 55155
P.O. Box 64975 St. Paul MN 55164 - 0975

MINNESOTA DEPARTMENT OF HEALTH
SECTION OF DRINKING WATER PROTECTION
SWP Vulnerability Rating

PWSID: 1520006
SYSTEM NAME: Saint Peter
WELL NAME: Well #13

TIER: 2
WHP RANK:
UNIQUE WELL #: 00770416

COUNTY: Nicollet | TOWNSHIP NUMBER: | RANGE: | SECTION: | QUARTERS:

CRITERIA		DESCRIPTION	POINTS
Aquifer Name(s)	:	Mt. Simon	
DNR Geologic Sensitivity Rating	:	Very low	0
L Score	:	19	
Geologic Data From	:	Well Record	
Year Constructed	:	2009	
Construction Method	:	Rotary/Drilled	0
Casing Depth	:	630	0
Well Depth	:	780	
Casing grouted into borehole?		Yes	0
Cement grout between casings?		Yes	0
All casings extend to land surface?		Yes	0
Gravel - packed casings?		No	0
Wood or masonry casing?		No	0
Holes or cracks in casing?		Unknown	0
Isolation distance violations?			0
Pumping Rate	:	1400	20
Pathogen Detected?			0
Surface Water Characteristics?			0
Maximum nitrate detected	:	<.05 05/14/2014	0
Maximum tritium detected	:	Unknown	0
Non-THMS VOCs detected?			0
Pesticides detected?			0
Carbon 14 age	:	Unknown	0
Wellhead Protection Score	:		20
Wellhead Protection Vulnerability Rating	:		NOT VULNERABLE

Vulnerability Overridden :

COMMENTS

MINNESOTA DEPARTMENT OF HEALTH
SECTION OF DRINKING WATER PROTECTION
SWP Vulnerability Rating

625 Robert St. N. St. Paul MN 55155
P.O. Box 64975 St. Paul MN 55164 - 0975

PWSID: 1520006
SYSTEM NAME: Saint Peter
WELL NAME: Well #14

TIER: 2
WHP RANK:
UNIQUE WELL #: 00770417

COUNTY: Nicollet | TOWNSHIP NUMBER: | RANGE: | SECTION: | QUARTERS:

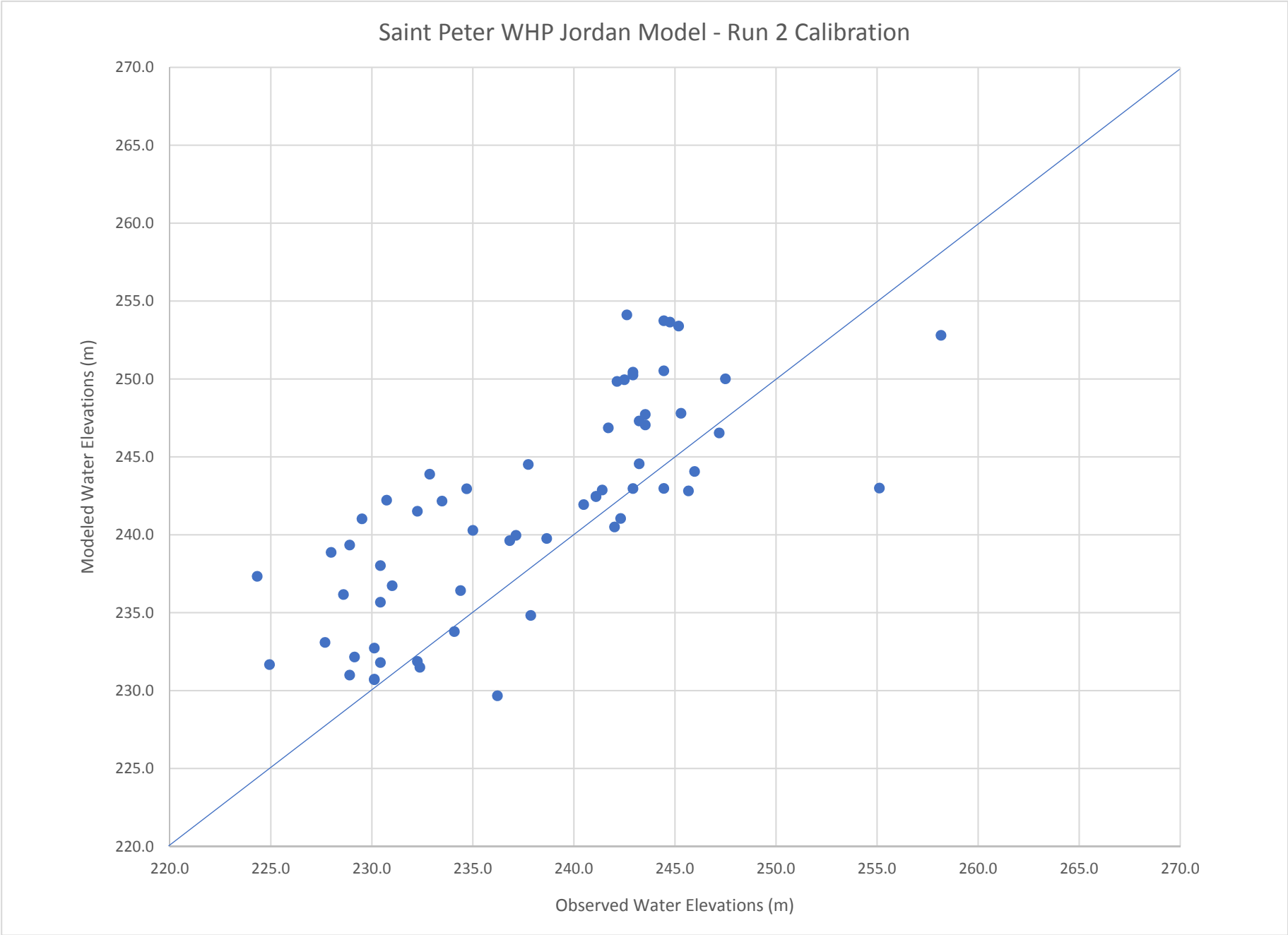
CRITERIA		DESCRIPTION	POINTS
Aquifer Name(s)	:	Mt. Simon	
DNR Geologic Sensitivity Rating	:	Very low	10
L Score	:	9	
Geologic Data From	:	Well Record	
Year Constructed	:	2009	
Construction Method	:	Rotary/Drilled	0
Casing Depth	:	620	0
Well Depth	:	775	
Casing grouted into borehole?		Yes	0
Cement grout between casings?		Yes	0
All casings extend to land surface?		Yes	0
Gravel - packed casings?		No	0
Wood or masonry casing?		No	0
Holes or cracks in casing?		Unknown	0
Isolation distance violations?			0
Pumping Rate	:	1400	20
Pathogen Detected?			0
Surface Water Characteristics?			0
Maximum nitrate detected	:	<.05 05/14/2014	0
Maximum tritium detected	:	Unknown	0
Non-THMS VOCs detected?			0
Pesticides detected?			0
Carbon 14 age	:	Unknown	0
Wellhead Protection Score	:		30
Wellhead Protection Vulnerability Rating	:		NOT VULNERABLE

Vulnerability Overridden :

COMMENTS

APPENDIX C

MODEL CALIBRATION RESULTS


Saint Peter WHP Jordan Model - Run 2 Calibration
Modeled Water Elevations (m)
Observed Water Elevations (m)
270.0
265.0
260.0
255.0
250.0
245.0
240.0
235.0
230.0
225.0
220.0
220.0
225.0
230.0
235.0
240.0
245.0
250.0
255.0
260.0
265.0
270.0

WELL_LABEL	WELLNAME	UTME	UTMN	SWEL (m)	Run2	Run2 Diff
402320	ROLCO, INC	423766	4904848	243.5	247.0	-3.5
423351	BROUWER, ALAN	422710	4904957	233.5	242.2	-8.7
174992	WILLIAM, MATT	423162	4904958	232.9	243.9	-11.0
185157	STENSON BROTHERS	419019	4905143	237.7	244.5	-6.8
193691	GILBERTSON, KEN	422800	4905202	229.5	241.0	-11.5
190615	VOGT, DON	422782	4905308	235.0	240.3	-5.3
433324	HANSON, ERIC	425153	4905386	244.8	253.6	-8.9
160377	MOELLER, GARTH	423337	4905389	230.7	242.2	-11.5
433312	VOGT, JOHN	422697	4905399	228.9	239.3	-10.4
652861	HENDRICKSON, WILLIAM	421073	4905665	234.4	236.4	-2.0
738299	OSHAWA TOWNSHIP	416988	4905672	242.1	249.8	-7.7
402343	MENK, GREG	423448	4906061	228.0	238.9	-10.9
188626	SCHWEGMAN, RAY	423457	4906223	230.4	238.0	-7.6
190605	HOLIDAY HOUSE	423463	4906355	224.3	237.3	-13.0
662608	NETZ, FRED	417511	4906435	242.9	250.3	-7.3
707328	LORENTZ, JAMIE	417988	4906725	242.5	249.9	-7.4
119587	COHN, JERRY	424636	4906802	232.3	241.5	-9.2
616748	MILLER, MRS. CHARLES	417782	4906806	242.9	250.4	-7.5
707340	QUARM, DANIEL	416012	4906833	245.2	253.4	-8.2
160379	LIVINGSTON, JESSE	423904	4907009	230.4	235.7	-5.2
113068	WEBER, GREG	424982	4907162	242.3	241.0	1.3
707384	RUSTMAN, STEVE & ROSE	416729	4907197	258.2	252.8	5.4
188605	WEBER, HERBERT	424358	4907299	228.6	236.2	-7.6
433330	BOHLEN, ROGER	425255	4907548	236.8	239.6	-2.8
568055	KENNEDY, TOM	418499	4907551	244.5	250.5	-6.1
624311	LAMBERT, WILLIAM	420225	4907826	247.2	246.5	0.7
445904	GARDNER, RICHARD	421127	4907929	241.1	242.5	-1.4
603163	NIELSON CHEV. MW-5	423531	4908125	227.7	233.1	-5.4
752409	WITTE, DAN	420756	4908135	243.2	244.6	-1.3
734635	DUTTON, ROBERT	420143	4908148	243.2	247.3	-4.1
752410	WENNER, BRUCE	420188	4908611	245.3	247.8	-2.5
662612	VOLK, MICHAEL	417702	4908817	244.5	253.7	-9.3
511443	BURG, TOM	417496	4908865	242.6	254.1	-11.5
770414	ST. PETER 11	422321	4909016	237.1	240.0	-2.8
473639	ST. PETER 9	423757	4910142	229.2	232.1	-3.0
209906	ST. PETER 6	423725	4910427	232.4	231.5	0.9
211794	NICOLLET COUNTY GARAGE	422641	4910664	238.7	239.8	-1.1
644447	NIEMEYER, MIKE	421924	4910901	245.7	242.8	2.9
186115	KIENLEN, PAT	421425	4910903	241.7	246.9	-5.1
188637	PASSON, AL	423986	4911166	228.9	231.0	-2.1
644446	GEORGE, JOE	421838	4911223	246.0	244.1	1.9
186137	ESSE, BOB	421975	4911369	234.7	242.9	-8.2
190650	WOLFE, DONALD	421974	4911413	244.5	243.0	1.5
160380	DRANTTEL, MARVIN	421988	4911525	241.4	242.9	-1.5
160376	REGENSCHEID	422031	4911556	241.1	242.4	-1.3
190606	JOHNSON, AL	421980	4911645	242.9	243.0	0.0

WELL_LABEL	WELLNAME	UTME	UTMN	SWEL (m)	Run2	Run2 Diff
186132	JOHNSON, WALT	421977	4911694	255.1	243.0	12.1
574964	COURTLAND INDUSTRIES	421199	4911712	247.5	250.0	-2.5
113090	CHILLMAN, HERB	421471	4911893	243.5	247.7	-4.2
574979	DRANTTEL, JOHN	423357	4912412	230.1	232.7	-2.6
707405	BAKKER, BRAD	422162	4912486	242.0	240.5	1.5
248618	UNIMIN CORPORATION 4-NEW	424635	4913446	224.9	231.7	-6.7
160370	UNIMIN CORPORATION	424659	4913569	232.3	231.9	0.4
211795	JOHNSON, DAVE	422004	4913576	240.5	241.9	-1.4
148708	RANDALL, DEAN	425141	4914224	234.1	233.8	0.3
433310	UNIMIN CORP	424714	4914381	230.4	231.8	-1.4
734642	UNIMIN MW-2	425962	4914647	231.0	236.7	-5.7
102393	ZIEBARTH, TIM	424583	4914714	230.1	230.7	-0.6
445909	HILDEBRANDT, CHARLE	424615	4914806	230.1	230.7	-0.6
188608	OTTAWA FUR FARM	424417	4914826	236.2	229.7	6.6
568063	UNIMIN MW-4	425575	4914976	237.9	234.8	3.0

APPENDIX D

ASSESSMENT OF DATA ELEMENTS

Assessment of the Data Elements

This table presents the assessment of these data elements relative to the present and future implications of planning items that are specified in Minnesota Rules, part 4720.5210.

Data Element	Present and Future Implications				Data Source
	Use of the Well s	Delineation Criteria	Quality and Quantity of Well Water	Land and Groundwater Use in DWSMA	
Precipitation	L	M	M	M	MN Climatology Office
Geology					
Maps and geologic descriptions	M	H	H	H	MGS
Subsurface data	M	H	H	H	MGS, MDH, CWI
Borehole geophysics	M	H	H	H	MGS
Surface geophysics	L	L	L	L	Not Available
Maps and soil descriptions	L	L	M	M	NRCS
Eroding lands					
Water Resources					
Watershed units	M	H	H	H	DNR, USGS
List of public waters	M	H	H	H	DNR
Shoreland classifications					
Wetlands map					
Floodplain map					
Land Use					
Parcel boundaries map	L	H	L	L	Nicollet County, Saint Peter
Political boundaries map	L	L	L	L	Saint Peter, MnGEO
PLS map	L	H	L	M	MnGEO, MDH
Land use map and inventory					
Comprehensive land use map					
Zoning map					
Public Utility Services					
Transportation routes and corridors	L	M	L	L	MnGEO, MnDOT
Storm/sanitary sewers and PWS system map	L	H	M	M	Saint Peter
Oil and gas pipelines map					
Public drainage systems map/list	L	H	M	M	Saint Peter
Records of well construction, maintenance, and use	H	H	H	H	Saint Peter, CWI, MDH Files
Surface Water Quantity					
Stream flow data	L	M	L	L	DNR, USGS
Ordinary high water mark data	L	M	L	L	DNR, USGS

Data Element	Present and Future Implications				Data Source
	Use of the Well s	Delineation Criteria	Quality and Quantity of Well Water	Land and Groundwater Use in DWSMA	
Permitted withdrawals	L	L	L	L	DNR
Protected levels/flows	L	L	L	L	DNR
Water use conflicts	L	L	L	L	DNR
Groundwater Quantity					
Permitted withdrawals	H	H	H	H	DNR, Saint Peter
Groundwater use conflicts	L	L	L	L	DNR
Water levels	H	H	H	H	CWI, MDH, Saint Peter

Data Element	Present and Future Implications				Data Source
	Use of the Well s	Delineation Criteria	Quality and Quantity of Well Water	Land and Groundwater Use in DWSMA	
Surface Water Quality					
Stream and lake water quality management classification					
Monitoring data summary	L	L	M	M	SWCD
Groundwater Quality					
Monitoring data	H	H	H	H	MDH
Isotopic data	H	H	H	H	MDH
Tracer studies	H	H	H	H	Not Available
Contamination site data	M	M	M	M	MPCA
Property audit data from contamination sites					
MPCA and MDA spills/release reports	M	M	M	L	MPCA, MDA

Definitions Used for Assessing Data Elements:

High (H) - the data element has a direct impact

Moderate (M) - the data element has an indirect or marginal impact

Low (L) - the data element has little if any impact

Shaded - the data element was not required by MDH for preparing the WHP plan

Acronyms used in this report are listed on page ii, after the "Glossary of Terms."