

City of Ironton

WELLHEAD PROTECTION PLAN

Part 2

Part 2:

- **Potential Contaminant Source Management Strategy**
- **Impacts of Expected Changes to Land and Water Resources**
- **Issues, Problems & Opportunities**
- **Wellhead Protection Plan Goals**
- **Management Strategies**
- **Evaluation Plan**
- **Emergency/Conservation Plan**

January, 2012

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PUBLIC WATER SUPPLY PROFILE

PUBLIC WATER SUPPLY

NAME: City of Ironton

ADDRESS: PO Box 97

Ironton, MN 56455-0097

TELEPHONE NUMBER: 218-546-5625 **E-mail:** Amy@cityofironton.org

Population Served: 572(2010 Census)

PWS ID Number: 1180017

GENERAL INFORMATION

Unique Well Numbers & Names of Primary Well(s):

Primary Wells: Well # 1 – Unique # 150831, Well # 2 – Unique # 150840

Emergency Well: Well # 3 – Unique # 241993

WELLHEAD PROTECTION MANAGER

NAME: Randy Tscheu & Greg Stanich Co-Wellhead Protection Managers

ADDRESS: PO Box 97

Ironton MN 56455-0097

TELEPHONE NUMBER: 218-545-5611

CONSULTANT/TECHNICAL ASSISTANCE

NAME: AC Analytical & Consulting, LLC

ADDRESS: PO Box 248, Bemidji MN 56601

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DOCUMENTATION LIST

| <u>STEP</u> | <u>DATE PERFORMED</u> |
|---|--------------------------|
| Part I Approval Notice Received from MDH | <u>November 16, 2010</u> |
| Scoping 2 Meeting Held (4720.5349, subp. 1) | <u>January 25, 2011</u> |
| Scoping Decision Notice Received (4720.5340, subp. 2) | <u>February 15, 2011</u> |
| Remaining Portion of Plan Submitted to Local Units of Government (LUGs) (4720.5350, subp. 1 & 2) | <u>February 3, 2012</u> |
| Review Received from Local Units of Government (4720.5350, subp. 2) | <u>April 3, 2012</u> |
| Consider Comments from Local Government Units (4720.5350, subp. 3) | <u>April 4, 2012</u> |
| Public Hearing Conducted (4720.5350, subp. 4) | <u>April 4, 2012</u> |
| Part II WHP Plan Submitted to MDH (4720.5360, subp. 1) | <u>April 9, 2012</u> |
| Approved Review Notice Received | <u>July 9, 2012</u> |

City of Ironton

Wellhead Protection Plan Part II

Executive Summary

The 2nd part of the City of Ironton Wellhead Protection (WHP) Plan presents information about land use and potential contaminant sources identified ability to impact the aquifer and public water supply wells. This part of the WHP Plan was completed by Dean French, Mayor, Randy Tscheu, Water Superintendent, Greg Stanich, Public Works, Lou Anne Maschler, Irondale Township, Amy Baratto, City Clerk and Mitch Brinks, Crow Wing County Water Planner. Technical support was provided by John Albrecht, AC Analysis and Mark Wettlaufer, Minnesota Department of Health.

This part of the WHP Plan is based upon the geology of the area and characteristics of the aquifer described in Part I of the WHP Plan. Part I of the WHP Plan was completed by the Minnesota Dept. of Health. The science and delineation information contained in Part I of the WHP Plan provides the basis for the practices and management strategies that are to be used to help protect the good quality of water enjoyed by the residents of Ironton. Part I of the WHP Plan describes that the City of Ironton operates Wells # 1 and # 2 as their two primary water supply wells. In the event of a problem with one of the primary wells, the city has the ability to use their emergency back-up Well # 3.

The geology information contained in Part I of the WHP Plan describes that the aquifer used by the City of Ironton consists of a sand and gravel aquifer located approximately 50 feet below the land surface. The aquifer used by the city wells has a varying amount of till material protecting the aquifer and city wells from land surface activities. The variation in the amount of till material ranges from none near city well # 1 to more than 20' of till protecting the aquifer based on well log information from city well # 2 and other well log information in the DWSMA. Water analysis results from Well # 2 suggest groundwater recharge is more directly influenced by surface water. Based on water chemistry and geologic information available the MDH determined a "moderate" vulnerability rating for the Ironton DWSMA. This means that the till layer protecting the aquifer is discontinuous and some direct recharge from surface water occurs over a time frame of years to decades. More information about the city public water supply wells, geology and vulnerability of the Ironton DWSMA can be found in Part I of the WHP Plan.

Based upon the **moderate** vulnerability of the Ironton DWSMA and aquifer, the local WHP Team focused its efforts primarily on inventorying and identifying wells and tanks that may potentially impact the city wells and their water supply. The WHP Team also considered land use changes, growth and future activities which may occur in this area. While the property where the public water supply wells are located is owned by the city, the entire DWSMA is outside the city limits and under control of Irondale Township. Therefore, it is important that the city work closely with Irondale Township who has land use control authority in the DWSMA and Crow Wing County. At this time, limited growth or few changes were identified by the WHP Team in Ironton DWSMA. As a result, Part II of the WHP Plan focuses primarily on WHP education and the use of best management practices related to the management of wells, tanks, spills and storm water drainage towards the wetland surrounding the city wells. Sealing of unused municipal wells and private wells are examples of best management practices to be promoted and implemented through this part of the plan.

To the extent practical, the WHP Team wishes to utilize activities, programs and practices offered through various resource protection programs available through the township, County, State, Federal and resource agencies. Part II WHP Plan also includes an Emergency and Contingency Plan and steps the city would take in the event of a major disruption in the water supply.

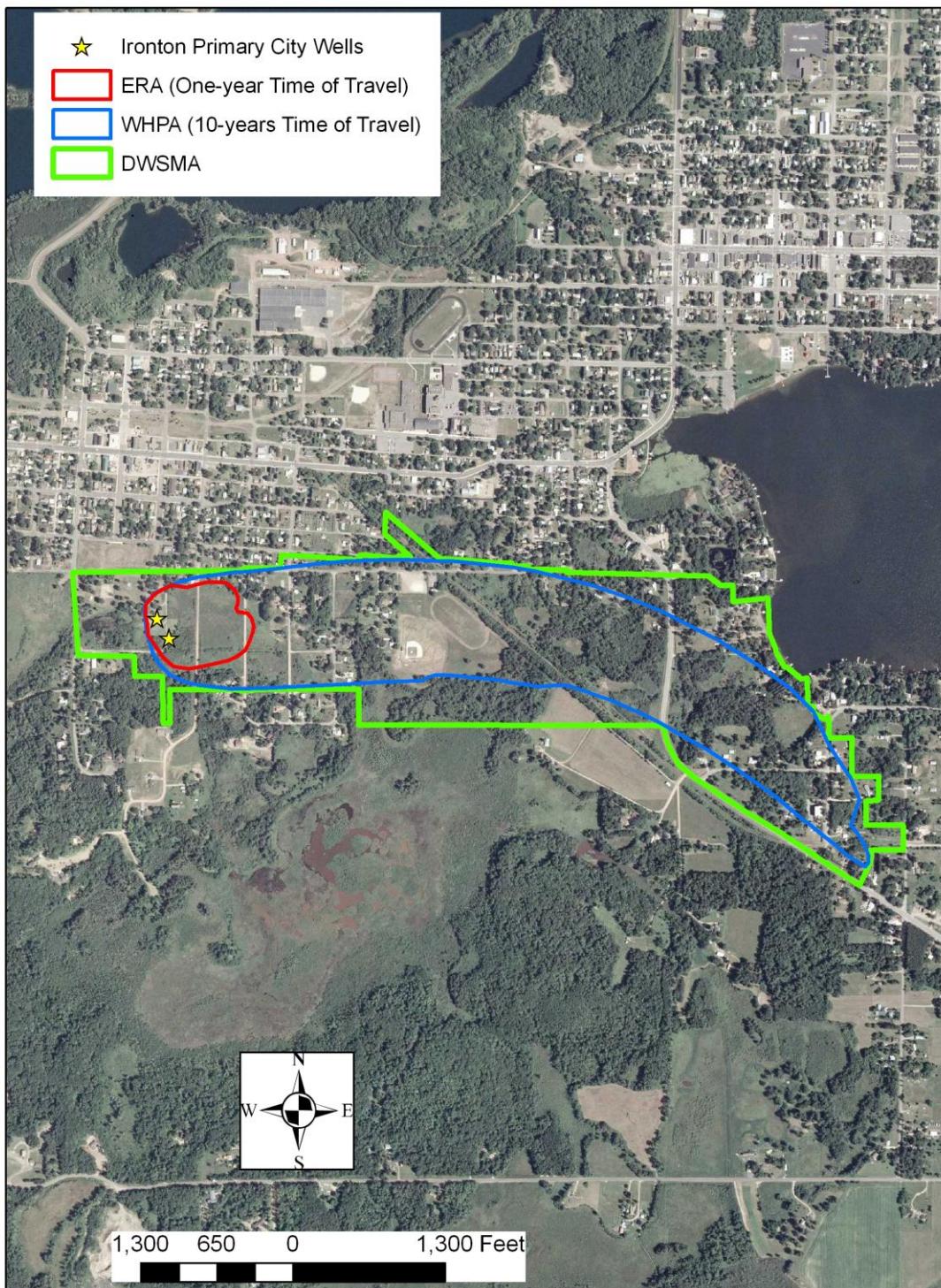


Figure 1: City of Ironton Drinking Water Supply Management Area.

CHAPTER ONE

DATA ELEMENTS and ASSESSMENT (4720.5200)

Part 1 of the Wellhead Protection Plan determined that the Drinking Water Supply Management Area (DWSMA) for the City of Ironton has a moderate vulnerability to contamination. The public water supplier operates three wells; Well No. 1 (Unique No. 150831) and Well No. 2 (Unique No. 150840) are the primary wells and Well No3 (Unique No. 241993) is used in emergency situations

I. REQUIRED DATA ELEMENTS

A. Physical Environment Data Elements

1. Precipitation – Precipitation information was not considered in this part of the WHP Plan since there does not appear to be a direct influence of precipitation on recharge to the aquifer used by the City of Ironton. However, surface water run-off and leakage through the till layer protecting the aquifer may be influencing recharge based on well water chemistry results for tritium and the chloride levels detected in Well # 1. See Part I, WHP Plan for further information on the influence of precipitation
2. Geology – Part I of the WHP Plan describes in detail geology and aquifer characteristics used in the delineation and vulnerability determination of the aquifer and wells used by the City of Ironton. Groundwater flow and gradient is east to west towards the city wells. The Part I WHP Plan describes that the aquifer is generally confined but receives recharge thru areas of leakage through the clay till confining layer. The till layer appears to vary in thickness and consistency throughout the DWSMA based on the review of city and private well logs in the area. The till layer protecting the aquifer appears to be absent based on the well log for City Well # 1 and then 20' thick based on the well log for City Well # 2. Based on the review of well logs, well water chemistry and other information, the MDH determined a “Moderate” vulnerability rating for the aquifer and DWSMA to be used in the development of this part of the WHP Plan. This means that the city will focus predominantly on identifying and promoting the proper management of other wells, tanks, pipelines and other significant contaminant sources which may impact the wells and aquifer used by the city as their source of drinking water. Further information on the geology, vulnerability of the wells and DWSMA for the City of Ironton, is presented in Part I of the WHP Plan and is on file with the city and the MDH.
3. Soils -- Soils and their characteristics are not being considered for this part of the WHP Plan due to the presence of a till layer that provides some protection of the aquifer from immediate sources of contamination on the land surface.
4. Water Resources – This data element was not required to be presented as described in the Scoping 2 Decision notice provided by MDH. However, it was noted by the WHP Team that the wetland up gradient of the city wells has been a discharge point for city storm water over the years and may be the conduit and entry point for the chloride detected in the city wells.

B. Land Use Data Elements

1. Land Use – The City of Ironton’s DWSMA is located in Irondale Township and lies adjacent to the southern edge of the city limits of Ironton and Crosby. The DWSMA can be described as is a fairly narrow band of land running east and west along the city boundaries towards Serpent Lake. The Ironton DWSMA is 200 acres in size. Land use within the DWSMA consists primarily of rural

residential and residential properties with areas of open space including a ball field, track and park. County Highway # 28 is a primary transportation corridor and runs through the easterly portion of the DWSMA. See Exhibit 2 for a Land Cover Land Use map for the Ironton DWSMA and a corresponding Table of Statistics.

Irondale Township administers land use controls in the township and the Ironton DWSMA. A map of the zoning districts in Irondale Township is found in Exhibit 1.1. The zoning districts in the DWSMA reflect a mixture of public, open space, residential and rural residential zoned areas. Residential and public zoning districts are found near the city wells. Presently, Irondale Township has not adopted a Comprehensive Plan, so no comprehensive land use planning map is available at this time. Since local land use control authority in the DWSMA rests with Irondale Township, the City of Ironton will need to continue to work closely with the township to monitor for existing or proposed changes in land use which may impact the city wells, aquifer and water supply. No City of Ironton zoning or comprehensive plan map has been included with this plan since the DWSMA is entirely outside the city corporate limits.

2. Public Water Supply Wells Inner Well Management Zone & WHP 1 year time of travel area

The IWMZ area (200' radius around the city wells) of City Wells # 1, 2 and Emergency Well # 3 was reviewed by MDH and City Staff. The main concern identified is the number of former city wells that have not been properly sealed. MDH provided historical information about the location and construction of the former city wells and utility staff identified the location of 9 old unused unsealed wells. One well is believed to be properly sealed, but the sealing record needs to be verified by MDH. Many of the wells are suspected to have had the casing cut off slightly below grade and capped or cemented shut. Utility staff located and some of these wells through the use of a metal detector and had the locations of the wells GPS by the Crow Wing County Water Planner. Crow Wing County Land Services generated a map of the locations of these wells for the city and is found in Exhibit # 4. (The original MDH spreadsheet of former municipal wells with comments added is also included with Exhibit # 4.) One of the high priority WHP implementation activities identified by the City of Ironton is to have the former city wells properly sealed. To cover the expense of sealing the unsealed municipal wells, city staff will work with the MDH and apply for State grant funds as they become available to help reduce any costs to the city.

Land use near the city wells and within the 1 year time of travel area includes a city park north of the treatment plant and a large wetland area surrounding the city wells to the south and east. The City of Ironton owns and controls all the land within the IWMZ and most of the area within the delineated WHP 1 year time of travel area, further protecting the immediate area around the wells and aquifer. No other contaminant issues or concerns were identified by city staff during the review IWMZ area. The updated forms are on file with MDH and the City. City staff will continue to monitor for any new potential contaminants within the IWMZ of the PWS wells as part of on-going WHP plan implementation.

3. Potential Contaminant Source Inventory:

The City of Ironton and WHP Team completed a potential contaminant source inventory (PCSI) focusing primarily on wells and tanks located in the DWSMA. The inventory was done based on the moderate vulnerability determination described in the first part of the WHP Plan. Other significant potential contaminants were also considered such as other large chemical and petroleum sources, leaking underground storage tanks, pipelines, spill sites and superfund sites that may pose a threat to the wells or aquifer in the DWSMA. A spreadsheet and map of potential contaminants identified in the DWSMA are found in Exhibit 3.

Results of the PCSI for the Ironton DWSMA can be summarized as follows:

- No leaky underground storage tanks were identified.
- There were no large registered underground or above ground tanks identified in the DWSMA.
- 10 former unsealed municipal wells were identified within 200' of the existing city wells. (Note: Some wells on the information provided by MDH were outside the DWSMA or staff thought several wells may be listed twice on the spreadsheet provided by MDH.) (See exhibit # 4)
- There are 43 domestic wells identified as use in the DWSMA.
- No private unused or unsealed wells were identified by the WHP Team.
- There are no are no gas or oil pipelines within the DWSMA.
- There are no public drainage system or ditches in the DWSMA.

City staff and the WHP Team also considered potential sources of the chloride that has been detected in City Well # 1. City utility staff suspects that road salt from storm water run-off as the likely source of the chloride. Staff described that there is a city storm sewer drain draining from Winona Avenue in Ironton and from the adjacent Crosby area and a portion of State Highway 210 east of Winona Avenue draining to outfall #1 on east side of park into wetland complex. The remaining storm drains located on Highway 210 drain to outfall #2 located on the west side of the park, and should have no affect on the City's chloride readings. City staff will work with MDH to help assess the potential impacts of the existing storm sewer discharge to the wetland, aquifer and city wells. The City of Ironton will also work with (City/County/State of Minnesota) when any future road work is done to see if there are alternatives to re-route the storm water discharge so it does not directly drain or impact the wetland and aquifer up gradient of the wells. The location of the storm water outfall(s) is shown in Exhibit #8.

As part of the potential contaminant source inventory process, prioritizing management strategies and activities to protect the city wells and aquifer was considered. Based on the results of the inventory, high priority was given to sealing the former unsealed municipal wells pending grant and financial assistance available to the city. The WHP Team also identified the need to work with MDH and local resource partners to better understand storm water impacts on the aquifer and options for better managing sources of chloride that have been detected in the well water. Based on the number of private wells in the DWSMA, on-going promotion of proper well management and sealing of wells in the DWSMA was also identified as a high priority by the WHP Team. These activities and other issues identified are presented in the WHP measures section of this plan.

2. Public Utility Services – Based on the City of Ironton's wells and DWSMA being located entirely outside the city limits where no sanitary sewer or water distribution system is present, city utility services do not have a direct impact on the aquifer or city wells. At this time, there are no plans to extend city services into Irondale Township. As previously described, the source of chloride detected in City Well # 1 is suspected to be from road salt conveyed through the city storm water system and discharged into the wetland up gradient of the wells. Further review and evaluation of the city storm water outfalls, water quality and their potential impacts will be done as part of plan implementation.

The City of Ironton maintains a 6 inch and a 4 inch interconnect with the City of Crosby that can be used in the event of an emergency or major disruption in the water supply. The interconnect locations can be seen on the water main map in the appendix. (Exhibit 5)

C. Water Quantity Data Elements

1. Surface Water Quantity – Surface water quantity was not thought to have a direct immediate influence on the aquifer based upon the clay till barrier present throughout much of the Ironton DWSMA described in Part I of the WHP Plan. Therefore a discussion on surface water quantity was not required for this part of the WHP Plan.
2. Groundwater Quantity -- Groundwater levels are adequate for the amounts that the City of Ironton currently is permitted for under the groundwater appropriations program that is administered by the Minnesota Department of Natural Resources (DNR). There are currently no other high-capacity wells or known water use conflicts within the DWSMA. At this time, there appears to be sufficient groundwater quantity, based upon the existing pumping capacity of the aquifer used by the City for the public water supply. Increased water usage may result in a reduction of aquifer yield (quantity) or increase the likelihood that contaminants of human or natural origin may affect the quality of drinking water.

D. Water Quality Data Elements

1. Surface Water Quality – As previously described under surface water quantity, surface water is not thought to have a direct or immediate influence on the aquifer based on the clay till barrier that was identified throughout much of the DWSMA. However, the geologic sensitivity of the aquifer in the Ironton DWSMA varies based on the varying thickness of the clay till protecting it. (See Part I WHP Plan) While a full discussion of this data element was not required, further analysis of the geologic sensitivity of the aquifer and the influence of surface water has been identified as an activity under several management strategies of this plan.
2. Groundwater Quality -- The City of Ironton enjoys good groundwater quality. Currently the city meets or exceeds all Federal Drinking Water Standards. Exhibit # 8 is a copy of the 2010 City of Ironton Consumer Confidence Report. The City of Ironton will be working with the MDH and local resource partners to determine the source of the low levels of chloride detected in City Well # 1 and any options to address this.

II. ASSESSMENT OF DATA ELEMENTS

- A. Use of the Well** - The City of Ironton has 282 residential meters and 26 commercial meters. The water tower has a storage capacity of 100,000 gallons. The average usage from 2004-2008 was 18.56 million gallons per year. The City of Ironton does not anticipate any significant changes or increases in water use by the city at this time.
- B. Quality and Quantity of Water Supplying the Public Water Supply Well** – No significant changes in either water quality or quantity are expected based on the review of data elements, current or future water uses. Assessment of the data elements is generally limited to groundwater quality and quantity based on the semi confined nature of the aquifer and a moderate vulnerability determination of the DWSMA by the MDH. (Also see Part I, WHP Plan for the City of Ironton) However, as described under the data elements for Water Quantity and Quality, some of the questions raised about the geologic sensitivity and chloride detected in Well # 1 will be further evaluated by the City of Ironton and MDH through the implementation of several management strategies found in Chapter 5 of this part of the WHP Plan.
- C. The Land and Groundwater Uses in the DWSMA** – At this time, no significant changes in land or groundwater uses are anticipated in the City of Ironton's DWSMA that should affect the city wells, aquifer and drinking water supply. Irondale Township staff participated in the WHP

planning process and will support and assist the city protect the aquifer used by both city and township residents as their source of drinking water. It is important that the City of Ironton work with the township to address and consider any significant land use changes that may impact the aquifer and city wells since the entire DWSMA is under township jurisdiction.

The City of Ironton will focus on educating citizens in the city and Irondale Township about their source of drinking water and wellhead protection activities identified in this plan. The City and WHP Team will work with the Irondale Township Board, Crow Wing County Environmental Services, Crow Wing County Soil and Water Conservation District (SWCD), City of Crosby, and citizens to promote well management practices in the DWSMA that will further protect the aquifer and city water supply. The City and WHP Team will work with Federal, State and local agencies and programs available to assist them in protecting the public water supply wells. The MN Rural Water Association and MDH will continue to provide technical support and assistance for WHP activities identified in this plan.

Chapter 2

Impact of Changes on Public Water Supply Well(s) (4720.5220)

I. Identify and Describe Expected Changes In:

- A. Physical Environment - No significant changes are anticipated in the physical environment in the Ironton DWSMA which may impact the aquifer or city wells at this time. The area is expected to remain mostly residential, woodland and open space uses.
- B. Land Use – Future changes in land use in the Ironton DWSMA are thought to be limited to some residential growth and new residential wells. Development and growth in some areas of the DWSMA may be limited due to wetlands identified. Most of the land in the one year time of travel area up-gradient of the city wells is wetlands and not suitable for development. The City of Ironton will work with Irondale Township in regards to any proposed changes in land use that may impact the aquifer or city wells. The city will work with the township to maintain many of the open space uses such as the ball diamond and other public open space areas and natural features that help protect the aquifer used by the city and township residents using private wells.
One desired outcome related to land use is the sealing of the old municipal wells identified by City of Ironton staff. The future sealing of the former municipal wells will reduce the risk of these wells becoming a conduit for surface or near surface contaminants from reaching the aquifer and impacting the city water supply. No other land use changes or issues were identified in the DWSMA by the WHP Team at this time.
- C. Surface Water – As described previously, the aquifer has been determined to be largely confined and not directly influenced by surface water in the DWSMA. The city will work with the MDH to better understand any influences surface water may have on the aquifer and city wells. The source of chloride detected in City Well # 1 will be further investigated by the City of Ironton with the assistance of the MDH.
- D. Groundwater - No high capacity water users or other changes thought to impact the quality or quantity of the groundwater have been identified at this time.

II. Impact of Changes - List, Describe, and Assess Impacts on Aquifer From:

- A. Expected Changes Identified - No significant changes have been identified above (A – D) that should impact the city wells or aquifer used by the City of Ironton.
- B. Influence of Existing Water and Land Government Programs & Regulation - The MDH regulates the construction and location of wells and can assist the city with well code and construction issues in the DWSMA. The DNR issues appropriation permits and regulates high capacity water users. In the event a high capacity water user or irrigation well is being constructed in the DWSMA, the city will work with the DNR and MDH to determine what, if any impact the new high capacity water user may have on the city wells.

Irondale Township has land use controls in place that could be used to further regulate the

location or placement of structures or contaminants from the city wells. The City of Ironton will need to work with the township regarding issues or changes related to land use controls in the Ironton DWSMA. Crow Wing County Environmental Services and County Soil & Water Conservation District can provide assistance in identifying well sealing cost share funds or other resources available to further promote groundwater and drinking water protection efforts. County Water Management Plans is another program directed at protecting water resources that may be able to help promote or support WHP activities in the Ironton DWSMA.

The MDH currently offers Source Water Protection (SWP) Implementation grants to communities that have completed WHP Plans. During the development of the Ironton WHP Plan, MDH staff described this program as an opportunity to obtain funding to help cover some of the costs associated with activities identified in this plan. The Minnesota Rural Water Association also offers technical assistance for WHP implementation through their staff and implementation tools available on their website.

C. Administrative, Technical, and Financial Considerations - The City of Ironton assembled a Wellhead Protection team for the purpose of developing this plan. Many of the activities during the planning process have been accomplished through their efforts, with assistance from studies provided by other units of government. For this plan to be effective:

1. The City of Ironton will need to raise public awareness about the issues affecting the quality or quantity of their groundwater drinking water supply through educational programs.
2. Administrative duties will remain with the Wellhead Protection Manager who will report activities to the Ironton City Council. The Wellhead Protection Manager will coordinate and assist with wellhead protection implementation activities or action plans described in Chapter 5 and conduct meetings as necessary.
3. The City of Ironton will devote resources necessary to implement wellhead protection activities. This may be accomplished through the establishment of a line item in the city budget for WHP activities, designating funds within the water utility budget, in-kind time devoted to attending local wellhead protection meetings, etc. Other sources of funding or in-kind services available to help achieve goals of this plan include: 1) The Crow Wing County Soil & Water Conservation District and County Environmental Services through implementation of the County Water Plan in helping to identify well sealing cost share funds or helping to promote groundwater protection activities to area residents, 2) Irondale Township and Crow Wing County Environmental Services in helping to identify land use changes or issues which may affect groundwater resources utilized by the City of Ironton, 3) MDH who will assist with well construction and sealing issues, and 4) MRWA and MDH for on-going technical support for wellhead protection implementation.
4. The costs of implementing wellhead protection activities will be evaluated on an annual basis to determine whether the original cost estimates match the scope of the management practices identified in the plan. The WHP Manager and City Council will discuss plan implementation costs and explore opportunities with MDH, State and local resource partners as to ways to offset costs of plan implementation as needed. The MDH SWP Grants Program previously described is one opportunity the public water supplier has to apply directly for funds to implement some of the activities identified in this plan.

5. Due to the small size of the community water system and financial resources available, the City of Ironton recognizes the importance of working closely with other units of government. Therefore, the WHP Manager will annually contact or work with local units of government (Crow Wing County Environmental Services, County Soil & Water Conservation District, Irondale Township, neighboring Public Water Supplier such as City of Crosby, etc.) to discuss opportunities available to help implement activities and meet objectives outlined in this plan.

Chapter 3

Issues, Problems and Opportunities (4720.5230)

I. Identify Water Use and Land Use Issues, Problems, and Opportunities Related To:

A. The Aquifer Serving the Public Water Supply Well(s) – The aquifer used by the City of Ironton has been described as moderately vulnerable to land use contamination based on existing geology, well information and water quality data available. The Part I WHP Plan describes variation in the thickness of the clay till reported on well logs in the area ranging from no clay till identified on the well log for City Well # 1, to more than twenty feet of clay rich material described on the well log for City Well # 2. Based on some of the questions raised and uncertainties described, more information would be useful to better understand the influence of surface water on groundwater and the aquifer used by the City of Ironton. Several management strategies have been recommended by the MDH Hydro Geologist and included in this plan to help gain a better understanding of the aquifer used by the City of Ironton. City staff will work with MDH to implement these activities.

The aquifer used by the City of Ironton is protected from immediate land use threats due to wetland and park area surrounding the city wells and residential and open space uses in found in much of the DWSMA. The City of Ironton will maintain the open space low impact land uses found near the city wells and will work with Irondale Township to maintain low impact land uses presently found in the DWSMA that help protect the aquifer and local water supply.

B. The Well Water – The potential contaminant source inventory performed by the Wellhead Protection Team revealed that the main potential contaminant issue identified at this time is the management of wells in the DWSMA. This includes the proper management and sealing of former municipal wells identified near the existing public water supply wells so they do not become a conduit for contaminants. The city will also work to educate private well owners in the DWSMA about proper well management and sealing. No large above or below ground tanks or other significant contaminant threats were identified.

Part I of the WHP Plan describes that chloride was detected above background levels in City Well # 1. The City will work with the MDH to try and identify the source of the chloride and steps that can be taken to address or eliminate the source of the contaminant.

The City of Ironton WHP plan also acknowledges that the placement of additional high-capacity wells, increased pumping from existing wells, or significant changes in current groundwater appropriations within the DWSMA may have an impact on 1) groundwater availability to all users, and/or 2) increased risk that contamination may enter the part of the aquifer used by the public water supply well(s), or 3) change the delineated WHP area and the DWSMA boundaries. The City of Ironton, DNR and MDH will work collaboratively to address any of these issues should they occur which may impact the public water supply wells or existing delineation efforts.

C. The Drinking Water Supply Management Area – The City of Ironton wishes to work closely with Irondale Township since they have local land use control authority over the Ironton DWSMA. The township can assist with WHP implementation by alerting the city to any significant land use changes being proposed that may impact the city wells or aquifer used. The township and city can work together to educate property owners to heighten awareness that activities that protect the city wells and aquifer also benefit private well owners in the DWSMA and Irondale Township.

Practices such as well sealing, proper management of existing wells and other practices that protect groundwater and educate the public about the local drinking water supply are examples of activities that can be completed. Crow Wing County through the county water plan may also have resources or programs to help carry out WHP related activities in the DWSMA.

II. By Assessing:

- A. Problems and Opportunities Disclosed at Public Meetings and in Written Comment-**
Each unit of government was sent a copy of the system's delineated WHPA and DWSMA and vulnerability assessment for the well(s) and DWSMA. To date, no comments from other local units of government have been received. Crow Wing County Environmental Services and the GIS Department provided support in the development of the plan. A representative from Irondale Township participated in WHP meetings and assisted with the development of this plan. The general public was also given opportunities to participate in the planning process and to comment at the Public Informational Meeting. No concerns from the general public have been expressed at this time in the development or implementation of this plan.
- B. Data Elements -** The first part of this WHP Plan describes regional and local geologic conditions used to assess and determine aquifer and well vulnerability to surface or near surface contamination. The MDH Hydro Geologist has made several data collection implementation activities that have been included in Chapter 5 of this plan to help answer some of the questions raised about the aquifer and water chemistry analysis associated with the City of Ironton WHP delineation.
- C. Status and Adequacy of Official Controls, Plans, and Other Local, State, and Federal Programs on Water Use and Land Use –** The City of Ironton could request Irondale Township to use local land use controls to further regulate land uses and related contaminant sources within the DWSMA to protect the wells and water supply. However, at this time the city wishes to use existing programs and processes already in place to protect the public water supply.

The City of Ironton WHP Team is confident that local issues may be adequately addressed through existing processes. These include: public education, adoption of best management practices for managing wells, tank management, monitoring, water conservation and good communication with landowners in the DWSMA.

Crow Wing County Environmental Services through the local water plan and the County SWCD have been identified as important partners and a resource for landowner assistance. The MDH SWP Grant and other grant opportunities will be explored to assist the city in the implementation of this plan. Through the WHP Plan development process, the WHP Team believes most of the issues identified in this plan can be addressed through existing programs and local planning processes.

Chapter 4

Wellhead Protection Goals (4720.5240)

The City of Ironton has enjoyed a sufficient and safe water supply in the past and proposes, through the implementation of this WHP Plan, to continue supplying safe, potable water for its customers into the future. The city water supply is classified a moderately vulnerable by the Minnesota Department of Health based upon the geology and characteristics of the aquifer. Objectives found in this plan focus on education and activities relative to the potential contaminant sources identified in order to prevent well contamination.

The goal of this plan is to protect the good quality of water produced from the City of Ironton wells and prevent contamination of the aquifer.

This goal will be achieved through efforts of the WHP Manager, WHP Team and City Council by:

- Regular monitoring for potential contaminant sources by Ironton Utility staff within the Inner Well Management Zone (IWMZ = 200' radius of city wells)
- Work with Irondale Township to monitor for and address any significant changes in land use in the DWSMA that may impact the aquifer and city wells.
- Providing educational material to local residents about the importance of WHP and opportunities available to protect the local drinking water supply.
- Promote proper well management (Seal former municipal wells and promote proper well management to landowners with private wells.)
- Participate in WHP Meetings with local resource staff (Crow Wing County ESD, MDH, and MRWA) to discuss plan implementation activities and efforts identified.
- Work with MDH to complete additional monitoring and data collection to gain a better understanding of local geologic conditions and practices needed to address the chloride detected in the city well.

The City of Ironton is reliant on local land use and resource planning and a variety of Federal, State programs that can assist them in protecting their drinking water supply. With their assistance, the wellhead protection plan will achieve these goals through:

- Public education & awareness
- Voluntary adoption of land use practices that protect the city wells and aquifer
- Existing programs, processes and controls
- Emergency & Contingency Planning
- Work with MDH on data collection & monitoring activities

CHAPTER FIVE

OBJECTIVES AND PLANS OF ACTION (4720.5250)

ESTABLISHING PRIORITIES -- The aquifer providing water to the public water supply system has been identified as having a moderate vulnerability to contamination from land use activities. A number of factors must be considered when WHP measures are selected and prioritized (part 4720.5250, subpart 3). Such factors include:

- Contamination of the public water supply wells by substances that exceed federal drinking water standards
- Quantifiable levels of contamination resulting from human activity
- The location of potential contaminant sources relative to the wells.
- The number of each potential contaminant source identified and the nature of the potential contaminant associated with each source
- The capability of the geologic material to absorb a contaminant
- The effectiveness of existing controls
- The time required to get cooperation from other agencies and cooperators
- The resources needed: staff, money, time, legal, technical

Based upon these factors, the staff will concentrate management efforts on the following categories and subsequent strategies to create awareness about groundwater protection and help prevent future contamination of the aquifer:

A. WHP Education

B. Well Management

1. **Municipal Well Management**
2. **Private Well Management**
3. **High Capacity Wells**
4. **Class V Wells**

C. Tanks

D. Data Collection, Monitoring & Storm water

E. Spill Prevention & Response

F. Wellhead Protection Planning, Coordination & Reporting

A. WHP EDUCATION

| <u>Action #</u> | <u>Description</u> | <u>Priority</u> | <u>Responsible Party® & Cooperators ©</u> | <u>Cost</u> | <u>Implementation Time Frame</u> | | | | | | | | |
|-----------------|---|-----------------|--|--------------------------------------|----------------------------------|------|------|------|------|------|------|------|------|
| | | | | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
| 1 | Distribute the MN Rural Water Association's (MRWA) "Where Does My Drinking Water Come From?" to landowners in the DWSMA and city residents. Post the brochure at city hall. | High | WHP Mgr.® City Staff, MDH or MRWA Planner, Twp.© | Printing Costs, Postage | | X | | | | | | | |
| 2 | Prepare a news release about the importance of well management and well sealing and publish it in the Crosby Ironton Courier. | High | WHP Mgr.® City Staff, MDH, MRWA or Crow Wing Co. ESD © | Staff Time | | | X | | | X | | | X |
| 3 | Prepare a news release about the Ironton WHP Plan and publish it in the Crosby Ironton Courier. Describe what WHP is and the goals and some of the activities in the WHP Plan. | High | WHP Mgr.® City Staff ® MDH, MRWA | \$100 plus Staff Time | X | | | | | | | | |
| 4 | Provide MRWA Water Week Educational Material to local 4 th Grade School Teach and obtain their participation. | High | WHP Mgr. ® City Staff ® | Staff time | Annual Activity | | | | | | | | |
| 5 | Explore the possibility of the City of Crosby hosting a joint "City of Crosby – Ironton WHP and Drinking Water Education" web page to post electronic WHP related information for area residents. Apply for a MDH SWP Grant to help fund this activity. | High | WHP Mgr. & City Staff, ® City of Crosby © | \$1,200 Web Design, Staff Time | | | X | X | | | | | |
| 6 | Annually contact the Crow Wing County Water Planner and / or SWCD about opportunities to promote and educate the public about local groundwater and drinking water protection activities. | High | WHP Mgr.® City Staff, Crow Wing Co. Water Planner© | Staff Time | Annual Activity | | | | | | | | |
| 7 | Put the MDH public service announcement about WHP and drinking water protection on the local radio. Obtain the audio clip from the MDH Planner. | High | WHP Mgr. ® City Staff, MDH Planner © | | | X | | | X | | X | | |

B. WELL MANAGEMENT

| Implementation Action Items | | | | | | | | | | | |
|---|---|-----------------|---|---|---------------------------|------|------|------|------|------|------|
| <u>Action #</u> | <u>Description</u> | <u>Priority</u> | Responsible Party ® & Cooperators © | <u>Cost</u> | Implementation Time Frame | | | | | | |
| | | | | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| <u>Municipal Well Management : Inner Zone Management Activities (200' radius of public water supply wells)</u> | | | | | | | | | | | |
| 1 | City staff will monitor for new potential contaminant sources and setback requirements within the IMMZ (200') of the PWS wells. If new contaminant sources are identified, staff will take steps needed to protect the public water supply wells. | Very High | WHP Mgr. ® | Staff Time | X | X | X | X | X | X | X |
| 2 | City Utility staff will assist MDH in updating the IWMZ survey form every 3-5 years for all public supply wells. | High | WHP Mgr. ® | Staff Time | | | X | | | X | X |
| 3 | Maintain existing land use around the city wells as park and open space to provide long term protection of the city wells & water supply. City staff will educate the city council and Irondale Twp. Board about the importance of this effort. | Very High | WHP Mgr. ® City Staff © City Council & Irondale Twp.© | Staff Time | X | X | X | X | X | X | X |
| <u>Municipal Well Management: Seal Former Municipal Wells</u> | | | | | | | | | | | |
| 1 | Seal the 9 former municipal wells that have been identified in the IWMZ area of the city wells. <u>Step1:</u> Establish a time frame and budget to properly seal the former wells. Obtain a cost estimate from a local driller. | Very High | WHP Mgr. ® City Staff, MDH, Well Driller © | Staff Time, sealing costs unknown | X | | | | | | |
| 2 | Seal the 10 former municipal wells that have been identified in the IWMZ area of the city wells. <u>Step 2:</u> Apply for MDH SWP Grant or other grant funds to have the wells properly sealed. | Very High | WHP Mgr. ® City Staff, MDH, Well Driller © | Staff Time, sealing costs unknown | | X | | | | | |

WELL MANAGEMENT, continued

| Implementation Action Items | | | | | | | | | | | | | | |
|--|---|-----------------|---|-------------|---|------|------|------|------|------|------|------|------|-------------|
| <u>Action #</u> | <u>Description</u> | <u>Priority</u> | <u>Responsible Party ® & Cooperators ©</u> | <u>Cost</u> | <u>Implementation Time Frame</u> | | | | | | | | | |
| | | | | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Update Plan |
| <u>Private Well Management:</u> | | | | | | | | | | | | | | |
| 1 | Provide information on the proper management and sealing of wells to landowners in the DWSMA and why this is important. Keep MDH private well management information on file at city hall or on the city website for future use and promotion. | High | WHP Mgr. ® City Staff, MDH, MRWA © | Staff Time | | X | | | | X | | | | |
| 2 | Provide Irondale Twp. Planning & Zoning staff information about managing and sealing wells and why this is important to promote to landowners in the DWSMA and township. | Medium | WHP Mgr. ® City Staff, Irondale Twp., MRWA or MDH © | Staff Time | | X | | | | | | | | |
| 3 | Contact the Crow Wing County Water Planner or SWCD staff about the availability of well sealing cost share funds and provide this information to landowners in the DWSMA. | Very High | WHP Mgr. ® City Staff, County Water Planner, © | Staff Time | | X | | | | X | | | | |
| <u>High Capacity Wells:</u> | | | | | | | | | | | | | | |
| 1 | <p>Step 1: Identify any new high capacity well that is proposed for construction in or within one mile of the DWSMA.</p> <p>Step 2: If a high capacity well is identified: contact MDH Hydrologist to evaluate the effect that proposed pumping may have on the boundaries of the delineated WHP area, and work with MDH Hydrologist, DNR and high capacity well owner to minimize potential impacts that pumping may have on water quantity or quality of the public water supply.</p> | Very High | WHP Mgr. ® City Staff, MDH, DNR © | Staff Time | <p>This measure describes the importance of identifying a “<u>High Capacity Well</u>” in or within 1 mile of the DWSMA, and steps to take if one is identified.</p> | | | | | | | | | |

WELL MANAGEMENT, continued

| Implementation Action Items | | | | | | | | | | | | |
|-----------------------------|---|-----------------|-------------------------------------|-------------|---|------|------|------|------|------|-------------|--|
| <u>Action #</u> | <u>Description</u> | <u>Priority</u> | Responsible Party ® & Cooperators © | <u>Cost</u> | Implementation Time Frame | | | | | | Update Plan | |
| | | | | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | |
| Class V Wells: | | | | | | | | | | | | |
| 1 | Step 1: Identify any potential Class V wells in the DWSMA. Step 2: If a Class V Well is identified, work with MDH Planner to provide the property owner with management or permitting options. | High | WHP Mgr. ® City Staff, MDH © | Staff Time | This measure describes the importance of identifying a “Class V Well” and steps to take if one is identified. | | | | | | | |

C. TANKS

| Implementation Action Items | | | | | | | | | | | | |
|-----------------------------|--|-----------------|--|-------------|---|------|------|------|------|------|-------------|--|
| <u>Action #</u> | <u>Description</u> | <u>Priority</u> | Responsible Party ® & Cooperators © | <u>Cost</u> | Implementation Time Frame | | | | | | Update Plan | |
| | | | | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | |
| 1 | Step 1: Identify existing old tanks in the DWSMA. Step 2: If any existing tanks (Ex. old buried fuel oil tank) are discovered, work with MDH Planner or Hydrologist to evaluate potential impact the existing tank may have and best management practices that could be recommended to the landowner. | High | WHP Mgr. ® City Staff, MDH © | Staff Time | This measure describes the importance of identifying an “existing tank” and steps to take if one is identified. | | | | | | | |
| 3 | Provide tank management BMP's, containment and spill response information to a new owner of an above or below ground tank in the DWSMA. | Med. | WHP Mgr. ® City Staff, MRWA, MDH | Staff Time | As needed | | | | | | | |

D. DATA COLLECTION, MONITORING & STORMWATER

| <u>Action #</u> | <u>Description</u> | <u>Priority</u> | <u>Responsible Party ® & Cooperators ©</u> | <u>Cost</u> | <u>Implementation Time Frame</u> | | | | | | | <u>Update Plan</u> |
|---------------------|--|-----------------|--|---------------------------|----------------------------------|------|------|------|------|------|------|--------------------|
| | | | | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | |
| 1 | Contact MDH Hydrologist to set up a sampling work plan to sample city wells quarterly for one year for bromide, chloride, nitrate, ammonia and sulfate. (Sampling costs paid by MDH) | Very High | WHP Mgr. ® City Staff © MDH © | Staff Time | | | X | | | | | |
| 2 | Gamma log the city wells or complete a test boring to substantiate geologic material and absence or presence of confining units. Gamma logging work may be done at the time the pumps are pulled for routine maintenance. Contact MDH Hydrologist for assistance to develop protocol for completing this activity. Consider supplementing work with a MDH SWP Grant. | Very High | WHP Mgr.® City Staff © City Engineer © MGS © MDH © | Staff Time, Costs Unknown | | | | X | | | | |
| 3 | Contact MDH Hydrologist to evaluate options to conduct a longer term pumping test at the city's well field to better characterize aquifer parameters such as transmissivity (ability of water to move through the aquifer). NOTE: This should be done / coordinated with MDH Hydro particularly if a new well is being constructed! | Very High | WHP Mgr. ® City Staff © City Engineer © MDH © | Staff Time | | | | | X | | | |
| Storm water: | | | | | | | | | | | | |
| 1 | Contact MDH Hydrologist to develop a work plan and water quality sampling plan as needed to assess the potential impact of the storm water outfalls and wetlands up gradient of the city wells. This effort is in response to the chloride detected in City Well # 1. (Sampling costs paid by MDH) (A SWP Grant may assist the city in covering some costs associated with the implementation of this measure or # 2 below.) | Very High | WHP Mgr. ® City Staff, MDH © | Staff Time | | | | X | | | | |

DATA COLLECTION, MONITORING & STORMWATER, storm water action continued

| Implementation Action Items | | | | | | | | | | |
|-----------------------------|--|-----------------|--|-------------|----------------------------------|------|------|------------|--------|------|
| <u>Action #</u> | <u>Description</u> | <u>Priority</u> | <u>Responsible Party ® & Cooperators ©</u> | <u>Cost</u> | <u>Implementation Time Frame</u> | | | | | |
| | | | | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| 2 | <p>Depending on results of measure 1 above, work with the MDH Hydrologist and Planner to identify activities that would protect groundwater and reduce chloride levels in the city wells. Activities include:</p> <ul style="list-style-type: none"> a. Contacting the county and / or MNDOT about road work and impact chloride and spills can potentially have on the aquifer and city wells, b. Alert local emergency responders about containment of spills in this area so they do not drain to the wetland, and c. Evaluate & implement options to divert storm water run-off to the wetland or activities that can be done to reduce contaminant impacts on the wetland and groundwater water quality. | Very High | WHP Mgr. ® City Staff, City Engineer, MDH © | Staff Time | | | | X a & b | X c | |

E. SPILL PREVENTION & RESPONSE:

| Implementation Action Items | | | | | | | | | | |
|-----------------------------|--|-----------------|--|-------------|----------------------------------|------|------|------|------|------|
| <u>Action #</u> | <u>Description</u> | <u>Priority</u> | <u>Responsible Party ® & Cooperators ©</u> | <u>Cost</u> | <u>Implementation Time Frame</u> | | | | | |
| | | | | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| 1 | Provide a map of the DWSMA to the local fire dept. and first responders to alert them to the importance of responding to and cleaning up a spill in the DWSMA. | High | City Staff ® Fire Dept., First Responders | Staff Time | | X | | | X | |

F. WELLHEAD PROTECTION RECOGNITION PLANNING, COORDINATION and REPORTING

| Action # | Description | Priority | Responsible Party ® & Cooperators © | Cost | Implementation Time Frame | | | | | | |
|-----------------|---|-----------------|--|-------------|----------------------------------|------|------|------|------|------|------|
| | | | | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| 1 | Request Irondale Township to incorporate a map of the Ironton DWSMA with their comprehensive plan and zoning ordinance. | High | WHP Mgr. ® Irondale Twp © | Staff Time | | X | | | | | |
| 2 | Request Irondale Township notifies the City of Ironton regarding any proposed changes in land use, conditional use permits or changes to the zoning districts that may impact groundwater quality or quantity in the DWSMA. | Very High | WHP Mgr. ® City Staff, Irondale Twp.© | Staff Time | X | | | | | | |
| 3 | Request the County Water Planner to incorporate the DWSMA Map, WHP issues and activities when the County Water Management Plan is being updated. | High | City Staff ® Crow Wing Co. ESD, SWCD © | Staff Time | | X | | | | | |
| 4 | City Clerk will develop a spreadsheet to track WHP activities due each year and the date they are complete. | Very High | City Clerk & WHP Mgr. ® | Staff Time | | | | X | | | |
| 5 | Hold an annual WHP Meeting to discuss past year's accomplishments and coordinate upcoming years activities. | Very High | WHP Mgr. ® Water Planner, MDH, Twp.© | Staff Time | X | X | X | X | X | X | X |
| 6 | Maintain and keep up to date a WHP file that documents all WHP related activities that have been completed. | Very High | WHP Mgr. & City Clerk ® | Staff Time | | | | | | | |
| 7 | Complete a WHP Evaluation Report every 2.5 years that evaluates the progress of implementing the WHP Measures identified in this plan and the impact of (any) contaminant release on the aquifer supplying the public water supply wells. Submit report to MDH. | High | WHP Mgr. & City Clerk® | Staff Time | | | X | | X | | X |

CHAPTER SIX

EVALUATION PROGRAM (4720.5270)

Plan evaluation provides a means to determine whether WHP action items are achieving the intended result or whether they need to be modified to address changing administrative, technical, or financial resource conditions within the DWSMA. Evaluation is used to support plan implementation and is required under MR 4720.5270 prior to amending the city's WHP plan. The Public Water Supplier has identified the following procedures that it will use to evaluate the success with implementing its WHP plan –

1. Prepare an annual report or briefing for the City Council on the progress of wellhead protection implementation actions and actions the City would like to implement in the upcoming year;
2. The WHP Team will meet annually to discuss implementation efforts and coordinate activities. New WHP issues, opportunities or changes needed in existing strategies identified in this plan will be discussed.
3. The City of Ironton will prepare a written self-assessment report every 2.5 years that documents what plan implementation activities have been completed. The reports will be submitted to MDH when completed. The reports will also be kept in the city WHP file and made available at the first scoping meeting at the time the city will begin amending this wellhead protection plan.

CHAPTER SEVEN

WATER SUPPLY CONTINGENCY PLAN (4720.5280)

WATER SUPPLY CONTINGENCY PLAN

City of Ironton

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Annual Plan Review

| <i>Date Reviewed</i> | <i>Reviewer</i> | <i>Comments</i> |
|----------------------|-----------------|-----------------|
| | | |
| | | |

Plan Distribution

| <i>Person</i> | <i>Organization</i> | <i>Plan Location</i> |
|---------------|---------------------|----------------------|
| x | x | x |

Prepared By: Ironton Public Works

Date Approved: With WHP Plan Adoption

A. PURPOSE

The purpose of this Contingency Plan is to establish, provide and keep updated, certain emergency response procedures and information for the City of Ironton that may become vital in the event of a partial or total loss of public water supply services.

B. PUBLIC WATER SUPPLY CHARACTERISTICS

1. Current Supply Source - The City obtains their water supply from Well 1 (150831) and Well 2 (150840). Well 3 (241993) serves as an emergency backup well. The wells are completed in a glacial sand and gravel aquifer. Additional information concerning the PWS is described below.

| Description | Well 1 (Primary) | Well 2 (Primary) | Well 3 (Emergency) |
|---------------------|-------------------------|-------------------------|-------------------------|
| Unique Well # | 150831 | 150840 | 241993 |
| Supply Source | Sand and Gravel Aquifer | Sand and Gravel Aquifer | Sand and Gravel Aquifer |
| Well Depth (ft.) | 50 | 65 | 40 |
| Well Diameter (in.) | 12 | 12 | 8 |
| Well Capacity (gpm) | 250 | 250 | 125 |

2. Treatment - The City of Ironton treats its water with Chlorine, Fluoride and Polyphosphate.
3. Storage and Distribution - The City has one elevated tower with a capacity of 100,000. Pumphouse (wet well) is also 20,000 gallons. The majority of the water distribution system is looped, with only a few dead ends in alleyways. The water system contains all other necessary valving and piping with all connections metered.
4. Maps/Plans - Maps of the water distribution system and valving are on file at the City Hall and also on file at:

Short Elliott Hendrickson Inc. (SEH®) - Brainerd Office

416 S. 6th Street, Suite 200

Brainerd, MN 56401

Phone: 218-855-1700

Fax: 218-855-1701

Contact: Jeff Ledin (Exhibit 7).

C. PRIORITY OF WATER USERS DURING WATER SUPPLY EMERGENCY

Table C-1 - Water Use Priority Grouping

| Priority Group and Rank | Maximum Daily Use (gpd) | Minimum Daily Use (gpd) |
|-------------------------|-------------------------|-------------------------|
| Residential--#1 | 149,150 | 32,300 |
| Institutional--#2 | n/a | n/a |
| Commercial--#3 | 7,850 | 1,700 |

Triggers for implementing water supply reduction/allocation procedures:

- Water exceeds State Safe Drinking Water Standards
- Water demand increase or treatment / storage capacity reduction
- Main system break or production loss

In the event of a major system disruption, failure or an emergency, conservation procedures would be enacted by the Public Utilities Foreman.

D. ALTERNATIVE WATER SUPPLY OPTIONS

1. Surface water sources and treatment needs: Mine pits in the area are a possible source of surface water as well as Serpent Lake. Volume is dependent upon available pump and treatment capacity. The Minnesota National Guard may be able to provide emergency treatment of surface water for human consumption. In the event of a significant water disruption emergency such as a catastrophic event, the following procedure is recommended:
 - Contact the County Sheriff (218) 262-0111 or 911 to request assistance from the Minnesota National Guard.
 - Sheriff will contact the Minnesota National Guard, Division of Emergency Management, State Duty Officer (800) 422-0798; and Community Support Group at (651) 282-4013 to request assistance for the City of Ironton.
 - The Minnesota National Guard can provide a portable Reverse Osmosis Water Purification System (ROWPU) capable of supplying 900 gph or 15 gpm.

2. Bottled water supplies, delivery and distribution. Large quantities of bottled water or distributors in the Ironton area include:

SuperValue- Crosby MN 218-546-6020

Wal-Mart Baxter, MN 218-829-2220

3. System interconnects with other water supplies. Two interconnects with the City of Crosby. A 6 inch and a 4 inch connection are available.
4. New well. No new wells are planned at this time.
5. Emergency or backup wells. The City of Ironton is supplied by two Primary wells (Well 1) and (Well 2). Well 3 serves only for emergency backup. The integration and interconnections within the water supply distribution system allows for the isolation of wells and components of the system while still being able to provide the City with an adequate water supply.
6. Emergency treatment of water system. The city is able to shock chlorinate its system. The city would also be able to bring treated water in through its interconnects with the City of Crosby.
7. Source Management (blending). The City does alternate pump their wells and this would result in blending by default.

E. INVENTORY OF AVAILABLE EMERGENCY EQUIPMENT AND MATERIALS

Table E-1 contains a list of services, equipment and supplies that are available to the City of Ironton to respond to a disruption in the water system. It is believed that the items contained in Table E-1 would be adequate to respond to most (if not all) water system emergencies.

Table E-1 Emergency Equipment & Materials Contacts

| Description | Owner | Telephone | Location | Acquisition Time |
|----------------------------|-----------------------|--------------|-------------|------------------|
| Well Repair | Thelin Well | 800-328-6188 | Maple Plain | 4 hrs |
| Pump Repair | Quality Flow | 612-802-1472 | Minneapolis | 4 hrs |
| Electrician | Holden Electric | 218-829-4759 | Baxter | 1 hr |
| Plumber | City | 218-545-5611 | Ironton | 0 hr |
| Backhoe / Excavator | Antenson or LeBlanc | 218-290-1024 | Ironton | 1 hr |
| Chemical Feed | Hawkins | 612-331-6910 | Minneapolis | 3 hr |
| Meter Repair | MidAmerica Meter | 800-324-0365 | Minneapolis | 4 hrs |
| Generator | City has no generator | | | |
| Valves | City of Ironton | 218-545-5611 | Ironton | 0 hrs |
| Pipe & Fittings | City of Ironton | 218-545-5611 | Ironton | 0 hrs |

F. EMERGENCY IDENTIFICATION PROCEDURES

Table F-1 Procedural Operations

| Incident | Response Procedure and Comments |
|--|--|
| Identify Disruption | Person identifying disruption contacts Working Foreman |
| Notify Response Coordinator | Working Foreman is the Response Coordinator or Alternate |
| Identify Incident Direction and Control | Working Foreman / Response Coordinator or Alternate assesses situation and determine incident direction and control, begin solving problem |
| Identify Internal Communication | Working Foreman contacts City Hall and / or City Clerk to inform of situation |
| Inform Public | Public relations personnel contacts appropriate organizations to inform public of problem |
| Assess Incident on Continual Basis | Working Foreman or Alternate continues to monitor/solve problem |
| Assess Contamination Disruption | Working Foreman or Alternate and MDH determine if water supply is contaminated. Monitor/solve problem as needed |
| Assess Mechanical Disruption | Working Foreman or Alternate assesses mechanical disruption. Monitor and solve disruption as needed. |
| Provide Alternate Water Supply | If needed, alternate water supply is located and provided |
| Impose Water Use Restrictions | If needed, Working Foreman, City Clerk and/or Mayor may impose water use restrictions. |

G. NOTIFICATION PROCEDURES

1. Agency Notification

Table G-1 contains the names and telephone numbers for contacts at various local and state agencies that may be notified in the event of a public water supply system emergency. Based on the nature of the emergency and the information available, various representatives from this listing will be selected by the response coordinator to be part of the *emergency oversight committee*, which will then meet throughout the duration of the emergency to aid in decision-making and positive outcomes.

Table G-1. Agency Emergency Contact Listing

| Personnel | Name | Home Telephone | Work Telephone |
|------------------------------------|-------------------------------------|-------------------|----------------|
| Public Works Foreman | Randy Tscheu | | 545-5611 |
| Mayor/Board Chair | Dean French | 545-1922 | 545-1922 |
| Council Members | Steve Herzenach | 218-838-2045 | 218-838-2045 |
| Council Members | Bill Thoms | 545-1836 | 545-1836 |
| Council Members | Rob Kugel | 218-838-2574 | 218-838-2574 |
| Council Members | Eric Heglund | 546-6221 | 546-6221 |
| Response Coordinator | Randy Tscheu | 218-851-9311 | 545-5611 |
| Alt. Response Coordinator | Greg Stanich | 218-851-4253 | 545-5611 |
| State Incident Duty Officer | n/a | n/a | 800-422-0798 |
| Fire Chief | Brian Blom | 534-4848 | |
| Sheriff | Sheriff Dahl | | 218-829-4749 |
| Police Chief | Kim Coughlin | | 546-5686 |
| Public Utilities Foreman | Randy Tscheu | | 545-5611 |
| Water Operator | Randy Tscheu | | 545-5611 |
| School Superintendent | X | | |
| Ambulance | CLRMC | | 546-7000 |
| Hospital | Cuyuna Lake Regional Medical Center | | 546-7000 |
| Doctor or Medical Facility | Cuyuna Lake Regional Medical Center | | 546-7000 |
| Power Company | MN Power | | 800-228-4966 |
| County Highway Department | Crow Wing County | | 218-824-1110 |
| MNDOT | | | 651-296-3000 |
| Telephone Company | Charter Communications | | 888-438-2427 |
| Neighboring Water System | City of Crosby | | 546-5021 |
| MRWA Technical Advisor | Dave Nieman | Cell 218 820-0595 | (800) 367-6792 |
| MRWA Technical Services | Mike Roers | | (800) 367-6792 |
| MDH District Engineer | Dave Schultz | | 320-223-7328 |
| MDH Source Water Protection | Mark Wettlaufer | (218) 746-4304 | 320-223-7342 |

2. Critical Response Personnel

Table G-2 Critical Response Personnel

| Title | Name | Response Assignment |
|--|--|--|
| Response Coordinator | Brian Blom | Coordinate actions to address emergency |
| Alternate Response Coordinator | Dean French | Coordinate actions to address emergency |
| Water Operator | Randy Tscheu | Direct or contact firms to resolve issue |
| Alternate Water Operator | Greg Stanich | Direct or contact firms to resolve issue |
| Public Relations | Dean French | Contact media to inform citizens/businesses of emergency |
| Alternate Public Relations | Amy Baratto | Contact media to inform citizens/businesses of emergency |
| Public Health/Medical | City Fire Dept., City Ambulance Service, County police Dept., Crosby Regional Medical Center | Assist City as needed to address emergency |
| Alternate Public Health/Medical | Same as above. | Assist City as needed to address emergency |

3. Public Information Plan

a) Public relations center and primary spokesperson:

Name: Dean French
Title: City Mayor
Address: P.O. Box 97, Ironton City Hall
Phone: **218-330-4324**

Public information center location during an emergency is: Ironton City Hall

Times the center is available are: Regular business hours and open as needed in the event of an emergency.

Alternate Information Center Location Site: Crosby City Hall, 2 2nd Street, Crosby, MN 56441

b) Information checklist to be conveyed to the public and media:

- Name of water system:
- Contaminant of concern and date:
- Source of contamination:
- Public health hazard:
- Steps the public can take:
- Steps the water system is taking:
- Other information:

c) Media contacts

| Media | Name | Telephone | Location |
|------------|---------------------------------|--------------|---------------------|
| Newspaper | Crosby-Ironton Courier | 218-546-5029 | Crosby, MN |
| Television | KAWB-Lakeland Public Television | 218-855-0022 | Brainerd/Bemidji MN |

H. MITIGATION AND CONSERVATION PLAN

1. Mitigation

a. Infrastructure maintenance/upgrades/maps:

The City water system is flushed twice per year. Infrastructure maps are available at City Hall.

b. Regular inspection of tower, well(s), pump house:

All of these items are inspected daily. The well house and chemical rooms have keyed entries and are locked. The water tower is inspected every 4-6 years.

c. Staff training:

Staff receive training through Minnesota Rural Water Association.

d. System security analysis:

All facilities are locked and have keyed entries.

e. Site new backup well(s):

The City of Ironton has 1 emergency well and no new backup wells are being planned.

f. System valving to isolate problems:

The water system is adequately valved to isolate problems.

g. Sanitation procedures for construction/repairs:

All disinfecting procedures are performed per State specifications.

2. Conservation

a. Water meters:

Meters are installed on 282 residential and 26 commercial properties with all connections metered.

b. Public education:

The City publishes the Consumer Confidence Report in the Crosby-Ironton Courier and a copy is available at City Hall.

c. Rate structure:

Base Rate: \$7.10 for the first 1000 gallons.

Over 1000 gallons \$5.10 for every 1000 gallons after

APPENDIX A

REFERENCED DATA FOR

PART 2 Wellhead Protection Plan

Listing of Exhibits

- **Exhibit 1** City of Ironton Zoning Map
- **Exhibit 1.1** Irondale Township Zoning Map
- **Exhibit 1.1a** Irondale Township Zoning Map Legend
- **Exhibit 2** Land Cover Map
- **Exhibit 2.1** Land Cover Table
- **Exhibit 3.0** Potential Contaminant Source Inventory (PCSI) Map DWSMA
- **Exhibit 3.2** Potential Contaminant Source Inventory (PCSI Table)
- **Exhibit 4** City of Ironton GPS Located Former Municipal Wells Map & Spreadsheet
- **Exhibit 5** City of Ironton Water Main Map
- **Exhibit 6** Wellhead Protection Team
- **Exhibit 7** City of Ironton Consumer Confidence Report
- **Exhibit 8** Storm Water Outfalls
- **Exhibit 9** MDH Scoping II Notice

Exhibit 1: Zoning Map City of Ironton

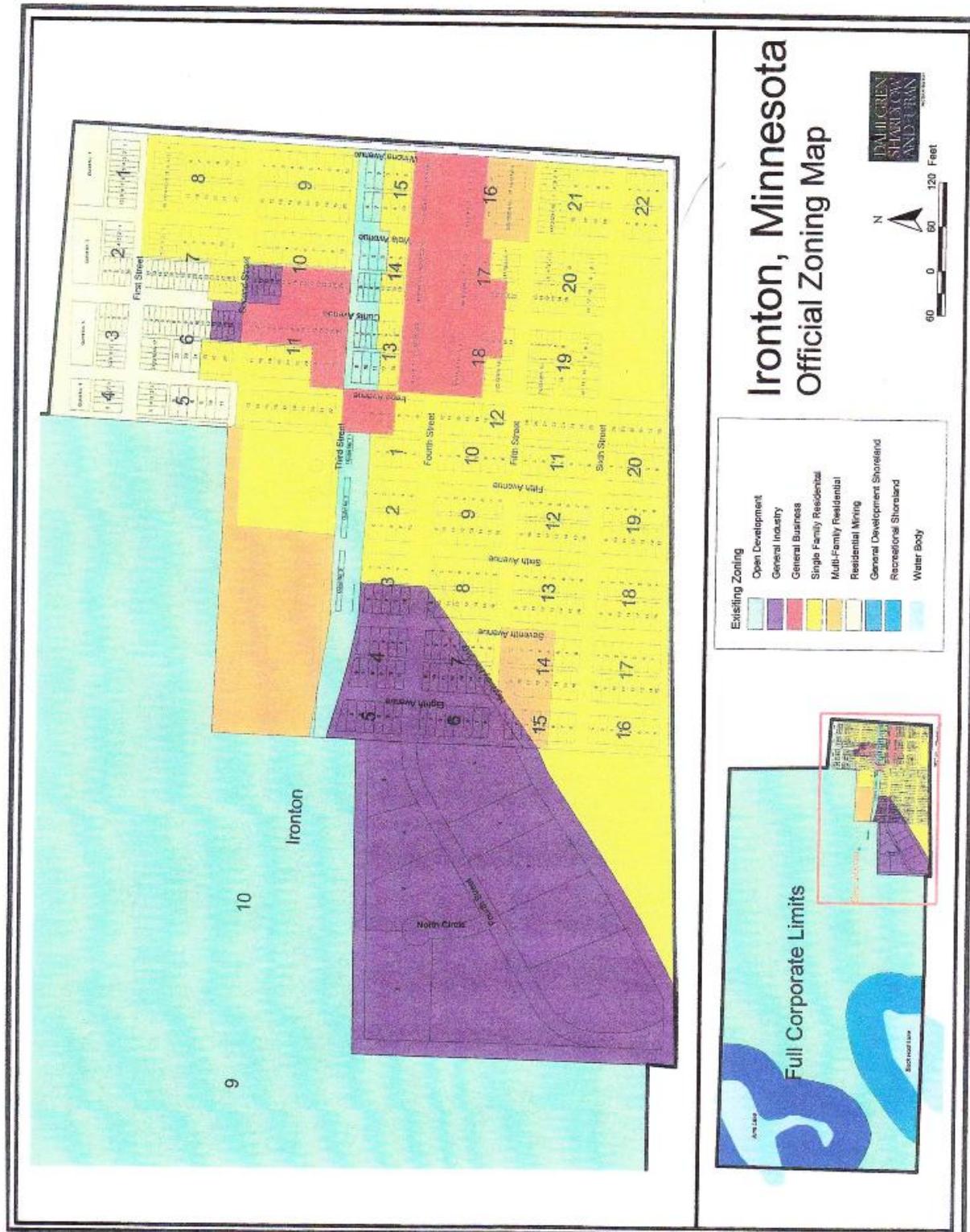


Exhibit 1.1: Zoning Map Irondale Township

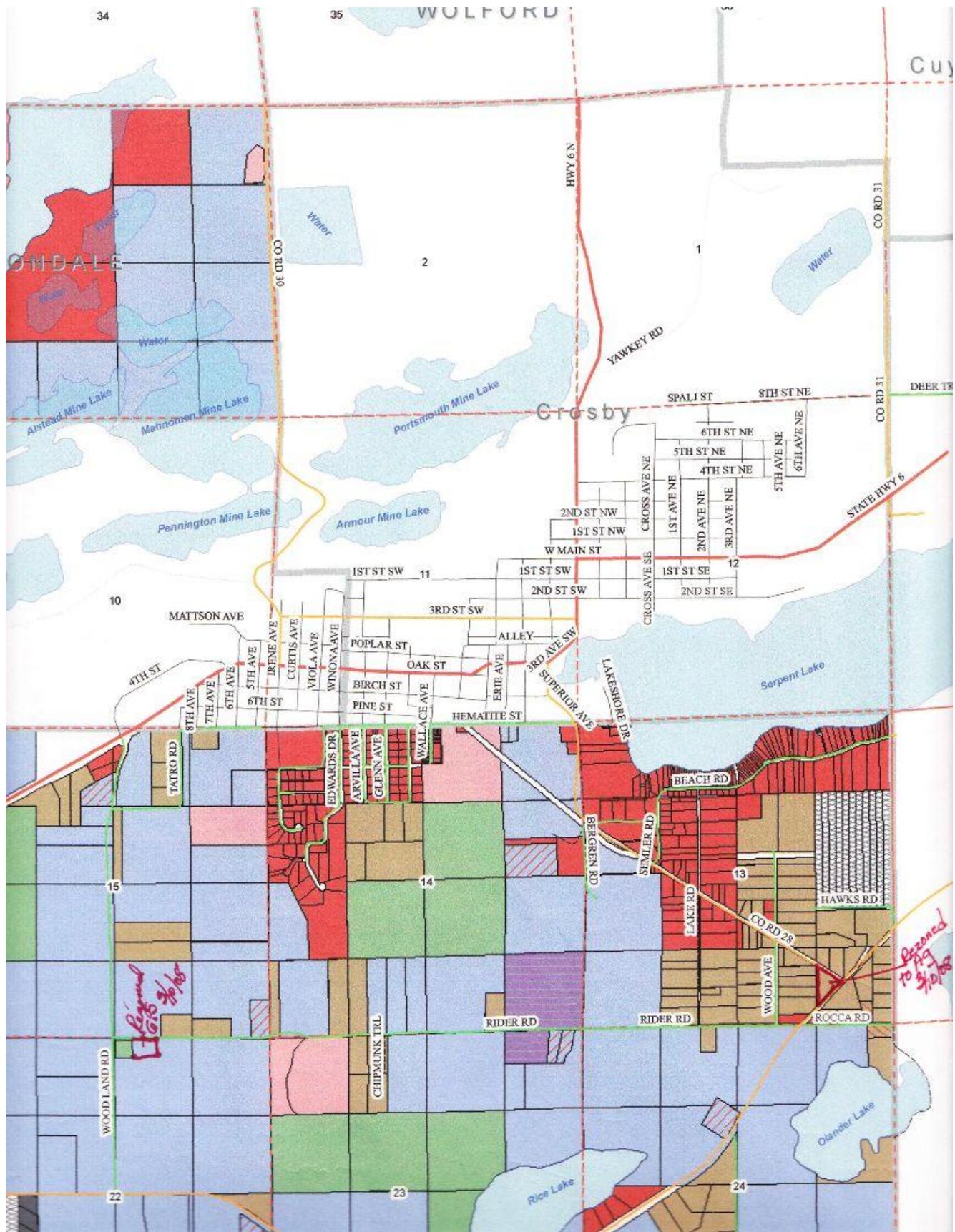


Exhibit 1.1a: Irondale Zoning Legend



| ----- | Named Private Road |
|------------------------------|---|
| ----- | Minimum Maintenance Road |
| ----- | Cass County Road |
| | Lakes |
| | Political Boundary |
| | Sections |
| Zoning Classification | |
| | Agriculture <input checked="" type="checkbox"/> |
| | Agriculture/CU <i>have some</i> |
| | Multiple <i>- 3</i> |
| | Airport |
| | Buffer |
| | Commercial 1 <input checked="" type="checkbox"/> |
| | Commercial 2 |
| | Future |
| | Greenspace <input checked="" type="checkbox"/> |
| | Greenspace/CU |
| | Industrial <input checked="" type="checkbox"/> |
| | Light Indust <i>- 2</i> |
| | Public <input checked="" type="checkbox"/> |
| | Residential |
| | Rural Residential 5 |
| | Rural Residential 2.5 |
| | Rural Res/CU |
| | Shoreland Res 1 <input checked="" type="checkbox"/> |
| | Utility |
| | Waterfront Commercial <input checked="" type="checkbox"/> |
| | Waste District |

These data are provided on an "AS-IS" basis, without warranty of any type, expressed or implied, including but not limited to any warranty as to their



CREATED BY:
THE DEPARTMENT OF
CROW WING COUNTY AUDITOR/
GEOGRAPHIC INFORMATION SYSTEMS
326 LAUREL STREET
BRainerd, MN 56401

Ironton Drinking Water Supply Management Area (DWSMA) MN-00515 - Moderate Vulnerability

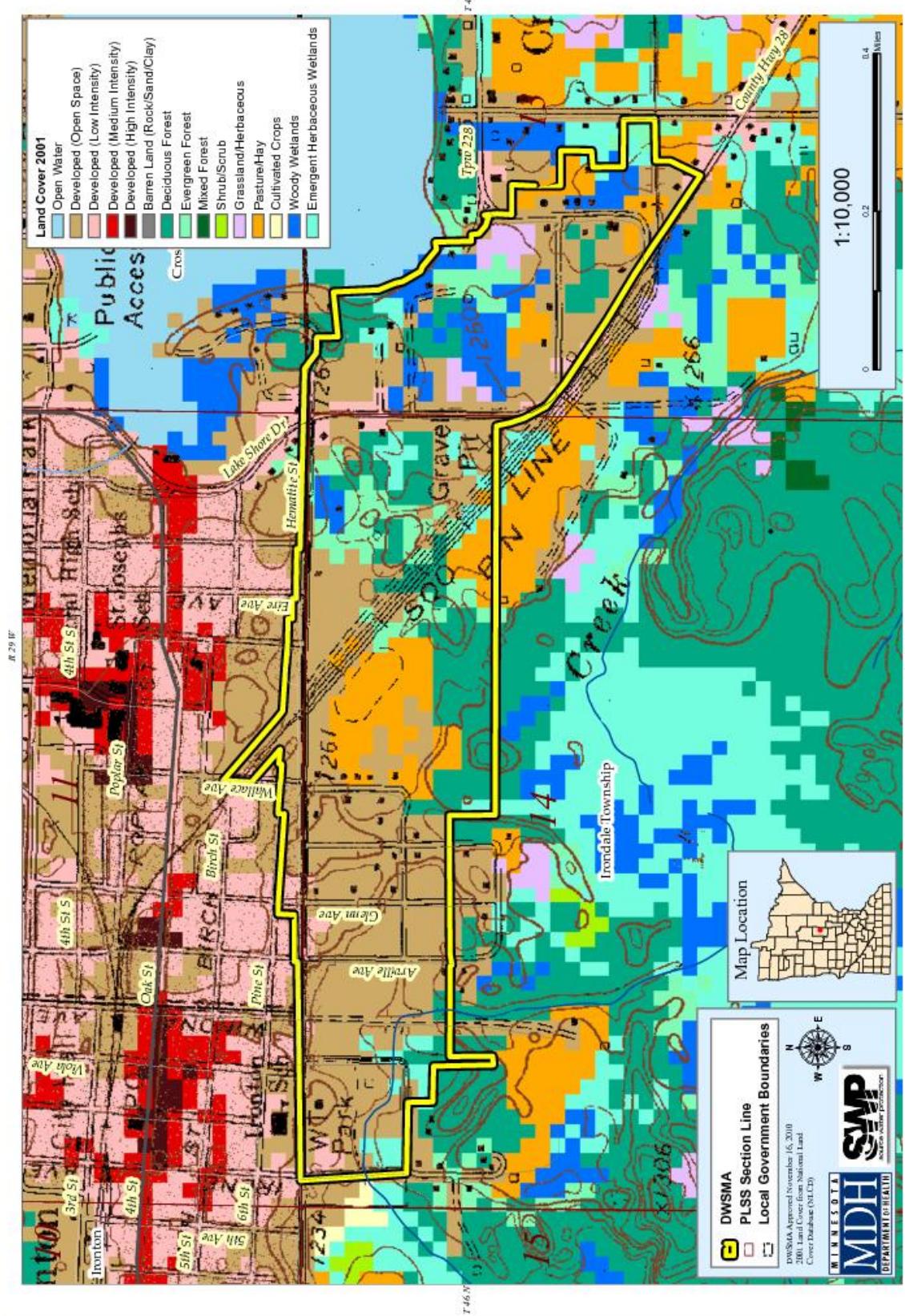


Exhibit 2.1- Land-Use Table

Ironton DWSMA (MN-00515) 2001 Land Cover Statistics

Wellhead Protection Program Minnesota Department of Health

Ironton DWSMA (MN-00515) 2001 Land Cover Statistics

| LAND COVER | ACRES | PERCENT | YEAR |
|------------------------------|--------|---------|------|
| Open Water | 0.68 | 0.34 | 2001 |
| Developed, Open Space | 102.89 | 51.41 | 2001 |
| Developed, Low Intensity | 7.69 | 3.84 | 2001 |
| Deciduous Forest | 28.04 | 14.01 | 2001 |
| Evergreen Forest | 14.93 | 7.46 | 2001 |
| Grassland/Herbaceous | 3.16 | 1.58 | 2001 |
| Pasture/Hay | 21.03 | 10.51 | 2001 |
| Cultivated Crops | 0.22 | 0.11 | 2001 |
| Woody Wetlands | 12.21 | 6.10 | 2001 |
| Emergent Herbaceous Wetlands | 9.27 | 4.63 | 2001 |
| Total | 200.13 | 100.00 | 2001 |

These statistics are geographically derived from the 2001 National Land Use/Land Cover dataset. They may not reflect current conditions and are only an approximation of land cover.

[Ironton DWSMA \(MN-00515\)](#)



This document last updated AUG-23-2011.

Exhibit 3- Potential Contaminant Source Inventory Map (PCSI)

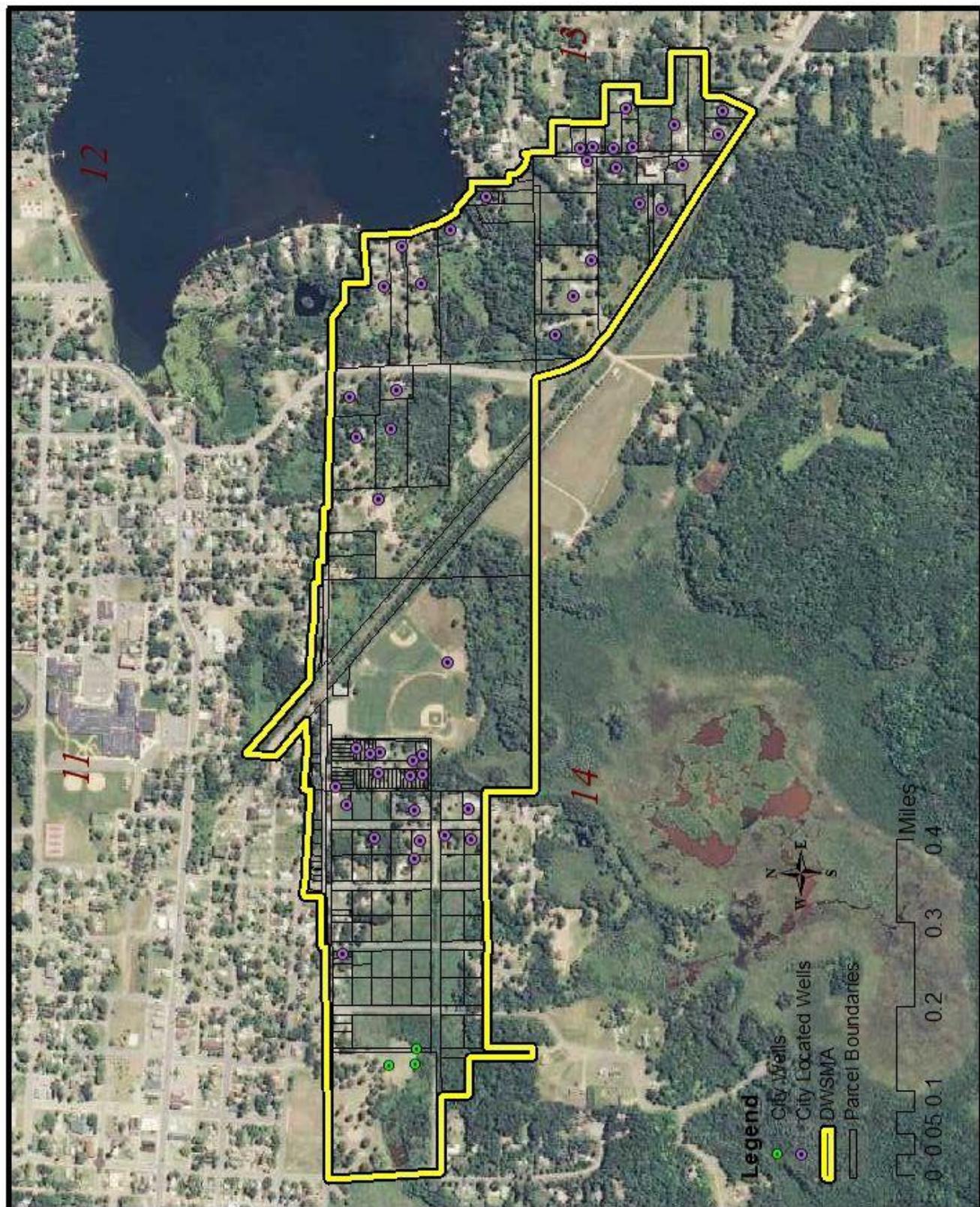
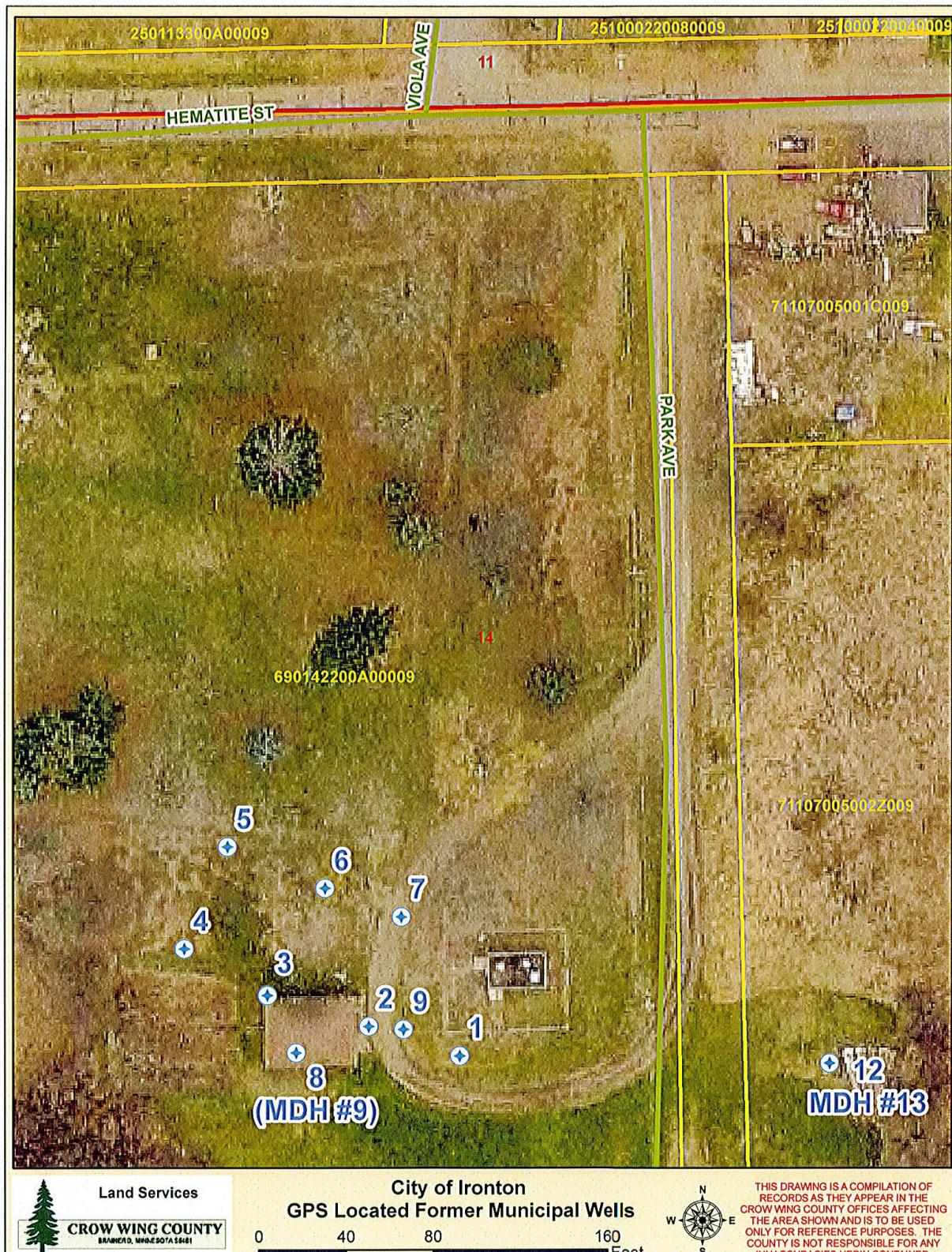


Exhibit 3.2- PCSI Table

| <u>Parcel Number</u> | <u>Township/C</u> | <u>Owner Name</u> | <u>Owner Address</u> | <u>Well</u> | <u>Other</u> |
|----------------------|-------------------|-----------------------------------|----------------------------|-------------|--------------|
| 690141100CC0009 | IRONDAL | GIBSON, SANDRA JEAN | 632 MICHIGAN AVE | X | |
| 690141100F00009 | IRONDAL | DEUTSCHE BANK NATIONAL TRUST CO | 6501 IRVINE CENTER DR | X | |
| 690141200B00009 | IRONDAL | INDEPT SCHOOL DIST , # 182 | ***** | X | |
| 690141100B00889 | IRONDAL | HALLIN, MARK A & PAMELA J | 21949 COUNTY ROAD 28 | X | |
| 690132204DAB009 | IRONDAL | BRAASTAD, BRUCE W TRUST U/A | 2332 153RD AVE NE | X | |
| 690132204E00009 | IRONDAL | WIEDELL, MICHAEL K & KATHLEEN | P O BOX 26 | 706083 | |
| 711090009010009 | IRONDAL | ROSSMAN, JAMES L & SUSAN | 6651 PARKWOOD RD | X | |
| 690132300A00009 | IRONDAL | GILMORE, ROBERT E & MARY A | 21332 BEACH RD | 714681 | 599260 |
| 690132300G00009 | IRONDAL | SOUTHMAYD, CURTIS J & CHRISTINE L | 21154 BEACH RD | 742564 | |
| 690132300H00009 | IRONDAL | FORSTAD, MARILYN J | 21198 BEACH RD | X | |
| 690132204DAA009 | IRONDAL | LANDBERG, MARILYN J | 860 LAKESHORE DR | X | |
| 690132204FA0009 | IRONDAL | PARMETER, BRADLEY J | 2749 COUNTY ROAD 94 | X | |
| 690132300B00009 | IRONDAL | KOSTAL, PAUL E & DAMIE | RETURNED 2008 TAX STMT | X | |
| 690132300F00009 | IRONDAL | LOUKS, MARK ANDREW & MARY ANNE | 21122 BEACH RD | 704036 | |
| 690132300J00009 | IRONDAL | ANTTILA, RAYMOND E & JUDY E | 21690 COUNTY ROAD 28 | X | |
| 690132300M00009 | IRONDAL | ANTILLA, RAYMOND E & JUDY | STAR RT | X | |
| 690132300NZ0889 | IRONDAL | FELIX, JAMES B & CAROL | 5682 ARROW PENINSULA DR NE | 566634 | |
| 690141100A00009 | IRONDAL | ZARN, ARTHUR BRUCE | 20953 HEMATITE ST | X | |
| 711040000010009 | IRONDAL | ANDERSON, JOLEEN ESTHER | C/O MARK E ANDERSON | X | |
| 711040000140009 | IRONDAL | BRENNEMAN, SHERRY/SALLY SHECKELS | 21956 WALLACE AVE | X | |
| 71104000016Z009 | IRONDAL | PETERSON, PETER L & BARBARA | 21926 WALLACE AVE | X | |
| 71104000026Z009 | IRONDAL | OLSON, RALPH JR & MARY | 21872 WALLACE AVE | X | |
| 71104000030009 | IRONDAL | TAYLOR, KIM | P O BOX 66 | X | |
| 711040000330009 | IRONDAL | ESLINGER, DENZEL L | 21903 WALLACE AVE | X | |
| 711040000410009 | IRONDAL | MATTSON, RONALD J & LYNETTE | 21929 WALLACE AVE | X | |
| 711070010030009 | IRONDAL | MATTSON, RONALD J & LYNETTE | 21929 WALLACE AVE | X | |
| 71107001004Z009 | IRONDAL | BENDARCZYK, JOSEPH P | 21900 HOWARD AVE | X | |
| 711070020030009 | IRONDAL | AMUNDSON, JAMES D | P O BOX 185 | X | |
| 711070020050009 | IRONDAL | AMUNDSON, JAMES D | P O BOX 185 | X | |
| 711070020070009 | IRONDAL | RASMUSSEN, SHAWN M & JILL S | 21912 GLENN AVE | X | |
| 71107004001A009 | IRONDAL | BASELT, LAVERNE L & JOYCE CARLSON | | X | |
| 71107007001Z009 | IRONDAL | VRANISH, ROBERT JON & JOYCE | 20085 PARK AVE | X | |
| 711070120020AB0 | IRONDAL | ORDEAN FOUNDATION | 501 ORLEAN BLDG | X | |
| 711070100020009 | IRONDAL | ROOT, KEITH A | 16309 WARD LAKE DR | X | |

| | | | | | |
|-----------------|----------|------------------------------------|----------------------------------|--------|--|
| 711070120010009 | IRONDALE | STEFAN, LAWRENCE J TRUST (1/2 INT) | PO BOX 568 | X | |
| 711070130020009 | IRONDALE | HUMMEL, TIMOTHY R & DIANE | PO BOX 532 | X | |
| 71113000003C009 | IRONDALE | SCHMIDT, ROBERT D JR & DENISE RAE | 21335 BEACH RD | X | |
| 71113000003D009 | IRONDALE | LEONHARDT, ROBERT J & KARLA L | 21319 BEACH RD | X | |
| 71113000005E009 | IRONDALE | ZONTELLI, DAVID H | P O BOX 356 | X | |
| 71113000005F009 | IRONDALE | HARTMAN, LAWRENCE L & PEGGY L | P O BOX 298 | X | |
| 71113000009A009 | IRONDALE | HART, KRISTINE & MARY ANNE LOUKS | MATTHEW & RAYMOND & SEMLER | X | |
| 71113000018A009 | IRONDALE | LAUGHTON, IRENE | 21562 COUNTY ROAD 28 | 743910 | |
| 711130000190009 | IRONDALE | JARVELA, GREGORY E & KAY | 21584 COUNTY ROAD 28 | X | |

Exhibit 4:
City of Ironton GPS Located Former Municipal Wells Map & Spreadsheet



City of Ironton (PWS ID: 1180017; Crow Wing County)

| Well Sequence # (in MDH record) | City Staff well # on WHP Plan Map Exhibit 4 | Well Name | Unique # | Casing Diameter | Well Depth | Depth Cased | Year Constructed | Well Type | Year Out of Service | Sealing Record | Location | Comments |
|---------------------------------|---|------------------------------------|----------|-----------------|---|-------------|------------------|-----------|-----------------------------|----------------|--|---|
| 1 | 1 | Old Drilled Well | | 6 inch | 30-40 feet | 0-25 feet | Pre-1917 | Drilled | 1943: Temporarily Abandoned | | *Located on a relatively low area in the southwest portion of the village. *Situated 50 feet north and east of the pumphouse. *Located in the village park at the south edge of the village. | |
| 2 | 2 | Old Drilled Well | | 6 inch | 30-40 feet | 0-25 feet | Pre-1917 | Drilled | 1943: Temporarily Abandoned | | *Same as Above | |
| 3 | 3 | Old Drilled Well | | 6 inch | 30-40 feet | 0-25 feet | Pre-1917 | Drilled | 1943: Temporarily Abandoned | | *Same as Above | |
| 4 | 4 | Old Drilled Well | | 6 inch | 30-40 feet | 0-25 feet | Pre-1917 | Drilled | 1943: Temporarily Abandoned | | *Same as Above | |
| 5 | 5 | Old Drilled Well | | 6 inch | 30-40 feet | 0-25 feet | Pre-1917 | Drilled | 1943: Temporarily Abandoned | | *Same as Above | |
| 6 | 6 | Old Drilled Well | | 6 inch | 30-40 feet | 0-25 feet | Pre-1917 | Drilled | 1943: Temporarily Abandoned | | *Same as Above | |
| 7 | 7 | Old Drilled Well | | 6 inch | 30-40 feet | 0-25 feet | Pre-1917 | Drilled | Not Mentioned after 1939 | | *Same as Above | |
| 8 | | Old Well No. 1 (Gravel-Packed) (?) | | 14/36 inch | 38 feet | | 1939 | Drilled | Not Mentioned after 1981 | | *Located 100 feet southeast of the Iron Removal Plant. Well & well location not substantiated by city staff. | |
| 9 | 8 | Old Dug Well | | 20 feet | 1920: 30 feet 1924: 27 feet 1929: 25 feet | | 1920 | Dug | | | *Beneath the floor of the pumpstation. *Located in the village park at the south edge of the village. | Well location & information correct per city staff. |
| | 9 | | | | | | | | | | | Well did not match up with any from MDH but located on map. |
| 10 | | (?) | 232356 | 16 inch | 41 feet | | 1935 | | | | | Well & well location not substantiated by city staff |
| 11 | | (?) | | 17 inch | 47 feet | | 1943 | | | | | Well & well location not substantiated by city staff. |
| 12 | | (?) | 232354 | 72 inch | 42 feet | | 1941 | | | | | Well & well location not substantiated by city staff. |
| 13 | 12 | New Dug Well (Well No. 2) | | 6 feet | 45 feet | | 1951 | Dug | Not Mentioned after 1981 | H000015622 (?) | *Located 200 feet southeast of the Iron Removal Plant. *Adjacent to the east side of Morningside Park. | Well location & information correct per city staff. |
| 14 | 13 | | 232355 | 4 inch | 24 feet | 0-22 feet | 1964 | Drilled | | H000015623 (?) | *Located 200 feet southeast of the Iron Removal Plant. *Adjacent to the east side of Morningside Park. | Not in DWSMA. Well is located by old disposal plant. |
| 15 | 14 | Well No. 1 (STILL IN USE) | 150831 | 24/12 inch | 80 feet | | 1980 | Drilled | | | | Not on map |
| 16 | 15 | Well No. 2 (STILL IN USE) | 150840 | 24/12 inch | 65 feet | | 1980 | Drilled | | | | Not on map |
| 17 | 10 | Well No. 3 (STILL IN USE) | | 8 inch | 40 feet | | 1978 | Drilled | | | | Not on map |

Exhibit 5: City of Ironton Water Main

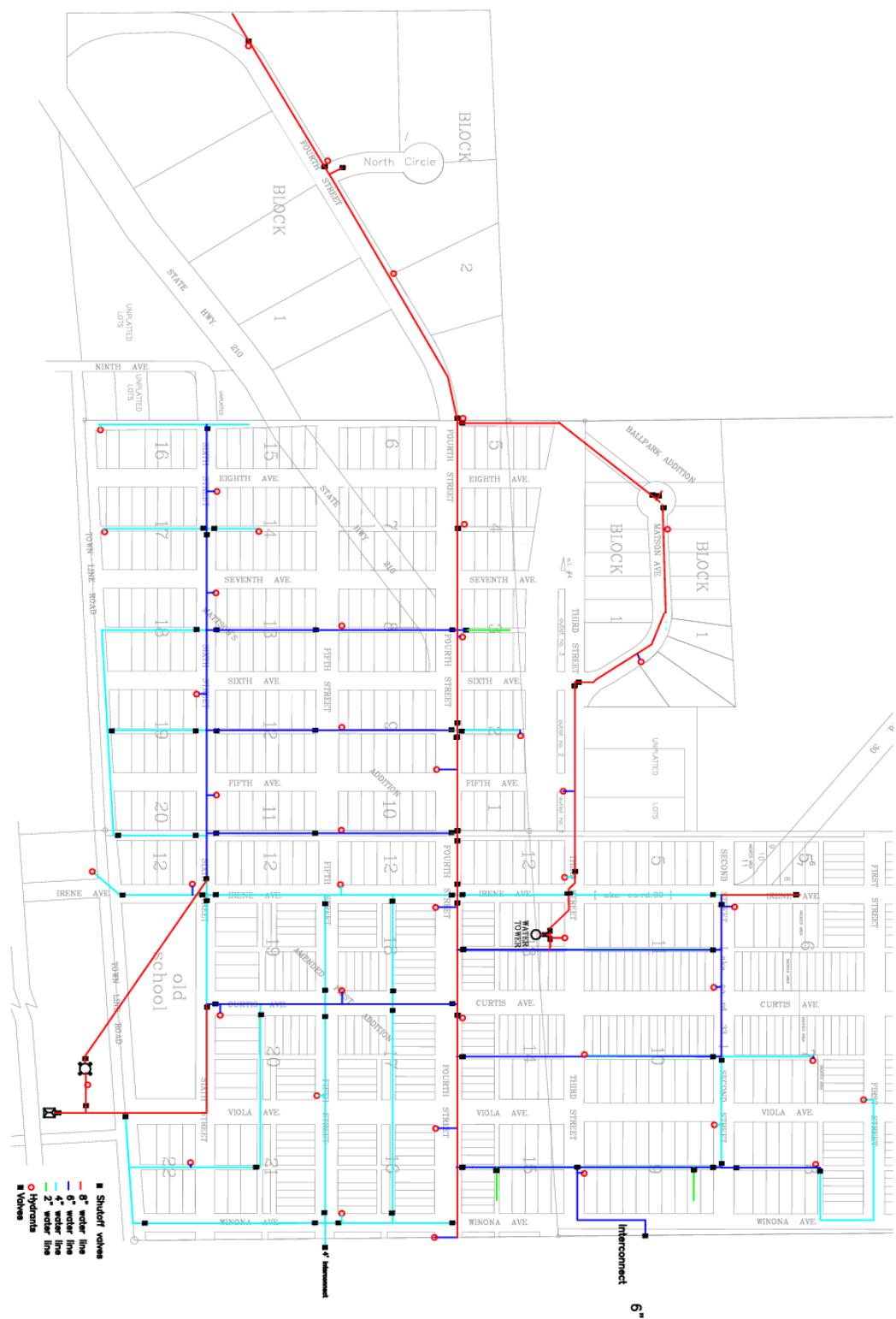


Exhibit 6: Ironton Wellhead Protection Team

Randall Tscheu and Greg Stanich

Public Works, City of Ironton

Amy Baratto

Clerk, City of Ironton

Dean French

Mayor, City of Ironton

Lou Anne Maschler

Irondale Township Planning & Zoning

Mitch Brinks

Crow Wing County Water Planner

Mark Wettlaufer

MDH SWP Planner

Exhibit 7: Ironton Consumer Confidence Report

CONSUMER CONFIDENCE REPORT

PWSID: 1180017

City of Ironton 2010 Drinking Water Report

The City of Ironton is issuing the results of monitoring done on its drinking water for the period from January 1 to December 31, 2010. The purpose of this report is to advance consumers' understanding of drinking water and heighten awareness of the need to protect precious water resources.

Source of Water

The City of Ironton provides drinking water to its residents from a groundwater source: two wells ranging from 50 to 65 feet deep, that draw water from the Quaternary Water Table and Quaternary Buried Artesian aquifers.

The water provided to customers may meet drinking water standards, but the Minnesota Department of Health has also made a determination as to how vulnerable the source of water may be to future contamination incidents. If you wish to obtain the entire source water assessment regarding your drinking water, please call 651-201-4700 or 1-800-818-9318 (and press 5) during normal business hours. Also, you can view it on line at www.health.state.mn.us/divs/eh/water/swp/swa.

Call [REDACTED] if you have questions about the City of Ironton drinking water or would like information about opportunities for public participation in decisions that may affect the quality of the water.

Results of Monitoring

No contaminants were detected at levels that violated federal drinking water standards. However, some contaminants were detected in trace amounts that were below legal limits. The table that follows shows the contaminants that were detected in trace amounts last year. (Some contaminants are sampled less frequently than once a year; as a result, not all contaminants were sampled for in 2010. If any of these contaminants were detected the last time they were sampled for, they are included in the table along with the date that the detection occurred.)

Key to abbreviations:

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.

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.

MRDL—Maximum Residual Disinfectant Level.

MRDLG—Maximum Residual Disinfectant Level Goal.

AL—Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirement which a water system must follow.

90th Percentile Level—This is the value obtained after disregarding 10 percent of the samples taken that had the highest levels. (For example, in a situation in which 10 samples were taken, the 90th percentile level is determined by disregarding the highest result, which represents 10 percent of the samples.) Note: In situations in which only 5 samples are taken, the average of the two with the highest levels is taken to determine the 90th percentile level.

CONSUMER CONFIDENCE REPORT

PWSID: 1180017

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. City of Ironton is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Some contaminants do not have Maximum Contaminant Levels established for them. These unregulated contaminants are assessed using state standards known as health risk limits to determine if they pose a threat to human health. If unacceptable levels of an unregulated contaminant are found, the response is the same as if an MCL has been exceeded; the water system must inform its customers and take other corrective actions. In the table that follows are the unregulated contaminants that were detected:

| Contaminant (units) | Level Found | | Typical Source of Contaminant |
|----------------------------|--------------|----------------|-------------------------------|
| | Range (2010) | Average/Result | |
| Sodium (ppm) (06/24/2008) | N/A | 11 | Erosion of natural deposits. |
| Sulfate (ppm) (06/24/2008) | N/A | 5.52 | Erosion of natural deposits. |

Compliance with National Primary Drinking Water Regulations

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U. S. Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

CONSUMER CONFIDENCE REPORT

PWSID: 1180017

pCi/l—PicoCuries per liter (a measure of radioactivity).

ppm—Parts per million, which can also be expressed as milligrams per liter (mg/l).

ppb—Parts per billion, which can also be expressed as micrograms per liter (µg/l).

N/A—Not Applicable (does not apply).

| Contaminant (units) | MCLG | MCL | Level Found | | Typical Source of Contaminant |
|--|------|------|-----------------|---------------------|---|
| | | | Range (2010) | Average /Result* | |
| Combined Radium (pCi/l) (06/24/2008) | 0 | 5.4 | N/A | 1.4 | Erosion of natural deposits. |
| Fluoride (ppm) | 4 | 4 | .73-.9 | .82 | State of Minnesota requires all municipal water systems to add fluoride to the drinking water to promote strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories. |
| Haloacetic Acids (HAA5) (ppb) | 0 | 60 | N/A | 17 | By-product of drinking water disinfection. |
| Nitrate (as Nitrogen) (ppm) | 10.4 | 10.4 | N/A | .25 | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits. |
| TTHM (Total trihalomethanes) (ppb) | 0 | 80 | N/A | 44.29 | By-product of drinking water disinfection. |

*This is the value used to determine compliance with federal standards. It sometimes is the highest value detected and sometimes is an average of all the detected values. If it is an average, it may contain sampling results from the previous year.

| Contaminant (units) | MRDLG | MRDL | **** | ***** | Typical Source of Contaminant |
|------------------------|-------|------|-------|-------|--|
| Chlorine (ppm) | 4 | 4 | .1-.9 | .85 | Water additive used to control microbes. |

****Highest and Lowest Monthly Average.

*****Highest Quarterly Average.

| Contaminant (units) | MCLG | AL | 90% Level | # sites over AL | Typical Source of Contaminant |
|------------------------------|------|-----|--------------|--------------------|---|
| Copper (ppm) (06/04/2008) | 1.3 | 1.3 | .38 | 0 out of 10 | Corrosion of household plumbing systems; Erosion of natural deposits. |
| Lead (ppb) (06/04/2008) | 0 | 15 | 3 | 0 out of 10 | Corrosion of household plumbing systems; Erosion of natural deposits. |

CONSUMER CONFIDENCE REPORT

PWSID: 1180017

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.

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. These people should seek advice about drinking water from their health care providers. EPA/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.

Exhibit 8: Storm Water Outfalls



Exhibit 9: MDH Scoping II Decision Notice



Protecting, maintaining and improving the health of all Minnesotans

February 15, 2011

Mr. Greg Stanich, Public Works
Mr. Randy Tscheu, Water Superintendent
City of Ironton
P.O. Box 97
Ironton, Minnesota 56455-0097

Dear Mr. Stanich and Mr. Tscheu:

Subject: Second Scoping Decision Notice for the City of Ironton, PWSID 1180017

This letter provides notice of the results of the second scoping meeting held with both of you, Amy Baratto and Dean French (city of Ironton) and me on January 25, 2011, at the Ironton City Hall regarding Part II of your wellhead protection (WHP) plan. During the meeting, we discussed data elements that must be included and used 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 that were discussed at the meeting.

The city of Ironton has met the requirements to distribute copies of the first part of the wellhead protection plan to local units of government and hold an informational meeting for the public. The city of Ironton will have until April 1, 2012, to complete its wellhead protection plan. The city was given an additional six months because the drinking water supply management area extended beyond the city limits.

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. The Minnesota Department of Health will be working with you to develop a draft of the remainder of the wellhead protection 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 mark.wettlaufer@state.mn.us or by phone at 320/223-7342.

Sincerely,

A handwritten signature in black ink that reads "Mark Wettlaufer".

Mark Wettlaufer, Planner
Environmental Health Division
3333 West Division Street - Suite 212
St. Cloud, Minnesota 56301-4557

MJW:kmc

Enclosures

cc: David Schultz, MDH Engineer, St. Cloud District Office
Byron Adams, Water Monitoring Section, Minnesota Pollution Control Agency
Joe Richter, Division of Waters, Minnesota Department of Natural Resources
Brian Williams, Pesticide & Fertilizer Mgmt. Division, Minnesota Department of Agriculture
Eric Mohring, Hydrologist, Board of Water and Soil Resources
Amy Baratto, Clerk, City of Ironton

SCOPING 2 DECISION NOTICE

► Remainder of the Wellhead Protection Plan

| | | |
|--|-------------------------|-----------------------------------|
| Name of Public Water Supply: City of Ironton PWSID 1180017 | | Date: February 15, 2011 |
| Name of the Wellhead Protection Manager(s): Mr. Greg Stanich, Public Works, Co-Wellhead Protection Manager Mr. Randy Tscheu, Water Superintendent, Co-Wellhead Protection Manager | | |
| Address: 309 Third Street P.O. Box 97 | City: Ironton | Zip: 56455-0097 |
| Unique Well Numbers: 150831 (Well 1), 150840 (Well 2), 241993 (Well 3 - Emergency)* | | Phone: 218/546-5611 |

*Emergency wells only use the IWMZ Form for data collection.

Instructions for Completing the Scoping 2 Form

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

| | | |
|---|----------------------------|----------------------------|
| <input type="checkbox"/> N | <input type="checkbox"/> R | <input type="checkbox"/> S |
| R = Required for the remainder of the plan. If this box is checked, this data MUST be used for the "remainder of the plan." | | |

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

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

DATA ELEMENTS ABOUT THE PHYSICAL ENVIRONMENT

| PRECIPITATION | | |
|--|----------|----------|
| N | R | S |
| X | | |
| Technical Assistance Comments: | | |
| N | R | S |
| X | | |
| Technical Assistance Comments: | | |
| GEOLOGY | | |
| N | R | S |
| | | |
| X | | |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements. | | |
| N | R | S |
| X | | |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements. | | |
| N | R | S |
| X | | |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements. | | |
| N | R | S |
| X | | |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements. | | |
| SOILS | | |
| N | R | S |
| X | | |
| Technical Assistance Comments: | | |
| N | R | S |
| X | | |
| Technical Assistance Comments: A description or an existing map of known eroding lands that are causing sedimentation problems. | | |
| Technical Assistance Comments: | | |

| WATER RESOURCES | | | |
|--------------------------------|---|---|--|
| N | R | S | An existing map of the boundaries and flow directions of major watershed units and minor watershed units. |
| X | | | |
| Technical Assistance Comments: | | | |
| N | R | S | An existing map and a list of public waters as defined in Minnesota Statutes, section 103G.005, subdivision 15, and public drainage ditches. |
| X | | | |
| Technical Assistance Comments: | | | |
| N | R | S | The shoreland classifications of the public waters listed under subitem (2), pursuant to part 6120.3000 and Minnesota Statutes, sections 103F.201 to 103F.221. |
| X | | | |
| Technical Assistance Comments: | | | |
| N | R | S | An existing map of wetlands regulated under Chapter 8420 and Minnesota Statutes, section 103G.221 to 103G.2373. |
| X | | | |
| Technical Assistance Comments: | | | |
| N | R | S | An existing map showing those areas delineated as floodplain by existing local ordinances. |
| X | | | |
| Technical Assistance Comments: | | | |

DATA ELEMENTS ABOUT THE LAND USE

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

| | | | |
|--|----------|----------|--|
| N | R | S | A map and an inventory of the current and historical agricultural, residential, commercial, industrial, recreational, and institutional land uses and potential contaminant sources. |
| Technical Assistance Comments: The inventory, mapping and management of land uses and potential sources of contamination for all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements, as follows: | | | |
| <p>Moderate Vulnerability - 1) All potential contaminant sources and facility designations as listed on the attachment, 2) a land use/land cover map and table, and 3) an inventory of the Inner Wellhead Management Zone (IWMZ).</p> <p>As a starting point, MDH will provide a 1992 or 2001 land cover map and table from federal data bases. This data set must be used unless an alternative electronic data set that is more current and detailed is available.</p> <p>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 | |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element. | | | |
| N | R | S | Existing zoning map. |
| | X | X | |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element. | | | |
| PUBLIC UTILITY SERVICES | | | |
| N | R | S | An existing map of transportation routes or corridors. |
| | X | X | |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element. | | | |
| N | R | S | An existing map of storm sewers, sanitary sewers, and public water supply systems. |
| | X | X | |
| Technical Assistance Comments: It is not necessary to include a map of your public water supply system in your plan if you feel it would pose a threat to the security of your system. An existing map of the storm sewers and sanitary sewers in the Drinking Water Supply Management Area(s) must be included in the wellhead protection plan and must also be submitted to MDH as part of the approval. | | | |
| N | R | S | An existing map of the gas and oil pipelines used by gas and oil suppliers. |
| | X | X | |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element. | | | |
| N | R | S | An existing map or list of public drainage systems. |
| | X | | |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element. | | | |

| | | | |
|--|---|---|--|
| N | R | S | An existing record of construction, maintenance, and use of the public water supply well and other wells within the drinking water supply management area. |
| X | | | |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements. | | | |

DATA ELEMENTS ABOUT WATER QUANTITY

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

DATA ELEMENTS ABOUT WATER QUALITY

| SURFACE WATER QUALITY | | |
|--|----------|--|
| N | R | S |
| X | | An existing map or list of the state water quality management classification for each stream and lake. |
| Technical Assistance Comments: | | |
| N | R | S |
| X | | 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. |
| Technical Assistance Comments: | | |
| GROUNDWATER QUALITY | | |
| N | R | S |
| X | | An existing summary of water quality data, including: 1. bacteriological contamination indicators; 2. inorganic chemicals; and 3. organic chemicals. |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element. | | |
| N | R | S |
| X | | An existing list of water chemistry and isotopic data from wells, springs, or other groundwater sampling points. |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element. | | |
| N | R | S |
| X | | An existing report of groundwater tracer studies. |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element. | | |
| N | R | S |
| X | | An existing site study and well water analysis of known areas of groundwater contamination. |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about these data elements. | | |
| N | R | S |
| X | | An existing property audit identifying contamination. |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element. | | |
| N | R | S |
| X | | An existing report to the Minnesota Department of Agriculture and the Minnesota Pollution Control Agency of contaminant spills and releases. |
| Technical Assistance Comments: The management of all the Drinking Water Supply Management Area(s) must reflect what is known about this data element. | | |