

CITY OF ORONOCO  
Home of Downtown Oronoco Gold Rush



**DRAFT**

**CITY OF ORONOCO**  
**WELLHEAD PROTECTION PLAN**  
**PART 2**

May 8, 2019

Stantec Project No. 193804243



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## PUBLIC WATER SUPPLY WELL INFORMATION

Local Well Name	Unique Number	Well Status	Casing Diameter (inches)	Aquifer	Casing Depth (feet)	Well Depth (feet)	Date Constructed	Vulnerability*
1	676676	Primary	24 x 18	Jordan (CJDN)	309	400	9/17/2003	Vulnerable
2	733086	Primary	18	Jordan (CJDN)	257	334	1/24/2006	Vulnerable

\*See Part 1 report (Appendix G) for an explanation of the well vulnerability assessments.

## PART 2 EXECUTIVE SUMMARY

This document represents Part 2 of the City of Oronoco's Wellhead Protection Plan. The portion of the plan is designed to identify potential threats to the City's wells and establish an implementation plan to mitigate those risks. The plan is required to be updated every ten years, taking into account current well usage and existing land uses.

This portion of the wellhead protection (WHP) plan for Oronoco includes:

- the results of the Potential Contaminant Source Inventory,
- the Potential Contaminant Source Management Strategy,
- reference to the existing Water Supply Plan for contingency planning, and
- the Wellhead Protection Program Evaluation Plan.

The Part 1 portion 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. The Part 1 plan was submitted to the Minnesota Department of Health (MDH) and approved on January 25, 2018. The boundaries of the WHPA/DWSMA are shown in Figure 1. The approved Part 1 plan is presented in Appendix G.

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. Due to the lack of geologic protection overlying the Jordan aquifer from which the City's wells draw their water, the entire DWSMA has been classified as having "high" vulnerability.

All potential sources of contamination must be inventoried within highly vulnerable areas. These include, but are not limited to: other groundwater wells, storage tanks, sewers, septic systems, feedlots, spill sites, hazardous waste generators, landfills, dump sites, and any other site with the potential of contaminating local groundwater supplies. This information was presented to the WHP Team during the Second Scoping meeting held with the MDH on February 22, 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 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.

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 potential sources of contamination identified in Section 5 of this plan, including known spill/leak sites that have already impacted groundwater quality.

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, working cooperatively with local units of government and property owners
- increase readiness for responding to spills or emergencies
- continue to collect data on water quality

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 City of Oronoco staff.

Section 10 contains a *guide to evaluate the implementation* of the identified management strategies of Section 8. The wellhead protection program for Oronoco will be evaluated every two years.

Section 11 references the *Water Supply Plan* approved by the Minnesota Department of Natural Resources.

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

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## 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 has been 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. Oronoco is in the process of completing its first Wellhead Protection Plan, since the City's wells were constructed after the initial round of planning had taken place for most other communities. The plan is required to be updated every ten years.

The City of Oronoco obtains its drinking water supply from two wells completed in the Jordan Sandstone 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 the *Part 1 Wellhead Protection Plan* (Minnesota Department of Health, August 2017) which was approved by MDH on January 25, 2018. (See Appendix G.) The rest of this report summarizes the information presented in the Part 1 report, presents additional data elements, and presents the contents of the Part 2 Wellhead Protection Plan.

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## **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 *Part 1 Wellhead Protection Plan* prepared by and approved by the MDH on January 25, 2018. A complete copy of the Part 1 report is provided in Appendix G.

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### **3.0 VULNERABILITY ASSESSMENT**

Two separate vulnerability assessments were undertaken to as part of the amended 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 Oronoco wells. The well vulnerability assessment was also completed using MDH guidelines. A description of the two assessments is presented in the amended *Part 1 Wellhead Protection Plan*, prepared by the MDH and approved on January 25, 2018. (See Appendix G.) The DWSMA was determined to have a “high” vulnerability to contamination (Figure 1). The results drove the need for a detailed evaluation of potential contaminant sources, which is presented later in this report.

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## 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 Part 1 of the Plan (Appendix G). 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 Oronoco, 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 is 34.95 inches over the past ten years. The groundwater flow model developed to delineate the wellhead protection areas addresses the rate at which recharge occurs within the aquifer.

Precipitation (in inches) in Oronoco, Minnesota

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2017	2.61	1.80	2.24	5.09	5.76	4.79	4.61	3.10	1.55	4.15	0.53	0.59	37.46
2016	0.61	0.65	3.80	1.83	3.32	4.79	5.99	10.17	6.78	2.91	1.10	1.90	46.80
2015	0.63	0.59	1.36	4.14	4.51	6.41	4.12	4.23	3.95	1.52	3.10	4.24	33.94
2014	1.17	1.98	1.03	5.29	3.05	7.49	1.29	5.93	2.37	2.09	1.06	0.85	34.98
2013	0.70	1.24	2.31	6.55	7.80	5.49	1.58	1.51	1.88	3.33	1.00	1.05	33.52
2012	0.89	1.80	1.51	3.27	4.28	5.61	5.36	2.46	0.91	2.33	0.42	1.71	28.05
2011	0.80	1.37	2.94	4.04	3.62	5.68	8.60	1.38	1.55	0.43	0.41	1.12	36.27
2010	0.38	1.07	1.37	1.76	2.81	5.99	4.55	3.98	11.69	0.76	2.94	2.59	43.08
2009	0.75	0.89	0.61	2.87	2.71	3.20	2.21	4.22	1.09	6.52	0.46	2.50	24.37
2008	0.83	0.68	1.85	4.44	3.66	5.53	2.59	3.31	1.92	2.14	1.98	1.70	31.01
Average	0.94	1.21	1.90	3.93	4.15	5.50	4.09	4.03	3.37	2.62	1.30	1.83	34.95

There appears to be some connection between the aquifer and the surface, and there exists a potential that precipitation could impact the water quality through storm-water runoff and precipitation infiltration. Therefore, the potential impact of precipitation infiltration on water quantity and quality was considered 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 H.) The municipal wells are completed in the Jordan Sandstone aquifer. The flow within the Jordan Sandstone is believed to be relatively uniform. However, flow in the overlying Prairie du Chien aquifer is less predictable due to the fractured nature of that bedrock unit. Fractures have the ability to rapidly transport water (and any contaminants within). The Part 1 plan took this into account when calculating the capture zones of the City's wells.

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. Since there is relatively little geologic protection in the Oronoco area, the vulnerability is characterized as "high" and any potential sources of contamination that could impact the aquifer must be addressed.

## *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 in the highly vulnerable portions of the DWSMA. Soil survey data is 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 and soil types in the highly vulnerable DWSMA are mapped in Figure 2. It should be noted that disturbance or scalping of soils, particularly in developed areas, may have occurred since the soil survey was completed. No eroding soils were noted in the soils databases for the area.

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 shown in Figure 2. Hydrologic Group A soils are moderately rapidly to rapidly permeable and well drained to excessively drained. Hydrologic Group B soils are moderately to moderately slowly permeable and generally well drained. Hydrologic Group B/D soils are moderately permeable but poorly to very poorly drained, unless they have been drained by ditches or drain tiles. Hydrologic Group D soils are slowly permeable and poorly to very poorly drained.

## *4.4 Water Resources*

Oronoco's wells draw from the Jordan Sandstone aquifer. This system has a direct or indirect hydraulic connection to surface water bodies, and this connection is reflected in the pattern of observed static water levels in wells. Therefore, surface waters may impact the quantity and quality of groundwater within the DWSMA.

Figure 3 shows wetlands in the National Wetlands Inventory designated by wetland class and water regime. Portions of the northern edge of the DWSMA are within the 100-year and 500-year flood zones established by FEMA.

The Zumbro River acts as discharge boundary for the shallow groundwater flow aquifers.

#### *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 water quality standards. A summary of the system's finished water quality is provided in the annual Consumer Confidence Report (Appendix B). 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.

The maximum nitrate concentration detected in the system in 2017 was 1.10 ppm, indicating very little impact from agricultural land uses on groundwater quality, despite being in an area where agricultural land uses are present upgradient of the City's wells. Additionally, the DWSMA for Oronoco contains a large surface water component, where overland flow of contaminants (such as nitrates) could impact the portion of the aquifer that supplies drinking water to Oronoco. The relatively low nitrates concentrations indicate that a problem doesn't currently exist with agricultural impacts to groundwater. However, there is a potential for problems in the future, if management of nitrates contamination sources (both point and non-point sources) doesn't consider aquifer protection.

#### *4.6 Groundwater Quantity*

Other than the Oronoco water supply wells, there are no wells in the surrounding area which are covered by state groundwater appropriation permits. There are no known well interference problems in or around the Oronoco DWSMA. Therefore, existing high capacity wells or groundwater use conflicts do not need to be addressed in the management plan.

#### *4.7 Surface-Water Quality*

Because the aquifers are connected with the surface over a portion of the DWSMA, surface-water quality is relevant to protection of the quality of groundwater in the aquifers used by the public water supply system. The Zumbro River is believed to be the main discharge areas for groundwater in the shallow aquifers.

The MPCA maintains the Watershed Pollutant Load Monitoring Network, with a nearby station in the South Branch of the Middle Fork of the Zumbro River, just west of Highway 52 above former Lake Shady. Chemistry data collected from the river includes TKN, Nitrates, Phosphorus, and Total Suspended Solids (TSS). Readings from the monitoring network indicates these parameters are highly variable, suggesting that concentrations change seasonally or as the result of runoff events. While groundwater does discharge into the river, it likely is not the sole driving factor in the chemistry data observed.

#### *4.8 Surface-Water Quantity*

A Cooperative Stream Gaging station has been established at the South Branch of the Middle Fork of the Zumbro River, just west of Highway 52 above former Lake Shady. Real time data has been collected and recorded showing river stage since November 2016. Conversion of stage into flows is not currently available on the MPCA website.

More information on water quality and quantity of the Zumbro River is expected when the Zumbro Watershed's IWIP (One Watershed, One Plan) is released in the next year or two. Findings from this plan will be incorporated as necessary into the management of Oronoco's Wellhead Protection Plan.

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## 5.0 CONTAMINANT SOURCE INVENTORY

As part of the Oronoco 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 land use zoning map is provided as Figure 4. A majority of the southern portion of the DWSMA is zoned as agricultural, while the majority of the northern portion of the DWSMA is zoned residential. Smaller portions of light industrial, commercial, and public land uses exist in the DWSMA as well.

Figure 5 shows expected future land uses in and around the DWSMA. The most significant changes expected are the reduction and potential elimination of all agricultural land use, with expanded residential and commercial land uses taking their place. As land uses change, there is an opportunity to guide development with groundwater protection goals in mind while also eliminating some of the existing potential contamination sources (e.g. feedlots) that pose a potential risk.

Following a scoping meeting held with Minnesota Department of Health (MDH) staff on February 22, 2018, Stantec and Oronoco staff proceeded to locate information about land and water use within the delineated DWSMA for the Oronoco wells. Any data which was relevant to the public water supply wells, the quality of the water being drawn in to 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. All areas must be evaluated for the presence of wells, automotive disposal systems and cesspools (types of Class V or shallow disposal wells) and large sewer systems serving more than 20 people or 2 or more facilities, and non-point sources in areas that drain to high vulnerability areas.
2. All areas must be assessed for storage tanks, spills, and leaks.
3. All other land uses and potential sources of contamination must be evaluated to assess the risk they pose to groundwater.

Each of these elements is described separately below. Figure 6 shows the location of large sewer systems and drain fields within the DWSMA. Figure 7 shows the locations of known and suspected wells within the entire DWSMA. Figure 8 shows potential point sources of contamination within the DWSMA. The wells and potential contaminant sources are individually listed in tables in Appendix A.

### *5.2 Shallow Disposal Wells*

Disposal wells are potential sources of contamination that must be inventoried for the entire DWSMA. The USEPA 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 shallow disposal well sites were identified within the DWSMA. This determination was made based on Oronoco staff knowledge of land uses in the area, a review of Olmsted County’s database, and a review of the EPA’s Class V wells database. However, the potential exists for shallow disposal wells to be present, as current inventories are not a complete record of what exists. If shallow disposal wells are discovered within the DWSMA during the life of this plan, implementation strategies are provided to manage those shallow disposal wells.

### *5.3 Wells*

An important component of the potential contaminant source inventory was the location of any known or suspected 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. Portions of the DWSMA are not served by the public water supply system, so several private domestic wells were identified during a search of databases.

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

1. Minnesota Geological Survey’s County Well Index (CWI)
2. Oronoco staff knowledge about current and historical land uses.
3. Olmsted County well database information.
4. Air photographs

The identified wells are plotted on the map in Figure 7, and listed in Appendix A. The results of the well search indicated that there are 57 documented wells in the DWSMA, not including the Oronoco municipal supply wells. A further 17 suspected well sites were mapped, based on the presence of homes in the DWSMA that are not connected to the municipal water supply system. As part of the plan implementation, further efforts will be made to survey these properties and determine the number and status of any wells that may exist on these properties.

The accuracy of the locations of the wells as mapped in Figure 7 varies. Whenever possible, wells were mapped using coordinates obtained by the MGS or MDH. When accurate coordinates were not available, all wells were mapped on the correct land parcel using an ortho-rectified digital air photo base map.

The majority of the identified wells are used for domestic water supply. There are currently no known existing unused municipal wells located within, or in the immediate vicinity of, the DWSMA. The impact of pumping of the municipal wells was addressed in the wellhead protection area delineation analyses (Part 1 plan, Appendix G).

#### *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 (Table A-1). GIS data files containing the point source data are also available electronically. The locations are mapped in Figure 8.

The first step in the point-source search was to investigate available resources listing potential sites of concern. The MDH provided Oronoco with a compilation of data from state and federal databases containing information about tanks, feedlots, hazardous waste generators, dumps, agricultural chemical storage sites, and other potential point sources of contamination. The resulting data were reviewed for accuracy, and the data points were associated with the correct land parcels.

Items located within the DWSMA were identified and inventoried according the required criteria. Data points were located by the address information provided in the databases and by Oronoco staff. Public utilities staff also performed field reconnaissance of parcels considered to be likely sites of potential contaminants or wells not included in public databases.

Portions of the DWSMA are served by a sanitary sewer system, which is to be expanded resulting in the removal of some septic systems (also known as subsurface sewage treatment systems or SSTS). Failed or substandard 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.

An inventory of SSTS was also compiled using County data, air photos, the available land use map, and Oronoco staff knowledge about land uses in the DWSMA. A total of 178 known or suspected SSTS sites were identified in the DWSMA, including a total of 21 community sanitary sewer drains, each serving multiple homes in the residential areas. These drain fields can also be a source of potential contamination if they are not maintained or begin to fail. Regular inspection and management of these systems will help ensure they are operating properly and not introducing excessive levels of nitrates or

other contaminants into the groundwater aquifers.

Three sites with underground storage tanks and one site with above ground storage tanks were identified in the inventory. Tanks are of primary concern as any leaks can release a high concentration of contaminants into groundwater, either through small leaks over a long period of time or large leaks in a short period of time.

Two animal feedlots were identified in the DWSMA. Feedlots are of concern, as they can be a source of manure runoff which can be rich in nutrients, including nitrates.

Two hazardous waste generators were identified within the DWSMA, one of which is a currently inactive small quantity generator while the other (Oronoco Auto Salvage) is an active larger quantity generator. Proper handling, storage, transportation, and disposal of hazardous wastes is essential for these waste generators. Oronoco Auto Salvage was given an Administrative Penalty Order by the Minnesota Pollution Control Agency in June 2018 for mis-handling, mis-labeling, and improper disposal of waste oils. The facility has since complied with the Administrative Penalty Order. As part of the Wellhead Protection Plan, Oronoco plans to regularly follow up with State agencies to ensure that regulated facilities within the DWSMA remain in compliance.

#### *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 fields, to which fertilizers and/or pesticides have been applied, are potential sources of infiltration or runoff containing nitrates and pesticides or pesticide degradation products. Most of the DWSMA is agricultural. Residential areas are also potential sources of similar types of contaminants.

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 that may be non-point sources (Figure 4). Non-point sources are a concern throughout most of the Wellhead Protection Area because contaminants released at the surface within the WHPA may be carried by runoff to high vulnerability areas and infiltrate into the groundwater.

It should be noted that significant impacts from agricultural chemical use have not been detected in the well water, despite the fact that agricultural chemicals are known to have been used in the DWSMA for decades. Therefore, agricultural chemical infiltration and runoff are likely not a high priority for the wellhead protection management plan, unless they are spilled in high concentrations. Agricultural chemicals may be of more concern for surface-water quality management.

#### *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.

Highway 52 is the major transportation corridor that intersect the DWSMA. There are no liquid petroleum pipelines or active railroads within the DWSMA. Sanitary and storm sewers in the DWSMA are mapped on Figure 6. Any leaks from these sewer systems could introduce contaminants directly to soils and groundwater, so proper maintenance and inspection of these systems is important.

Public water supply wells are also components of the public utility infrastructure. The locations of the wells are shown on Figure 1. The only wells classified as public supply (or municipal) within the DWSMA are the two Oronoco wells. At present, all public water supply wells appear to meet the required setbacks set forth for the 200-foot inner well management zone around each well.

### *5.7 Active Sites of Contamination*

A total of five sites have been identified as spill sites or contamination investigation or remediation sites. Of these sites, two are still considered “active” by the MPCA, meaning that ongoing investigation, cleanup, and/or monitoring is still required. Inactive spill sites include Oronoco dump site, Oronoco Auto Salvage, Pat Hall Service. The spills at these sites are believed to have been cleaned up to the point where they do not pose an active threat to groundwater. The two active sites include Oronoco Township Hall and the Morris Residence. The status of these spills is either that additional cleanup and/or monitoring is still necessary, or there is not enough information to conclude these sites do not pose a risk to groundwater.

### *5.8 Summary*

Proactive management of potential point sources of contamination within the 1-year groundwater capture zones, or Emergency Response Areas (ERA), 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.

Of the 178 inventoried SSTS sites, none are located within the ERAs for the Oronoco wells. The identified sanitary sewer drainfields, storage tanks, feedlots, and spill sites are also outside of the ERAs.

Impacts from non-point sources such as elevated nitrate concentrations have not been detected in system water samples. Nevertheless, all of the potential sources in the inventory should be managed appropriately. The scope of the potential contaminant source inventory can be seen in the summary given below.

Type of Potential Contaminant Source	Total Active / Current	Total Removed / Closed / Inactive
Agricultural chemical storage	None in MDA database	None identified
Animal feed lot	2 identified with 0 in ERA	Unknown
Underground storage tank site	3	Unknown
Above ground storage tank site	1	Unknown
SSTS (Individual sewage treatment system)	178 identified	Unknown
Gravel pit	None identified	None identified
Class V wells	None identified	Unknown
Large sewer system	Municipal sewer	NA
Hazardous waste generator	1	1
Spill or remediation sites	2	3
Transportation routes	Highways	Unknown
Row crops	Not quantified	Not quantified
Total cultivated acres	Not quantified	Not quantified
Lawns, gardens, maintained turf and other plantings	Not quantified	Not quantified

The land use zoning map (Figures 4) along with Figures 6, 7, and 8 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.

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

Land uses within the DWSMA are expected to shift away from agricultural uses towards more residential and commercial uses over time. A comparison of existing land uses (Figure 4) with projected future land uses (Figure 5) identifies the areas where changes are expected. Growth in the City of Oronoco will potentially require an expansion of the current water supply system, with an increase in average annual water demand likely over the next ten years. Locations of any future water supply wells will be examined to ensure proper placement with respect to potential sources of contamination, along with avoiding any impacts of well interference or degradation of natural resources that rely on groundwater.

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## 7.0 PROBLEMS AND OPPORTUNITIES

### 7.1 Problems

1. The DWSMA for Oronoco is highly vulnerable to contamination.
2. Two active spill and remediation sites are present within the DWSMA.
3. Animal feedlots in the DWSMA represent potential point sources to which the water supply system may be susceptible if best management practices are not followed.
4. Agricultural areas in the DWSMA represent potential non-point sources to which the water supply system may be susceptible if agricultural chemicals are not used appropriately.
5. Residential areas of the DWSMA also represent potential non-point sources to which the water supply system may be susceptible if and lawn and garden chemicals are misused.
6. A portion of the DWSMA is outside of the city limits.
7. Portions of the DWSMA are inside the 100-year and 500-year floodplain area for the Zumbro River.
8. A large number of privately-owned SSTs (septic systems) are present within the groundwater portion of DWSMA. The City does not currently have their own sewer system, so individual or neighborhood septic systems are needed for now.

### 7.2 Opportunities

1. The shift away from agricultural land uses in the DWSMA in the future will help eliminate certain types of potential contamination sources.
2. An opportunity exists to work with local units of government intersected by the DWSMA in planning future land uses in order to protect the area's groundwater resources.
3. An opportunity exists to work with the MPCA and MDH to ensure that documented spill and remediation sites with the DWSMA are properly investigated, managed, and monitored.
4. Olmsted County is available to provide assistance with management of private wells within the DWSMA. Grant and cost share money may also be available to assist with sealing unused wells.

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

#### City of Oronoco

Zoning ordinances and special use permits are the primary means by which the City of Oronoco controls water and land use within the city. The majority of the DWSMA is outside of the city limits, however, where other entities have land use authority.

#### Olmsted County

The Olmsted County Water Management Plan was completed in 2012 and is active from 2013 through 2023. This plan is focused on five priority concerns that were identified:

- Drinking water and groundwater protection

- Agricultural erosion and sediment control, nutrient management, and chemical use
- Impaired waters, TMDLs, and watershed management
- Urban/suburban storm water quality and quantity
- Wetland resources and natural corridors

Olmsted County oversees the permitting and inspection of private wells and septic systems within the County. Public and municipal water supply wells are still permitted and administered through the MDH.

#### Oronoco and New Haven Townships

Both townships have adopted land use planning and zoning ordinances. The planning and zoning ordinance for Oronoco Township is covered by Olmstead County ordinances. The New Haven Township planning and zoning is overseen by the Township's Planning and Zoning Manager to ensure that the ordinances are compliant with Olmsted County ordinances. New Haven Township ordinances are equal to, or stricter, than County ordinances.

#### 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 feedlots. It should be noted that the state's design and operation standards would be adequate for most contaminant sources within the Oronoco DWSMA.

Land use authority that addresses the location of potential sources of contamination within the Oronoco DWSMA rests with local units of government according to Minnesota law. The Oronoco DWSMA falls within the jurisdiction of Olmsted County.

State and federal governmental units regulate:

- Well construction (public, municipal) – MDH;
- Well sealing (public, municipal) – 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
- 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 Oronoco water supply should be reviewed by the respective state agency before a permit can be approved.

The wellhead protection planning team recommends that no additional regulations be imposed at this time and are confident that local issues may be adequately addressed through existing processes.

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## 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 groundwater. 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 high quality water that meets state and federal drinking water standards.
2. Practice prevention strategies and 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 local units of government on aquifer protection, land use planning, and zoning decisions.

### 8.2 Objectives

Considering the problems and opportunities listed in Chapter 7 and the goals listed above, a strategy of objectives and specific actions aimed toward meeting those objectives was developed. Because the system water meets all state and federal drinking water standards, and contamination from human sources has not been a problem to date, the plan will focus on preventing acute point source releases, particularly in the Emergency Response Areas. To meet the stated 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. Conduct a survey of wells within the DWSMA to update inventory.
3. Seal abandoned or unused wells.
4. Identify and manage new and existing spills or potential contaminant sources within the DWSMA.
5. Manage risks of possible contamination of groundwater from accidental spills.
6. Work with Olmsted County to implement state and local requirements for feedlots and manure management located in WHP areas.
7. Encourage property owners to adopt tillage, chemical and nutrient BMPs for cropland within the DWSMA.
8. Educate property owners about the need for having complying on-site sewage treatment systems in the DWSMA.
9. Educate the public about hazardous waste and household hazardous waste.
10. Educate residential property owners about proper use of lawn and garden chemicals.
11. Work to ensure that land use planning and zoning takes into account protection of the aquifer in the DWSMA.

12. Be involved in the development and/or implementation of surface and groundwater planning activities for Olmsted County to help manage surface-water flow and infiltration issues.
13. Develop specific guidance for Oronoco staff so that personnel can make informed day-to-day decisions that may affect the wellhead protection program.
14. Distribute public education materials to enlist support of community in groundwater management goals.
15. Increase reliability of municipal wells in response to natural disasters, power outages, and similar contingencies.
16. Collect relevant groundwater and surface water quality samples for use in future planning updates.

### 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.

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

Who: Oronoco staff  
 Cooperators: MDH  
 When: 2018, 2023  
 Cost: Staff time  
 How: The wellhead protection manager will ensure that any new regulated activities will meet the required setbacks.  
 Status: 2018 inventory update completed. Five year update to be completed in 2023.

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

Who: Oronoco staff  
 Cooperators: MDH  
 When: Every two years  
 Cost: Staff time  
 How: Oronoco staff will conduct a review every two years of any new potential sources of contamination within one-year TOT zones. The status of previously identified PCSI sites will also be reviewed to determine if a change in land use has occurred.  
 Status: Not currently implemented.

Objective 2: Conduct a survey of wells within the DWSMA to update inventory.

Action 2A: Make direct contact with well owners in the DWSMA to determine location and status of each well. Update inventory to reflect current understanding of wells.

Who: Oronoco staff

Cooperators: MDH

When: 2020

Cost: Oronoco staff time, consultant time

How: Send a survey to property owners with known or suspected wells. Determine status of wells on site. Update inventory maps, tables, and database

Status: To be conducted in 2020.

Action 2B: Periodically check State and County databases for changes of wells within the DWSMA, including new wells, maintenance of existing wells, or abandonment of wells. Work with Olmsted County to be notified when existing wells are disclosed in property transfer.

Who: Oronoco staff

Cooperators: MDH, Olmsted County

When: 2020, then every two years

Cost: Oronoco staff time

How: Contact designated Point of Contact staff at MDH and County.

Status: Not currently implemented.

Objective 3: Seal abandoned or unused wells located in the groundwater DWSMA and encourage proper well maintenance.

Action 3A: Provide Olmsted County and MDH with a list of abandoned and unsealed well locations as Oronoco personnel discover them.

Who: Oronoco staff

Cooperators: MDH, Olmsted County

When: Ongoing

Cost: Oronoco staff time

How: Prepare written report for distribution to Olmsted County and MDH.

Status: Implemented when wells are identified

Action 3B: Make property owners aware of financial and technical resources available to assist in securing grant funding for properly sealing wells. Pursue grants and cost sharing on behalf of property owners for identified wells in need of sealing.

Who: Oronoco staff

Cooperators: Olmsted County, MDH

When: Ongoing

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. If financial assistance is required to facilitate well sealing, apply for wellhead protection implementation grant(s) or cost sharing to seal wells.

Status: Not currently implemented.

Action 3C: Send reminder notices to well owners reminding them of proper well maintenance.

Who: Oronoco staff

When: 2020

Cost: Staff time, printing and postage costs

How: Annual notices will be sent to addresses identified in the DWSMA well inventory concurrent with well surveys conducted in 2A.

Status: Not currently implemented.

Objective 4: Identify and manage new and existing spills or potential contaminant sources within the DWSMA.

Action 4A: Determine if state agencies or local services have knowledge of new spills or potential contaminant sources in the DWSMA. Review database of tanks to update database as needed.

Who: Oronoco staff

Cooperators: MPCA, Department of Agriculture, Local emergency response services

When: Every two years

Cost: Staff time

How: Contact designated Point Of Contact staff at MDH, MPCA, and MDA staff acting as a liaison to the wellhead protection program. Update inventory with identified spills and tanks, and make modifications if status changes in identified sites have taken place.

Status: Completed in 2018. Next round to be done in 2020.

Action 4B: Obtain updates from State agencies regarding status of known spill sites and obtain updates on permitted tank and hazardous waste sites. Work cooperatively to help ensure Oronoco's wells are being protected from spill migration.

Who: Oronoco staff

Cooperators: MPCA, Department of Agriculture, MDH

When: Obtain updates every two years, starting in 2020

Cost: Staff time

How: Contact designated staff at MDH, MPCA, and MDA staff to get updates on identified spills. Obtain latest reports and findings on identified sites. Work with agencies to help implement changes that will protect the City's water supply wells. Obtain any needed monitoring data from investigations to determine contaminant levels in the aquifer and assess threats to City's wells.

Status: Ongoing

Action 4C: Contact property owners with potential contamination sources and make them aware of their role to play in protecting groundwater and drinking water.

Who: Oronoco staff

Cooperators: MPCA, MDH, MDA

When: 2020

Cost: Staff time, consultant time

How: Prepare mailings or use social media to contact tank owners, feedlot owners, and hazardous waste generators with educational information on wellhead protection and best management practices. Provide contact information for property owners to obtain additional information, if needed.

Status: Not currently implemented

Objective 5: Manage risks of possible contamination of groundwater from accidental spills.

Action 5A: Work with emergency management teams to develop a spill response plan for the DWSMA.

Who: Oronoco staff

Cooperators: MPCA, MDA, Olmsted County, Local emergency response services

When: 2022

Cost: Staff time, consultant time

How: Meet with cooperators to begin development of an emergency response plan. Work with local emergency management teams to identify threats to groundwater resources. Prepare spill response plan to outline responsibilities and actions required to address potential impact to water supply system.

Status: Not currently implemented

Objective 6: Encourage property owners to adopt tillage, chemical and nutrient BMPs for cropland within the DWSMA.

Action 6A: Oronoco will support state and federal agencies in managing and educating property owners on best management practices for agricultural areas.

Who: Oronoco  
Cooperators: MDA, Olmsted SWCD  
When: Ongoing  
Cost: Staff time  
Status: Not currently implemented.

Objective 7: Work with Olmsted County to implement state and local requirements for feedlots and manure management located in WHP areas.

Action 7A: Inform appropriate Olmsted County staff of Oronoco wellhead protection plan status and the location of the DWSMA, so County oversight of feedlots can take these boundaries into consideration.

Who: Oronoco  
Cooperators: Olmsted County, SWCD  
When: Ongoing  
Cost: Staff time  
Status: Implemented

Action 7B: Request Olmsted County to provide results of site evaluations of any feedlots located within the DWSMA.

Who: Oronoco staff  
Cooperators: Olmsted County  
When: 2019  
Cost: Staff time  
How: Send mailing to Olmsted County showing boundaries of DWSMA along with current inventory of feedlots in the area. Request that results of any existing and future feedlot site evaluations be forwarded to Oronoco.  
Status: Not currently implemented.

Objective 8: Educate property owners about the need for having complying onsite sewage treatment systems in the DWSMA.

Action 8A: Request that Olmsted provide a status list of all Individual Sewage Treatment Systems in the DWSMA.

Who: Oronoco staff

Cooperators: Olmsted County

When: 2020

Cost: Staff time

How: Work with Olmsted County staff to obtain current list of all SSTS systems in DWSMA. Survey results will be compared to inventory compiled in this report. Updates to the inventory will be made, if necessary, to reflect the most current conditions of each system.

Status: Not currently implemented.

Action 8B: Provide information to SSTS owners identifying wellhead protection as a concern and provide information pertaining to proper SSTS maintenance.

Who: Olmsted County

Cooperators: Oronoco staff, University of Minnesota Extension

When: 2020

Cost: Staff time

How: 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 8C: Encourage SSTS owners to have a compliance inspection completed for their system, if one has not recently been conducted.

Who: Olmsted County Environmental Services

Cooperators: Oronoco staff

When: 2020

Cost: Staff time

How: Use various media (direct mailings, flyers, City website, social media) to contact 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. Provide list of possible loans or grants available to help update out-of-compliance sites. Request results of compliance inspection be forwarded to Oronoco.

Status: Not currently implemented.

Objective 9: Educate the public about hazardous waste and household hazardous waste.

Action 9A: Use existing newsletter or website to encourage residents to use Olmsted County's Hazardous Waste Facility.  
Who: Oronoco Staff  
Cooperators: Olmsted County  
When: Annually  
Cost: Staff time  
How: Include information about wellhead protection and the importance of proper disposal of household hazardous wastes in the mailing. Provide facility address, operational hours, and contact information.  
Status: Currently implemented

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

Action 10A: Use existing programs to educate property owners about appropriate use of lawn and garden chemicals and about ways to minimize the potential adverse environmental effect of the chemicals if they choose to use them.  
Who: University of Minnesota Extension in Olmsted County  
Cooperators: Olmsted SWCD, MDA  
When: Ongoing  
Cost: Unknown  
How: U of M extension provides educational materials on the web and for sale and conducts horticulture, pest, and other workshops.  
Status: Currently implemented.

Objective 11: Ensure that land use planning and zoning takes into account protection of the aquifer underneath the DWSMA.

Action 11A: Request input with the County regarding land use planning decisions within the DWSMA that may affect aquifer quality.  
Who: Oronoco  
Cooperators: Olmsted County, Oronoco Township, New Haven Township  
When: 2020  
Effort: Staff time  
How: Send letters to County requesting input into land use planning decisions within DWSMA and review of any changes in the land use or zoning. Provide recommendations on acceptable land uses within DWSMA. Identify concerns with addition of more potential contaminant sources within the DWSMA.  
Status: To be implemented in 2020.

Action 11B: Make updates to the City's Comprehensive Plan that include wellhead protection and groundwater quality as a priority. Also include wellhead protection in any updates to the City's land use and zoning plans.

Who: Oronoco staff  
Cooperators: Olmsted County  
When: To be completed when plans are updated  
Effort: Staff time  
How: Integrate wellhead protection into the Comprehensive Plan and land use (and zoning) plans, so future growth takes into account aquifer protection as a priority.  
Status: Not currently implemented.

Objective 12: Be involved in the development and/or implementation of surface and groundwater plans for Olmsted County.

Action 12A: Inform appropriate County staff of the Oronoco's wellhead protection efforts and request that they notify Oronoco of land or water management practices or modifications that are relevant to the effort.

Who: Oronoco staff  
Cooperators: Olmsted County; Olmsted SWCD, MDH  
When: Make contact in 2019, then ongoing as needed  
Effort: Staff time  
How: Send letter to Olmsted County requesting involved in decision making.  
Status: Not currently implemented.

Objective 13: Develop specific guidance for Oronoco personnel to use so that staff can make informed day-to-day decisions.

Action 13A: Review responsibilities of each department. Determine action triggers that could affect wellhead protection activities. Establish means of educating Oronoco staff about wellhead protection planning and the role they play in ensuring its successful implementation.

Who: Oronoco staff  
When: 2020, annual review thereafter  
Cost: Staff time  
How: Prepare specific guidance for each utility department and educate City staff about its use.  
Status: Currently prepared in outline form as part of this document.

Objective 14: Distribute public education materials to enlist support of community in groundwater management goals.

Action 14A: Use City's website, brochures, newsletters, or social media to enlist public support for the Wellhead Protection Plan.

Who: Oronoco Staff

Cooperators: MDH

When: Annually

Effort: Staff time, printing and publishing costs

How: Prepare educational materials for distribution using website, brochures, newsletters, consumer confidence reports, and/or social media. Vary educational methods from year-to-year to ensure that the public is reached through a variety of communication routes.

Status: Not currently implemented.

Objective 15: Increase reliability of wells in response to natural disasters, power outages, and similar contingencies.

Action 15A: Obtain a generator to maintain operation of wells during periods of power outages.

Who: Oronoco staff

Cooperators: DNR, MDH

When: 2020

Cost: Generator cost, staff training

How: Purchase generator suitable for running municipal wells when local power supplies are not available or are not operational. Install wiring and receptacle for generator. Apply for a grant to assist in purchase of generator unit and associated installation and wiring.

Status: Not currently implemented

Objective 16: Collect relevant groundwater and surface water quality samples for use in future planning updates.

Action 16A: Collect representative samples from wells and surface water bodies to analyze for stable isotopes and the MDH's standard assessment monitoring package. Results of these samples will help determine surface water interaction with groundwater, to assist future Wellhead Protection Plan updates.

Who: MDH staff

Cooperators: Oronoco staff

When: 2023

Cost: Sampling and analytical costs, staff time

How: Oronoco staff will contact MDH to arrange for sampling. Oronoco staff to collect samples and send to MDH for analysis

Status: Not currently implemented

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## **9.0 GUIDANCE FOR USE BY ORONOCO STAFF**

### **WELLHEAD PROTECTION PLANNING**

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

Wellhead Protection Manager: City Clerk, Oronoco (Sandra Jessen)

#### *9.1 Activities Affecting Wellhead Protection*

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

#### Oronoco

- 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

#### Wellhead Protection Manager

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

#### Fire and Public Safety

- Spills and leaks
- Observed dumping
- Highways accidents with potentially hazardous cargo

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## **10.0 PROGRAM EVALUATION**

Oronoco 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 31<sup>st</sup> on even 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 Oronoco 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.

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## **11.0 WATER SUPPLY CONTINGENCY PLAN**

The City of Oronoco developed emergency preparedness procedures as part of the October 2017 update to their DNR Water Supply Plan. These procedures are provided in Appendix C and are designed to address contingencies which may require augmenting the City's water with other supplies.

At the time of the writing of this Wellhead Protection Plan, DNR review of the Water Supply Plan is still taking place. Approval of the Water Supply Plan is expect to be received in 2019 or 2020.

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## 12.0 LOCAL GOVERNMENT REVIEW AND PUBLIC HEARING

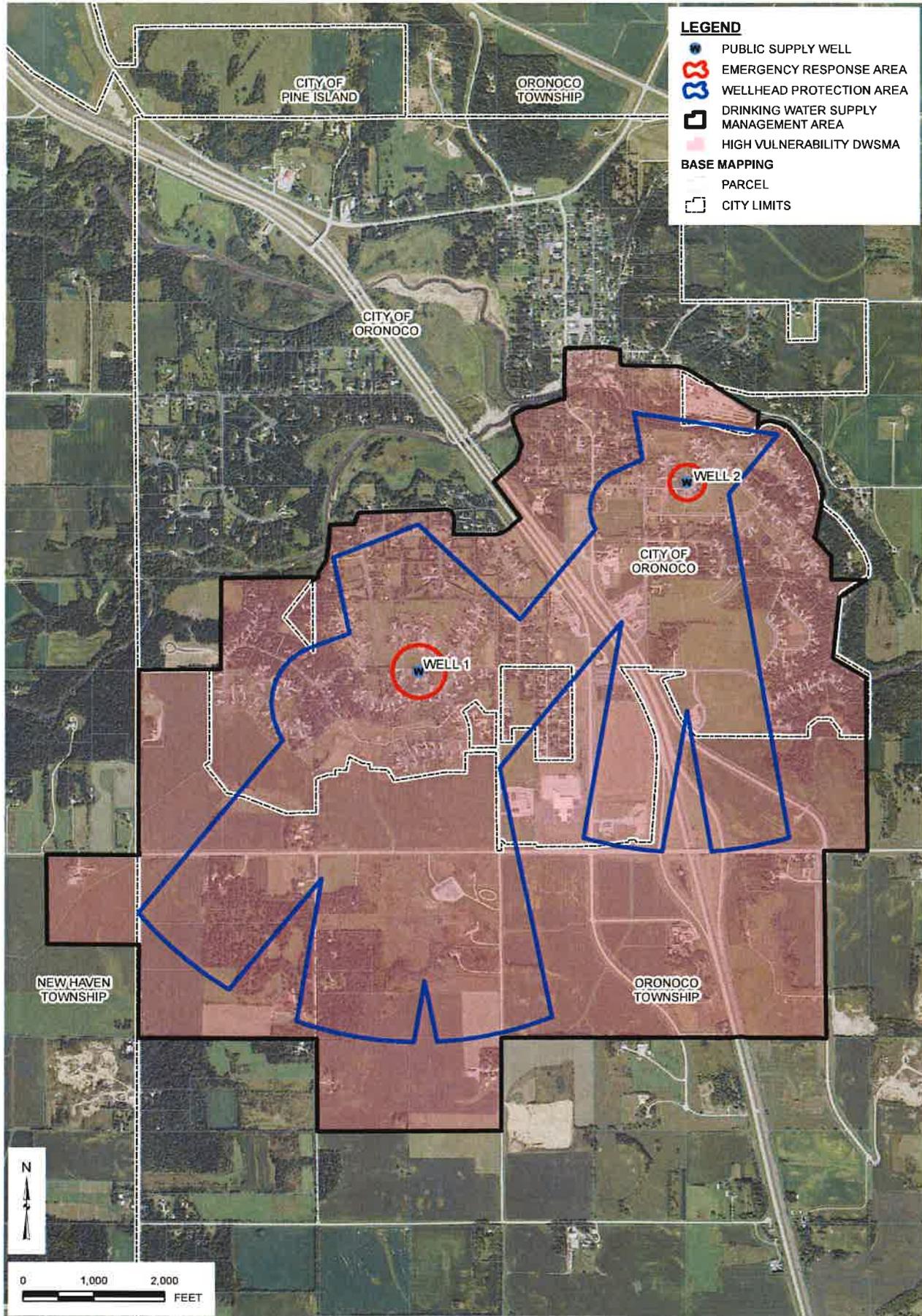
(Note: This section will be filled out following the local government review and public hearing.)

The draft Oronoco 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 received from local units of government during the review period include the following:

\_\_\_\_\_.

Oronoco held a public hearing on the Wellhead Protection Plan on \_\_\_\_\_. Documentation from the public hearing is included in Appendix F. Comments received from the general public include the following: \_\_\_\_\_.

## **FIGURES**



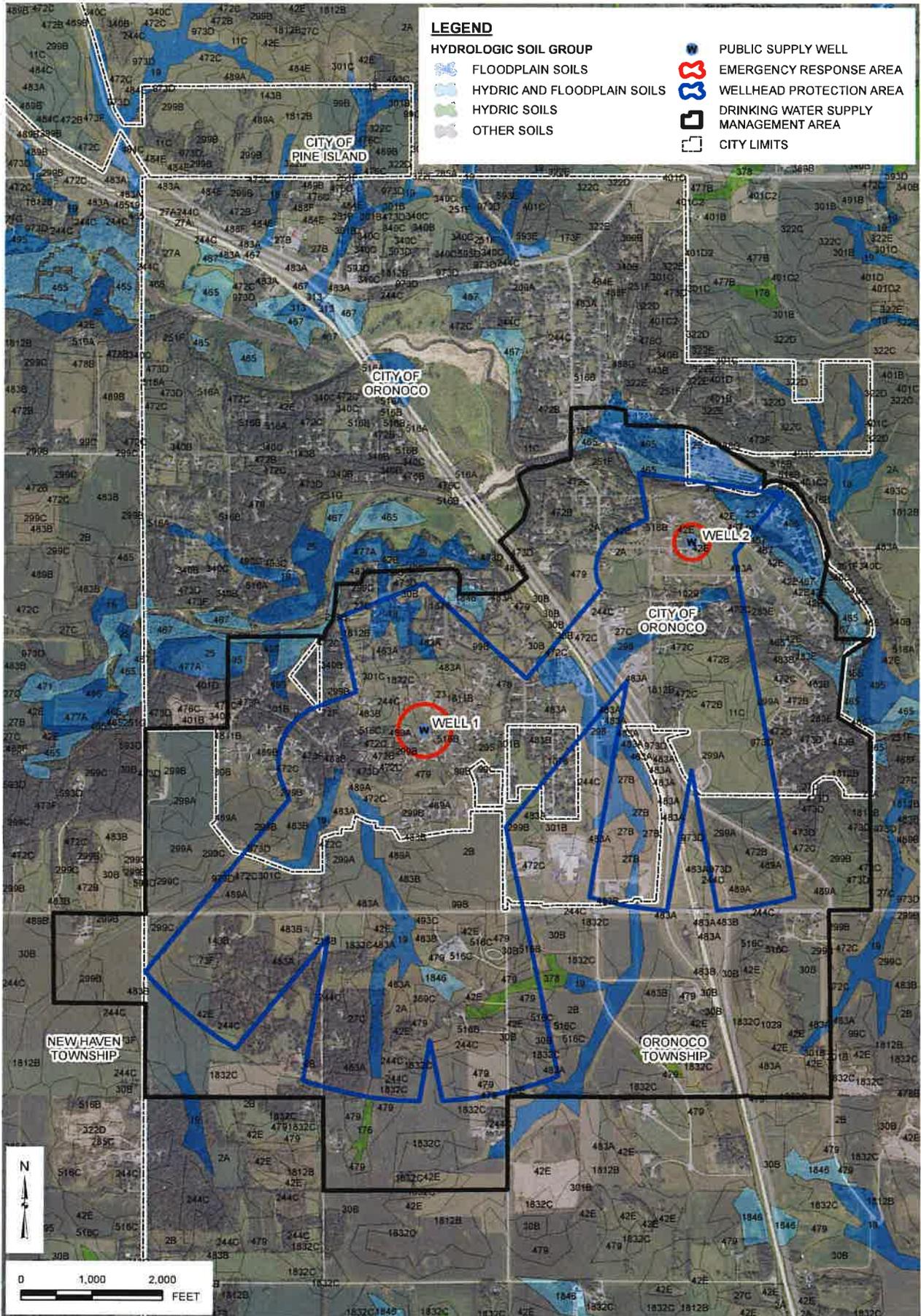
Stantec Consulting Services  
 2335 Highway 36 West  
 Saint Paul, MN 55113  
 651.636.4600

**FIGURE 1 - DWSMA VULNERABILITY**  
 CITY OF ORONOCO WELLHEAD PROTECTION PLAN

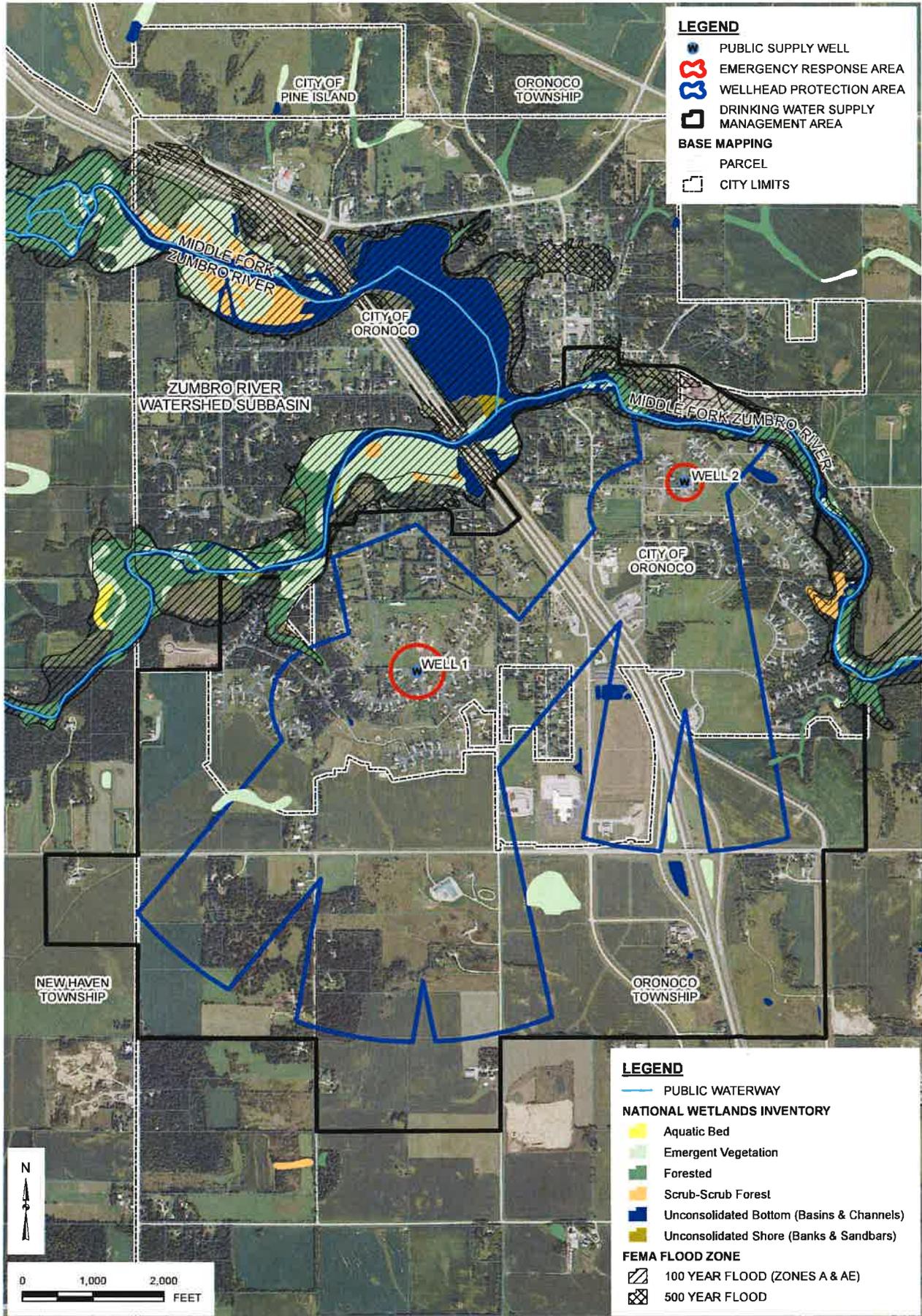
The information on this map has been compiled by Stantec staff from a variety of sources and is subject to change without notice. Stantec makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or right to the use of such information.

OCTOBER 2018

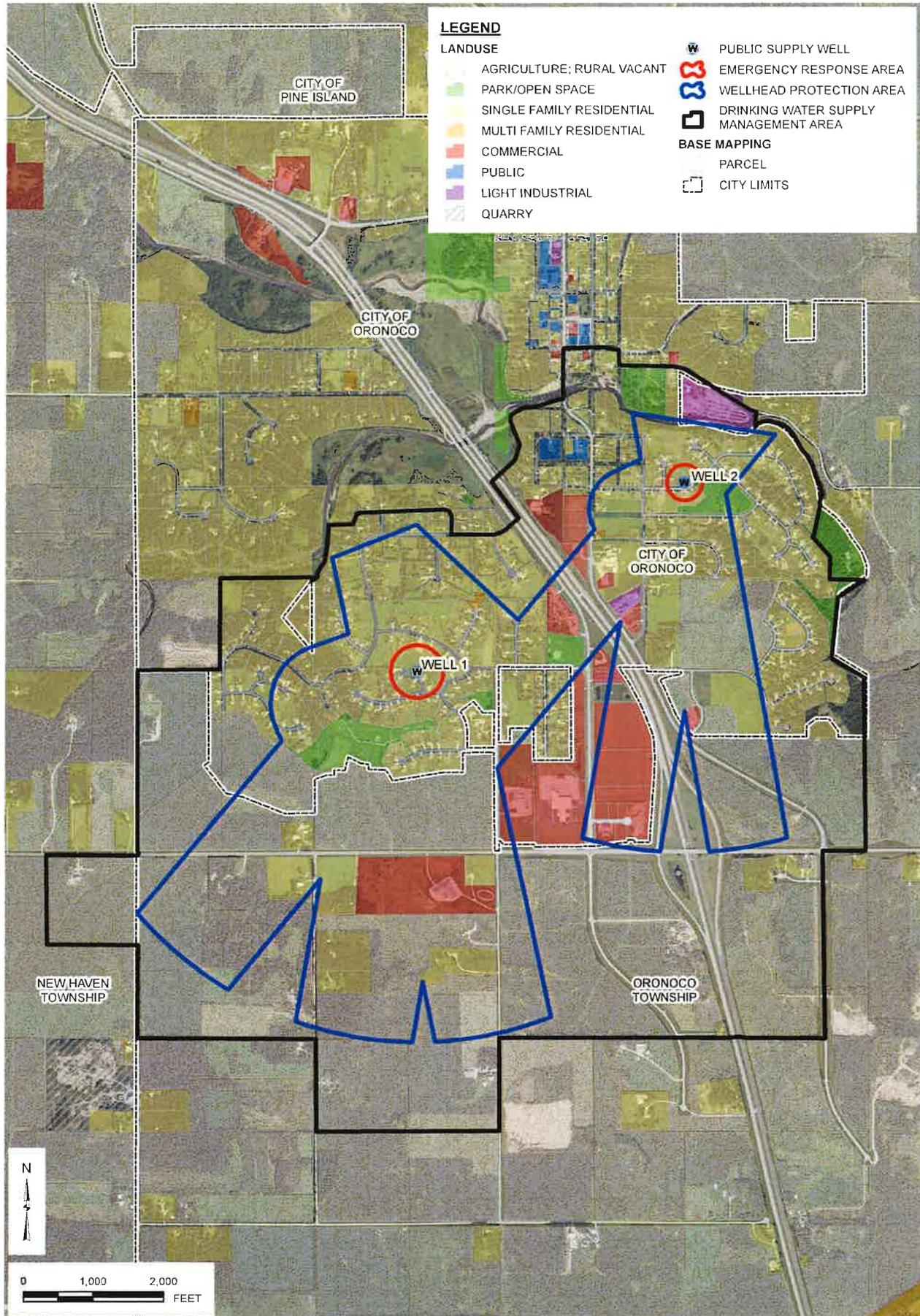
V:\1938\active\19380424\GIS\Projects\Figure 1 - DWSMA.mxd



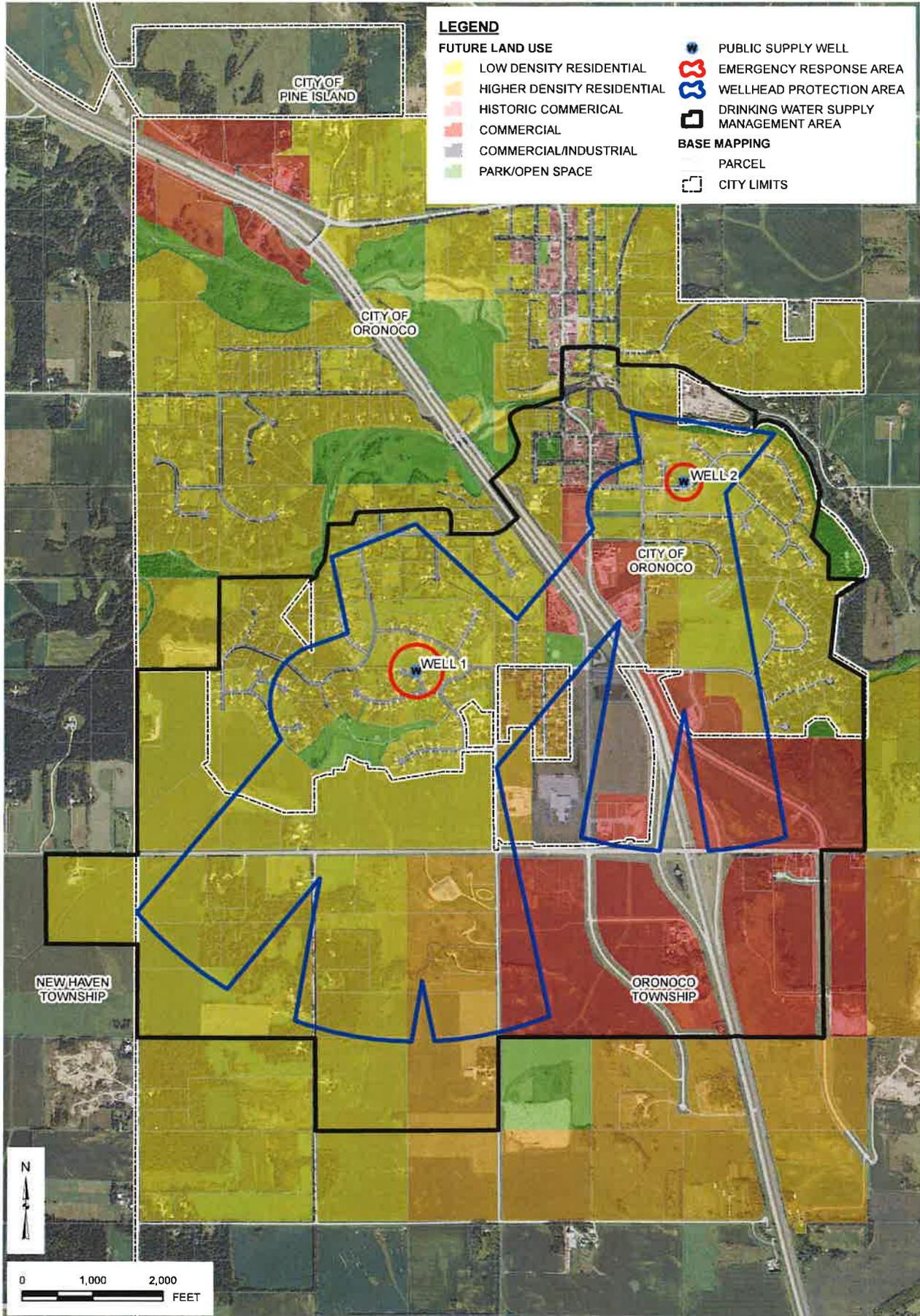
**FIGURE 2 - SOIL TYPE**  
 CITY OF ORONOCO WELLHEAD PROTECTION PLAN

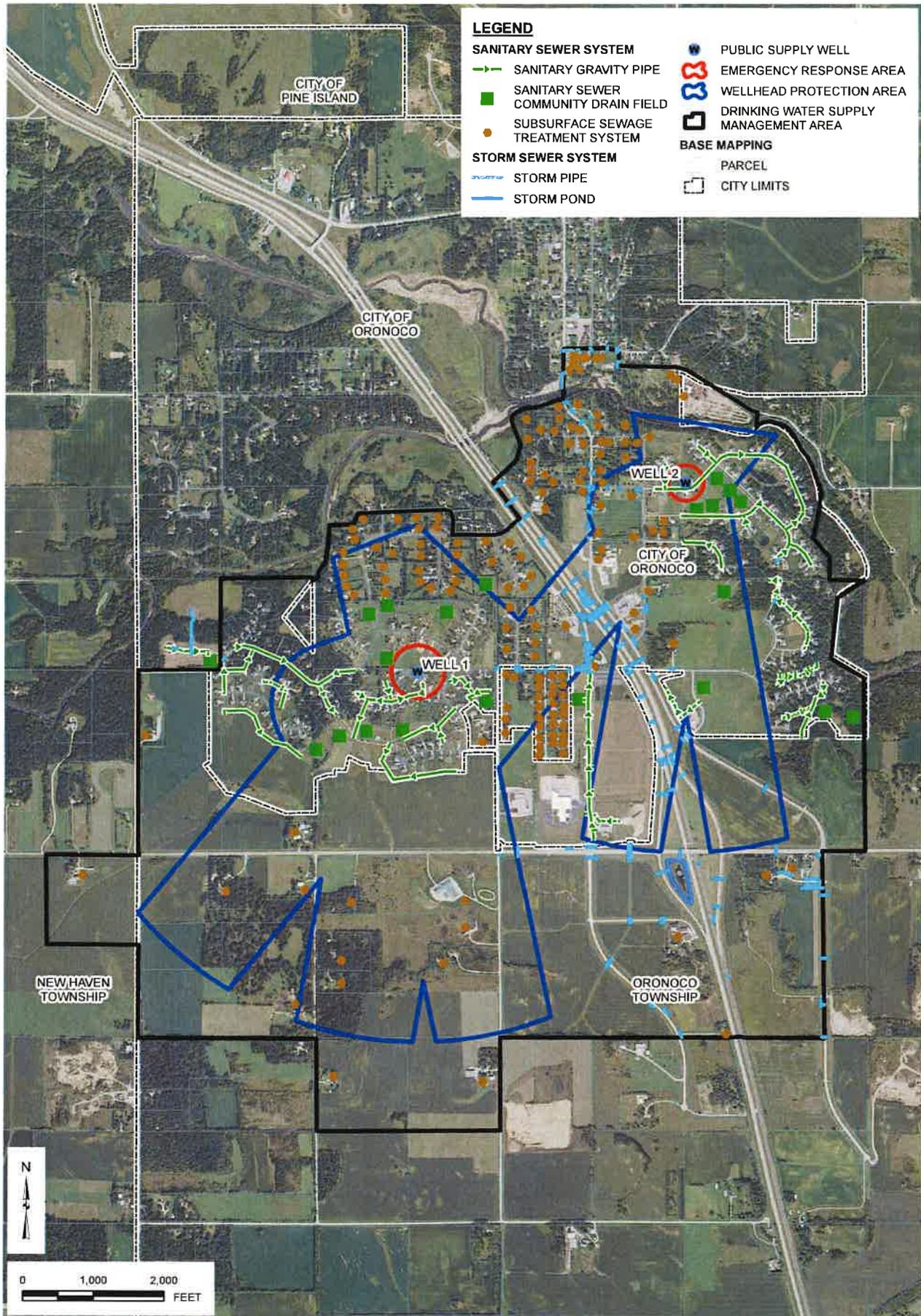


**FIGURE 3 - WATER RESOURCES**  
**CITY OF ORONOCHO WELLHEAD PROTECTION PLAN**

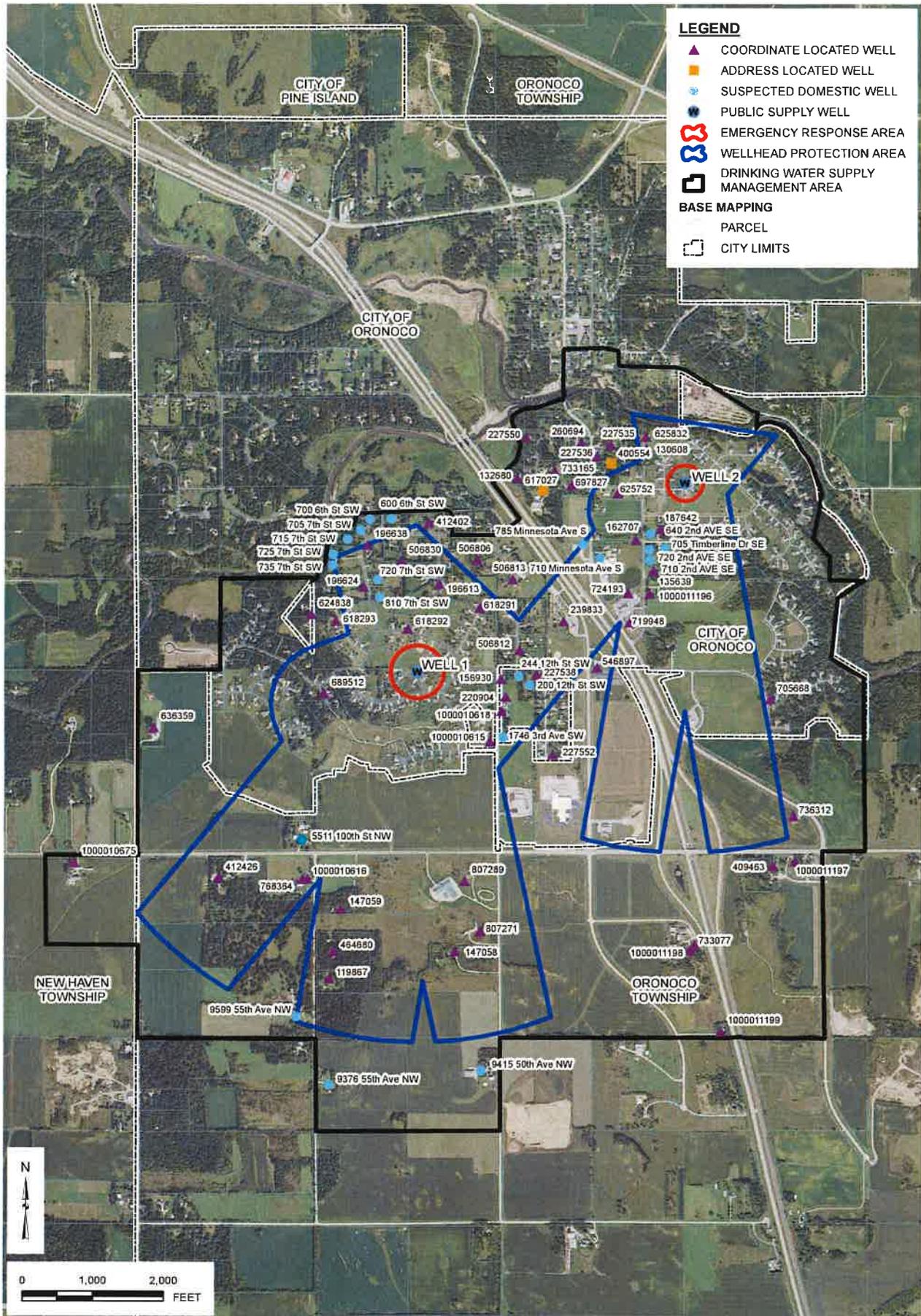


**FIGURE 4 - EXISTING LAND USE/ZONING**  
 CITY OF ORONOCO WELLHEAD PROTECTION PLAN

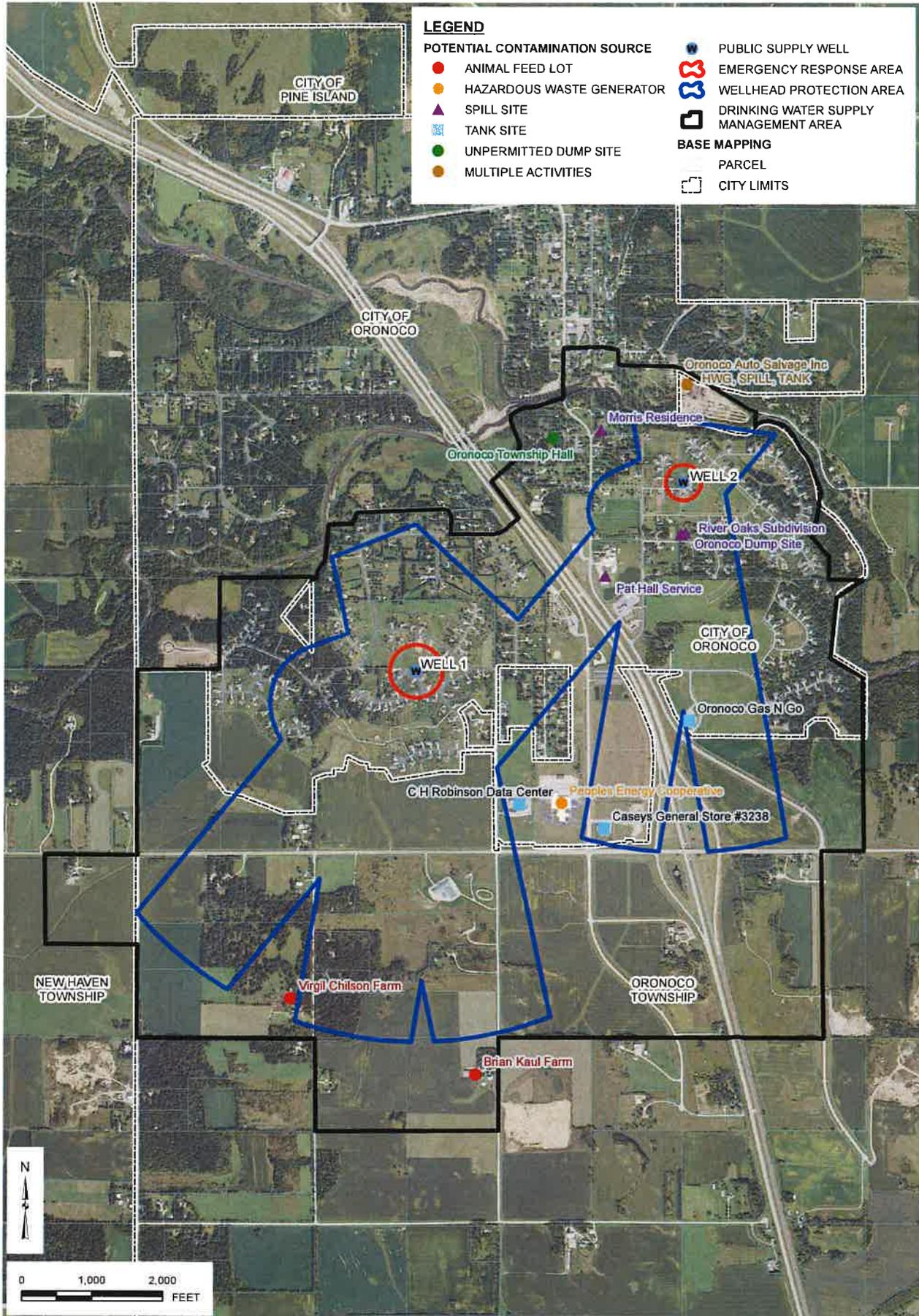




**FIGURE 6 - STORM AND SANITARY SEWER SYSTEMS**  
 CITY OF ORONOCO WELLHEAD PROTECTION PLAN



**FIGURE 7 - WELLS WITHIN DWSMA**  
**CITY OF ORONOCO WELLHEAD PROTECTION PLAN**



**LEGEND**

- POTENTIAL CONTAMINATION SOURCE**
- ANIMAL FEED LOT
  - HAZARDOUS WASTE GENERATOR
  - ▲ SPILL SITE
  - TANK SITE
  - UNPERMITTED DUMP SITE
  - MULTIPLE ACTIVITIES

- PUBLIC SUPPLY WELL
  - ⊕ EMERGENCY RESPONSE AREA
  - ⊕ WELLHEAD PROTECTION AREA
  - DRINKING WATER SUPPLY MANAGEMENT AREA
- BASE MAPPING**
- ▭ PARCEL
  - ▭ CITY LIMITS

**FIGURE 8 - POTENTIAL CONTAMINATION SOURCES**  
**CITY OF ORONOCO WELLHEAD PROTECTION PLAN**

**APPENDIX A**

**POTENTIAL CONTAMINATION  
SOURCE INVENTORY TABLES**

TABLE A1 - IDENTIFIED WELLS

OBJECT ID	PCSI ID	PARCEL ID	FACILITY NAME	ADDRESS	CITY	ZIP	PCS CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	COMMENT	DWSMA ID	DV TYPE CODE	DWSMA VULNERABILITY
603	16	841723028797	PRESBYTERIAN CHURCH OF ORONOCO #1	20 3 ST SW	Oronoco	55960	WEL	ACTIVE				Coordinate Located Well	1032	GW	HIGH
604	17	841724028800	MOREHOUSE, HAROLD	340 MINNESOTA AVE S	Oronoco	55960	WEL	ACTIVE		00227536		Coordinate Located Well	1032	GW	HIGH
605	18	841724028801		40 3 ST SE	Oronoco	55960	WEL	ACTIVE		00227535		Coordinate Located Well	1032	GW	HIGH
606	19	841723028814	WANGSNESS, JEFF	95 5 ST SW	Oronoco	55960	WEL	ACTIVE		00697827		Coordinate Located Well	1032	GW	HIGH
607	20	841723028817	EXE, ADAM & AMY	115 5 ST SW	Oronoco	55960	WEL	ACTIVE		00733165		Coordinate Located Well	1032	GW	HIGH
608	21	841731028868	CLARK, DON	810 2 AVE SE	Oronoco	55960	WEL	ACTIVE		00135639		Coordinate Located Well	1032	GW	HIGH
609	22	841731028875	CLARK, DON	145 7 ST SE	Oronoco	55960	WEL	ACTIVE		00162707		Coordinate Located Well	1032	GW	HIGH
610	23	841731028878	CLARK, DAVID	0	Oronoco	55960	WEL	ACTIVE		00625752		Coordinate Located Well	1032	GW	HIGH
611	24	841731028883	LIENONEN, LONSO	630 TIMBERLINE DR SE	Oronoco	55960	WEL	ACTIVE		00187642		Coordinate Located Well	1032	GW	HIGH
612	25	841841029014		400 6 ST SW	Oronoco	55960	WEL	ACTIVE		00412402		Coordinate Located Well	1032	GW	HIGH
613	26	841843029030		805 7 AVE SW	Oronoco	55960	WEL	ACTIVE		00196624		Coordinate Located Well	1032	GW	HIGH
614	27	841842029035		700 7 AVE SW	Oronoco	55960	WEL	ACTIVE		00196638		Coordinate Located Well	1032	GW	HIGH
615	28	841842029036		600 7 ST SW	Oronoco	55960	WEL	ACTIVE		00506830		Coordinate Located Well	1032	GW	HIGH
616	29	841844029042		740 WOODSVIEW LN SW	Oronoco	55960	WEL	ACTIVE		00196613		Coordinate Located Well	1032	GW	HIGH
617	30	841841029048		755 TREE TOP LN SW	Oronoco	55960	WEL	ACTIVE		00506806		Coordinate Located Well	1032	GW	HIGH
618	31	841733029050		735 TREE TOP LN SW	Oronoco	55960	WEL	ACTIVE		00506813		Coordinate Located Well	1032	GW	HIGH
619	32	841733029060		830 FOREST LN SW	Oronoco	55960	WEL	ACTIVE		00506812		Coordinate Located Well	1032	GW	HIGH
620	33	841943039848	MITCHELL, MERLIN	9652 55 AVE NW	Oronoco	55960	WEL	ACTIVE		00119867		Coordinate Located Well	1032	GW	HIGH
621	34	841942039849	MICKA, MRS. WILLIAM	5400 100 ST NW	Oronoco	55960	WEL	ACTIVE		00147059		Coordinate Located Well	1032	GW	HIGH
622	35	841943039850	BOGARD, STEVEN	9718 55 AVE NW	Oronoco	55960	WEL	ACTIVE		00464680		Coordinate Located Well	1032	GW	HIGH
623	36	841941039851	BOLAND, RYAN	9775 50 AVE NW	Oronoco	55960	WEL	ACTIVE		00807271		Coordinate Located Well	1032	GW	HIGH
624	37	841944039853	MICKA, MRS. WILLIAM	9723 50 AVE NW	Oronoco	55960	WEL	ACTIVE		00147058		Coordinate Located Well	1032	GW	HIGH
625	38	841931039857	FRANKLIN LECY	9945 55 AVE NW	Oronoco	55960	WEL	ACTIVE		1000010616		Coordinate Located Well	1032	GW	HIGH
626	39	841931039857	LECY, FRANKLIN & LAURA	9945 55 AVE NW	Oronoco	55960	WEL	ACTIVE		00768364		Coordinate Located Well	1032	GW	HIGH
627	40	84202039865	BOOK, GEORGE	1532 3 AVE SW	Oronoco	55960	WEL	ACTIVE		00156930		Coordinate Located Well	1032	GW	HIGH
628	41	84202039867	WHITE, PAUL	200 12 ST SW	Oronoco	55960	WEL	ACTIVE		00220904		Coordinate Located Well	1032	GW	HIGH
629	42	84202039868	GERALD MCNAMARA	1662 3 AVE SW	Oronoco	55960	WEL	ACTIVE		1000010618		Coordinate Located Well	1032	GW	HIGH
630	43	84202040227	OLSEN, HENRY & MARY	108 12 ST SW	Oronoco	55960	WEL	ACTIVE		00227538		Coordinate Located Well	1032	GW	HIGH
631	44	84202040244	CLEARWATER WELL CO 1	0	Oronoco	55960	WEL	ACTIVE		00227552		Coordinate Located Well	1032	GW	HIGH
632	45	841932051213	HEXUM, RICK	5728 100 ST NW	Oronoco	55960	WEL	ACTIVE		00412426		Coordinate Located Well	1032	GW	HIGH
633	46	841734052417	STEFFEN, VINCE	1200 LAKE SHADY AVE S	Oronoco	55960	WEL	ACTIVE		00546887		Coordinate Located Well	1032	GW	HIGH
634	47	84192058391	PYFFEROEN, PETE	5993 100 ST NW	Oronoco	55960	WEL	ACTIVE		00636359		Coordinate Located Well	1032	GW	HIGH
635	48	841724058542	SHAIN, BILL & JEAN	300 2 AVE SE	Oronoco	55960	WEL	ACTIVE		00625832		Coordinate Located Well	1032	GW	HIGH
636	49	841844058560		619 ZUMBRO HILLS DR SW	Oronoco	55960	WEL	ACTIVE		00618292		Coordinate Located Well	1032	GW	HIGH
637	50	841844058573		960 LONE OAK LN SW	Oronoco	55960	WEL	ACTIVE		00618291		Coordinate Located Well	1032	GW	HIGH
638	51	841844058580	CARLSEN ENTERPRISES	0	Oronoco	55960	WEL	ACTIVE		00618293		Coordinate Located Well	1032	GW	HIGH
639	52	841834058914	FITZPATRICK, DAN	993 CEDAR RIDGE LN SW	Oronoco	55960	WEL	ACTIVE		00624838		Coordinate Located Well	1032	GW	HIGH
640	53	841733060512	ORONOCO LIQUOR STORE	1175 LAKE SHADY AVE S	Oronoco	55960	WEL	ACTIVE		00239833		Coordinate Located Well	1032	GW	HIGH
641	54	841912064576		1290 SHADY OAK LN SW	Oronoco	55960	WEL	ACTIVE		00689512		Coordinate Located Well	1032	GW	HIGH
642	55	842012070146	FITZPATRICK CONSTRUCTION	755 CEDAR POINT LN SE	Oronoco	55960	WEL	ACTIVE		00705668		Coordinate Located Well	1032	GW	HIGH
643	56	841911071410	WESLEY STOLP	1765 3 AVE SW	Oronoco	55960	WEL	ACTIVE		1000010615		Coordinate Located Well	1032	GW	HIGH
644	57	841734073942	HALL, DUANE F.	830 2 AVE SE	Oronoco	55960	WEL	ACTIVE		1000011196		Coordinate Located Well	1032	GW	HIGH
645	58	841724074344	MCQUARRIE, MIKE	375 EAGLE VIEW LN SE	Oronoco	55960	WEL	ACTIVE		00130608		Coordinate Located Well	1032	GW	HIGH
646	59	842042075210	RONNINGEN, CHARLES	805 MINNESOTA LN SE	Oronoco	55960	WEL	ACTIVE		00409463		Coordinate Located Well	1032	GW	HIGH
647	60	841723077125	KAMM, HAROLD	245 2 AVE SW	Oronoco	55960	WEL	ACTIVE		00227550		Coordinate Located Well	1032	GW	HIGH
648	61	842032079240	KOENIG, DUANE	2088 LAKE SHADY AVE S	Oronoco	55960	WEL	ACTIVE		1000011198		Coordinate Located Well	1032	GW	HIGH

TABLE A1 - IDENTIFIED WELLS

OBJECT ID	PCS ID	PARCEL ID	FACILITY NAME	ADDRESS	CITY	ZIP	PCS CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	COMMENT	DWSMA ID	DV TYPE CODE	DWSMA VULNERABILITY
649	62	842032079240	KOENIG, DUANE	2088 LAKE SHADY AVE S	Oronoco	55960	WEL	ACTIVE		00733077		Coordinate Located Well	1032	GW	HIGH
650	63	842043079242	HEIMNESS, JAMES	2386 LAKE SHADY AVE S	Oronoco	55960	WEL	ACTIVE		1000011199		Coordinate Located Well	1032	GW	HIGH
651	64	842041079244	WITTLIEF, DONALD	841 MINNESOTA LN SE	Oronoco	55960	WEL	ACTIVE		1000011197		Coordinate Located Well	1032	GW	HIGH
652	65	841723079440	CAMP, BEN	425 2 AVE SW	Oronoco	55960	WEL	ACTIVE		00132680		Coordinate Located Well	1032	GW	HIGH
653	66	842013079442	OVERSON, LOWELL	0	Oronoco	55960	WEL	ACTIVE		00736312		Coordinate Located Well	1032	GW	HIGH
654	67	841734079475	NORTHLAND BUILDINGS	1100 MINNESOTA AVE S	Oronoco	55960	WEL	ACTIVE		00719948		Coordinate Located Well	1032	GW	HIGH
655	68	841734080172	HENRY, KEVIN	0	Oronoco	55960	WEL	ACTIVE		00724193		Coordinate Located Well	1032	GW	HIGH
656	69	841941081693	COX-TOWNSEND, BLAIR	5200 100 ST NW	Oronoco	55960	WEL	ACTIVE		00807289		Coordinate Located Well	1032	GW	HIGH
657	70	852441038829	THOMAS MILLERING	6130 100 ST NW	Pine Island	55963	WEL	ACTIVE		1000010675		Coordinate Located Well	1032	GW	HIGH
658	71	841724028800	JERVIS, MIKE	340 MINNESOTA AVE S	Oronoco	55960	WEL	ACTIVE		00400554		Address Located Well	1032	GW	HIGH
659	72	841732079599	STOLP, MARK	135 5 ST SW	Oronoco	55960	WEL	ACTIVE		00617027		Address Located Well	1032	GW	HIGH

TABLE A2 - SUSPECTED WELLS

OBJECT ID	PCSI ID	PARCEL ID	FACILITY NAME	ADDRESS	CITY	ZIP	PCS CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	COMMENT	DWSMA ID	DV TYPE CODE	DWSMA VULNERABILITY
660	73	841731028880	Domestic Property	710 2nd AVE SE	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
661	74	841731028881	Domestic Property	720 2nd AVE SE	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
662	75	841731028882	Domestic Property	705 Timberline Dr SE	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
663	76	841731028884	Domestic Property	640 2nd AVE SE	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
664	77	841842029016	Domestic Property	600 6th St SW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
665	78	841842029021	Domestic Property	700 6th St SW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
666	79	841842029025	Domestic Property	705 7th St SW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
667	80	841842029026	Domestic Property	715 7th St SW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
668	81	841842029027	Domestic Property	725 7th St SW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
669	82	841842029028	Domestic Property	735 7th St SW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
670	83	841843029032	Domestic Property	810 7th St SW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
671	84	841842029033	Domestic Property	720 7th St SW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
672	85	841934039856	Domestic Property	9599 55th Ave NW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
673	86	842022039867	Domestic Property	200 12th St SW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
674	87	842022039870	Domestic Property	1746 3rd Ave SW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
675	88	843011040027	Domestic Property	9415 50th Ave NW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
676	89	841924075196	Domestic Property	5511 100th St NW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
677	90	841732077792	Domestic Property	785 Minnesota Ave S	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
678	91	841731080173	Domestic Property	710 Minnesota Ave S	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
679	92	843012081669	Domestic Property	9376 55th Ave NW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH
680	93	842022039863	Domestic Property	244 12th St SW	Oronoco	55960	WEL	ACTIVE				Suspected Domestic Well	1032	GW	HIGH

TABLE A3 - IDENTIFIED SEPTIC SYSTEMS

OBJECT ID	PCSI ID	PARCEL ID	FACILITY NAME	ADDRESS	CITY	ZIP	PCS CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	COMMENT	DWSMA ID	DV TYPE CODE	DWSMA VULNERABILITY
681	94	841833039845	RIVER BEND DEVELOPMENT LLC	RIVER BEND ESTATES	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
682	95	841844005879	ZUMBRO HILLS MANAGEMENT GROUP	ZUMBRO HILLS	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
683	96	841844005882	ZUMBRO HILLS MANAGEMENT GROUP	ZUMBRO HILLS	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
684	97	841844005885	ZUMBRO HILLS MANAGEMENT GROUP	ZUMBRO HILLS	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
685	98	841844005888	ZUMBRO HILLS MANAGEMENT GROUP	ZUMBRO HILLS	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
686	99	841844005884	ZUMBRO HILLS MANAGEMENT GROUP	ZUMBRO HILLS	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
687	100	841912064601	CITY OF ORONOCO	RIVERWOOD HILLS	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
688	101	841911066686	CITY OF ORONOCO	RIVERWOOD HILLS 2ND	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
689	102	841911066688	CITY OF ORONOCO	RIVERWOOD HILLS 2ND	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
690	103	841911066688	CITY OF ORONOCO	RIVERWOOD HILLS 2ND	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
691	104	842011070154	CEDAR WOODLANDS HOMEOWNERS ASSOCIATION	CEDAR WOODLANDS	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
692	105	842011070155	CEDAR WOODLANDS HOMEOWNERS ASSOCIATION	CEDAR WOODLANDS	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
693	106	841921073153	CITY OF ORONOCO	RIVERWOOD HILLS 4TH	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
694	107	841742074427	CITY OF ORONOCO	RIVER PARK SUB	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
695	108	841742074427	CITY OF ORONOCO	RIVER PARK SUB	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
696	109	841742074427	CITY OF ORONOCO	RIVER PARK SUB	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
697	110	841742074427	CITY OF ORONOCO	RIVER PARK SUB	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
698	111	841742074427	CITY OF ORONOCO	RIVER PARK SUB	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
699	112	8417430077323	CEDAR WOODLANDS SECOND HOME	CEDAR WOODLANDS 2ND	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
700	113	842021079762	ORONOCO CROSSING OWNERS ASSOC	ORONOCO CROSSINGS	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
701	114	842012080290	ORONOCO LAND & CATTLE COMPANY	CEDAR WOODLANDS 3RD	Oronoco	55960	SS15	ACTIVE				Community SSTS Drainfields	1032	GW	HIGH
702	115	841722028762	BILLMAN,DAVID J	30 MINNESOTA AVE S	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
703	116	841722028763	GONSALVES,SIMON	20 MINNESOTA AVE S	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
704	117	841722028764	CAFUREK,DARREN B	40 CENTER ST E	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
705	118	841722028765	ALBRECHT,JORDAN TIMOTHY	30 CENTER ST E	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
706	119	841722028766	BOUWKAMP,JUSTIN J	20 CENTER ST E	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
707	120	841722028769	DEVLAEMINCK,ERVIN J	30 MINNESOTA AVE S	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
708	121	841722028770	MAASS,CHRIS	50 MINNESOTA AVE S	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
709	122	841722028772	FIVE STAR PROPERTIES OF SE MN	120 CENTER ST E	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
710	123	841721028773	TAYLOR,DOMINIC V	110 CENTER ST E	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
711	124	841724028779	MUSOLF,KIMBERLY	125 3 ST SE	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
712	125	841724028781	HASSLER,LONNIE J	210 1 AVE SE	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
713	126	841723028783	TROUT,EDWARD H	35 3 ST SW	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
714	127	841723028783	TROUT,EDWARD H	35 3 ST SW	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
715	128	841723028785	CLEMENS,MARY	115 3 ST SW	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
716	129	841723028788	SCHMITT,TINA M	145 3 ST SW	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
717	130	841723028794	COPPLE,KEVIN D	345 2 AVE SW	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
718	131	841723028797	PRESBYTERIAN CHURCH TRUSTEES	20 3 ST SW	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
719	132	841724028800	WOOD,DUSTIN TYLER	340 MINNESOTA AVE S	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
720	133	841724028801	PHELPS,RONNIE F	40 3 ST SE	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
721	134	841724028802	KUENNEN,THOMAS R	320 MINNESOTA AVE S	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
722	135	841724028803	FRIED,COLLEEN A	140 3 ST SE	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
723	136	841724028804	WEIS,ERIC A	120 3 ST SE	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
724	137	841724028805	MCDERMOTT,KEVIN M	105 4 ST SE	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
725	138	841724028809	FRIITS,SHEAN E	425 2 AVE SE	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
726	139	841724028810	BERG,STEVEN EARL	420 MINNESOTA AVE S	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
727	140	841724028811	HASSLER,MILES	105 5 ST SE	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
728	141	841723028813	VAVRA,BARBARA L	415 MINNESOTA AVE S	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
729	142	841723028814	HEPPELMANN,WANGNESS,DENISE M	95 5 ST SW	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
730	143	841723028815	QUANDT,BERNICE M	420 2 AVE SW	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH
731	144	841723028817	EXE,ADAM	115 5 ST SW	Oronoco	55960	SS15	ACTIVE				Individual SSTS	1032	GW	HIGH

TABLE A3 - IDENTIFIED SEPTIC SYSTEMS

OBJECT ID	PCSI ID	PARCEL ID	FACILITY NAME	ADDRESS	CITY	ZIP	PCS CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	COMMENT	DWSMA ID	DV TYPE	DWSMA VULNERABILITY
732	145	84173028818	VALE LAYNE F	405 2 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
733	146	84173028819	THOMPSON, MICHAEL J	425 2 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
734	147	84173028820	KENNER, DAVID P	25 2 ST SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
735	148	84173028868	NAKADA, SHELLEY	810 2 AVE SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
736	149	84173028874	FREDRICKSON, MATTHEW C	505 2 AVE SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
737	150	84173028875	VANSICKLE, BRUCE H	145 7 ST SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
738	151	84173028877	ASKVIG, PATRICIA A	540 MINNESOTA AVE S	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
739	152	84173028879	ALTRY, NORMAN D	640 MINNESOTA AVE S	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
740	153	84173028880	JENSEN, SCOTT M	710 2 AVE SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
741	154	84173028881	OELTIENBRUNS, BRADY W	720 2 AVE SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
742	155	84173028882	NORDEEN, DAVID	705 TIMBERLINE DR SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
743	156	84173028883	KLENNERT, NATHAN L	630 TIMBERLINE DR SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
744	157	84173028884	WIENS, DALE R	640 2 AVE SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
745	158	84173028886	FOGARTY, DEBRA A	280 6 ST SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
746	159	84184029013	JOHNSON, ADAM I	400 5 ST SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
747	160	84184029014	MCGOVERN, PATRICK WILLIAM	100 6 ST SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
748	161	84184029015	ALMULI, RICHARD A	500 6 ST SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
749	162	84184029016	BERTSINGER, STEVEN G	600 6 ST SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
750	163	84184029021	VOLNER, GREGORY A	700 6 ST SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
751	164	84184029024	ANDERSON, NAOMI I	505 7 ST SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
752	165	84184029025	FOKKEN, SHAWN C	705 7 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
753	166	84184029026	HUIYBER, TODD M	715 7 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
754	167	84184029027	OTTMAN, MARY L	725 7 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
755	168	84184029028	KROLL, CHARLES A	735 7 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
756	169	84184029029	SCHLOTTHAUER, JUDD C	745 7 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
757	170	84184029030	KAUTZ, DOUGLAS	805 7 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
758	171	84184029031	KLAASSEN, LYLE G	815 7 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
759	172	84184029032	ARRIN, JAMES	810 7 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
760	173	84184029033	DUNKER, JUSTIN A	720 7 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
761	174	84184029034	VOUK, CHRISTOPHER J	710 7 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
762	175	84184029035	BOGER, CURTIS N	700 7 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
763	176	84184029036	CARON, ANDREW	600 7 ST SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
764	177	84184029037	SCHOTTIER, DANIEL J	785 WOODSVIEW LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
765	178	84184029038	LANDON, STEVEN M	775 WOODSVIEW LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
766	179	84184029039	PETERSON, JAMIN J	765 WOODSVIEW LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
767	180	84184029040	CARSON, JOHN	755 WOODSVIEW LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
768	181	84184029041	ESMAILZADEH, HUSSEIN	745 WOODSVIEW LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
769	182	84184029042	LAKNER, GERALD D	740 WOODSVIEW LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
770	183	84184029043	PETERSON, TERESA L	730 WOODSVIEW LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
771	184	84184029044	FRENCH, RONAL R	720 WOODSVIEW LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
772	185	84184029045	JENNISON, WILLIAM J	710 WOODSVIEW LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
773	186	84184029046	SISELL, BRIAN	700 WOODSVIEW LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
774	187	84184029048	STEFFENS, GERALD	755 TREE TOP LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
775	188	84184029049	VAVRA, DONALD G	745 TREE TOP LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
776	189	84173029050	HEUER, JEFF EARL	735 TREE TOP LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
777	190	84173029051	KEIGLEY, FREDERICK S	725 TREE TOP LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
778	191	84173029052	CHAN, MONDOL CHIM	710 TREE TOP LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
779	192	84173029053	HIELSCHER, RICHARD H	710 TREE TOP LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
780	193	84173029054	ANDERSON, LEE R	700 TREE TOP LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
781	194	84173029055	JUSTIN, JEFFREY L	845 FOREST LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
782	195	84173029056	SCHARTAU, JEFFREY M	855 FOREST LN SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH

TABLE A3 - IDENTIFIED SEPTIC SYSTEMS

OBJECT ID	PCSI ID	PARCEL ID	FACILITY NAME	ADDRESS	CITY	ZIP	PCS CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	COMMENT	DWSMA ID	DV TYPE CODE	DWSMA VULNERABILITY
783	196	841733029057	JESSEN, MARK E	865 FOREST LN SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
784	197	841733029058	BENRUD, LYNN R	810 FOREST LN SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
785	198	841733029059	MESSMER, KAREN L	820 FOREST LN SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
786	199	841733029060	ALLHISER, TONI LYNN	830 FOREST LN SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
787	200	841733029061	SWANSON, DANIEL W	840 FOREST LN SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
788	201	841713039835	CRP PROPERTIES LLC	410 1 ST SE	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
789	202	841943039848	HANKINS TRUSTEE, JOAN PAGEL	9652 55 AVE NW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
790	203	841942039849	ECK TRUSTEE, ELAINE K	5400 100 ST NW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
791	204	841943039850	BOGARD III, STEVEN D	9718 55 AVE NW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
792	205	841941039851	BOLAND, PATRICK	9775 50 AVE NW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
793	206	841944039853	RYAN, KRISTINE E	9723 50 AVE NW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
794	207	841934039856	CHILSON, MARILYN A	9599 55 AVE NW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
795	208	841931039857	LECY, FRANKLIN	9945 55 AVE NW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
796	209	842022039863	KAUTZ, GARY F	244 12 ST SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
797	210	842022039865	BENNETT, JEFF A	1532 3 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
798	211	842022039866	COULSON TRUSTEE, GERRY R	1630 3 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
799	212	842022039868	VOLK, CORY L	1662 3 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
800	213	842022039870	SCHICK, JASON M	1746 3 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
801	214	843011040027	KAUL, BRIAN A	9415 50 AVE NW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
802	215	842022040227	LIFFRIG, CHRISTOPHER J	108 12 ST SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
803	216	842022040228	FOUR SEASONS LAND MANAGEMENT LLC	1227 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
804	217	842022040229	BURGOORF, JAMEY ALJAN	1245 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
805	218	842022040230	SCANLAN, JEROME J	1317 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
806	219	842022040231	HAWKS PROPERTIES LLC	1325 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
807	220	842022040232	HORSWANN, TROY M	1337 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
808	221	842022040233	BAKKEN, HAROLD H	1417 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
809	222	842022040234	BERG, MARVIN	1445 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
810	223	842022040235	NOLD, DICK T	1483 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
811	224	842022040236	SANFORD, GARY C	1206 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
812	225	842022040237	WALTERS, JAMES VERNON	1218 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
813	226	842022040238	ARMDT, TERRY	1236 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
814	227	842022040239	NOLD, MATTHEW G	1322 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
815	228	842022040240	HAWKINS, PATRICK	1322 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
816	229	842022040241	HAWKS PROPERTIES LLC	1336 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
817	230	842022040242	BERTSINGER, LARVERNE	1412 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
818	231	842022040243	SEELBINDER, STEVE	1428 1 AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
819	232	842022040245	BRUCE, KIMBERLY A	1435 ELM AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
820	233	842022040246	ELLINGSON, CATHERINE J	1425 ELM AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
821	234	842022040247	COOK, DARLA M	1415 ELM AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
822	235	842022040248	BERTSINGER, DAVID H	1395 ELM AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
823	236	842022040249	BENIKE, PATRICK W	1321 ELM AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
824	237	842022040250	ZAHN, WALTER E	1315 ELM AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
825	238	842022040251	BIRIGGS, CAROL A	1241 ELM AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
826	239	842022040252	KLOS, STEPHEN P	1225 ELM AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
827	240	842022040253	ALLEN, COREY R	1205 ELM AVE SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
828	241	841932051213	JACKSON, MARC B	5728 100 ST NW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
829	242	841734052417	RAGAN TRUSTEE, DALE G	1200 LAKE SHADY AVE S	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
830	243	841723052851	HORNSETH, CLINTON J	105 3 ST SW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
831	244	841922058391	PYFFERDEN, PETER C	5993 100 ST NW	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
832	245	841724058542	JANNINGS, CURTIS P	300 2 AVE SE	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH
833	246	841721058590	WITTLIEF, LYLE	350 1 ST SE	Oronoco	55960	SS1S	ACTIVE				Individual SSTS	1032	GW	HIGH

TABLE A3 - IDENTIFIED SEPTIC SYSTEMS

OBJECT ID	PCSI ID	PARCEL ID	FACILITY NAME	ADDRESS	CITY	ZIP	PCS CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	COMMENT	DWSMA ID	DV TYPE CODE	DWSMA VULNERABILITY
834	247	841721058594	EVANS, BRANON	360 1 ST SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
835	248	841733060512	ORONOCO ENTERPRISES LLC	1175 LAKE SHADY AVE S	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
836	249	841724068384	WILLIAMSON, RICHARD L	240 MINNESOTA AVE S	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
837	250	841911071410	WONDROW, GARY W	1765 3 AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
838	251	841734073942	WAGNER, ROBERT A	830 Z AVE SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
839	252	841924075196	PINE ISLAND SOUND INVESTMENTS LLC	5511 100 ST NW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
840	253	841734075208	PARKER TRUSTEE, ROSS H	250 CEDAR POINT RD SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
841	254	842042075210	RONNINGEN, CHARLES	805 MINNESOTA LN SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
842	255	841723075360	RICHARDSON, THOMAS RAY	40 3 ST SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
843	256	841723077125	TYNDALE, DIANE H	245 Z AVE SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
844	257	841734078041	AGI PROPERTIES OF ORONOCO LLC	1000 MINNESOTA AVE S	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
845	258	841732078658	SPADING, CALVIN	505 MINNESOTA AVE S	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
846	259	842032079240	KOENIG, LYNN R	2088 LAKE SHADY AVE S	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
847	260	842043079242	HEIM'S NESS, JAMES L	2386 LAKE SHADY AVE S	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
848	261	842041079244	WITTLIEF, BEVERLY A	841 MINNESOTA LN SE	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
849	262	841734079475	NP LLC	1100 MINNESOTA AVE S	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
850	263	841732079599	STOLP, MARK D	135 5 ST SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
851	264	841732079600	ORONOCO SELF STORAGE LLC	155 5 ST SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
852	265	841731080173	HASSLER, REID	710 MINNESOTA AVE S	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
853	266	841731080173	HASSLER, REID	710 MINNESOTA AVE S	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
854	267	84173081549	BUTLER, JONI M	230 2 ST SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
855	268	843012081669	KAUL, BRIAN A	9376 55 AVE NW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
856	269	841941081693	L & B PROPERTIES LLC	5200 100 ST NW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
857	270	841723082294	ROUHOFF, BRADY	145 2 ST SW	Oronoco	55960	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH
858	271	852441038829	MILLERING TRUSTEE, THOMAS	6330 100 ST NW	PINE ISLAND	55963	SSTS	ACTIVE				Individual SSTS	1032	GW	HIGH

TABLE A4 - OTHER POTENTIAL CONTAMINATION SOURCES

OBJECT ID	PCSI ID	PARCEL ID	FACILITY NAME	ADDRESS	CITY	ZIP	PCS CODE	STATUS	MATERIAL CODE	PROGRAM ID	TOTAL	COMMENT	DWSMA ID	DV TYPE CODE	DWSMA VULNERABILITY
535	3	841934039856	Virgil Chilson Farm	9599 55th Ave NW	Oronoco	55960	AFL	ACTIVE		109-78678	0	Animal Feedlots	1032	GW	HIGH
536	4	843011040027	Brian Kaul Farm	9415 50th Ave NW	Oronoco	55960	AFL	ACTIVE		109-78664	0	Animal Feedlots	1032	GW	HIGH
546	14	841713039835	Oronoco Auto Salvage Inc	410 1st St SE	Oronoco	55960	AST	ACTIVE		TS0121743	3	Aboveground Tanks	1032	GW	HIGH
538	6	841742074413	River Oaks Subdivision	335 7th St SE	Oronoco	55960	BMS	ACTIVE		VP20300	0	Brownfields, Voluntary Investigation and Cleanup	1032	GW	HIGH
533	1	841723028793	Oronoco Township Hall	120 3rd St SW	Oronoco	55960	DMP	ACTIVE		COM00231	0	Solid Waste, Unpermitted Solid Waste	1032	GW	HIGH
542	10	842023079759	Peoples Energy Cooperative	1775 Lake Shady Ave S	Oronoco	55960	HWG	INACTIVE		MNS000184374	0	Hazardous Waste, Small quantity generator	1032	GW	HIGH
545	13	841713039835	Oronoco Auto Salvage Inc	410 1st St SE	Oronoco	55960	HWG	ACTIVE		MNS000166827	0	Hazardous Waste	1032	GW	HIGH
539	7	841742074429	Oronoco Dump Site	3rd St SW	Oronoco	55960	SAS	INACTIVE		SA0008206	0	Site Assessment	1032	GW	HIGH
537	5	841724068384	Morris Residence	240 S Minnesota Ave	Oronoco	55960	SPL	ACTIVE		LS0014743	0	Petroleum Remediation, Leak Site	1032	GW	HIGH
540	8	841734075205	Pat Hall Service	720 Minnesota Ave S	Oronoco	55960	SPL	INACTIVE		LS0009612	0	Leak Site	1032	GW	HIGH
547	15	841713039835	Oronoco Auto Salvage Inc	410 1st St SE	Oronoco	55960	SR0UT	ACTIVE		MNR053C18	0	Industrial Stormwater	1032	GW	HIGH
541	9	842023079450	C H Robinson Data Center	1788 3rd Ave SW	Oronoco	55960	UST	ACTIVE		TS0157064	0	Underground Tanks	1032	GW	HIGH
543	11	842024080211	Caseys General Store #3238	30 Energy Ln	Oronoco	55960	UST	ACTIVE	F000	TS0125867	3	Underground Tanks	1032	GW	HIGH
544	12	842012080288	Oronoco Gas N Go	1455 Cedar Center Ave	Oronoco	55960	UST	ACTIVE	F000	TS0125803	4	Underground Tanks	1032	GW	HIGH
534	2	841713039835	Oronoco Auto Salvage Inc	410 1st St SE	Oronoco	55960	VIC	INACTIVE		LS0015961	0	Voluntary Investigation and Cleanup	1032	GW	HIGH

**APPENDIX B**

**CONSUMER CONFIDENCE REPORT**

# Oronoco

## 2017 DRINKING WATER REPORT

### Making Safe Drinking Water

Your drinking water comes from a groundwater source: two wells ranging from 334 to 400 feet deep, that draw water from the Jordan aquifer.

Oronoco 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 Dan Howard, Public Works, at 6517640378 or [oronocopark@gmail.com](mailto:oronocopark@gmail.com) if you have questions about Oronoco'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.

### Oronoco Monitoring Results

This report contains our monitoring results from January 1 to December 31, 2017.

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](http://www.health.state.mn.us/divs/eh/water/factsheet/com/sampling.html) (<http://www.health.state.mn.us/divs/eh/water/factsheet/com/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 ( $\mu\text{g/l}$ ).
- **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 ( $\text{mg/l}$ ).
- **PWSID:** Public water system identification.
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.
- **Variations and Exemptions:** State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

**Water Quality Data Tables**

**LEAD AND COPPER – Tested at customer taps.**

<b>Contaminant (Date, if sampled in previous year)</b>	<b>EPA's Action Level</b>	<b>EPA's Ideal Goal (MCLG)</b>	<b>90% of Results Were Less Than</b>	<b>Number of Homes with High Levels</b>	<b>Violation</b>	<b>Typical Sources</b>
<b>Copper (08/30/16)</b>	90% of homes less than 1.3 ppm	0 ppm	0.14 ppm	0 out of 10	NO	Corrosion of household plumbing.
<b>Lead (08/30/16)</b>	90% of homes less than 15 ppb	0 ppb	2.1 ppb	0 out of 10	NO	Corrosion of household plumbing.

CONSUMER CONFIDENCE REPORT

<b>INORGANIC &amp; ORGANIC CONTAMINANTS – Tested in drinking water.</b>						
<b>Contaminant (Date, if sampled in previous year)</b>	<b>EPA's Limit (MCL)</b>	<b>EPA's Ideal Goal (MCLG)</b>	<b>Highest Average or Highest Single Test Result</b>	<b>Range of Detected Test Results</b>	<b>Violation</b>	<b>Typical Sources</b>
<b>Gross Alpha</b>	15.4 pCi/l	0 pCi/l	3.6 pCi/l	0.0 - 3.8 pCi/l	NO	Erosion of natural deposits.
<b>Combined Radium</b>	5.4 pCi/l	0 pCi/l	3.3 pCi/l	1.2 - 3.5 pCi/l	NO	Erosion of natural deposits.
<b>Nitrate</b>	10.4 ppm	10 ppm	1.1 ppm	0.60 - 1.10 ppm	NO	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
<b>Barium</b>	2 ppm	2 ppm	0.04 ppm	N/A	NO	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposit.

**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	2.2 ppb	N/A	NO	By-product of drinking water disinfection.
Total Chlorine	4.0 ppm	4.0 ppm	1.1 ppm	0.60 - 1.36 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	0.96 ppm	0.75 - 1.00 ppm	NO	Erosion of natural deposits; Water additive to promote strong teeth.

**Potential Health Effects and Corrective Actions (If Applicable)**

**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 Oronoco 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](http://www.health.state.mn.us/divs/eh/water/swp/swa/) (www.health.state.mn.us/divs/eh/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. Oronoco 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: [Are your pipes made of lead? Here's a quick way to find out](https://www.mprnews.org/story/2016/06/24/npr-find-lead-pipes-in-your-home) (<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://apps.health.state.mn.us/eldo/public/accreditedlabs/labsearch.seam)  
(<https://apps.health.state.mn.us/eldo/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](http://www.health.state.mn.us/divs/eh/water/factsheet/com/poulead.html)  
(<http://www.health.state.mn.us/divs/eh/water/factsheet/com/poulead.html>)

Learn more:

- Visit [Lead in Drinking Water](http://www.health.state.mn.us/divs/eh/water/contaminants/lead.html#Protect) (<http://www.health.state.mn.us/divs/eh/water/contaminants/lead.html#Protect>)
- Visit [Basic Information about Lead in Drinking Water](http://www.epa.gov/safewater/lead) (<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](http://www.health.state.mn.us/divs/eh/lead/sources.html) (<http://www.health.state.mn.us/divs/eh/lead/sources.html>).

## **APPENDIX C**

# **WATER SUPPLY EMERGENCY PREPAREDNESS PROCEDURES**

**CITY OF ORONOCO**  
Home of Downtown Oronoco Gold Rush



# City of Oronoco Water Supply Plan

*Formerly called Water Emergency & Water Conservation Plan*

October 2017

## PART 2. EMERGENCY PREPAREDNESS PROCEDURES

The emergency preparedness procedures outlined in this plan are intended to comply with the contingency plan provisions required by MDH in the WHP and SWP. Water emergencies can occur as a result of vandalism, sabotage, accidental contamination, mechanical problems, power failings, drought, flooding, and other natural disasters. The purpose of emergency planning is to develop emergency response procedures and to identify actions needed to improve emergency preparedness. In the case of a municipality, these procedures should be in support of, and part of, an all-hazard emergency operations plan. Municipalities that already have written procedures dealing with water emergencies should review the following information and update existing procedures to address these water supply protection measures.

### A. Emergency Response Plan

Section 1433(b) of the Safe Drinking Water Act, (Public Law 107-188, Title IV- Drinking Water Security and Safety) requires community water suppliers serving over 3,300 people to prepare an Emergency Response Plan. MDH recommends that Emergency Response Plans are updated annually.

Do you have an Emergency Response Plan? Yes  No

Have you updated the Emergency Response Plan in the last year? Yes  No

When did you last update your Emergency Response Plan? 2016

Complete Table 15 by inserting the noted information regarding your Emergency Response Plan.

Table 15. Emergency Response Plan contact information – Water Utility

Emergency Response Plan Role	Contact Person	Contact Phone Number	Contact Email
Emergency Response Lead	Dan Howard	507-367-2281 651-764-0378 (cell)	oronocopark@gmail.com
Alternate Emergency Response Lead	Jim Ackman	507-601-7297	-

### B. Operational Contingency Plan

All utilities should have a written operational contingency plan that describes measures to be taken for water supply mainline breaks and other common system failures as well as routine maintenance.

Do you have a written operational contingency plan? Yes  No

At a minimum, a water supplier should prepare and maintain an emergency contact list of contractors and suppliers.

### C. Emergency Response Procedures

Water suppliers must meet the requirements of MN Rules 4720.5280. Accordingly, the Minnesota Department of Natural Resources (DNR) requires public water suppliers serving more than 1,000 people to submit Emergency and Conservation Plans. Water emergency and conservation plans that have been approved by the DNR, under provisions of Minnesota Statute 186 and Minnesota Rules, part 6115.0770, will be considered equivalent to an approved WHP contingency plan.

### **Emergency Telephone List**

Prepare and attach a list of emergency contacts, including the MN Duty Officer (1-800-422-0798), as **Appendix 5**. An [Emergency Contact List template](#) is available at the [MnDNR Water Supply Plans webpage](#).

The list should include key utility and community personnel, contacts in adjacent water suppliers, and appropriate local, state and federal emergency contacts. Please be sure to verify and update the contacts on the emergency telephone list and date it. Thereafter, update on a regular basis (once a year is recommended). In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the Emergency Manager for that community. Responsibilities and services for each contact should be defined.

### **Current Water Sources and Service Area**

Quick access to concise and detailed information on water sources, water treatment, and the distribution system may be needed in an emergency. System operation and maintenance records should be maintained in secured central and back-up locations so that the records are accessible for emergency purposes. A detailed map of the system showing the treatment plants, water sources, storage facilities, supply lines, interconnections, and other information that would be useful in an emergency should also be readily available. It is critical that public water supplier representatives and emergency response personnel communicate about the response procedures and be able to easily obtain this kind of information both in electronic and hard copy formats (in case of a power outage).

**Do records and maps exist?** Yes  No

**Can staff access records and maps from a central secured location in the event of an emergency?**  
Yes  No

**Does the appropriate staff know where the materials are located?** Yes  No

### **Procedure for Augmenting Water Supplies**

Complete Tables 16 – 17 by listing all available sources of water that can be used to augment or replace existing sources in an emergency. Add rows to the tables as needed.

In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the warning point for that community. Municipalities are encouraged to execute cooperative agreements for potential emergency water services and copies should be included in **Appendix 6**. Outstate Communities may consider using nearby high capacity wells (industry, golf course) as emergency water sources.

WSP should include information on any physical or chemical problems that may limit interconnections to other sources of water. Approvals from the MDH are required for interconnections or the reuse of water.

Table 16. Interconnections with other water supply systems to supply water in an emergency

Other Water Supply System Owner	Capacity (GPM & MGD)	Note Any Limitations On Use	List of services, equipment, supplies available to respond
NA			

GPM – Gallons per minute MGD – million gallons per day

Table 17. Utilizing surface water as an alternative source

Surface Water Source Name	Capacity (GPM)	Capacity (MGD)	Treatment Needs	Note Any Limitations On Use
NA				

If not covered above, describe additional emergency measures for providing water (obtaining bottled water, or steps to obtain National Guard services, etc.)

Bottled water available from nearby stores in Rochester; City also owns water buffalo for bulk non-potable water. Contact MN Duty Office and MnWARN for assistance.

**Allocation and Demand Reduction Procedures**

Complete Table 18 by adding information about how decisions will be made to allocate water and reduce demand during an emergency. Provide information for each customer category, including its priority ranking, average day demand, and demand reduction potential for each customer category. Modify the customer categories as needed, and add additional lines if necessary.

Water use categories should be prioritized in a way that is consistent with Minnesota Statutes 103G.261 (#1 is highest priority) as follows:

1. Water use for human needs such as cooking, cleaning, drinking, washing and waste disposal; use for on-farm livestock watering; and use for power production that meets contingency requirements.
2. Water use involving consumption of less than 10,000 gallons per day (usually from private wells or surface water intakes)
3. Water use for agricultural irrigation and processing of agricultural products involving consumption of more than 10,000 gallons per day (usually from private high-capacity wells or surface water intakes)
4. Water use for power production above the use provided for in the contingency plan.
5. All other water use involving consumption of more than 10,000 gallons per day.
6. Nonessential uses – car washes, golf courses, etc.

Water used for human needs at hospitals, nursing homes and similar types of facilities should be designated as a high priority to be maintained in an emergency. Lower priority uses will need to address water used for human needs at other types of facilities such as hotels, office buildings, and manufacturing plants. The volume of water and other types of water uses at these facilities must be

carefully considered. After reviewing the data, common sense should dictate local allocation priorities to protect domestic requirements over certain types of economic needs. Water use for lawn sprinkling, vehicle washing, golf courses, and recreation are legislatively considered non-essential.

**Table 18. Water use priorities**

Customer Category	Allocation Priority	Average Daily Demand (GPD)	Short-Term Emergency Demand Reduction Potential (GPD)
Residential	1	65,000	19,500
Commercial	2	4,000	1,200
Water Supplier Services	2	5,000	1,500
TOTAL	NA	74,000	22,200

GPD – Gallons per Day

**Tip: Calculating Emergency Demand Reduction Potential**

The emergency demand reduction potential for all uses will typically equal the difference between maximum use (summer demand) and base use (winter demand). In extreme emergency situations, lower priority water uses must be restricted or eliminated to protect priority domestic water requirements. Emergency demand reduction potential should be based on average day demands for customer categories within each priority class. Use the tables in Part 3 on water conservation to help you determine strategies.

Complete Table 19 by selecting the triggers and actions during water supply disruption conditions.

**Table 19. Emergency demand reduction conditions, triggers and actions (Select all that may apply and describe)**

Emergency Triggers	Short-term Actions	Long-term Actions
<input checked="" type="checkbox"/> Contamination <input checked="" type="checkbox"/> Loss of production <input checked="" type="checkbox"/> Infrastructure failure <input checked="" type="checkbox"/> Executive order by Governor <input type="checkbox"/> Other: _____	<input type="checkbox"/> Supply augmentation through _____ <input checked="" type="checkbox"/> Adopt (if not already) and enforce a critical water deficiency ordinance to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. <input type="checkbox"/> Water allocation through _____ <input type="checkbox"/> Meet with large water users to discuss their contingency plan.	<input type="checkbox"/> Supply augmentation through _____ <input checked="" type="checkbox"/> Adopt (if not already) and enforce a critical water deficiency ordinance to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. <input type="checkbox"/> Water allocation through _____ <input checked="" type="checkbox"/> Meet with large water users to discuss their contingency plan.

### Notification Procedures

Complete Table 20 by selecting trigger for informing customers regarding conservation requests, water use restrictions, and suspensions; notification frequencies; and partners that may assist in the notification process. Add rows to the table as needed.

**Table 20. Plan to inform customers regarding conservation requests, water use restrictions, and suspensions**

Notification Trigger(s)	Methods (select all that apply)	Update Frequency	Partners
<input checked="" type="checkbox"/> Short-term demand reduction declared (< 1 year)	<input checked="" type="checkbox"/> Website <input checked="" type="checkbox"/> Email list serve <input checked="" type="checkbox"/> Social media (e.g. Twitter, Facebook) <input type="checkbox"/> Direct customer mailing, <input checked="" type="checkbox"/> Press release (TV, radio, newspaper), <input type="checkbox"/> Meeting with large water users (> 10% of total city use) <input type="checkbox"/> Other: _____	<input type="checkbox"/> Daily <input checked="" type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	
<input checked="" type="checkbox"/> Long-term Ongoing demand reduction declared	<input checked="" type="checkbox"/> Website <input checked="" type="checkbox"/> Email list serve <input checked="" type="checkbox"/> Social media (e.g. Twitter, Facebook) <input checked="" type="checkbox"/> Direct customer mailing, <input checked="" type="checkbox"/> Press release (TV, radio, newspaper), <input checked="" type="checkbox"/> Meet with commercial water users <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> Daily as needed <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	Olmsted County MN DNR
<input checked="" type="checkbox"/> Governor's critical water deficiency declared	<input checked="" type="checkbox"/> Website <input checked="" type="checkbox"/> Email list serve <input checked="" type="checkbox"/> Social media (e.g. Twitter, Facebook) <input checked="" type="checkbox"/> Direct customer mailing, <input checked="" type="checkbox"/> Press release (TV, radio, newspaper), <input checked="" type="checkbox"/> Meet with commercial water users <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> Daily as needed <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Annually	Olmsted County MN DNR

**Enforcement**

Prior to a water emergency, municipal water suppliers must adopt regulations that restrict water use and outline the enforcement response plan. The enforcement response plan must outline how conditions will be monitored to know when enforcement actions are triggered, what enforcement tools will be used, who will be responsible for enforcement, and what timelines for corrective actions will be expected.

Affected operations, communications, and enforcement staff must then be trained to rapidly implement those provisions during emergency conditions.

**Important Note:**

Disregard of critical water deficiency orders, even though total appropriation remains less than permitted, is adequate grounds for immediate modification of a public water supply authority's water use permit (2013 MN Statutes 103G.291)

**Does the city have a critical water deficiency restriction/official control in place that includes provisions to restrict water use and enforce the restrictions? (This restriction may be an ordinance, rule, regulation, policy under a council directive, or other official control)** Yes  No

If yes, attach the official control document to this WSP as **Appendix 7**.

If no, the municipality must adopt such an official control within 6 months of submitting this WSP and submit it to the DNR as an amendment to this WSP.

**Irrespective of whether a critical water deficiency control is in place, does the public water supply utility, city manager, mayor, or emergency manager have standing authority to implement water restrictions?** Yes  No

If yes, cite the regulatory authority reference: \_\_\_\_\_.

If no, who has authority to implement water use restrictions in an emergency?

City Council per City Code 402.7 Water Deficiency...

**APPENDIX D**  
**IWMZ INVENTORY**

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

**PUBLIC WATER SYSTEM INFORMATION**

<b>PWS ID</b>	1550036	<b>COMMUNITY</b>
<b>NAME</b>	Oronoco	
<b>ADDRESS</b>	c/o Water Superintendent, 115 Second Street NW, Box 195, Oronoco, MN 559600195	

**FACILITY (WELL) INFORMATION**

<b>NAME</b>	Well #1	<b>IS THERE A WELL LOG OR          ADDITIONAL CONSTRUCTION          INFORMATION AVAILABLE?</b> <input type="checkbox"/> YES (Please attach a copy) <input type="checkbox"/> NO <input type="checkbox"/> UNDETERMINED
<b>FACILITY ID</b>	S01	
<b>UNIQUE WELL NO.</b>	676676	
<b>COUNTY</b>	Olmsted	

<b>PWS ID / FACILITY ID</b>	1550036    S01	<b>UNIQUE WELL NO.</b>	676676
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PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well*	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 <sup>2</sup> (Class V well - illegal <sup>3</sup> )	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) <sup>2</sup>	50/300/150 <sup>4</sup>	50/300/150 <sup>4</sup>	100/600/300 <sup>4</sup>	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		

<b>PWS ID / FACILITY ID</b>	1550036 S01	<b>UNIQUE WELL NO.</b>	676676
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PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well <sup>a</sup>	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal) <sup>2</sup>	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal) <sup>2</sup>	illegal	illegal		N		
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		Y	30	Y
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		Y	185	Y
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	125	Y
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		
<b>Land Application</b>							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
<b>Solid Waste Related</b>							
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		
<b>Storm Water Related</b>							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well <sup>a</sup> (Class V well - illegal <sup>2</sup> )	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
<b>Wells and Borings</b>							
*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		
<b>General</b>							
*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		



**PWS ID / FACILITY ID** 1550036 S01

**UNIQUE WELL NO.** 676676

**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
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**Were the isolation distances maintained for the new sources of contamination?**

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**Is the system monitoring existing nonconforming sources of contamination?**

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

**INSPECTOR** Hoerr, Robyn

**DATE** 5 - 22 - 2018

<b>PWS ID / FACILITY ID</b>	1550036 S01	<b>UNIQUE WELL NO.</b>	676676
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<b>RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES</b>	<b>WHP MEASURE IMPLEMENTED? Y or N</b>	<b>DATE VERIFIED</b>
Assure sewage tanks, cover, inspection pipes, inlets, and outlets, and riser rings are watertight, to prevent surface/ground/rainwater intrusion. See MN Rules, 7080.2450, 7080.2010, Subp.1 and 7080.1970 (C).		
Any sewer lines that are observed to be leaking, cracked, or deteriorated, should be replaced.		

<b>COMMENTS</b>

**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**

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

PUBLIC WATER SYSTEM INFORMATION		
<b>PWS ID</b>	1550036	<b>COMMUNITY</b>
<b>NAME</b>	Oronoco	
<b>ADDRESS</b>	c/o Water Superintendent, 115 Second Street NW, Box 195, Oronoco, MN 559600195	

FACILITY (WELL) INFORMATION		
<b>NAME</b>	Well #2	<b>IS THERE A WELL LOG OR            ADDITIONAL CONSTRUCTION            INFORMATION AVAILABLE?</b> <input type="checkbox"/> YES (Please attach a copy) <input type="checkbox"/> NO <input type="checkbox"/> UNDETERMINED
<b>FACILITY ID</b>	S02	
<b>UNIQUE WELL NO.</b>	733086	
<b>COUNTY</b>	Olmsted	

<b>PWS ID / FACILITY ID</b>	1550036    S02	<b>UNIQUE WELL NO.</b>	733086
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PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well*	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 <sup>2</sup> (Class V well - illegal <sup>3</sup> )	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) <sup>2</sup>	50/300/150 <sup>4</sup>	50/300/150 <sup>4</sup>	100/600/300 <sup>4</sup>		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	

<b>PWS ID / FACILITY ID</b>	1550036 S02	<b>UNIQUE WELL NO.</b>	733086
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PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well'	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				
*GW1	Gray-water dispersal area	50	50	100	N		
LC1	Large capacity cesspools (Class V well - illegal) <sup>2</sup>	75	75	150	N		
MVW	Motor vehicle waste disposal (Class V well - illegal) <sup>2</sup>	illegal	illegal		N		
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		Y	30	Y
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		Y	150	Y
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	100	Y
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	125	Y
SB1	Sewer, buried, approved materials, tested, serving one building, or two or less single-family residences	50	20		Y	165	Y
SB2	Sewer, buried, collector, municipal, serving a facility handling infectious or pathological wastes, open-jointed or unapproved materials	50	50		Y	90	Y
*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		
<b>Land Application</b>							
SPT	Land spreading area for sewage, septage, or sludge	50	50	100	N		
<b>Solid Waste Related</b>							
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		
<b>Storm Water Related</b>							
SD1	Storm water drain pipe, 8 inches or greater in diameter	50	20		N		
SWI	Storm water drainage well <sup>2</sup> (Class V well - illegal) <sup>2</sup>	50	50		N		
SM1	Storm water pond greater than 5000 gal.	50	35		N		
<b>Wells and Borings</b>							
*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		
<b>General</b>							
*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		



PWS ID / FACILITY ID	1550036 S02	UNIQUE WELL NO.	733086
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PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensitive Well <sup>1</sup>	Within 200 Ft. Y / N / U	Dist. from Well	Est. (?)
		Community	Non-community				

\* New potential contaminant source.

<sup>1</sup> 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.

<sup>2</sup> These sources, known as Class V underground injection wells, are regulated by the federal U.S. Environmental Protection Agency.

<sup>3</sup> These sources are classified as illegal by Minnesota Rules, Chapter 4725.

<sup>4</sup> Isolation distance is determined by average flow per day or if a facility handles infectious or pathological wastes.

<sup>5</sup> 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** 1550036 S02

**UNIQUE WELL NO.** 733086

**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
<b>Were the isolation distances maintained for the new sources of contamination?</b>			
<b>Is the system monitoring existing nonconforming sources of contamination?</b>			

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

**INSPECTOR** Hoerr, Robyn **DATE** 5 - 22 - 2018

<b>PWS ID / FACILITY ID</b>	1550036 S02	<b>UNIQUE WELL NO.</b>	733086
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<b>RECOMMENDED WELLHEAD PROTECTION (WHP) MEASURES</b>	<b>WHP MEASURE IMPLEMENTED? Y or N</b>	<b>DATE VERIFIED</b>
Assure sewage tanks, cover, inspection pipes, inlets, and outlets, and riser rings are watertight, to prevent surface/ground/rainwater intrusion. See MN Rules, 7080.2450, 7080.2010, Subp.1 and 7080.1970 (C).		
Any sewer lines that are observed to be leaking, cracked, or deteriorated, should be replaced.		

<b>COMMENTS</b>

**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 E**  
**CORRESPONDENCE**

March 1, 2018

Mr. Dan Howard, Public Works Supervisor  
City of Oronoco  
P.O. Box 195  
Oronoco, Minnesota 55960-0195

Dear Mr. Howard:

Subject: Scoping 2 Decision Notice and Meeting Summary – City of Oronoco – PWSID 1550036

This letter provides notice of the results of the second scoping meeting held with you, Sandy Jessen, and Mayor Ryland Eichhorst (city of Oronoco) and Justin Blum and I (Minnesota Department of Health) on February 22, 2018, at Oronoco Community Center 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 Oronoco 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 Oronoco will have until February 15, 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 [jennifer.ronnenberg@state.mn.us](mailto:jennifer.ronnenberg@state.mn.us) or by phone at (507) 206-2734.

Sincerely,



Jennifer Ronnenberg, Principal Planner  
Source Water Protection  
Environmental Health Division  
18 Wood Lake Drive Southeast  
Rochester, Minnesota 55904-5506

JR:ds-b

Enclosures

cc: Simon McCormack, MDH Engineer, Metro District Office  
Robyn Hoerr, Minnesota Rural Water Association  
Ron Struss, Minnesota Department of Agriculture

## SCOPING 2 DECISION NOTICE Highly Vulnerable DWSMA and SWCA

### Remainder of the Wellhead Protection Plan

<b>Name of Public Water Supply:</b>		<b>Date:</b>
City of Oronoco	PWSID: 1550036	March 1, 2018
<b>Name of the Wellhead Protection Manager:</b>		
Mr. Dan Howard, Public Works Supervisor		
<b>Address:</b>	<b>City:</b>	<b>Zip:</b>
P.O. Box 195	Oronoco	55960-0195
<b>Unique Well Numbers:</b>		<b>Phone:</b>
676676 (Well #1), 7330086 (Well #2)		651-764-0378

### Instructions for Completing the Scoping 2 Form

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

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

N	R	S	<b>S = Submit to MDH.</b> If this box is checked, this data element <b>MUST</b> be included in your wellhead protection plan and submitted to MDH.
		<b>X</b>	
If there is <b>NO</b> check mark in the "S" box but there is an "X" in the "R" box, this data element <b>MUST</b> be included in your plan, but should <b>NOT be submitted to MDH</b> . 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

<b>PRECIPITATION</b>			
N	R	S	An existing map or list of local precipitation gauging stations.
	X	X	
<b>Technical Assistance Comments:</b> 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 table showing the average monthly and annual precipitation in inches for the preceding five years.
	X	X	
<b>Technical Assistance Comments:</b> The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
<b>GEOLOGY</b>			
N	R	S	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.
	X		
<b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements.			
N	R	S	Existing records of the geologic materials penetrated by wells, borings, exploration test holes, or excavations, including those submitted to the department.
	X		
<b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements.			
N	R	S	Existing borehole geophysical records from wells, borings, and exploration test holes.
	X		
<b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect the geology of the areas.			
N	R	S	Existing surface geophysical studies.
	X		
<b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect the geology of the areas.			
<b>SOILS</b>			
N	R	S	Existing maps of the soils and a description of soil infiltration characteristics.
	X	X	
<b>Technical Assistance Comments:</b> 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	A description or an existing map of known eroding lands that are causing sedimentation problems.
	X	X	
<b>Technical Assistance Comments:</b> 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		
<b>Technical Assistance Comments:</b> 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		
<b>Technical Assistance Comments:</b> 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		
<b>Technical Assistance Comments:</b> 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		
<b>Technical Assistance Comments:</b> 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		
<b>Technical Assistance Comments:</b> 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	
<b>Technical Assistance Comments:</b> 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	
<b>Technical Assistance Comments:</b> 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		
<b>Technical Assistance Comments:</b> 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	A map and an inventory of the current and historical agricultural, residential, commercial, industrial, recreational, and institutional land uses and potential contaminant sources.
	X	X	
<p><b>Technical Assistance Comments:</b> 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:</p> <p><u>Groundwater and Surface Water Contribution Vulnerability</u></p> <p>1) All potential contaminant sources as listed below. Two DWSMA Vulnerability Figures for the city of Oronoco are attached for reference to identify the different areas of vulnerability and the Surface Water Contribution Area.</p> <p>2) A land use/land cover map and table.</p> <p>3) An inventory of the Inner Wellhead Management Zone(s) (IWMZ).</p> <p><u>Areas with Combination High Vulnerability Groundwater and Highly Vulnerable SWCA</u></p> <p>1) All potential contaminant sources as listed on the attachment: Potential Contaminant Source Inventory Requirements for Highly and Very Highly Vulnerable DWSMA.</p> <p>As a starting point, MDH will provide a land cover map and table from federal databases. 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.</p>			
N	R	S	An existing comprehensive land-use map..
	X	X	
<p><b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.</p>			
N	R	S	An existing zoning map.
	X	X	
<p><b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.</p>			

<b>PUBLIC UTILITY SERVICES</b>			
N	R	S	An existing map of transportation routes or corridors.
	X		
<p><b>Technical Assistance Comments:</b> The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.</p>			
N	R	S	An existing map of storm sewers, sanitary sewers, and public water supply systems.
	X	X	
<p><b>Technical Assistance Comments:</b> 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.</p>			
N	R	S	An existing map of the gas and oil pipeline used by gas and oil suppliers..
	X	X	
<p><b>Technical Assistance Comments:</b> The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.</p>			

N	R	S	An existing map or list of public drainage systems.
	X	X	
<b>Technical Assistance Comments:</b> 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		
<b>Technical Assistance Comments:</b> 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

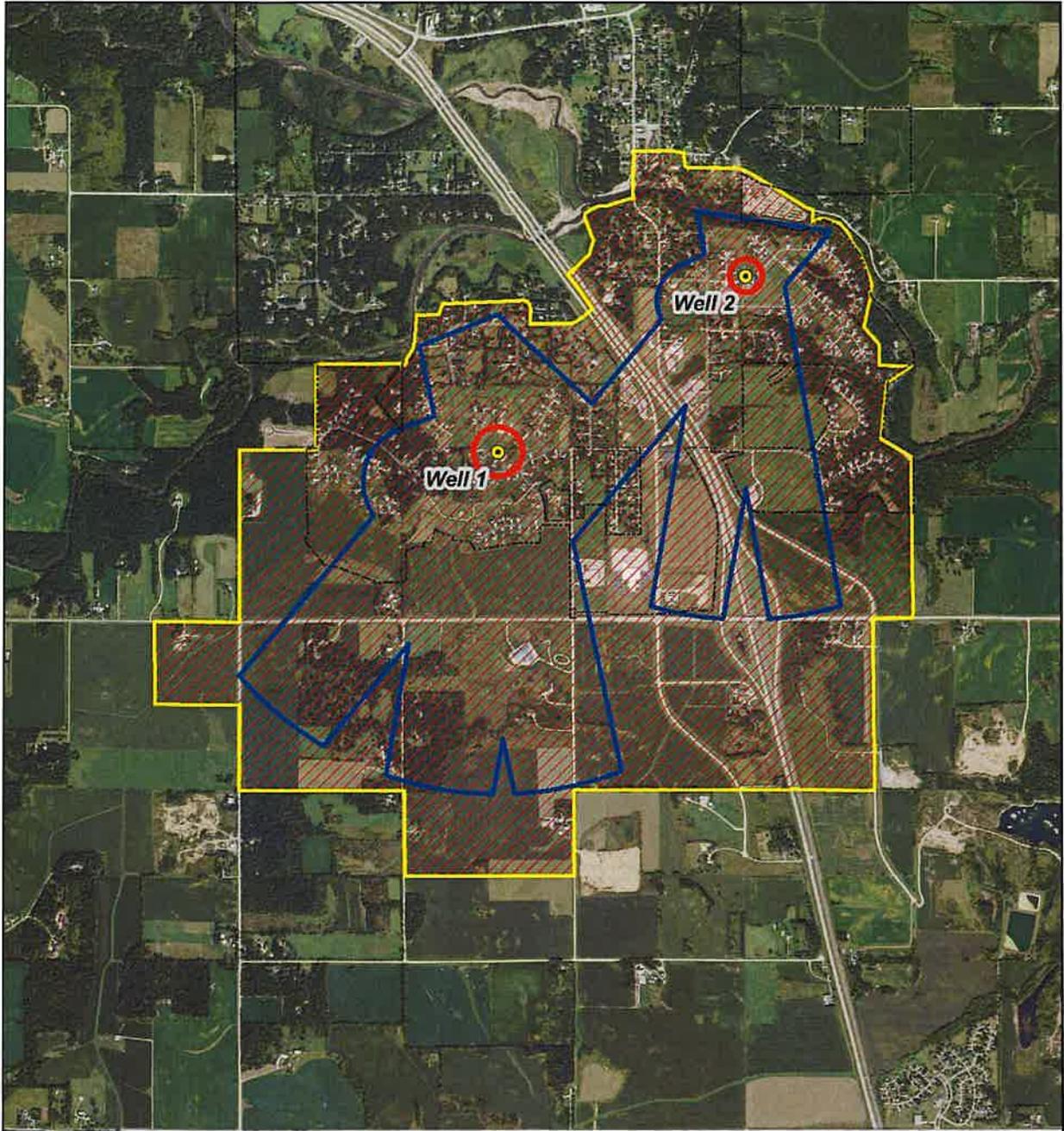
SURFACE WATER QUANTITY			
N	R	S	An existing description of high, mean, and low flows on streams.
	X		
<b>Technical Assistance Comments:</b> The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
N	R	S	An existing list of lakes where the state has established ordinary high water marks.
	X		
<b>Technical Assistance Comments:</b> 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		
<b>Technical Assistance Comments:</b> 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		
<b>Technical Assistance Comments:</b> 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	
<b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			

<b>GROUNDWATER QUANTITY</b>			
<b>N</b>	<b>R</b>	<b>S</b>	An existing list of wells covered by state appropriation permits, including amounts of water appropriated, type of use, and aquifer source.
	<b>X</b>		
<b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
<b>N</b>	<b>R</b>	<b>S</b>	An existing description of known well interference problems and water-use conflicts.
	<b>X</b>	<b>X</b>	
<b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
<b>N</b>	<b>R</b>	<b>S</b>	An existing list of state environmental bore holes, including unique well number, aquifer measured, years of record, and average monthly levels.
	<b>X</b>		
<b>Technical Assistance Comments:</b> 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

<b>SURFACE WATER QUALITY</b>			
<b>N</b>	<b>R</b>	<b>S</b>	An existing map or list of the state water quality management classification for each stream and lake.
	<b>X</b>		
<b>Technical Assistance Comments:</b> The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
<b>N</b>	<b>R</b>	<b>S</b>	An existing summary of lake and stream water quality monitoring data, including: 1. bacteriological contamination indicators;                      4. sedimentation; 2. inorganic chemicals;    5. dissolved oxygen; and 3. organic chemicals;    6. excessive growth or deficiency of aquatic plants.
	<b>X</b>		
<b>Technical Assistance Comments:</b> The management of the vulnerable parts of the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
<b>GROUNDWATER QUALITY</b>			
<b>N</b>	<b>R</b>	<b>S</b>	An existing summary of water quality data, including: 1. bacteriological contamination indicators; 2. inorganic chemicals; and 3. organic chemicals.
	<b>X</b>		
<b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
<b>N</b>	<b>R</b>	<b>S</b>	An existing list of water chemistry and isotopic data from wells, springs, or other groundwater sampling points.
	<b>X</b>		
<b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
<b>N</b>	<b>R</b>	<b>S</b>	An existing report of groundwater tracer studies.
	<b>X</b>		
<b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
<b>N</b>	<b>R</b>	<b>S</b>	An existing site study and well water analysis of known areas of groundwater contamination.
	<b>X</b>		
<b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements.			

<b>N</b>	<b>R</b>	<b>S</b>	An existing property audit identifying contamination.
	<b>X</b>		
<b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			
<b>N</b>	<b>R</b>	<b>S</b>	An existing report to the Minnesota Department of Agriculture and the Minnesota Pollution Control Agency of contaminant spills and releases.
	<b>X</b>		
<b>Technical Assistance Comments:</b> The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element.			



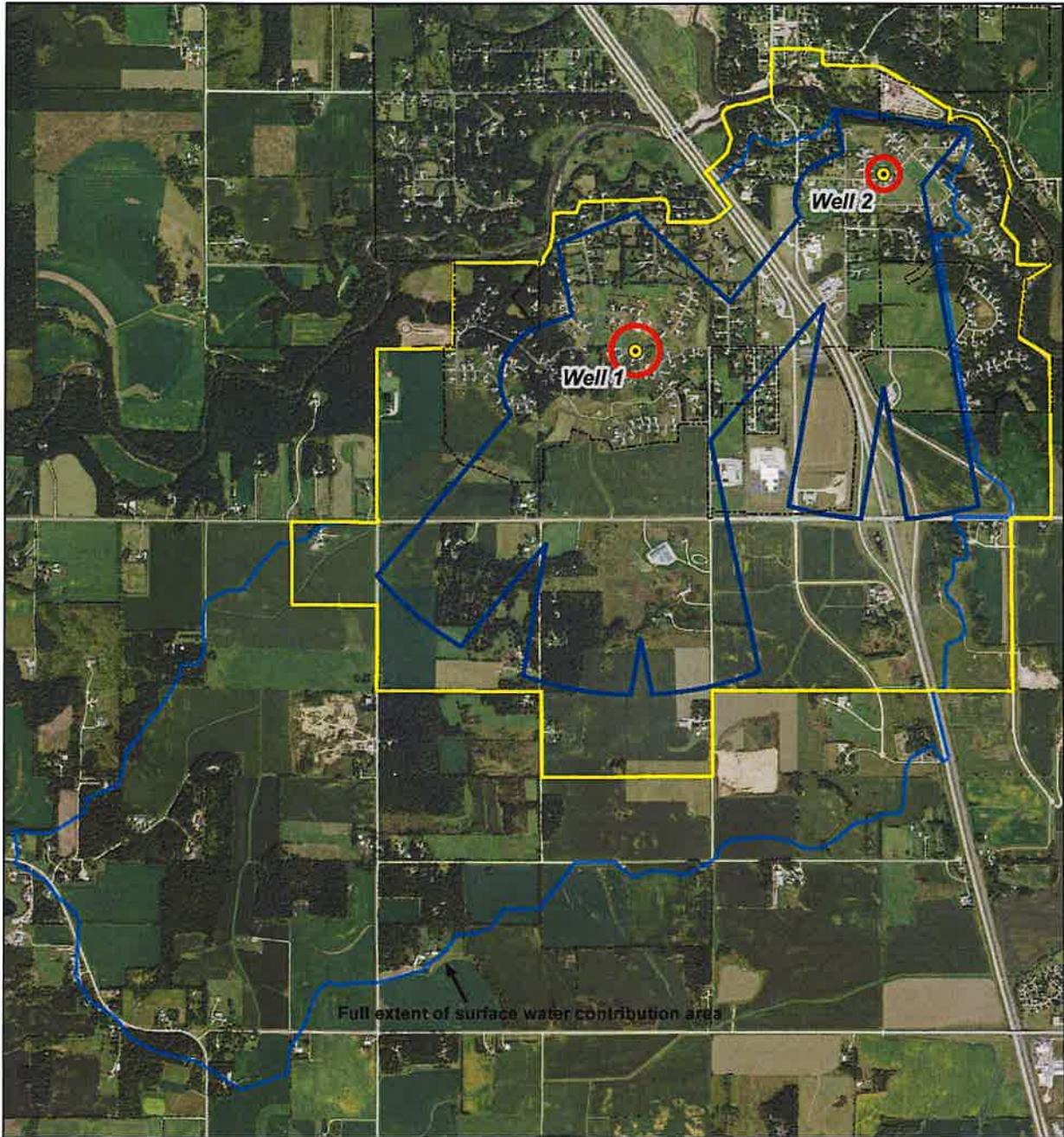
-  Oronoco
-  Primary Well
-  Emergency Response Area
-  Wellhead Protection Area
-  Drinking Water Supply Management Area



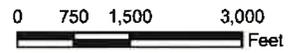
0 750 1,500 3,000  
 Feet



**City of Oronoco**  
**Drinking Water Supply Management Area**  
**High DWSMA Vulnerability**



- Oronoco
- Primary Well**
- Emergency Response Area
- Wellhead Protection Area
- Drinking Water Supply Management Area
- Surface Water Contribution Area



**City of Oronoco**  
**Drinking Water Supply Management Area**  
**and Surface Water Contribution Area**  
**Highly Vulnerable DWSMA and SWCA**

**Scoping 2 Meeting**  
**Wellhead Protection (WHP) Planning Issues Summary**  
**City of Oronoco**

**Drinking Water Protection Issues Identified to Date:**

- Specific to the Oronoco area, the top 70 feet of the Prairie du Chien Group has been removed by erosion, leaving karst rock formations easily connected to the aquifer that the city uses for drinking water. Karst rock formations have the ability to quickly deliver surface water and potential contaminants to wells.
- The regional flow of groundwater is toward the city wells, increasing the chance that contaminants from surface activities could affect drinking water quality.
- There is a significantly large number of private wells in the DWSMA, some progress toward sealing private wells have already been made.
- The DWSMA extends beyond city limits into New Haven and Oronoco townships.
- There is a defined Surface Water Contribution Area that is highly vulnerable to contamination that extends far to the SE of the city limits. Although this area is not included in the Drinking Water Supply Management Area, it should be given consideration when determining appropriate protection measures.
- There are septic drain fields near both wells.

**Water Quality Detections and Implications:**

- No synthetic or volatile organic chemicals have been detected in water quality samples from the wells
- Nitrate levels in Well #1 are showing an upward trend over time, however, it is still well below the MCL value
- Tritium concentrations show that a least a portion of the water entering Well#1 fell as precipitation with the last 40 years.
- Chloride and bromide levels do not indicate a significant surface impact.
- Available groundwater quality information indicates a weak connection to surface water, even though the hydrogeologic setting indicates a high to very high aquifer vulnerability. Because of this difference, and to avoid the burden of managing potential contamination sources over a large area, the surface water drainage area beyond the extent of the groundwater capture area was excluded from the WHPA. Going forward, it is recommended that additional information be gathered to verify and define the connection of the groundwater to surface water as a part of wellhead protection activities over the next 10 years.

**Old Municipal Well Information:**

- The Minnesota Department of Health has not compiled historical information for use in the planning process.

**Sanborn Maps:**

- Sanborn Maps are available for this area
- Sanborn Maps are not available for this area.

### **Recommended WHP Measures:**

The following recommendations have been generated to inform the amendment of the city of Oronoco's Wellhead Protection Plan.

- 1) **Well Locating:** This delineation is based on limited well data. If wells are discovered or constructed within two-miles of the city or one mile of the DWSMA, their locations should be verified.
- 2) **Well Inventory:** Wells within the areal extent of the DWSMA - that are completed within the city's aquifer, between 25 and 200 feet in depth, completed in the Prairie du Chien Group and/or Jordan Sandstone will need to be inventoried. (This is in effect, all wells)
- 3) **Stable Isotope Sampling:** Sampling for stable isotopes has not yet been undertaken by MDH to evaluate the influence of surface water on groundwater pumped by the PWS well. Depending on availability of funds for analysis, MDH can provide sample bottles and cover analytical costs. The city may need to collect the samples and ship them to MDH.
- 4) **Water Quality Monitoring:** The standard assessment monitoring package should be analyzed during year five: tritium, nitrate-nitrogen, ammonia, sulfate, chloride and bromide. Depending on availability of funds for analysis, MDH can provide sample bottles and cover analytical costs. The city may need to collect the samples and ship them to MDH.

**Other:** Additionally, MDH Hydrologist Justin Blum stated that old rural developments and septic systems are the greatest threats to the city's drinking water. He recommends that the city eliminates the community waste water drain field and replace it with a wastewater treatment option.

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.

**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
Biosolids	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 <sup>1</sup>	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 <sup>2</sup>	WWDS
Wastewater Stabilization Pond	WSP
Wastewater Treatment Pond	WWTD
Wells	WEL

**Footnotes:**

<sup>1</sup>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)

<sup>2</sup>Wastewater Disposal Sites (WWDS) include the following:

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

**Activity Status; Codes; and Descriptions**

<b>Status</b>	<b>Code</b>	<b>Description</b>
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

**APPENDIX F**

**PUBLIC HEARING  
DOCUMENTATION**

(NOT INCLUDED IN THIS DRAFT)