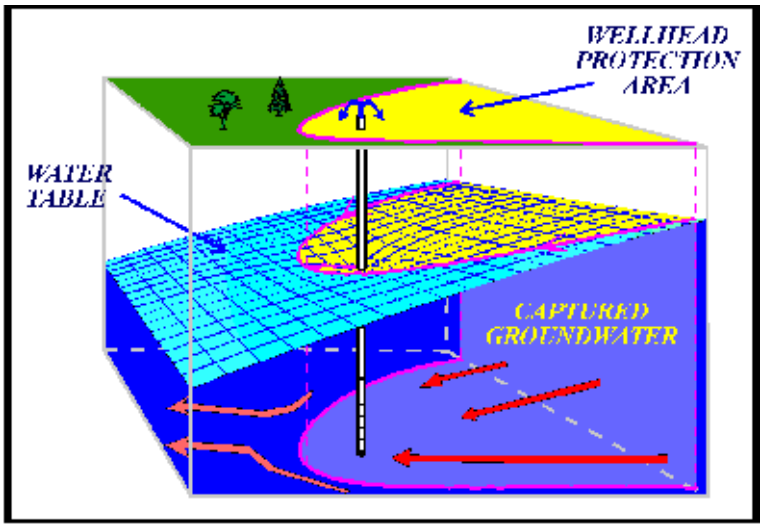
City of
Mahnomen, Minnesota

WELLHEAD PROTECTION PLAN
Amendment



Part 2

Potential Contaminant Source Inventory
Potential Contaminant Source Management Strategy
Evaluation Plan
Emergency/Conservation Plan

February 2009

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WATER SUPPLY PROFILE

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4. General Information

Unique Well Numbers: 221667, 620592 and 657387
Population Served: 1,214 (2000 US Census*)
Metered Water Connections: 568
Mahnomen County

(Mahnomen's population in 2000 was 1,202 but others in the township were also served outside the city limits.)*

5. Wellhead Protection Committee

Mitch Berg	City Administrator
Paul Domier	Water Superintendent-Wellhead Protection Manager
Bob Jirik	Pembina Township representative
Aaron Neubert	SWCD
Mark Wettlaufer	MN Rural Water Association
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DOCUMENTATION LIST

STEP	DATE PERFORMED
Scoping Meeting II Held: (4720.5349, subp. 1)	**April 1, 2008**
Scoping Decision Notice Received: (4720.5340, subp. 2)	**April 9, 2008**
Remaining Portion of Plan Submitted to Local Units of Government (LGU's): (4720.5350, subp. 1 & 2)	**December 1, 2008**
Review Received From Local Units of Government: (4720.5350, subp. 2)	**February 1, 2009**
Review Considered: (4720.5350, subp. 3)	**February 2, 2009**
Public Hearing Conducted: (4720.5350, subp.4)	**February 2, 2009**
Remaining Portion WHP Plan Submitted: (4720.5360, subp. 1)	**February 13, 2009**
Approved Review Notice Received:	**May 2009**

EXECUTIVE SUMMARY

This plan is an amendment to the original wellhead protection plan that was completed in 2002 for the City of Mahnomen. A wellhead protection plan amendment is required according to MR 4720.5570, Subpart 1, if:

1. A well is added to the public water supply system;
2. The boundaries of a wellhead protection area being delineated overlaps the boundaries of a department approved wellhead protection area of another public water supply system; or
3. Every ten years from the date of the last approval of a plan by the department.

In 2004, the City of Mahnomen drilled a new well (Well 7) so a plan amendment was required to be completed.

Part I of the Wellhead Protection Plan Amendment contained the description of how the wellhead protection area was delineated. It also contained the boundaries of the drinking water supply management area (DWSMA); the assessment of well vulnerability; and the assessment of aquifer vulnerability throughout the DWSMA. The first part of this plan was approved by the Minnesota Department of Health (MDH) on January 28, 2008

The vulnerability assessment of the DWSMA indicates that the Mahnomen aquifer comes from buried drift sand and gravel aquifer that exhibits confined hydraulic conditions. The aquifer is considered *moderately vulnerable* to potential sources of contamination because subsurface geologic conditions vary in ability to prevent the vertical movement of potential contamination from sources to the aquifer used by the public water supply.

The second part of the plan will need to focus on addressing land uses within the DWSMA. A map of the DWSMA can be found on page 8.

Part II of the wellhead protection plan for Mahnomen includes:

1) The results of the inventory of the potential contamination sources that was conducted throughout the drinking water supply management area (DWSMA).
2) A plan for managing potential contaminant sources so they do not pose a health risk to the people served by the city's public water supply system.
3) An evaluation plan to assess implementation effectiveness of the WHP plan.
4) An emergency/contingency plan to assist the City in times when man-made conditions or natural disasters impact the water supply system.

In Chapter 1, the required data elements indicated by MDH in the Scoping 2 Decision Notice are addressed, as well as the data's degree of reliability.

Chapter 2 addresses the possible impacts that changes in the physical environment, land use, and water resources have on the public water supply.

The problems and opportunities concerning land use issues relating to the aquifer, well water and the DWSMA, and those issues identified at public meetings, are addressed in Chapter 3.

The drinking water protection goals that the public water supplier (PWS) would like to achieve with this plan are listed in Chapter 4.

The information found in the first four chapters of this plan provides the basis for the management strategies found in Chapter 5. This chapter addresses the potential contaminant sources and includes strategies to minimize the risks to the drinking water supply. It is important to read carefully the first four chapters to better understand why the management strategies are included in each of the potential contaminant categories.

Chapter 6 contains a guide to evaluate the implementation of the identified management strategies of Chapter 5. The wellhead protection program for Mahnomen will be evaluated on an annual basis prior to its budgeting process.

An Emergency/Contingency Plan is located in the Mahnomen City Hall to address the possibility that the water supply system is interrupted due to either emergency situations or drought. Chapter 7 references this Plan approved by the Department of Natural Resources.

It is the hope of the Wellhead Protection Committee that this plan will provide a way for the public to better understand the effect they and others have on this most important resource: our drinking water supply. It is also their hope that once residents understand the potential impact they have on this water supply, they will be motivated to reduce or minimize potential sources of contamination.

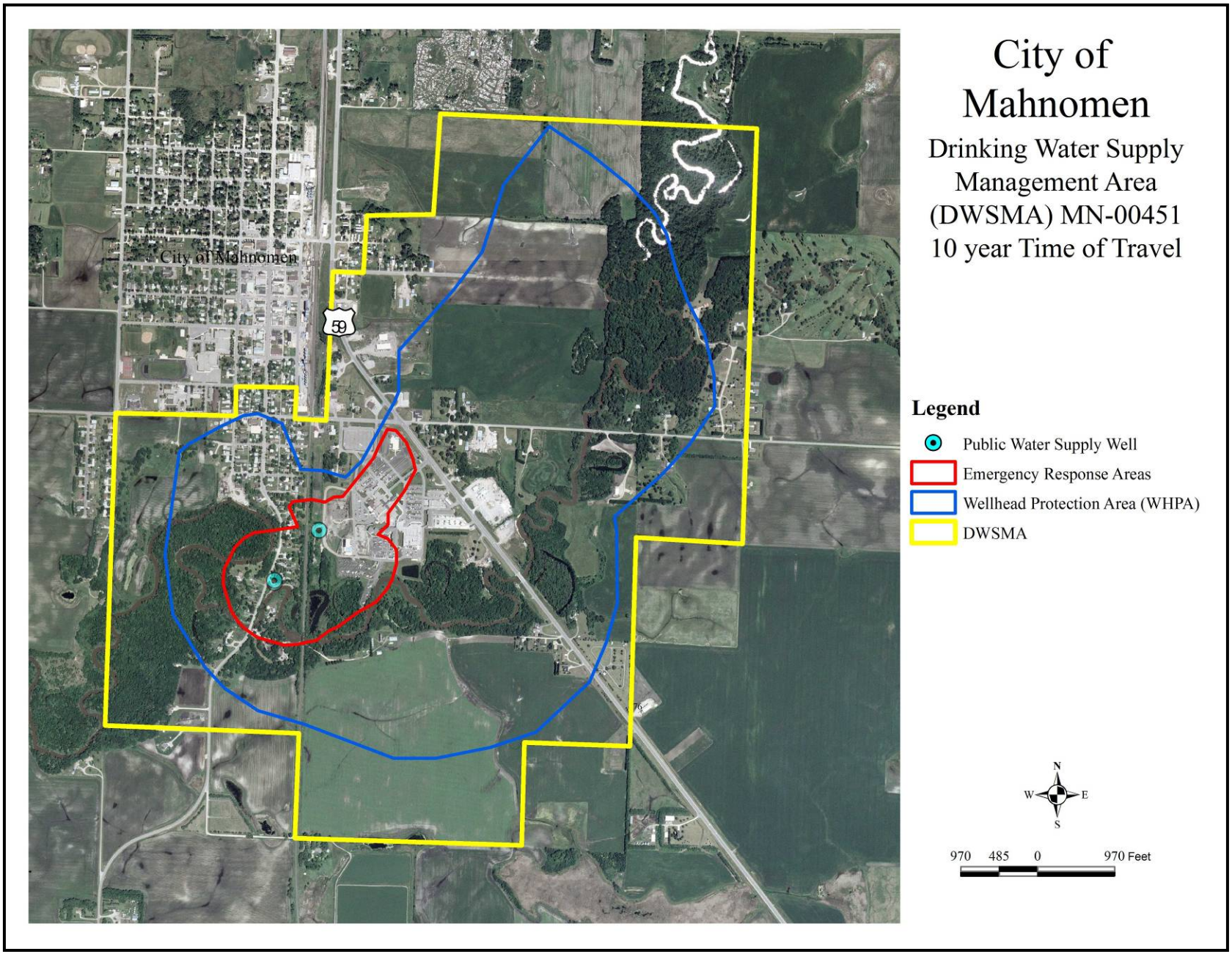


Figure 1. WHPA and DWSMA map

CHAPTER ONE
DATA ELEMENTS; ASSESSMENT (4720.5200)

I. REQUIRED DATA ELEMENTS

A. Physical Environment Data Elements

1. Geology

The landscape around Mahnomen is primarily the result of glacial activity. The lowest elevation of 1,130 feet above sea level can be found on the western edge of the County at the Wild Rice River.

Mahnomen County has many lakes, bogs and marshes, which receive much of the runoff from the surrounding landscape. These water bodies act as natural catch basins for flood control, but they are continually becoming shallower as they are filled with eroded sediment. This sedimentation of lakes and marshes contributes to increased flooding of creeks and rivers after periods of heavy rainfall. Artificial drainage systems also contribute to this flooding.

Ground water quality may be affected by the decrease in these natural catch basins that help filter out possible groundwater contaminants.

The water supply for the City of Mahnomen comes from a sand and gravel aquifer that exhibits confined hydraulic conditions throughout the city's wellhead protection area. The aquifer is about 25-30 feet thick and is covered by approximately 60 -130 feet of sandy clay at the city wells. Generally, water moves in a westerly direction in the wellhead protection area, with a gradient of approximately 0.002.

The most significant change noted was a decrease in the thickness of the aquifer from the area around Well 6, where 37 feet of aquifer material is present, to Well 7 where only 25 feet is available. Approximately 200 feet north of Well 7, test well 268386 intersected only 3 feet of aquifer material.

The sensitivity of the aquifer used by the public water supplier is moderate throughout the drinking water supply management area. Significant thicknesses of clay-rich till are found between the land surface and the city's aquifer. In addition, the results of groundwater age dating conducted on samples from the city wells show that old water is dominant in the aquifer. Tritium samples taken from Wells 6 and 7 (620592 and 657387) on October 14, 2004 showed less than 0.8 tritium units (TU). However, a sample taken from Well 4 (221667) on March 16, 1999, contained 1.0 TU; the aquifer test results a t that well showed that the confining units bounding the aquifer are leaky. Thus, the overlying clay-rich till provides a measure of protection to the aquifer, although it does allow for slow infiltration from the land surface.[1] (In 2004, the City constructed Well 7, triggering the requirement for a wellhead protection plan amendment.)

For additional information on the geology of the area, see Part I of the Wellhead Plan.

[1] ***Part I Mahnomen Wellhead Protection Plan Amendment***

2. Precipitation
   This data element is not required for Part II of the Wellhead Protection Plan.

3. Soils

   This data element is not required but the SWCD provided some interesting general data on soils for the plan. Two major soil associations are present in the Mahnomen DWSMA. General soil descriptions of these associations are as follows:

   a) *Hamerly-Vallers Association* – moderately well drained, somewhat poorly drained and poorly drained, nearly level and gently sloping soils that formed loamy glacial till on moraines. Slope range: 0 to 3 percent.

      Major use: Cropland; about 95% of the association is used for cultivated crops, mostly barley and wheat.

      Major management factors: Hamerly-high pH, wind erosion; Vallers – seasonal high water table, high pH, wind erosion.

   b) *Barnes-Langhei Association* – well drained, undulating to hilly soils that formed in loamy glacial till on moraines. Slope range: 2 to 20 percent.

      Major use: Cropland; about 90% of the association is used for cultivated crops, mostly barley, wheat and soybeans.

      Major management factors: Barnes – slope, water erosion; Langhei – slope, water erosion, organic matter content, high pH.

4. Water Resources

   This data element is not required. However, information from the last Part II plan indicates that the DWSMA is found in Region 1 of the Mahnomen Water Plan. The surface water in this part of the region is limited to a few type 4 wetlands and the Wild Rice River. No irrigation is currently being conducted in the region. No water shortages have been observed for either surface or ground water, and limited amount of data exists on water quality for this area.

B. Land Use Data Elements

1. Land Use

   Land use in the DWSMA is predominantly agricultural and residential. Part of the area includes residential land use in the City of Mahnomen and some farmsteads but the majority of the land is used agriculturally. The Wild Rice River and White Earth Creek run through the DWSMA. Major agricultural crops include barley, wheat, sunflowers, soybeans, corn and sugar beets. Some cattle and horses are pastured within the DWSMA but not in feedlot densities. See Exhibit B for a zoning map of parcels in the DWSMA.

   An inventory of potential contaminant sources within the DWSMA is related to the vulnerability of local drinking water supplies to contamination. Because the

public water supply well aquifer serving the City of Mahnomen has been determined to have a moderate susceptibility to contamination, items of primary concern include other wells, storage tanks, potential contamination sites, solid waste sites, storage and preparation areas for chemicals and fuels, and shallow disposal wells, which may serve as viaducts for contamination to the aquifer and could eventually, lead to contamination of the city wells. Chapter 5 includes strategies designed to prevent future contamination from these sources through landowner education.

An inventory of potential contaminant sources was conducted by the Wellhead Protection(WHP)Team, comprised of the public works director, city administrator, Mahnomen SWCD water planner, a Pembina Township representative, the Minnesota Rural Water Association Sourcewater Protection specialist, and the WHP consultant. First, the WHP Team reviewed the land use and potential contaminant source inventory requirements identified in the Scoping 2 Decision Notice. The next step taken was to work with the MDH-provided data. The WHP Team confirmed, corrected and deleted information from the preliminary PCSI list and map provided by MDH. The next step was to expand the data set using local knowledge. The city administrator and public works director used the County E911 map information to locate additional potential contaminant sources on the map. The Pembina township representative also assisted in verifying locations of wells outside the City limits. County parcel data and aerial imagery was used to identify land use on parcels outside the city limits and potential contaminant sources usually associated with that type of land u se (i.e. residences were listed with individual septic systems and private wells). After expanding the data set, the WHP Team reviewed and compared the vicinity PCSI data from MDH so there was not a duplication of entries. The last steps were to: 1) compare the Inventory results with the Scoping 2 inventory requirements to ensure all land uses and potential contaminant sources were considered, 2) complete and final PCSI map and list, 3) complete a final land use map and table, and 4) write a narrative describing the process that was used to conduct the inventory.

As part of the Management Strategies listed in Chapter 5, landowners will be contacted to determine if the wells are inactive/uncapped, sealed or active wells. A listing of wells and storage tanks inventoried within the DWSMA and a map showing their locations are included in the Appendix as Exhibit A. Additional information relating to land use such as political boundary maps, zoning and comprehensive land use maps for the areas located with the DWSMA, are included in Exhibit B and C. Information should be sent to property owners about the proper use and sealing of wells and also regarding funding available through the SWCD for sealing abandoned wells.

2. Public Utility Services

The annual volume of water pumped from the City of Mahnomen wells can be found in Table 2 later in the Plan.

The City of Mahnomen is entirely served by city sewer and water services, the best alternative for protection of groundwater sources. Most of the area outside of Mahnomen is served by individual septic systems and private wells, with the exception of eight to twelve residences (newer tribal housing) in Pembina Township that are served by city sewer and water.

There are no gas pipelines found within the DWSMA.

3. Inner Wellhead Management Zone

The Inner Wellhead Management Zone (IWMZ) is the land area lying within a 200-foot radius of a public water supply well. An IWMZ inventory is the process of documenting the setbacks for any potential contaminates from the public well, within this 200-foot radius. This is done to identify land use issues and related potential contaminants which may have the most immediate impact upon the public water supply wells. Public water systems are required to develop and implement management strategies for any potential contaminant sources located within the IWMZ. All setbacks from the municipal wells were met for the potential contaminate sources identified through the IWMZ Inventories. Results of the IWMZ Inventories are included in Exhibit D. Residential land use surrounds both Well 4 and 6 and the land around Well 7 is mostly vacant.

A railroad track is located within the IWMZ and a management strategy is included in Chapter 5 that addresses potential contamination from spills, etc.

C. Water Quantity Data Elements

1. Surface Water Quantity

The Mahnomen DWSMA is located within the Wild Rice Watershed District. The surface water in this area is limited to a few type 4 wetlands, the Wild Rice River and White Earth Creek. Currently no irrigation is being conducted in the area.

2. Groundwater Quantity

Groundwater levels are adequate for the amounts Mahnomen is currently permitted for under the groundwater appropriations program, administered by the Minnesota Department of Natural Resources (DNR). However, the City has indicated that a greater annual volume of water will be used during the next five years, primarily due to commercial and limited residential development. Using the greatest annual discharge values for each well far exceeds any previous annual system total and should easily account for any residential development.

No new high-capacity wells were noted near the Mahnomen well field that would affect the city's WHPA. Only the existing high-capacity well at Aggregate Industries was accounted for. Updated water use records from the City of Mahnomen were used to confirm the discharge values simulated in the groundwater flow model used to delineate the city's WHPA. No water shortages have been observed in the area.

D. Water Quality Data Elements

1. Surface Water Quality

This data element is not required.

2. Groundwater Quality

A low level of tritium in a water sample taken from Well #4 on March 16, 1999 (1 tritium unit) suggests a relatively long residence time for most of the water in the

aquifer, and therefore little interaction with surface water. Although this value is relatively low, it marks the threshold for water that has a significant component of recharge that entered the ground since 1953.

Results from routine sampling conducted by the MDH over the period 1993-2008 showed no violations of any parameters monitored under the Safe Drinking Act. No synthetic or volatile organic compounds have been detected and nitrates also have not been detected above 0.15 mg/l.

The following chart is a reproduction of water quality sampling tests for Mahnomen.

Table 1. Well Test Sample Results

LOCATION:	COLLECTION DATE:	DESCRIPTION:	RESULT:
PUMPHOUSE	10/26/1995	Arsenic	13 ug/L
PUMPHOUSE	2/25/1998	Arsenic	8.8 ug/L
PUMPHOUSE	2/25/1998	Sulfate, Total, MTB, SDWA	93 mg/L
PUMPHOUSE	3/30/2000	Arsenic	7.4 ug/L
PUMPHOUSE	3/30/2000	Sulfate, Total, MTB, SDWA	84 mg/L
PUMPHOUSE	2/11/2002	Arsenic	9.5 ug/L
PUMPHOUSE	5/7/2002	Arsenic	7.1 ug/L
PUMPHOUSE	8/5/2002	Arsenic	7.4 ug/L
PUMPHOUSE	8/15/2002	Arsenic	9.7 ug/L
PUMPHOUSE	11/6/2002	Arsenic	7.9 ug/l
PUMPHOUSE	5/18/2004	Arsenic	8 ug/L
Distribution	8/15/2002	Arsenic	7.3 ug/L
Distribution	8/15/2002	Arsenic	8.1 ug/L
Treatment Plant	8/3/2004	Arsenic	6.13 ug/L
Treatment Plant	8/3/2004	Sulfate, Total, MTB, SDWA	110 mg/L
Treatment Plant	9/14/2007	Arsenic	4.13 ug/L
Treatment Plant	9/14/2007	Sulfate, Total, MTB, SDWA	115 mg/L

Source: MDH

A copy of the Consumer Confidence Report can be found in Exhibit E. This report is provided to public water suppliers by the Minnesota Department of Health, to be made available to the public. The purpose of this report is to educate the local water users of the quality of their drinking water and heighten awareness of the need to protect precious water resources, and, as the name implies, boost their confidence in this valuable resource.

II. ASSESSMENT OF DATA ELEMENTS

A. Use of the Well

The City of Mahnomen operates a public water supply system consisting of three drilled wells: Well 4, unique well #221667; Well 6, unique well #620592; and Well 7, unique well #657387.

Existing construction information for Well #4 suggests that grout was not drawn into the

annular space of the well casing as it was drilled as is currently required by the State Well Code. This factor could provide a pathway for near-surface contamination to enter the source water. As a result, the sensitivity of this well to contamination is considered to be high. Wells # 6 and #7 sensitivity is considered low because they meet all construction standards required by the State Well Code.

City of Mahnomen records indicate the maximum volume of water pumped annually by their system over the period shown from 2002 to 2007. These values were reported to the Minnesota Department of Natural Resources (DNR) as required by the City's water appropriation permit No. 791225. The following table illustrates the volumes.

Table 2. City of Mahnomen Annual Water Volume Used –2002-2007

Well No.	2002	2003	2004	2005	2006	2007
Well #4	**27,100,000**	25,200,000	18,500,000	17,000,000	20,761,000	17,072,000
Well #6	**55,000,000**	53,200,000	41,100,000	29,400,000	31,627,938	33,479,000
Well #7	Not drilled	Not drilled	17,500,000	30,900,000	29,846,062	**33,485,000**
System Total	*82,100,000*	*78,400,000*	*77,100,000*	*77,300,000*	*82,235,000*	*84,030,000*

Source: City of Mahnomen Public Works Department

The highest volume pumped was for the year 2007. The City does anticipate pumping a greater annual volume of water during the next five years to accommodate residential and commercial development but not over the design capacity.

The city's water system is operating at about 50% capacity as well as the sewage treatment system.

B. Wellhead Protection Area Delineation Criteria

See Part 1 of this Plan for documentation regarding how the following delineation criteria were applied to determining the boundaries of the wellhead protection area (WHPA):

1. Time of Travel – 10 years
2. Flow Boundaries – geologic information, DNR database
3. Daily Volume – provided by the system
4. Ground Water Flow Field – water level data from nearby wells
5. Aquifer Transmissivity – specific capacity data obtained during construction

C. Quality and Quantity of Water Supplying the Public Water Supply Well

The Mahnomen water system pumps approximately 225,300 gpd with a design capacity of 1,440,000 gpd. Static water level information was taken from the County Well Index over several decades and has remained fairly constant over the past five years therefore current appropriations have had no effect on the system.

In most cases, the water meets or exceeds federal water quality standards. Treatment of water currently consists of the application of fluoride as required by the Department of Health, and removal of iron and magnesium. A new water treatment plant was built in 2007.
It does not appear from the data collected that water *quantity or quality* issues will have

a significant impact on management of the DWSMA. However, water conservation information and education should be available and on-going for property owners within the DWSMA to conserve water whenever possible, especially during dry years.

Historically, under10% of the city's water is unaccounted for. (The American Water Works Association (AWWA) recommends that this should be no more than 10% of a city's water usage.) The City is beginning a study to examine ways to reduce water use that is unaccounted for. Some of the unaccounted water is from flushing hydrants, water main breaks and the fire department, as water used by the fire department is not metered.

Maintaining the current water *quality* will continue to require management strategies to protect the drinking water supply.

D. The Land and Groundwater Uses in the Drinking Water Supply Management Area.

The land in the DWSMA is primarily used for agricultural outside the city limits and residential inside the city limits. Municipal and private wells extend into the protected aquifer. The water drawn from these wells is primarily used for drinking water.

Storage tanks have been identified in the area and the only underground storage tank located within the DWSMA is at the Shooting Star Casino, Super Pumper gas station This is a relatively new tank and meets the underground storage tank requirements.

There was a leaking underground storage tank (LUST) in the rear parking lot of the casino from an old gas station that was discovered in 1992 but the MPCA closed this site in 1995.

Table 3. Inventory of Wells and Storage Tanks in the DWSMA

TYPE of WELL/TANK	NUMBER
Public Water Supply wells	3
Old Municipal Well(s) (inactive & sealed)	4
Commercial well(s)	2
Domestic well(s)	29
Test bore holes	0
Observation well(s)	0
Unused/Unsealed well(s) (inactive/sealed)*	unknown
Sealed/Reported to MDH well(s)*	unknown
Shallow Disposal well(s)	0
Monitoring well(s)	0
High-capacity well	1
Underground storage tanks	1
Leaking underground storage tanks	3

Source: City of Mahnomen-2008 (*-see Management Strategies in Chapter 5)

CHAPTER TWO
IMPACT OF CHANGES ON PUBLIC WATER SUPPLY WELL (4720.5220)

I. CHANGES IDENTIFIED IN:

A. Physical Environment

Changes in the physical environment are important to consider. The City of Mahnomen expects residential growth in the next five years. This growth will occur to the west of the City. Any property that is annexed and plans to develop will be required to connect to City sewer and water utilities.

The White Earth Reservation may see the development of a Renewable Energy Facility. If this occurs, monitoring of the water resources used will be important to determine what effect, if any, this use may have on the City's aquifer.

No *major* changes to the physical environment within the DWSMA are anticipated in the next ten years.

B. Land Use

1. *Land use outside the Inner Wellhead Management Zone*: Land uses that result in additional water wells in the DWSMA will likely have little impact on the aquifer unless water demand is increased to the point that 1) additional loss in hydraulic head occurs within the aquifer used by the public water supply or 2) pumping changes the boundaries of the WHPA. Constructing additional wells into the aquifer may increase the points of entry, alter the WHPA, or draw naturally occurring or human-caused contaminants towards the Mahnomen well(s). Land uses that may allow underground or above-ground storage tanks within the DWSMA should be addressed in a comprehensive land use plan and associated zoning requirements by the City of Mahnomen. The Headwater's Regional Development Commission is currently assisting Mahnomen with an update to the Comprehensive Plan. They will be made aware of the Wellhead Protection Plan and the importance of monitoring land uses in the DWSMA. The County and Pembina Township will also be notified of the DWSMA and plan and asked to coordinate land uses with the protection of the drinking water in mind.

The City should begin talks with Pembina Township to discuss the possibility of orderly annexation to accommodate residential development and encourage urban densities requiring city services instead of large lot, rural residential development that would utilize septic systems and private wells.

The City should also work with the White Earth Tribal Council on promoting sustainable development in the area.

Residential development will continue within the DWSMA area. Some commercial growth could occur but at a limited rate. Agricultural uses should remain constant for the next five years.

2. *Land use within the Inner Wellhead Management Zone*: City wells 4, 6 & 7 are located inside the city limits where the primary use of land within the 200 foot radius of the city wells is residential.

Potential contaminants identified within the 200-foot radius of wells 4 and 7 that did not meet the minimum isolation distance was a gravel pocket that receives clear water drainage in the City pump house. A management strategy is included for this in Chapter 5. It should be noted that the gravel pocket is a nonconforming source (in place prior to the well code).

The residential use should remain constant in this area.

Old Municipal wells: The old municipal wells 1, 2 and 3 are all located on the same property. These wells were sealed by Lundin Brothers approximately 15 years ago. Wells 2 & 3 were sealed by Lundin Brothers in 1995 while well 1 was sealed in 1998 by LTP. The old 5 well was also sealed in 1998 by LTP and was located near wells 4 & 6.

C. Surface Water

As noted in Part I of the plan, the degree of hydraulic connection between the Wild Rice River and the aquifer is not certain.

Also as mentioned earlier, Mahnomen County has many lakes, bogs and marshes, which receive much of the runoff from the surrounding landscape. These water bodies act as natural catch basins for flood control, but they are continually becoming shallower as they are filled with eroded sediment. This sedimentation of lakes and marshes contributes to increased flooding of creeks and rivers after periods of heavy rainfall. Artificial drainage systems also contribute to this flooding.

Ground water quality may be affected by the decrease in these natural catch basins that helps filter out possible groundwater contaminants.

D. Groundwater

The static levels of the city wells have changed little over the past five years. Mahnomen has enjoyed groundwater of excellent quality and quantity in the past.

The City should maintain close contact with the White Earth Tribal Council regarding the possible development of a renewable energy facility.

Also, the addition of any new high-capacity wells could lead to a revision of the WHPA as the delineation of the affected area could change. Tests would be conducted on the new well to determine the vulnerability and also the one-year time of travel area would possibly be expanded, depending on the location of the new well. This could lead to a revision of the WHPA and DWSMA boundaries, which would mean identifying the location of additional wells and depending on the vulnerability, possibly underground storage tanks.

II. IMPACT OF CHANGES

A. Expected Changes in Water Use

As new homes develop within the city, the volume of water pumped will also increase. Commercial and industrial development may also occur within the city of Mahnomen, causing volumes to increase. The City of Mahnomen does anticipate pumping an increased volume of water for each well over the coming five-year period. The reason for this is residential and commercial growth and development. However, the City has enough capacity in their sewer and water system for future residential and commercial growth for the next ten years.

The City has an Industrial Park that is built and ready for additional industrial growth and development. A potential exists for significant water usage if a "wet" industry should choose to locate there. At this time, Mahnomen is not anticipating this as they are not encouraging this type of industrial development. A potato chip plant is opening in the winter of 2009 and the City Engineer has been working closely with the plant to determine sewer and water usage needs.

The White Earth Tribal Council is building a new tribal college in Mahnomen. This will also increase the use of water but should not be significant enough to warrant an increase in pumping capacity.

B. Influence of Existing Water and Land Government Programs and Regulation

Mahnomen currently administers a zoning ordinance within the city limits and also, extraterritorially (two-mile radius outside city limits). The City is in the process of updating their Comprehensive Plan. A map of the DWSMA and WHPA will be included in this update and all subsequent updates of the Plan.

Mahnomen County does not enforce county-wide zoning. They do enforce zoning within shoreland areas. The Wild Rice River and White Earth Creek would be under the County's shoreland jurisdiction within 500 feet of their flowages and both are located within the DWSMA. The County also administers flood plain management outside of the two-mile radius of the City of Mahnomen.

The Wild Rice Watershed District (WRWD) encompasses the land within the DWSMA with its policies and goals. This organization deals with issues relating to water, such as drainage, water quality, flooding, water conservation, stream gauging and promotion of educational programs. The WRWD uses the permit system to enforce its adopted Rules and Regulations for the District. Land owners, public entities or governmental units that contemplate a construction project impacting the water resources must submit a permit application. The District will assist permit applicants with technical advice so that project function may be accomplished in the most environmentally acceptable manner.

The White Earth Reservation has adopted a strategic plan for the reservation that includes some environmental strategies. The Reservation also has an integrated resource management plan that guides the Tribal Council in planning and resource decisions. Some of their goals include: integration of water quality, environmental protection, fisheries, wild rice, cultural resources, wildlife management and forestry practices with other natural resource management programs, with emphasis on multiple-

use concepts; restoring and preserving wetlands and prairies valuable for wild rice, waterfowl and other wildlife; protection and preservation of existing important fish and wildlife species and their habitat; develop, refine and implement environmental protection codes to protect the soil, water and air resources of the White Earth Reservation.

The Mahnomen County Water Plan supports the wellhead protection committee's efforts. The SWCD administers the state cost-share program for well sealing and also has a grant available (EQIP) for agricultural producer's. As a management strategy, Mahnomen will ask the SWCD to prioritize wells within the DWSMA (beginning with those within the 1 year time-of-travel of the wells) for the cost-share program. Some of the programs that have resulted from the County Water Plan are: to promote education and information programs on water stewardship; to locate existing and unused wells, underground storage tanks; to protect and improve the quality of water in the county; and to establish a more complete database of Mahnomen County's water resources. In addition to the well sealing program, the SWCD conducts a water screening service for the County and monitors rainfall.

The Headwater's Regional Development Commission assist the City and County with planning issues and could be helpful in assisting the County in developing a countywide land use and zoning ordinance. They have assisted both the County and City in the past with their current ordinances. They are currently updating the Comprehensive Plan for the City of Mahnomen.

A gap exists in land located outside the two-mile extraterritorial jurisdiction of the City and shoreland properties. Mahnomen County has not adopted countywide zoning; however enforcement of the ISTS regulations is county-wide. Communication with the County regarding implementing land use regulations countywide would assist in this effort.

The updated water plan includes initiatives that recognize the Mahnomen DWSMA and ground water protection efforts. The plan also includes a copy of the map showing the WHPA and DWSMA. The SWCD could also be instrumental in providing information to residents regarding the Conservation Reserve Program (CRP) for continuous sign-up that may be available for landowners located within the DWSMA.

C. Administrative, Technical, and Financial Considerations

The City of Mahnomen appointed a Wellhead Protection Committee early in the process of developing a plan. The administrative and implementation responsibilities remain with the Committee and the Wellhead Protection Manager. Cooperation and communication with other units of government is important to coordinate efforts for wellhead protection. Many of these activities will involve public education and as noted later in the plan, Mahnomen County, Pembina Township, White Earth Reservation, Minnesota Department of Health, Minnesota Rural Water Association, the Wild Rice Watershed District and the Soil and Water Conservation District offices all can assist the City with these efforts. The Wellhead Protection manager and committee will report to the City Council with updates on the progress of their efforts. The City anticipates administering the Wellhead Plan with current staff.

In addition to the city budgeting money for wellhead protection efforts, other funds or in-kind services are available to assist with this program. The City can also add a charge

to their utility billing for wellhead protection efforts The SWCD administers the state well-sealing program that is available to residents of Mahnomen County that pays up to 50% (depending on the size of the well) to seal abandoned or inactive wells. The MDH will assist with determining the correct measures for sealing unused wells, constructing new wells, and requiring the sealing of unused wells if this becomes necessary and the MRWA provides technical assistance during the wellhead protection implementation phase.

Another method of protection includes lending institution regulations. When a home is sold and financing is sought, residential wells typically must be capped if unused, as a condition of the sale. (A well disclosure is required so most unused wells are then sealed.)

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 strategies identified in this part of the plan, changes in the status of the wells listed in Table 3 and actual costs related to proper sealing of unused/unsealed wells. Management strategies will also be prioritized to allow for more efficient implementation and use of available resources. The City will discuss changes in plan implementation costs with MDH to determine the availability of state or federal funding for offsetting increased costs to plan implementation.

CHAPTER THREE

ISSUES, PROBLEMS, AND OPPORTUNITIES (4720.5230)

I. LAND USE ISSUES, PROBLEMS, AND OPPORTUNITIES RELATED TO:

A. The Aquifer

The aquifer has been determined to be moderately susceptible to contamination throughout the drinking water supply management area. A sample taken from Well 4 in 1999 contained 1.0 tritium units (TU), thus the aquifer test results at that well show that the confining units bounding the aquifer are leaky. The overlying clay-rich till provides a measure of protection to the aquifer, although it does allow for slow infiltration from the land surface. The system's water supply should be relatively unaffected by land use activities with the exception of other wells that penetrate the same aquifer, storage tanks or shallow disposal systems.

B. Wells and Water Supply

This Wellhead Protection Plan is primarily concerned with other water supply wells, storage tanks and shallow disposal wells (Class V) that could cause a potential for contaminating groundwater.

Two of the wells (6 & &7) used by the City of Mahnomen meet current state well code construction and maintenance requirements and should not contribute to the susceptibility of the source water to contamination. However, existing construction information for Well 4 suggest that grout was not drawn into the annular space of the well casing as it was driven, as is currently state code. This could provide a pathway for contaminants to enter the source water. As a result, the sensitivity of this well to contamination is considered high. Wells 6 & 7 sensitivity to contamination is considered low.

Nitrate levels have been low over the past 10 years. Working with local landowners on proper maintenance of wells will help ensure that these levels remain low.

Abandoned wells should be identified and landowners contacted regarding possible assistance with the proper sealing of these wells. It is not anticipated that there will be a significant increase in the number of private wells in the area.

Currently, the City has sufficient capacity in the water supply system to provide water for any known uses for the next five to ten years

The White Earth Reservation Tribal Council is considering a renewable energy facility in the near future. If this is built, water use should be monitored to determine if any effect is noted by the city water system.

The City of Mahnomen is virtually landlocked in terms of development area for residential uses. The city should consider annexation of growth areas, especially to the west of Mahnomen, to allow city services to be extended to these development areas. This would decrease the number of new wells being drilled into the aquifer.

The following water use factors must be monitored to determine if a revision of the WHPA or DWSMA is required: 1) the installation of any new high-capacity wells within 3 miles of Mahnomen wells no.4, 6, & 7; or 2) increased discharge from Mahnomen wells over the value used in the delineation in Part I.

The City will work with the DNR and MDH to identify any proposed high-capacity wells within the DWSMA and will work with MDH to determine if an update to the wellhead plan would be needed.

C. Underground and Above-Ground Storage Tanks

Several storage tanks and historical tank locations have been identified within the DWSMA. It is difficult to determine if any tanks will be added in the future, but the City and MDH will remain in contact to include these in future inventories and updates to the plan. Owners of storage tanks will be sent information regarding the proper maintenance and operation of their tanks. If additional storage tanks are found, contact will be made with the property owner to determine the status of the tank and to ensure that the owner is aware of proper maintenance and operation of the tank.

D. Shallow Disposal Wells

City staff noted that no shallow disposal wells existed within the DWSMA. If a business plans on installing one, the WHP manager will contact them to educate them on the options for proper disposal and EPA reporting requirements. (See Management Strategy for shallow wells in Chapter 5.)

E. The Drinking Water Supply Management Area

The City's DWSMA is found inside and outside of the city limits of Mahnomen. The City has a zoning ordinance and comprehensive plan in effect (currently updating) and this creates an excellent opportunity to work on land use issues to ensure that future development will not negatively impact the aquifer, well water or the DWSMA. Mahnomen County does not have county-wide zoning but does administer shoreland zoning.

In working with landowners, the City's wellhead committee should ask that best management practices (BMP's) be required on any proposed development within the DWSMA. Encouraging the City planning commission to carefully review and report on proposed land use changes and utilize their current zoning ordinance language to guide development within the DWSMA would be useful tools for wise management of the DWSMA. Communication and cooperation will be important in ensuring protection of the DWSMA.

The City plans to address public education as a top priority to specific landowners identified within the DWSMA. Other residents of the County will also be targeted through various programs that distribute information about the Wellhead Protection Plan and the DWSMA.

II. IDENTIFICATION OF:

A. Problems and Opportunities Disclosed at Public Meetings and in Written Comment

The members of the Wellhead Protection Committee include representatives from other

governmental units including the City of Mahnomen, Pembina Township, Soil and Water Conservation District (SWCD), Minnesota Rural Water Association (MRWA), and MDH. At the beginning of the planning process other local units of government (LUG's) were identified and informed that the City was beginning the wellhead protection planning process. (See Exhibit F for a list of LUG's)

Issues identified at the Wellhead Protection meetings include identification of wells and storage tanks in the DWSMA. The need for a strong public education program has also been identified and discussed.

A public informational meeting was held on March 17, 2008 on Part I of the Wellhead Protection Plan at the Mahnomen City Council meeting. No concerns from the general public were expressed at that time. (See Exhibit G for minutes from the public information meeting.)

A public hearing was held on February 2, 2009 to present Part II of the WHP to the City Council and general public. No comments or concerns from the general public were expressed at that time. (See Exhibit K for public hearing notice and minutes.)

B. Data Elements

1. Aquifer Thickness and Transmissivity
The most significant change noted in data elements from the 2002 plan was a decrease in the thickness of the aquifer from the area around Well 6, where 37 feet of aquifer material is present to Well 7, where only 25 feet is available. About 200 feet north of Well 7, test well 268386 intersected only 3 feet of aquifer material.

Part I of the wellhead plan amendment recommends that every five years, the City should work with MDH to verify the locations and elevations of new wells constructed within one mile of the well fields. This will help address the uncertainties related to variations in the thickness of the city's aquifer.

Also, by verifying locations and elevations of new wells within one mile of the city's well fields, useful data on aquifer transmissivity can be provided by collecting specific capacity data from these private wells.

2. Aquifer Vulnerability
Part I recommends that Well 4 and Well 7 be re-sampled for tritium within the next 5 years to confirm that old water is dominant at the city wells.

Construction records for Well 4 and several additional wells drilled around Mahnomen prior to 1970 by Espe Well Drilling, show only sand in the geologic record. This conflicts with surficial geologic maps, soil survey mapping and other well construction records. Any information that can be found as to the accuracy of these records should be sought to help clarify the assessment of geologic conditions.

C. Status and Adequacy of Official Controls, Plans, and Other Local, State, and Federal Programs on Water Use and Land Use.

The City zoning ordinance, state well and groundwater appropriation permits could be used as control tools, if necessary. The city also enforces extraterritorial zoning

regulations within a two mile radius adjacent to the city limits. Mahnomen County has not adopted county-wide zoning and only enforces shoreland zoning at the present time. The City currently connects all new development to city sewer and water and is working on an ordinance that will *require* all landowners to connect to City sewer and water if the lines run by their property (or are within so many feet of the development). (See Objective B-2 management strategies in Chapter 5 of this plan.) The WHP Committee has recommended that no additional regulations be imposed at this time. It is felt that local issues will be adequately addressed through the plan's strategies, including public education and good communication with other landowners within the DWSMA.

The Mahnomen County Water Plan supports the wellhead protection committee's efforts. The Water Plan contains language and priority work items addressing water quality protection. The protection of groundwater resources as identified in the local water plan is very beneficial in protecting the aquifer used by the City. The plan currently has identified *groundwater quality* as a priority concern and notes the protection of the DWSMA in several initiatives. Continuing to include language and initiatives regarding Mahnomen's DWSMA will be instrumental in protecting ground water quality. The County Water Plan is also a way to provide additional public education on the DWSMA and the Plan.

The SWCD administers the state cost share program for well-sealing. The SWCD has implemented the MDA Nitrate Water Testing Clinics for over a decade. They would also like to begin an arsenic water testing program to develop more complete baseline data records of the county's groundwater quality. This is included in the priority concern initiatives in the water plan.

In the past, volunteer observation wells within one mile of the city wells were identified for the Ground Water Level Monitoring Program (GWLMP) implemented by the MnDNR. The water level readings from these wells could provide data that would be useful to the city.

A desire for increased communication between the City and Mahnomen County regarding floodplain and county shoreland zoning is noted in the 2002 wellhead protection plan and is included in this plan update.

The land use control authority in the DWSMA is in the hands of the City of Mahnomen. The City plans to recognize the Wellhead Protection Plan in future updates of the Comprehensive Plan for the City. The City will request that similar consideration be made by Mahnomen County. Land uses in the IWMZ should be monitored to ensure compliance with the Wellhead Protection Plan and practices. Communication with the Tribal Council is also important to maintain to ensure compatible land uses within the IWMZ and DWSMA.

Any long-range planning conducted by the City or County should include future protection of the WHPA/DWSMA.

The City will work with MDH to 1) identify proposed wells that may present groundwater conflict concerns, 2) ensure these wells are properly constructed, 3) determine whether an alternative aquifer could be used, and 4) identify water-use and conservation requirements that the DNR may specify with the groundwater appropriations permit. The City will also request the SWCD to send records of well-sealing and well-drilling activities within the DWSMA.

Regarding storage tanks, the City will continue to work with MPCA, MDA and MDH to 1) track current and future locations of tanks, 2) enforce local land use performance standards for land uses that utilize tanks, 3) promote best management practices for all tanks, and 4) provide educational materials to tank owners/operators.

The U.S. EPA has regulatory authority over shallow disposal wells (Class V). The City will cooperate with MDH in developing an inventory of where these types of wells locate in the future within the DWSMA and provide well owners with educational materials regarding the use or management of these types of wells.

CHAPTER FOUR

WELLHEAD PROTECTION GOALS (4720.5240)

The water supply is located underground and is classified as moderately vulnerable. Consequently, this WHP plan will focus on addressing the location and status of other wells that may be used for domestic, public or commercial purposes. Storage tanks will also be addressed. The overall goal is to prevent contamination of the aquifer and manage the aquifer cooperatively to assure sustainable water supplies for all users. Future locations of tanks and shallow well disposal systems will be monitored.

The City of Mahnomen has historically enjoyed a sufficient and safe water supply, and proposes, through the implementation of this WHP Plan, to continue supplying safe, potable water for its residents and visitors into the future.

The WHP team identified the following goals to be achieved with the action items contained in this Plan:

1. Maintain or improve the current level of water quality that meets or exceeds all state and federal standards.

2. Educate public officials, landowners and the general public about the importance of wellhead protection to protect the public drinking water supply.

3. Provide and promote activities that protect the aquifer from which the City of Mahnomen's drinking water supply is drawn and increase public awareness of the Wellhead Protection Program and groundwater protection issues.

4. Provide ongoing collection of data to support future wellhead protection efforts.

CHAPTER FIVE

OBJECTIVES AND PLANS OF ACTION (4720.5250)

1. ESTABLISHING PRIORITIES - The aquifer supplying the system's drinking water supply has been identified as moderately vulnerable to contamination from land use activities, such as various types of wells, storage tanks and shallow disposal wells. A number of factors must be considered when Wellhead Protection measures are selected and prioritized (part 4720.5250, subpart 3). Such factors include:

- Contamination of a public water supply well
- Quantities of the potential contamination sources
- Location of the potential contaminant sources relative to the wells
- Capability of the geologic material to absorb a contaminant
- Existence and effectiveness of existing official controls
- Time required to obtain cooperation from other agencies and cooperators
- Resources needed: staff, money, time, legal technical

Based upon these factors, the WHP Team 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. Public Education
B. Well Management
   1. *Municipal Well and Inner Well Management Zone Strategies and Awareness*
   2. *High Capacity Well Management Strategy*
   3. *Private Well Management, Sealing & Identification*
   4. *Class V Wells (Shallow Disposal Systems)*
C. Tank Management
D. Transportation Corridors and Spills
E. Data Collection
F. Land Use Planning

In Figure 1, a one year time of travel for potential contaminants to reach the public supply wells is considered the emergency management zone. This area should be considered a high priority area for implementation of the management strategies listed in this chapter.

In year eight of the plan (2016), a summary of action items from the following table will be prepared to ensure that all management strategies (action items) have been implemented. For those action items with an implementation time frame listed "as needed", an assessment will be made to determine if they can be completed or if the need still exists to implement them.

City of Mahnomen Wellhead Protection Action Items	Priority	Responsible Party / Cooperator	Cost	Implementation Time Frame										Completion Date
				2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
A. PUBLIC EDUCATION **Objective A-1**: *Work to establish a line of communication between the citizens and the City and use that line to educate the citizens of Mahnomen about how land use activities can impact local water quality.*														
WHP Measure 1: Distribute information to area residents about what Wellhead Protection is and create general awareness over time. This can be done through mailing of a brochure or WHP information directly to landowners in the DWSMA , with utility billings to city residents, and posted on the city website. This information could also be displayed at the city hall, post office, etc. Contact MRWA or MDH Planner for brochures and ed. material available for distribution. Additional information is available on the MRWA website at www.mrwa.com.	Very High	Wellhead Manager / MDH	Staff Time	X			X			X			X	
WHP Measure 2: Contact the Mahnomen County Soil & Water Conservation District (SWCD) and the Wild Rice River Watershed District annually to determine if there are events or activities the City can participate in that would help create awareness about groundwater and WHP. This may include city support or help with a WHP education event for youth, educate the public about a particular practice (ex. Well Sealing) or activity that protects drinking water resources.	Very High	Wellhead Manager / County SWCD's	Staff Time	X	X	X	X	X	X	X	X	X	X	
WHP Measure 3: Sponsor and share the MRWA Water Week educational materials with the Mahnomen 4h Grade School Teacher. A tour of the water treatment facility could also be scheduled for the week's activities.	High	Wellhead Manager	Staff Time	X	X	X	X	X	X	X	X	X	X	
WHP Measure 4: Work with the Mahnomen SWCD and Wild Rice River Watershed District to include information on wellhead protection on their web sites and in planning documents.	High	Wellhead Manager/ SWCD/ Watershed District	Staff Time	X		X		X		X		X		

City of Mahnomen Wellhead Protection Action Items	Priority	Responsible Party / Cooperator	Cost	Implementation Time Frame										Completion Date
				2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
B. WELL MANAGEMENT														
Inner Wellhead Management Zone: (200' radius around public water supply wells) **Objective B-1:** Effectively manage the municipal wells and IWMZ (200'radius around public water supply wells) to reduce the likelihood of contaminants from entering the well at a level to cause human health impacts.														
WHP Measure 1: Assist MDH staff in updating the Inner Wellhead Management Zone (IWMZ) inventory every 3-5 years for all public supply wells.	Very High	Wellhead Manager, MDH	Staff Time			X			X			X		
WHP Measure 2: The WHP Team will continue to comply with all required setbacks for new potential sources of contamination located within the IWMZ.	Very High	Wellhead Manager, Public Works, MDH Staff	Staff Time	X	X	X	X	X	X	X	X	X	X	
WHP Measure 3: The WHP Team will develop wellhead protection measures to address any new potential contaminant sources identified in future IWMZ inventories/surveys.	Very High	MDH Staff	Staff Time	X	X	X	X	X	X	X	X	X	X	
WHP Measure 4: Implement WHP Measures identified in the IWMZ Inventory. Measure identified is to post a "No Dumping" sign where floor drains (such as in pump houses) discharge to a gravel pocket or seepage pit. *Also, the city will evaluate potential impacts the floor drain and gravel pocket may have on Well #4 and work with MDH to determine if any further steps are necessary to reduce potential impacts on the PWS well.*	Very High	Wellhead Manager, WHP Team	Staff Time	X										
WHP Measure 5: Continue maintaining area around wells as residential, parks and/or open space to minimize the potential for contaminant impacts or spills near wells.	Very High	Wellhead Manager	Staff Time	X	X	X	X	X	X	X	X	X	X	
Private Well Management: **Objective B – 2:** *Educate and promote proper well management in the DWSMA. Identify new wells that may be constructed within the DWSMA or existing wells that have not been identified at this time. Promote proper well management and sealing of wells not in use.*														
WHP Measure 1: Some wells may have been unidentified due to lack of wells logs and/or other information during the development of the 2009 WHP, Part II. The City will continue to locate other wells that could threaten the City's water supply, including working with the SWCD on obtaining updated well drilling/sealing information.	Very High	Wellhead Manager /SWCD	Staff Time	X	X	X	X	X	X	X	X	X	X	

City of Mahnomen Wellhead Protection Action Items	Priority	Responsible Party / Cooperator	Cost	Implementation Time Frame										Completion Date
				2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
WHP Measure 2: The City will send letters to property owners within the DWSMA that they have identified on the PCSI inventory as having wells to determine the status: sealed; inactive; or active. This information will be used to update the PCSI map and inventory listing.	Very High	Wellhead Manager City staff	Staff Time	X										
WHP Measure 3: Provide information on proper well management and well sealing to well owners located in the Drinking Water Supply Management Area (DWSMA). Contact MDH or MRWA Planner for well management and well sealing brochures for distribution and assistance with measure.	Very High	Wellhead Manager / MDH or MRWA, Co. ESD. Or SWCD	Staff Time, Postage			X		Repeat as needed	X			X		
WHP Measure 4: The City will send a letter to the SWCD board requesting that they consider providing well-sealing funds for projects under $500 and that wells found within the DWSMA and in the same aquifer are high priority for funding.	Very High	Wellhead Mgr./ SWCD	Staff Time	X										
WHP Measure 5: Contact Mahnomen County SWCD for information on well sealing cost share funds available in the county. Provide this information with utility billing or directly to landowners with private wells in the DWSMA.	Very High	Wellhead Manager / SWCD	Staff Time, Postage			X			X			X		
WHP Measure 6: The City will develop language for an ordinance that requires all new development to connect to City sewer and water if utilities are available (or within so many feet of their property, etc.)	Very High	Planning Com./ City Council	Staff Time, ordinance amendment	X										
Class V Well Management (shallow disposal wells): **Objective B-3:** *Create awareness among commercial enterprises, local automotive shops or garages about what a Class V well is and Federal EPA registration, permitting and reporting requirements for Class V Wells.*														
WHP Measure 1: If a Class V well is identified, the Wellhead Manager will work cooperatively with MDH to determine the status of the shallow disposal system and what reporting steps may be needed to register the Class V well with EPA. EPA reporting forms are available at: www.epa.gov/safewater/uic/7520s.html. No Class V wells were identified within the DWSMA.	Low	Wellhead Manager, MDH Staff	Staff Time, Postage					As needed						

City of Mahnomen Wellhead Protection Action Items	Priority	Responsible Party / Cooperator	Cost	Implementation Time Frame										Completion Date
				2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
High Capacity Wells: **Objective B-4*:*** *Work with MDH and the DNR in the identification of any new high capacity wells that may be proposed for construction in the DWSMA which may impact the City of Mahnomen Public Water Supply Wells. Work with owners of existing wells to monitor water usage and prevent possible water-use conflicts.*														
WHP Measure 1: Work with MDH and the DNR in the identification of any new high capacity wells that may be proposed for construction in the DWSMA which may impact the City of Mahnomen Public (If the White Earth Tribal Council builds the proposed alternative energy facility, water use should be monitored to determine the impact, if any, on the Mahnomen water supply.)	High	Wellhead Manager/ MDH/DNR	Staff Time	As needed										
C. STORAGE TANK MANAGEMENT **Objective C-1:** *Create awareness about WHP efforts and activities among business owners of above and below ground tanks. Inform them that their facility is located in the City of Mahnomen DWSMA and the importance of promptly addressing any leaks detected through monitoring of product levels and the importance of spill prevention and response.*														
WHP Measure 1: Identify all property owners of tanks and provide brochures to businesses with registered storage tanks (RST's) describing the Wellhead Protection Program and information concerning tank monitoring and management. Provide information regarding property containment areas for above ground tanks and spill response and clean-up information	High	Wellhead Manager/ MPCA/ Businesses	Staff Time	X	As needed									
WHP Measure 2: Contact the MPCA Tanks Unit and provide them with a map of the DWSMA. Request to be updated on the status of LUST's and RST's within the DWSMA.	High	Wellhead Manager/ MPCA	Staff Time	X										
D. TRANSPORTATION CORRIDORS & SPILLS **Objective D-1:** *Establish communication with the railroad, highway departments and others to inform them of the location of the wellhead protection areas and the importance of special consideration during construction and/or in the event of any spills.*														
WHP Measure 1: Contact the Canadian Pacific railroad to inform them that the track runs through the IWMZ. Inform them of the need for consideration of this area in the event of a spill or other hazardous activity.	High	Wellhead Manager/ Railroad	Staff Time	X		X		X		X		X		
WHP Measure 2: Maintain informational Wellhead Protection (WHP) signs at the perimeter of the protection area or major roadways to create local awareness about WHP.	High	Wellhead Manager	Staff time & sign cost	X					X					

City of Mahnomen Wellhead Protection Action Items	Priority	Responsible Party / Cooperator	Cost	Implementation Time Frame										Completion Date
				2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
WHP Measure 3: Contact the County and State Highway Department and send them a map of the DWSMA and the purpose of the wellhead protection plan. Ask for their special consideration of this area when completing construction projects and maintenance along U.S.TH #59 and Mahnomen County Road's # 5 & 25.	High	WHP Mgr/ Mahnomen Co. & MN Highway Depts.	Staff Time	X										
WHP Measure 4: Communicate with the County Emergency Manager, local fire department, MPCA and first responders to alert them of the location of the DWSMA and the city's wellhead efforts. Ask that they consider the DWSMA area when responding to a spill.	High	WHP Mgr Fire Dept. Co. Emerg. Mgr. MPCA Spills Unit	Staff Time	X										
E. DATA COLLECTION **Objective E-1**: *Collect and tabulate additional data (i.e., stable isotopes, tritium levels, well driller logs for new wells) relative to local groundwater in order to augment and improve current knowledge of local conditions and to provide additional, more accurate data for future revisions of the City's WHP Plan.*														
WHP Measure 1: Every five years the City will work with MDH to verify the locations and elevations of new wells constructed within one mile of the well fields. (This will help MDH address the uncertainties related to variations in the thickness of the city's aquifer)	High	WHP Mgr. MDH	Staff Time					X					X	
WHP Measure 2: Re-sample Well 4 & 7 for tritium to confirm that old water is dominant at the city wells.	High	WHP Mgr MDH	Staff Time					X						
WHP Measure 3: Continue to work to develop better information regarding the construction of Well #4 and additional wells drilled prior to 1970 as well records show only sand in the geologic record. This conflicts with surficial geologic maps, soil survey mapping and other well construction records. Better information will assist in clarifying the geologic condition assessment. Coordinate with the MDH SWP Unit Hydro geologist.	High	WHP Mgr. City staff MDH	Staff Time	X										

City of Mahnomen Wellhead Protection Action Items	Priority	Responsible Party / Cooperator	Cost	Implementation Time Frame										Completion Date
				2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
WHP Measure 4: Further evaluate and identify other above-ground tanks, fuel oil tanks, other tanks or historical land uses (old dumps, hazardous sites) that were not reflected in the MDH PCSI repot that may have an impact on groundwater in the Mahnomen DWSMA and activities needed to address them. *(MDH and MRWA will provide technical assistance and discuss at the initial plan implementation meeting.)*	High	WHP Mgr, MDH, MRWA	Staff time	x										
F. LAND USE PLANNING **Objective F-1:** Identify Wellhead Protection (WHP) and the delineations completed (WHPA, DWSMA) in future revisions to local land use and resource planning documents. Consideration should be given to how future land uses or changes may impact local groundwater resources and the City of Mahnomen's public water supply.														
WHP Measure 1: Include Wellhead Protection information in future updates of the Mahnomen Comprehensive Plan, including maps and special considerations for land use within the IWMZ and DWSMA. Request Mahnomen County to do the same.	High	WHP Mgr MDH	Staff Time	X	(As needed)									

CHAPTER SIX

EVALUATION PROGRAM (4720.5270)

The success of the wellhead protection source management strategy must be evaluated in order to determine whether the plan is actually accomplishing what the City of Mahnomen set out to do. The following activities will be implemented to:

- Track the implementation of the objectives identified in Chapter 5 of this Plan;
- Determine the effectiveness of specific management strategies regarding the protection of the water supply;
- Identify possible changes to these strategies that may improve their effectiveness; and
- Determine the adequacy of financial resources and staff availability to carry out the management strategies planned for the coming year.

1. The City of Mahnomen will continue to cooperate with MDH in the annual monitoring of the water supply to determine whether the management strategies are having a positive effect and to identify water quality problems that may arise which must be addressed.

2. Members of the wellhead protection team, city staff and officials, and the WHP plan manager will drive through the drinking water supply management area on a *regular basis* to identify any changes in land use or potential contaminant source management practices which may adversely impact the water supply.

3. The wellhead protection team will meet on an as-needed basis, with a minimum of *one **annual meeting***, to review the results of each strategy implemented during the previous plan year and identify whether modifications are needed for those strategies and additional strategies for the coming plan year.

4. The wellhead protection plan manager will make an ***annual written report*** to the City Council regarding progress in implementing the wellhead protection management objectives of this Plan. The annual reports will be compiled and used to review the overall progress in implementing source management strategies when the wellhead protection plan is updated in 10 years.

5. Every ***two and a half years*** a report detailing implementation efforts and an evaluation of the wellhead protection plan will be sent to the Minnesota Department of Health WHP planner (Beth Kluthe), Minnesota Rural Water SWP Planner (Mark Wettlaufer), MDH Source Water Protection Unit, and another copy placed in the City's Wellhead Protection file. (Forms are available from the MDH for the report's format.)

CHAPTER SEVEN

WATER SUPPLY CONTINGENCY PLAN (4720.5280)
Mahnomen, Minnesota

The Water Emergency and Conservation Plan for Mahnomen was approved by the DNR on September 5, 2008. A copy of the plan can be found at City Hall.

(A copy of the approval letter can be found in Exhibit I.)

APPENDIX A

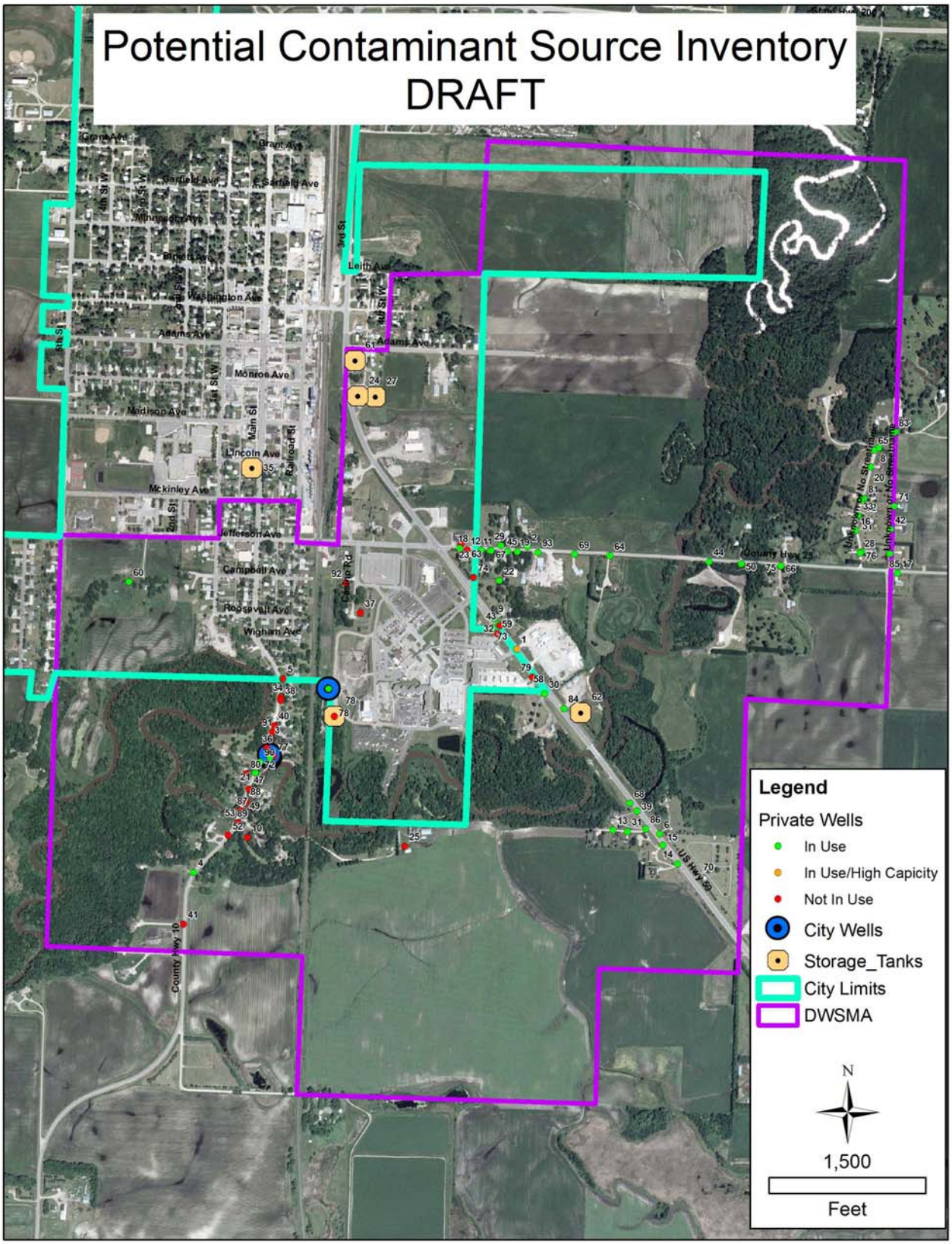
(Referenced Data for Part 2)

Exhibit A	**Potential Contaminant Source Inventory map and spreadsheet**
Exhibit B	**Zoning Map**
Exhibit C	**Land Use Map**
Exhibit D	**IWMZ inventories**
Exhibit E	**Consumer Confidence Report**
Exhibit F	**List of Local Governmental Units (LUG's)**
Exhibit G	**Minutes for Public Information Meeting on Part I**
Exhibit H	**Scoping II Notice**
Exhibit I	**DNR Letter of Approval for Emergency Contingency Plan**
Exhibit J	**Part II Letter to LUG's**
Exhibit K	**Part II Public Hearing notice and minutes**
Exhibit L	**Letter to MDH**
Exhibit M	**Approval letter from MDH**

Abbreviations

BMP	Best Management Practice
City	City of Mahnomen
County	Mahnomen County
DNR	Minnesota Department of Natural Resources
DWSMA	Drinking Water Supply Management Area
IWMZ	Inner Wellhead Management Zone
LUG	Local Units of Government
MDH	Minnesota Department of Health
MPCA	Minnesota Pollution Control Agency
MRWA	Minnesota Rural Water Association
NRCS	Natural Resource Conservation Service
PCSI	Potential Contaminant Source Inventory
SWCD	Soil and Water Conservation District
WHP	Wellhead Protection
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Plan

Exhibit A: Potential Contaminant Source Inventory map and spreadsheet



Map #	NAME	ADDRESS	MDH FACILITY I.D. #	*H.C WELL	**WELL (A)	***WELL (I/C)	WELL (Class V)	**** RST	***** LUST	OTHER	COMMENTS	PID
1	AGGREGATE INDUSTRIES	2324 US HWY 59			X						COMMERCIAL PROPERTY	13.011.0310
2	ALLARD CHRISTENSON	1484 230TH ST			X						RESIDENTIAL PROPERTY	13.002.2700
3	ANDRING	23416 140TH AVE				X					RESIDENTIAL PROPERTY	13.011.2110
4	ANDY WAMBACH	23703 140TH AVE			X						RESIDENTIAL PROPERTY	13.011.2700
5	ANNEBELLE WALZ	23302 140TH AVE				X					RESIDENTIAL PROPERTY	18.150.0060
6	B CHRISTENSON	2350 US HWY 59			X						RESIDENTIAL PROPERTY	13.012.0900
7	BRUCE STARKEY (STARKEY PHOTOGRAPHY)	316 E JEFFERSON AVE				2X						18.011.1300
8	BRUSVEN AL	2280 154TH AVE			X						RESIDENTIAL PROPERTY	13.300.0080
9	C JASKEN	2314 US HWY 59			X						RESIDENTIAL PROPERTY	
10	CITY OF MAHNOMEN	CITY PARK				X						13.011.2900
11	Cory Anderson	1477 230TH ST			X						RESIDENTIAL PROPERTY	13.011.0230
12	Cory Anderson - vacant property	1475 230TH ST			X						RESIDENTIAL PROPERTY	13.011.0240
13	D BELLANGER	1501 235TH ST			X						RESIDENTIAL PROPERTY	13.011.0550
14	D NOLL	2355 US HWY 59	N/A		X						RESIDENTIAL PROPERTY	13.012.0540
15	D SCHOENBORN	2353 US HWY 59	323911		X						RESIDENTIAL PROPERTY	13.012.0530
16	D SKUNES	2291 154TH AVE			X						RESIDENTIAL PROPERTY	13.300.0020
17	D. CLARK	1551 230TH STREET			X						RESIDENTIAL PROPERTY	13.012.0101
18	DAHLEN MASSAGE	UNKNOWN - BELIEVED TO BE CORNER OF JEFFERSON AND HWY 59			Y						BUSINESS	INSIDE CITY LIMITS

Map #	NAME	ADDRESS	MDH FACILITY I.D. #	*H.C WELL	**WELL (A)	***WELL (I/C)	WELL (Class V)	**** RST	***** LUST	OTHER	COMMENTS	PID
19	DELORUS WINTER	1483 230TH ST			X						RESIDENTIAL PROPERTY	13.011.0300
20	E KAKLBAUGH	2281 154TH AVE			X						RESIDENTIAL PROPERTY	13.300.0060
21	E NIESEN	23481 140TH AVE			X						RESIDENTIAL PROPERTY	13.011.1710
22	ED LADUE	2308 US HWY 59			X						RESIDENTIAL PROPERTY	13.011.0110
23	ED LADUE	701 E JEFFERSON				X					BUSINESS	18.002.2930
24	EIDS MIDWAY SERVICE	BUILDING NO LONGER EXISTING WETCC BLDG IS THERE)							A		(8) REMOVED STORAGE TANKS AND (1) LUST	INSIDE CITY LIMITS
25	ELROY HANSON ETAT					X						13.011.0920
26	EMMA KLEPETKA ESTATE					X						13.011.2600
27	FORMER BULK FUEL FACILITY	BUILDING NO LONGER EXISTS INTERSECTION OF ADAMS &HWY 59							A		(1) LUST	INSIDE CITY LIMITS
28	G GUSTAFSON	2295 154TH AVE			X						RESIDENTIAL PROPERTY	13.300.0010
29	GEORGE MILLER	1480 230TH ST			X						RESIDENTIAL PROPERTY	13.002.2800
30	GUNDERSON	2327 US HWY 59			X						RESIDENTIAL PROPERTY	13.011.0720
31	H MCCOLLUM	1503 235TH ST			X						RESIDENTIAL PROPERTY	13.012.0520
32	J BEMIS	2316 US HWY 59			X						RESIDENTIAL PROPERTY	13.011.0800
33	J STOCK	2288 154TH AVE			X						RESIDENTIAL PROPERTY	13.300.0100
34	JACK MILLER	23336 140TH AVE				X					RESIDENTIAL PROPERTY	13.011.1900
35	JACKS MOTOR SPORTS?	INTERSECTION OF S. MAIN &LINCOLN AVE							A		(2) REMOVED STORAGE TANKS	18.100.0970

Map #	NAME	ADDRESS	MDH FACILITY I.D. #	*H.C WELL	**WELL (A)	***WELL (I/C)	WELL (Class V)	**** RST	***** LUST	OTHER	COMMENTS	PID
		(CURRENTLY OLSON'S OUTDOOR SPORTS)										
36	JANIS BEDFORD	23434 140TH AVE				X					RESIDENTIAL PROPERTY	13.011.2200
37	JEAN BLAESER	714 CASINO ROAD				X						18.011.0130
38	Jerry Bisek	23340 140TH AVE				X					RESIDENTIAL PROPERTY	13.011.2000
39	JOHN AND CINDY LARGE	2345 US HWY 59			X						RESIDENTIAL PROPERTY	13.012.0810
40	JOHN OLSON	23390 140TH AVE				2X					RESIDENTIAL PROPERTY	13.011.2010
41	JUDY HANSON	23799 140TH AVENUE	385187			X					RESIDENTIAL PROPERTY	13.011.0900
42	K HEDSTROM	2292 155TH AVE			X						RESIDENTIAL PROPERTY	13.001.0402
43	L. COX	2318 US HWY 59				X					RESIDENTIAL PROPERTY	18.011.0810
44	LEONARD R. & TAMMY FOSS	1515 230TH ST	314806		X						RESIDENTIAL PROPERTY	13.012.0701
45	LESLIE SR	1481 230TH ST			X						RESIDENTIAL PROPERTY	13.011.0100
46	MAHNOMEN COUNTRY CLUB	2273 155TH AVE			X						COMMERCIAL PROPERTY	13.001.1000
47	MAHNOMEN COUNTY	23515 140TH AVE				X					RESIDENTIAL PROPERTY	13.011.1400
48	Mahnomen County	23541 140TH AVE				X					RESIDENTIAL PROPERTY	13.011.1600
49	Mahnomen County	23543 140TH AVE				X					RESIDENTIAL PROPERTY	13.011.1600
50	Mahnomen County	1520 230TH ST			X						RESIDENTIAL PROPERTY	13.001.0310
51	Mahnomen County	2289 154TH AVE			X						RESIDENTIAL PROPERTY	13.300.0030
52	MAHNOMEN COUNTY	23611 140TH AVE				X					RESIDENTIAL PROPERTY	13.011.1100
53	MAHNOMEN COUNTY (WAS JACK HAUSNER JR.)	23582 140TH AVE				X					RESIDENTIAL PROPERTY	13.011.1200

Map #	NAME	ADDRESS	MDH FACILITY I.D. #	*H.C WELL	**WELL (A)	***WELL (I/C)	WELL (Class V)	**** RST	***** LUST	OTHER	COMMENTS	PID
54	MAHNOMEN WELL 4	N/A	198365		X							13.011.3001
55	MAHNOMEN WELL 5	N/A	185816			X					MUNICIPAL WELL	13.011.2900
56	MAHNOMEN WELL 6	N/A	165756		x						MUNICIPAL WELL	13.011.3001
57	MAHNOMEN WELL 7	N/A	176884		X						MUNICIPAL WELL	18.011.1301
58	MAHNOMEN WHOLESALE	BUILDING NO LONGER EXISTS	192365			X					COMMERCIAL PROPERTY	INSIDE CITY LIMITS
59	MANITOK MALL	785 S US HWY 59				2X					MALL	18.011.0710
60	MARCIE CONLON	FORESTED PROPETY			X							13.011.2300
61	MIDWAY SERVICE	BUIDING NO LONGER EXISTS INTERSECTION OF HWY 59&ADAMS							A		(2) REMOVED STORAGE TANKS AND (2) ABANDONED AND (1) LUST	INSIDE CITY LIMITS
62	MNDOT	HWY 59							A		(2) REMOVED STORAGE TANKS AND (1) LUST	U/K
63	N DAHL	700 E JEFFERSON				X					RESIDENTIAL PROPERTY	18.011.0300
64	O KREBSBACH	1497 230TH ST	343811		X						RESIDENTIAL PROPERTY	13.011.0400
65	PAUL SLETTE	2279 154TH AVE			X						RESIDENTIAL PROPERTY	13.001.0300
66	R KIRSCH	1526 230TH ST			X						RESIDENTIAL PROPERTY	13.001.0320
67	R LESLIE JR	1479 230TH ST			X						RESIDENTIAL PROPERTY	13.011.0200
68	R. KLINKHAMMER	2343 US HWY 59			X						RESIDENTIAL PROPERTY	13.012.0800
69	**RICK WINTER**	1491 230TH ST	314805		X						RESIDENTIAL PROPERTY	13.011.0301
70	RIVERSIDE MEMORIAL GARDEN (CEMETARY)	XXX Hwy 59	206831		X						CEMETARY	13.012.0500

Map #	NAME	ADDRESS	MDH FACILITY I.D. #	*H.C WELL	**WELL (A)	***WELL (I/C)	WELL (Class V)	**** RST	***** LUST	OTHER	COMMENTS	PID
71	ROB BRUGGEMAN	2286 155TH AVE			X						RESIDENTIAL PROPERTY	13.001.0404
72	Robert Ahmann	23463 140TH AVE			X						RESIDENTIAL PROPERTY	13.011.1300
73	SAICE	735 US HWY 59	203309		X						RESIDENTIAL PROPERTY	130.11.0600
74	SCOTT AND DEANNA LEFEBVRE	2306 US HWY 59				X						18.011.0310
75	SCOTT AND SHANNON LEE	1525 230TH ST			2X						RESIDENTIAL PROPERTY	13.012.0600
76	Sean Bjerk	2294 154TH AVE			X						RESIDENTIAL PROPERTY	13.300.0120
77	SHOOTING STAR CASINO	777 CASINO ROAD				x						18.011.0102
78	SHOOTING STAR CASINO	777 CASINO ROAD	14744			X		X	X		COMMERCIAL PROPERTY	18.011.0102
79	STARDUST SUITES	2325 US HWY 59				X					COMMERCIAL PROPERTY	18.011.0710
80	STATE OF MINNESOTA	140TH				X						13.011.1500
81	T BUSCHE	2286 154TH AVE			X						RESIDENTIAL PROPERTY	13.300.0090
82	T FERGUSON	2287 154TH AVE			X						RESIDENTIAL PROPERTY	13.300.0040
83	TERRI HORN & SHELLI GILLIE (RON VOLTZ)	2275 155TH AVE			X						RESIDENTIAL PROPERTY	13.200.0010
84	THORSON CONSTRUCTOIN	2328 US HWY 59			X						BUSINESS	13.011.0910
85	TOM STOCK	2296 155TH AVE			X						RESIDENTIAL PROPERTY	13.001.0401
86	TONY SCHOENBORN	2347 US HWY 59			X						RESIDENTIAL PROPERTY	13.011.0510
87	MAHNOMEN COUNTY	23555 140TH AVE				X					RESIDENTIAL PROPERTY	U/K
88	MAHNOMEN COUNTY	23538 140TH AVE				X					RESIDENTIAL PROPERTY	U/K
89	MAHNOMEN COUNTY	23584 140TH AVE				X					RESIDENTIAL PROPERTY	U/K
90	WALTER DIETZ	23461 140TH AVE			X						RESIDENTIAL PROPERTY	13.011.1310

Map #	NAME	ADDRESS	MDH FACILITY I.D. #	*H.C WELL	**WELL (A)	***WELL (I/C)	WELL (Class V)	**** RST	***** LUST	OTHER	COMMENTS	PID
91	WE HOUSING	23404 140TH AVE				X					RESIDENTIAL PROPERTY	13.011.2100
92	WILLIAM AND MARSHA WINTER	615 CASINO ROAD				X						18.011.1001
93	WINTER TRUCK LINES	1485 230TH ST			X						COMMERCIAL PROPERTY	13.011.0300

*** H.C-High Capacity, ** (A)- active well, *** (I/C) inactive/capped well, ****RST-Registered Storage Tank *****LUST-Leaking Underground Storage Tank**

Exhibit B Zoning Map

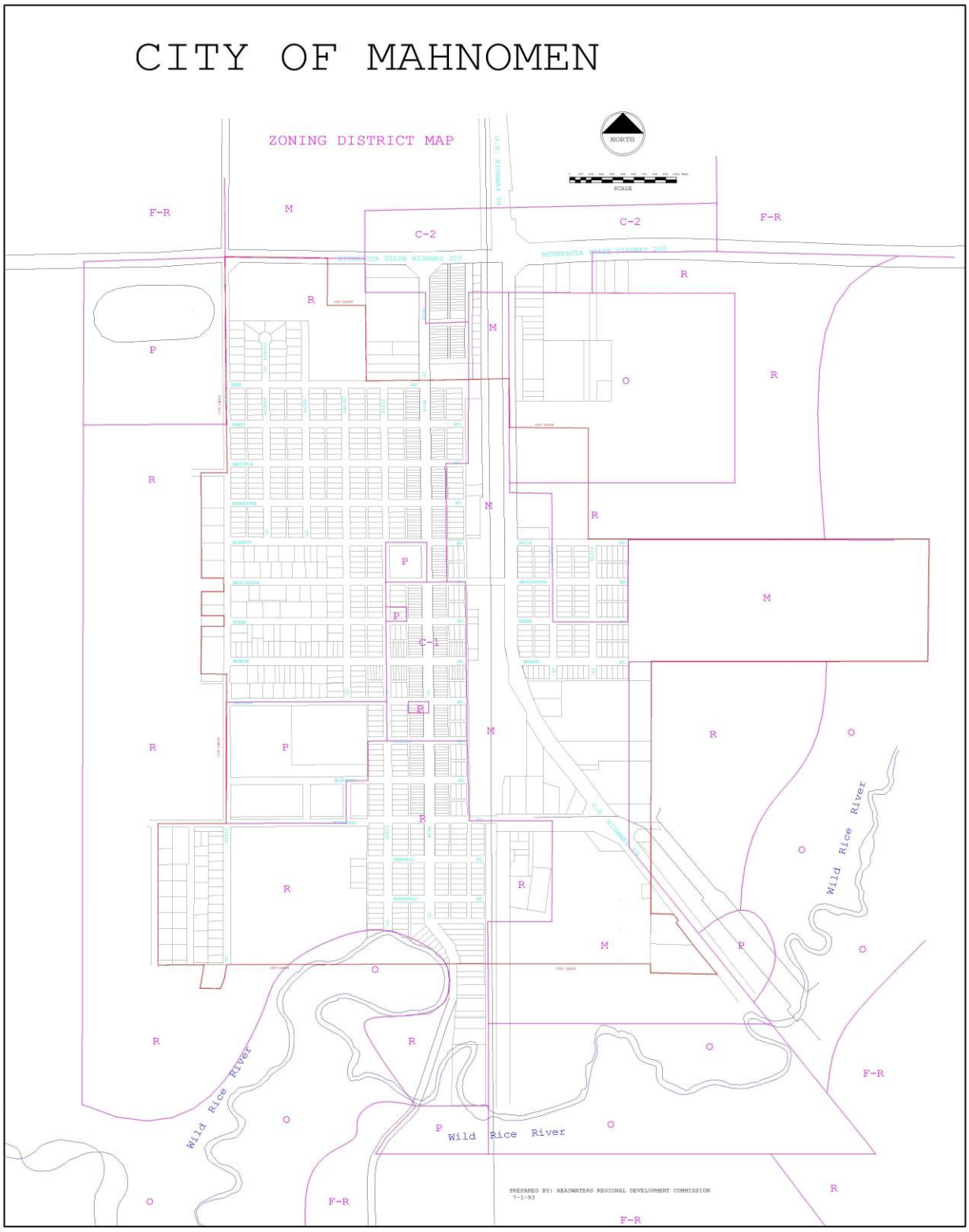


Exhibit C Land Use Map

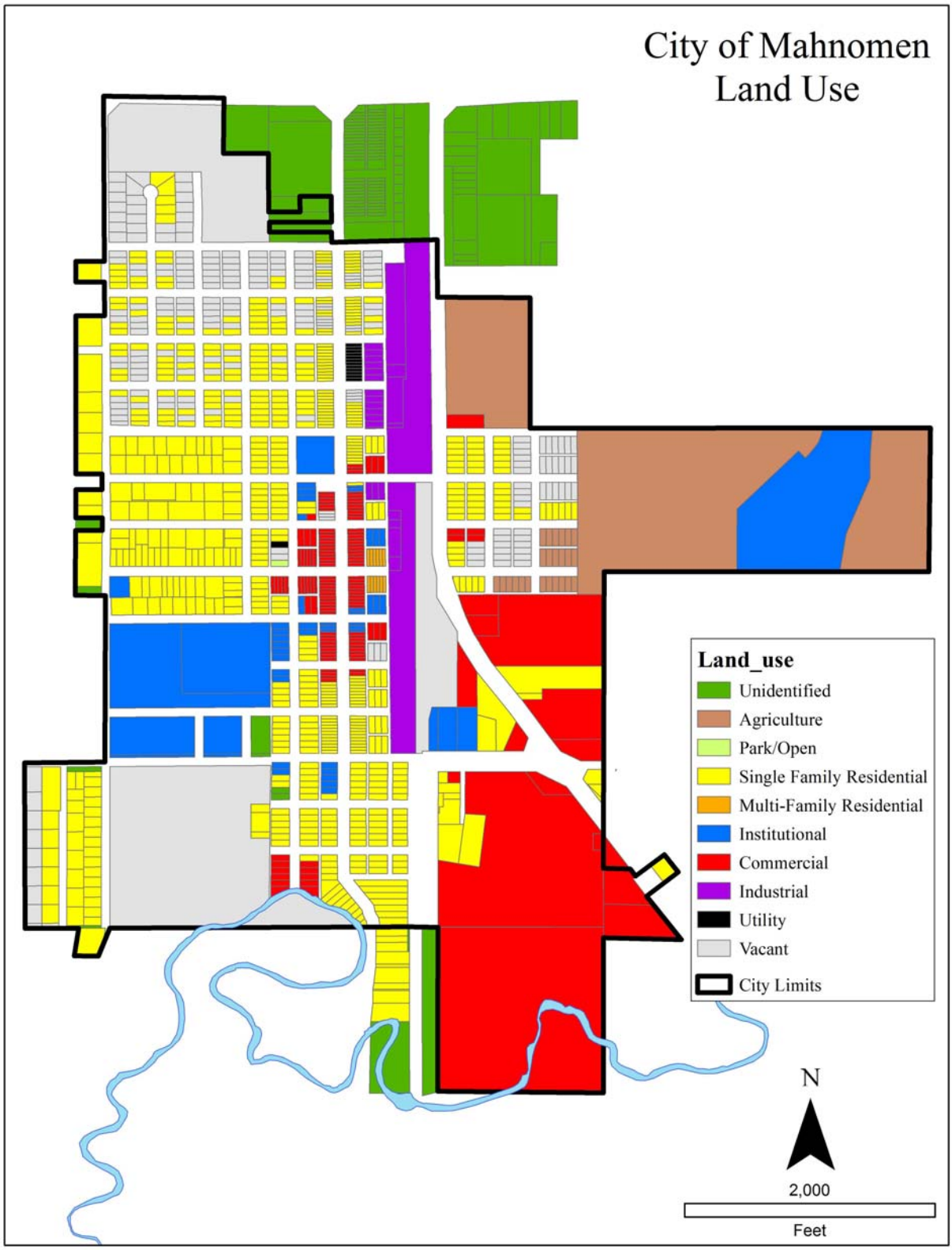


Exhibit D IWMZ inventories

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

PUBLIC WATER SYSTEM INFORMATION — **COMMUNITY**

PWS ID: 1440002
NAME: Mahnomen
ADDRESS: Mahnomen Water Superintendent, 104 West Madison, P.O. Box 250, Mahnomen, MN 56557

FACILITY (WELL) INFORMATION

NAME: #4
FACILITY ID: S03
UNIQUE WELL NO: 221667
COUNTY: Mahnomen

CONSTRUCTION INFORMATION

Well Information Collected from: ☐ Well Log (if available, please attach a copy of the well log.) ☐ Verbal
Date Constructed: Serviced By:

PWS ID / FACILITY ID:	1440002 S03	UNIQUE WELL NO:	221667

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensi-tive Well*	Within 200 Feet Y / N / U	Dist. from Well	Est. (?)
		Community	Noncomm-unity				
Agricultural Related							
ACP	Agricultural chemical storage or prep. area, > 25 gals. or 100 lbs.dry weight	150	150		N		
ACS	Agricultural chemical storage or prep. area with safeguards	100	100		N		
ACT	Agricultural chemical supply tank	50	50		N		
ACR	Agricultural chemical storage or prep. area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well	50	50		N		
AAT	Anhydrous ammonia tank	50	50		N		
AFL	Animal feedlot	50	50	100	N		
APB	Animal or poultry building	50	50	100	N		
MSA	Animal manure storage area	100	100	200	N		
AMA	Animal manure application (storage or stockpile)	50	100		N		
ABS	Animal burial site	50	50		N		
FWP	Feeding or watering area within a pasture	50	50	100	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SKY	Stockyard	50	50		N		
Class V Injection Wells							
GPR	Gravel pocket receiving clear water drainage	30	N/A		Y	5	
IWD	Industrial waste disposal	use discretion	use discretion		N		
LCC	Large capacity cesspools	illegal	illegal		N		
MVW	Motor vehicle waste disposal	illegal	illegal		N		
ISTS Related							
CSP	Cesspool	75	75	150	N		
DRA	Drainfield - above or below grade	50	50	100	Y	121	N**
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
HTK	Holding tank	50	50		N		
PRV	Privy	50	50	100	N		
SET	Septic tank	50	50		Y	120	
SLS	Sewage lift station	50	50		N		
SSW	Sewage sump, watertight	50	20		N		
SSN	Sewage sump, non-watertight	50	50		N		
SBA	Sewer buried, approved, air tested	50	20		Y	63	
SBA	Sewer buried, approved, air tested	50	20		Y	92	N**
SBM	Sewer, buried collector, municipal, pressurized, open jointed, or unapproved materials	50	50		N		
SBP	Sewer buried, pressure, approved, air tested serving a single family residence	50	20		N		
Land Application							
FWS	Food waste (note distance from well)	use discretion	use discretion		N		
SPT	Septage (note distance from well)	50	50		N		
SSG	Sewage sludge	50	50		N		

PWS ID / FACILITY ID:	1440002 S03	UNIQUE WELL NO:	221667

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensi-tive Well*	Within 200 Feet Y / N / U	Dist. from Well	Est. (?)
		Community	Noncomm-unity				
WAS	Waste	50	50		N		
Solid Waste Related							
COS	Composting site (public/commercial)	50	50		N		
CBL	Construction debris/demolition landfill	50	50		N		
DMP	Dump	150	150		N		
SVY	Salvage yard	50	50		N		
SLF	Sanitary landfill	150	150		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SWD	Storm water drain pipe, 12 inches or greater	50	20		N		
SWR	Storm water retention basin greater than 1000 gals.	50	50		N		
SWB	Storm water infiltration basin greater than 1000 gals.	50	50		N		
SWI	Storm water injection well	50	50		N		
Wells							
WEL	Operating well	use discretion	use discretion		N		
UUW	Unused, unsealed well or boring	50	50		N		
MON	Monitoring well	use discretion	use discretion		N		
General							
PLM	Contaminant plume	50	50		N		
DWT	Discharge of water treatment chemical waste	50	50		N		
DRD	Drainage ditch (holds water six months or more)	50	50		N		
GRV	Grave	50	50		N		
HSP	Hazardous substance storage or prep. area, > 25 gals., or 100 lbs. dry weight	150	150		N		
HSS	Hazardous substance storage tank with safeguards	100	100		N		
IWS	Interceptor (waste)	50	50		N		
PSP	Petroleum storage or prep. area, > 25 gals., or 100 lbs. dry weight	150	150		N		
PSS	Petroleum storage tank with safeguards	100	100		N		
PSU	Petroleum storage tank, underground, less than 1100 gals.	50	50		N		
PSA	Petroleum storage tank, above ground, less than 1100 gals.	50	20		N		
LPN	LP Tank	5/10	5/10		N		
PIT	Pit	50	20		N		
PCH	Pollutant, contaminant, or hazardous substance	50	50		N		
REN	Rendering plant (note distance from well)	use discretion	use discretion		N		
RSS	Road salt storage	50	50		N		
WAT	Stream, river, pond, lake, wetland	50	50		Y	55	
SPI	Swimming pool, in-ground	50	20		N		
UFS	Unfilled space	50	20		N		
WSP	Waste stabilization pond	150	150		N		
Miscellaneous (The items in this section need to be recorded but not indicated on the map.)							
BLD	Building (does not contain any actual or potential contaminant sources.)	3	3		N		
BPO	Building projection, overhang	3	3		N		
ETL	Electric transmission line	5/10	5/10		N		
ETE	Electric transmission line in excess of 50 kv	25	25		N		
FFH	Fire or flushing hydrant	10	N/A		Y	46	
FPH	Frost proof yard hydrant	10	10		N		
GSP	Gas pipe	5/10	5/10		N		
HWF	Highest water or flood level	50	N/A		N		
PLE	Property line or easement	50	N/A		Y	40	
PLE	Property line or easement	50	N/A		Y	54	N**
Additional Sources (If there is more than one source listed above, please indicate here.)							

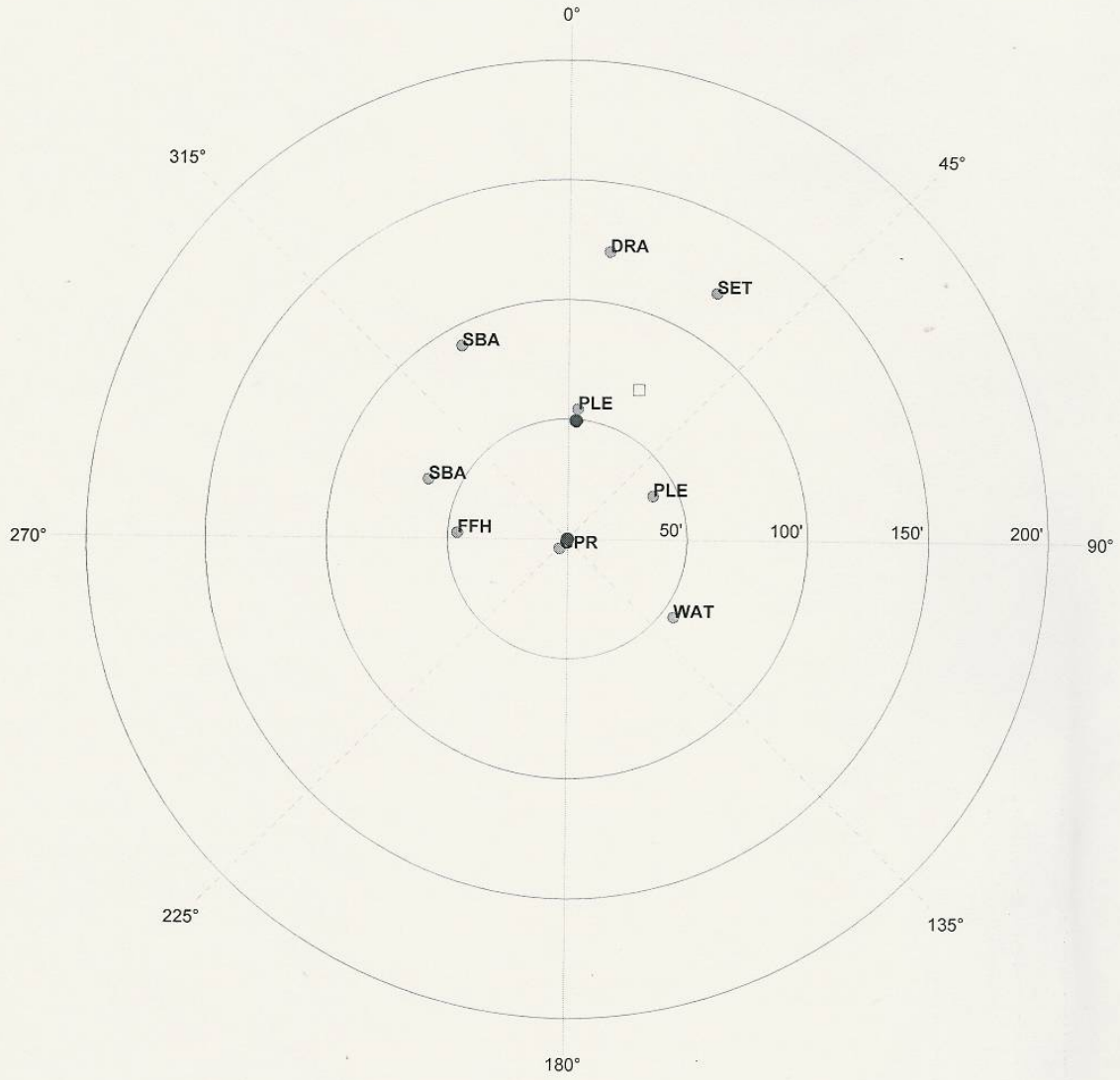
A sensitive well has less than 50 feet of watertight casing and less than 10 feet of impervious material between the well intake and the land surface.

* Asterisks indicate that this Potential Contaminant was digitized based on an adjacent well. The Distance from Well is the distance from the current well

PWS ID / FACILITY ID:	1440002 S03	UNIQUE WELL NO:	221667

SETBACK DISTANCES

All potential contaminant sources must be noted on sketch.
Diagram the location and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code." Include a slope indicator and property lines.



INSPECTOR:	Wettlaufer, Mark	DATE:	09/18/2008

PWS ID / FACILITY ID:	1440002 S03	UNIQUE WELL NO:	221667

Recommended Wellhead Protection Measures	Wellhead Protection Measure Implemented?	Date Verified
Floor drains, such as in pumphouses, that discharge to a gravel pocket or seepage pit should have a "No Dumping" sign posted.		

Isolation distances maintained for new sources of contamination?	Y	N	N/A
Monitoring existing nonconforming sources of contamination?	Y	N	N/A

Comments:

9/7/2003 - Location for PCSI Type OHW (bearing = 0, distance = 0 , inventory date: 5/3/1999) could not be determined.
9/7/2003 - Location for PCSI Type SET (bearing = 0, distance = 0 , inventory date: 5/3/1999) could not be determined.
9/7/2003 - Location for PCSI Type DRA (bearing = 0, distance = 0 , inventory date: 5/3/1999) could not be determined.

For further information, please contact the Minnesota Department of Health, Source Water Protection Unit, at:

- Unit Receptionist - 651/201-4700 or 800/818-9318
- TDD (651) 201-5797 or for Greater Minnesota through the Minnesota Relay Service at

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

PUBLIC WATER SYSTEM INFORMATION

COMMUNITY

PWS ID: 1440002
NAME: Mahnomen
ADDRESS: Mahnomen Water Superintendent, 104 West Madison, P.O. Box 250, Mahnomen, MN 56557

FACILITY (WELL) INFORMATION

NAME: #6
FACILITY ID: S05
UNIQUE WELL NO: 620592
COUNTY: Mahnomen

CONSTRUCTION INFORMATION

Well Information Collected from: ☐ Well Log (if available, please attach a copy of the well log.) ☐ Verbal
Date Constructed: Serviced By:

PWS ID / FACILITY ID:	1440002 S05	UNIQUE WELL NO:	620592

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensi-tive Well*	Within 200 Feet Y / N / U	Dist. from Well	Est. (?)
		Community	Noncomm-unity				
Agricultural Related							
ACP	Agricultural chemical storage or prep. area, > 25 gals. or 100 lbs.dry weight	150	150		N		
ACS	Agricultural chemical storage or prep. area with safeguards	100	100		N		
ACT	Agricultural chemical supply tank	50	50		N		
ACR	Agricultural chemical storage or prep. area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well	50	50		N		
AAT	Anhydrous ammonia tank	50	50		N		
AFL	Animal feedlot	50	50	100	N		
APB	Animal or poultry building	50	50	100	N		
MSA	Animal manure storage area	100	100	200	N		
AMA	Animal manure application (storage or stockpile)	50	100		N		
ABS	Animal burial site	50	50		N		
FWP	Feeding or watering area within a pasture	50	50	100	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SKY	Stockyard	50	50		N		
Class V Injection Wells							
GPR	Gravel pocket receiving clear water drainage	30	N/A		Y	53	N**
IWD	Industrial waste disposal	use discretion	use discretion		N		
LCC	Large capacity cesspools	illegal	illegal		N		
MVW	Motor vehicle waste disposal	illegal	illegal		N		
ISTS Related							
SBP	Sewer buried, pressure, approved, air tested serving a single family residence	50	20		N		
CSP	Cesspool	75	75	150	N		
DRA	Drainfield - above or below grade	50	50	100	Y	72	
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
HTK	Holding tank	50	50		N		
PRV	Privy	50	50	100	N		
SET	Septic tank	50	50		Y	79	N**
SLS	Sewage lift station	50	50		N		
SSW	Sewage sump, watertight	50	20		N		
SSN	Sewage sump, non-watertight	50	50		N		
SBA	Sewer buried, approved, air tested	50	20		Y	66	N**
SBA	Sewer buried, approved, air tested	50	20		Y	57	
SBM	Sewer, buried collector, municipal, pressurized, open jointed, or unapproved materials	50	50		N		
Land Application							
FWS	Food waste (note distance from well)	use discretion	use discretion		N		
SPT	Septage (note distance from well)	50	50		N		
SSG	Sewage sludge	50	50		N		

PWS ID / FACILITY ID:	1440002 S05	UNIQUE WELL NO:	620592

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensi-tive Well*	Within 200 Feet Y / N / U	Dist. from Well	Est. (?)
		Community	Noncomm-unity				
WAS	Waste	50	50		N		
Solid Waste Related							
COS	Composting site (public/commercial)	50	50		N		
CBL	Construction debris/demolition landfill	50	50		N		
DMP	Dump	150	150		N		
SVY	Salvage yard	50	50		N		
SLF	Sanitary landfill	150	150		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SWD	Storm water drain pipe, 12 inches or greater	50	20		N		
SWR	Storm water retention basin greater than 1000 gals.	50	50		N		
SWB	Storm water infiltration basin greater than 1000 gals.	50	50		N		
SWI	Storm water injection well	50	50		N		
Wells							
WEL	Operating well	use discretion	use discretion		N		
UUW	Unused, unsealed well or boring	50	50		N		
MON	Monitoring well	use discretion	use discretion		N		
General							
PLM	Contaminant plume	50	50		N		
DWT	Discharge of water treatment chemical waste	50	50		N		
DRD	Drainage ditch (holds water six months or more)	50	50		N		
GRV	Grave	50	50		N		
HSP	Hazardous substance storage or prep. area, > 25 gals., or 100 lbs. dry weight	150	150		N		
HSS	Hazardous substance storage tank with safeguards	100	100		N		
IWS	Interceptor (waste)	50	50		N		
PSP	Petroleum storage or prep. area, > 25 gals., or 100 lbs. dry weight	150	150		N		
PSS	Petroleum storage tank with safeguards	100	100		N		
PSU	Petroleum storage tank, underground, less than 1100 gals.	50	50		N		
PSA	Petroleum storage tank, above ground, less than 1100 gals.	50	20		N		
LPN	LP Tank	5/10	5/10		N		
PIT	Pit	50	20		N		
PCH	Pollutant, contaminant, or hazardous substance	50	50		N		
REN	Rendering plant (note distance from well)	use discretion	use discretion		N		
RSS	Road salt storage	50	50		N		
WAT	Stream, river, pond, lake, wetland	50	50		Y	91	N**
SPI	Swimming pool, in-ground	50	20		N		
UFS	Unfilled space	50	20		N		
WSP	Waste stabilization pond	150	150		N		
Miscellaneous (The items in this section need to be recorded but not indicated on the map.)							
BLD	Building (does not contain any actual or potential contaminant sources.)	3	3		N		
BPO	Building projection, overhang	3	3		N		
ETL	Electric transmission line	5/10	5/10		N		
ETE	Electric transmission line in excess of 50 kv	25	25		N		
FFH	Fire or flushing hydrant	10	N/A		Y	68	N**
FPH	Frost proof yard hydrant	10	10		N		
GSP	Gas pipe	5/10	5/10		N		
HWF	Highest water or flood level	50	N/A		N		
PLE	Property line or easement	50	N/A		Y	45	N**
PLE	Property line or easement	50	N/A		Y	5	
Additional Sources (If there is more than one source listed above, please indicate here.)							

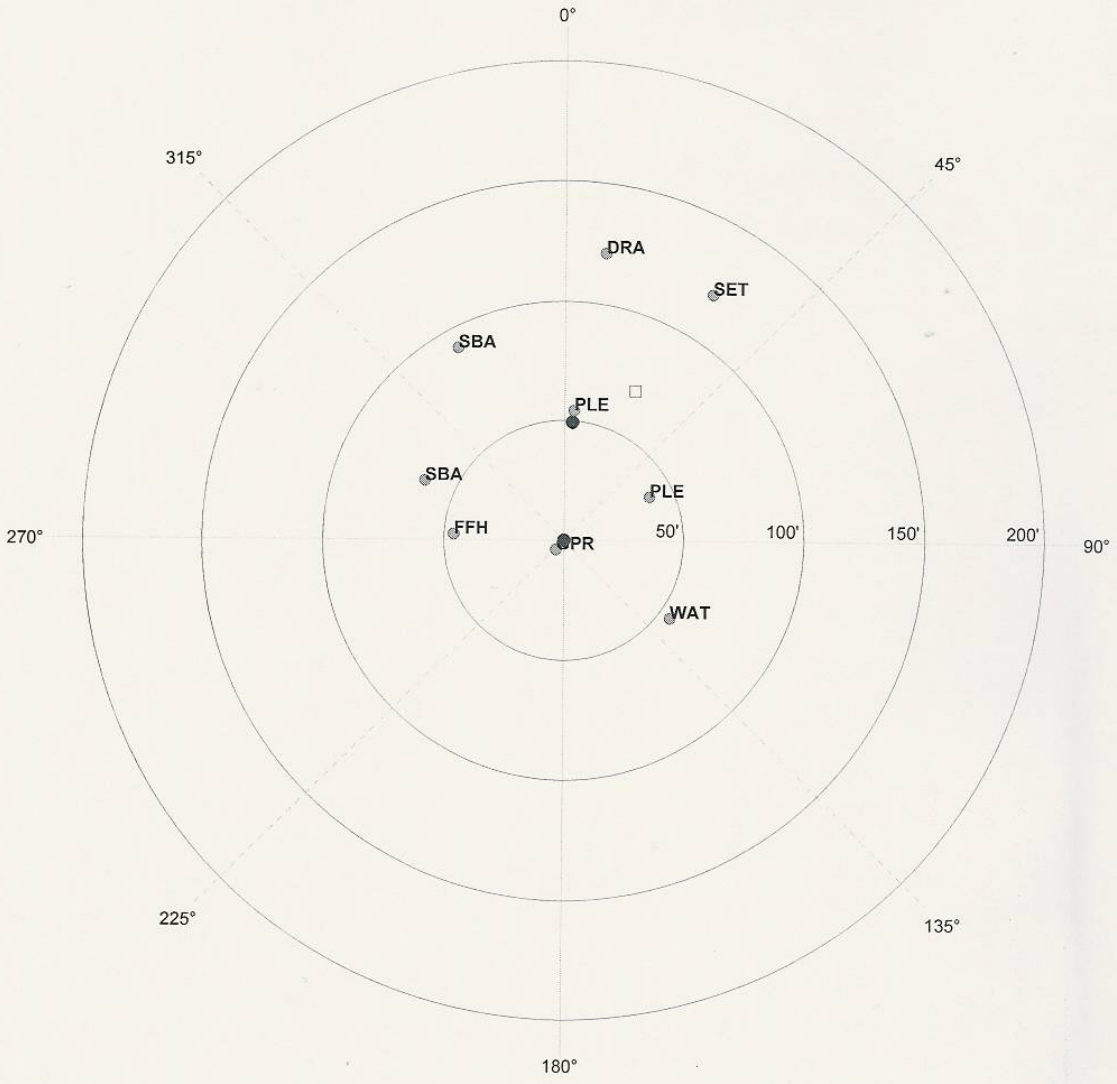
A sensitive well has less than 50 feet of watertight casing and less than 10 feet of impervious material between the well intake and the land surface.

* Asterisks indicate that this Potential Contaminant was digitized based on an adjacent well. The Distance from Well is the distance from the current well

PWS ID / FACILITY ID:	1440002 S03	UNIQUE WELL NO:	221667

SETBACK DISTANCES

All potential contaminant sources must be noted on sketch.
Diagram the location and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code." Include a slope indicator and property lines.



INSPECTOR:	Wettlaufer, Mark	DATE:	09/18/2008

PWS ID / FACILITY ID:	1440002 S03	UNIQUE WELL NO:	221667

Recommended Wellhead Protection Measures	Wellhead Protection Measure Implemented?	Date Verified
Floor drains, such as in pumphouses, that discharge to a gravel pocket or seepage pit should have a "No Dumping" sign posted.		

Isolation distances maintained for new sources of contamination?	(Y)	N	N/A
Monitoring existing nonconforming sources of contamination?	(Y)	N	N/A

Comments:

9/7/2003 - Location for PCSI Type OHW (bearing = 0, distance = 0 , inventory date: 5/3/1999) could not be determined.
9/7/2003 - Location for PCSI Type SET (bearing = 0, distance = 0 , inventory date: 5/3/1999) could not be determined.
9/7/2003 - Location for PCSI Type DRA (bearing = 0, distance = 0 , inventory date: 5/3/1999) could not be determined.

For further information, please contact the Minnesota Department of Health, Source Water Protection Unit, at:

- Unit Receptionist - 651/201-4700 or 800/818-9318
- TDD (651) 201-5797 or for Greater Minnesota through the Minnesota Relay Service at 1-800-627-3529 (ask for [651] 201-5000)

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

PUBLIC WATER SYSTEM INFORMATION

COMMUNITY

PWS ID: 1440002
NAME: Mahnomen
ADDRESS: Mahnomen Water Superintendent, 104 West Madison, P.O. Box 250, Mahnomen, MN 56557

FACILITY (WELL) INFORMATION

NAME: #7
FACILITY ID: S06
UNIQUE WELL NO: 657387
COUNTY: Mahnomen

CONSTRUCTION INFORMATION

Well Information Collected from: ☐ Well Log (if available, please attach a copy of the well log.) ☐ Verbal
Date Constructed: Serviced By:

PWS ID / FACILITY ID:	1440002 S06	UNIQUE WELL NO:	657387

PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensi-tive Well*	Within 200 Feet Y / N / U	Dist. from Well	Est. (?)
		Community	Noncomm-unity				
Agricultural Related							
ACP	Agricultural chemical storage or prep. area, > 25 gals. or 100 lbs.dry weight	150	150		N		
ACS	Agricultural chemical storage or prep. area with safeguards	100	100		N		
ACT	Agricultural chemical supply tank	50	50		N		
ACR	Agricultural chemical storage or prep. area with safeguards and roofed	50	50		N		
ADW	Agricultural drainage well	50	50		N		
AAT	Anhydrous ammonia tank	50	50		N		
AFL	Animal feedlot	50	50	100	N		
APB	Animal or poultry building	50	50	100	N		
MSA	Animal manure storage area	100	100	200	N		
AMA	Animal manure application (storage or stockpile)	50	100		N		
ABS	Animal burial site	50	50		N		
FWP	Feeding or watering area within a pasture	50	50	100	N		
OSC	Open storage for crops	use discretion	use discretion		N		
SKY	Stockyard	50	50		N		
Class V Injection Wells							
GPR	Gravel pocket receiving clear water drainage	30	N/A		N		
IWD	Industrial waste disposal	use discretion	use discretion		N		
LCC	Large capacity cesspools	illegal	illegal		N		
MVW	Motor vehicle waste disposal	illegal	illegal		N		
ISTS Related							
CSP	Cesspool	75	75	150	N		
DRA	Drainfield - above or below grade	50	50	100	N		
AGG	Dry well, leaching pit, seepage pit	75	75	150	N		
HTK	Holding tank	50	50		N		
PRV	Privy	50	50	100	N		
SET	Septic tank	50	50		N		
SLS	Sewage lift station	50	50		N		
SSW	Sewage sump, watertight	50	20		N		
SSN	Sewage sump, non-watertight	50	50		N		
SBA	Sewer buried, approved, air tested	50	20		Y	150	
SBM	Sewer, buried collector, municipal, pressurized, open jointed, or unapproved materials	50	50		N		
SBP	Sewer buried, pressure, approved, air tested serving a single family residence	50	20		N		
Land Application							
FWS	Food waste (note distance from well)	use discretion	use discretion		N		
SPT	Septage (note distance from well)	50	50		N		
SSG	Sewage sludge	50	50		N		
WAS	Waste	50	50		N		

10/30/2008

PWS ID / FACILITY ID:	1440002 S06	UNIQUE WELL NO:	657387

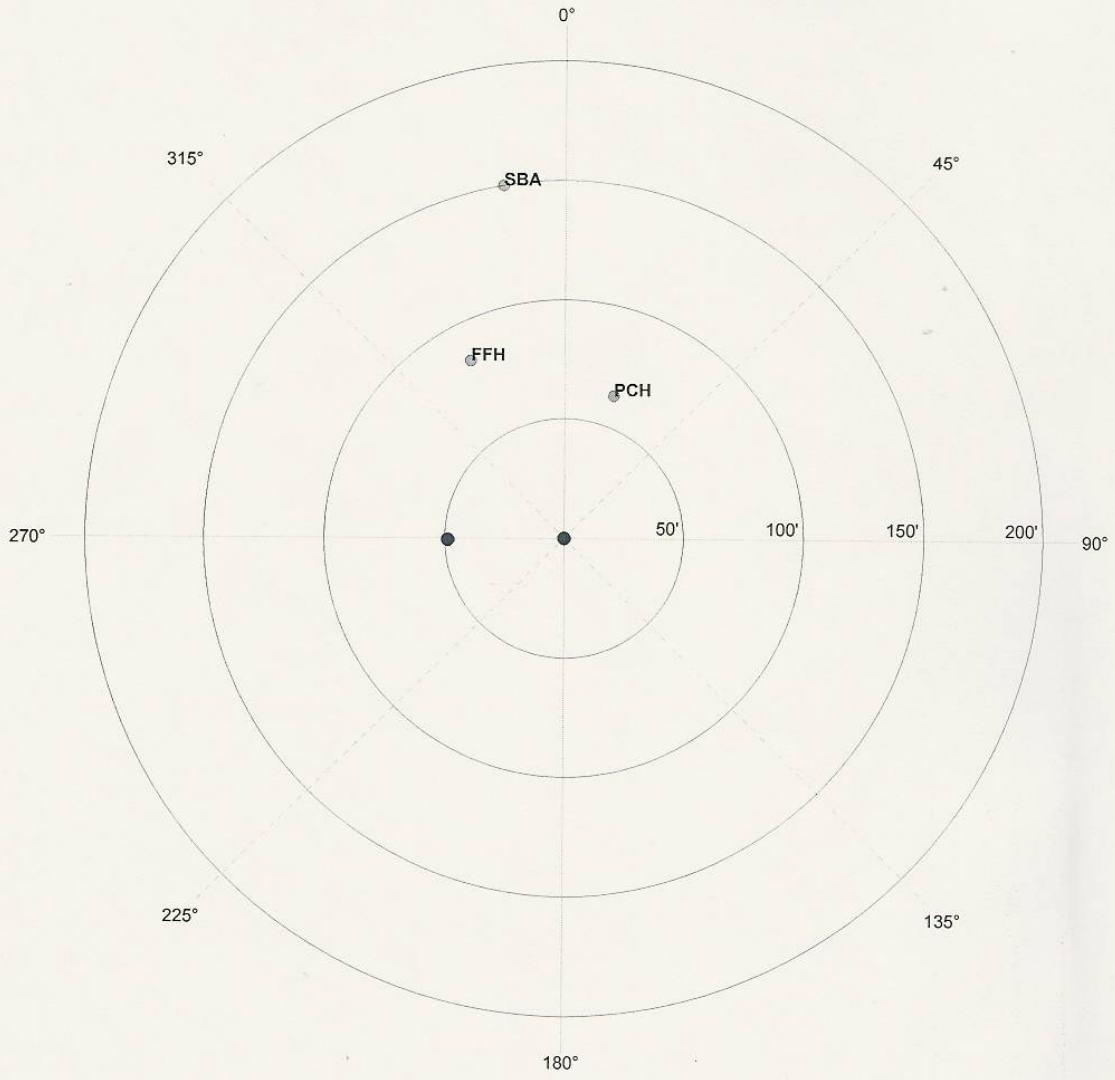
PCSI CODE	ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET)				LOCATION	
		Minimum Distances		Sensi-tive Well*	Within 200 Feet Y / N / U	Dist. from Well	Est. (?)
		Community	Noncomm-unity				
Solid Waste Related							
COS	Composting site (public/commercial)	50	50		N		
CBL	Construction debris/demolition landfill	50	50		N		
DMP	Dump	150	150		N		
SVY	Salvage yard	50	50		N		
SLF	Sanitary landfill	150	150		N		
SWT	Solid waste transfer station	50	50		N		
Storm Water Related							
SWD	Storm water drain pipe, 12 inches or greater	50	20		N		
SWR	Storm water retention basin greater than 1000 gals.	50	50		N		
SWB	Storm water infiltration basin greater than 1000 gals.	50	50		N		
SWI	Storm water injection well	50	50		N		
Wells							
WEL	Operating well	use discretion	use discretion		N		
UUW	Unused, unsealed well or boring	50	50		N		
MON	Monitoring well	use discretion	use discretion		N		
General							
PLM	Contaminant plume	50	50		N		
DWT	Discharge of water treatment chemical waste	50	50		N		
DRD	Drainage ditch (holds water six months or more)	50	50		N		
GRV	Grave	50	50		N		
HSP	Hazardous substance storage or prep. area, > 25 gals., or 100 lbs. dry weight	150	150		N		
HSS	Hazardous substance storage tank with safeguards	100	100		N		
IWS	Interceptor (waste)	50	50		N		
PSP	Petroleum storage or prep. area, > 25 gals., or 100 lbs. dry weight	150	150		N		
PSS	Petroleum storage tank with safeguards	100	100		N		
PSU	Petroleum storage tank, underground, less than 1100 gals.	50	50		N		
PSA	Petroleum storage tank, above ground, less than 1100 gals.	50	20		N		
LPN	LP Tank	5/10	5/10		N		
PIT	Pit	50	20		N		
PCH	Pollutant, contaminant, or hazardous substance	50	50		Y	63	
REN	Rendering plant (note distance from well)	use discretion	use discretion		N		
RSS	Road salt storage	50	50		N		
WAT	Stream, river, pond, lake, wetland	50	50		N		
SPI	Swimming pool, in-ground	50	20		N		
UFS	Unfilled space	50	20		N		
WSP	Waste stabilization pond	150	150		N		
Miscellaneous (The items in this section need to be recorded but not indicated on the map.)							
BLD	Building (does not contain any actual or potential contaminant sources.)	3	3		N		
BPO	Building projection, overhang	3	3		N		
ETL	Electric transmission line	5/10	5/10		N		
ETE	Electric transmission line in excess of 50 kv	25	25		N		
FFH	Fire or flushing hydrant	10	N/A		Y	84	
FPH	Frost proof yard hydrant	10	10		N		
GSP	Gas pipe	5/10	5/10		N		
HWF	Highest water or flood level	50	N/A		N		
PLE	Property line or easement	50	N/A		N		
Additional Sources (If there is more than one source listed above, please indicate here.)							

* A sensitive well has less than 50 feet of watertight casing and less than 10 feet of impervious material between the well intake and the land surface.

PWS ID / FACILITY ID:	1440002 S06	UNIQUE WELL NO:	657387

SETBACK DISTANCES

All potential contaminant sources must be noted on sketch.
Diagram the location and approximate compass bearing of each potential contaminant source from the well, and identify the source using the "Source Code." Include a slope indicator and property lines.



INSPECTOR:	Wettlaufer, Mark	DATE:	09/18/2008

PWS ID / FACILITY ID:	1440002 S06	UNIQUE WELL NO:	657387

Recommended Wellhead Protection Measures	Wellhead Protection Measure Implemented?	Date Verified

Isolation distances maintained for new sources of contamination?	(Y)	N	N/A
Monitoring existing nonconforming sources of contamination?	Y	(N)	N/A

Comments:

For further information, please contact the Minnesota Department of Health, Source Water Protection Unit, at:

- Unit Receptionist - 651/201-4700 or 800/818-9318
- TDD (651) 201-5797 or for Greater Minnesota through the Minnesota Relay Service at 1-800-627-3529 (ask for [651] 201-5000)

10/30/2008

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Exhibit E Consumer Confidence Report

CONSUMER CONFIDENCE REPORT

PWSID: 1440002

City of Mahnomen
2007 Drinking Water Report

The City of Mahnomen is issuing the results of monitoring done on its drinking water for the period from January 1 to December 31, 2007. 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 Mahnomen provides drinking water to its residents from a groundwater source: three wells ranging from 130 to 157 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 Mitch Berg if you have questions about the City of Mahnomen 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 2007. 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.

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

1

CONSUMER CONFIDENCE REPORT

PWSID: 1440002

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.

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

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

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

N/A—Not Applicable (does not apply).

Contaminant (units)	MCLG	MCL	Level Found		Typical Source of Contaminant
			Range (2007)	Average /Result*	
Arsenic (ppb)	0	10	N/A	4.13	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
Barium (ppm)	2	2	N/A	.04	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Fluoride (ppm)	4	4	1.2-1.7	1.4	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.
Mercury (inorganic) (ppb)	2	2	N/A	.06	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland.
Nitrate (as Nitrogen) (ppm)	10	10	N/A	.34	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

Contaminant (units)	Level Found		Typical Source of Contaminant
	Range (2007)	Average/ Result*	
Radon (pCi/l) (05/31/2005)	N/A	53	Erosion of natural deposits.

*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.

Radon is a radioactive gas which is naturally occurring in some groundwater. It poses a lung cancer risk when gas is released from water into air (as occurs during showering, bathing, or washing dishes or clothes) and a stomach cancer risk when it is ingested. Because radon in indoor air poses a much greater health risk than radon in drinking water, an Alternative Maximum Contaminant Level (AMCL) of 4,000 picoCuries per liter may apply in states that have adopted an Indoor Air Program, which compels citizens, homeowners, schools, and communities to reduce the radon threat from indoor air. For states without such a program, the Maximum Contaminant Level (MCL) of 300 pCi/l may apply. Minnesota plans to adopt an Indoor Air Program once the Radon Rule is finalized.

Contaminant (units)	MCLG	AL	90% Level	# sites over AL	Typical Source of Contaminant
Copper (ppm) (07/19/2005)	N/A	1.3	.41	0 out of 10	Corrosion of household plumbing systems; Erosion of natural deposits.
Lead (ppb) (07/19/2005)	N/A	15	nd	0 out of 10	Corrosion of household plumbing systems; Erosion of natural deposits.

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 Mahnomen 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:

CONSUMER CONFIDENCE REPORT

PWSID: 1440002

Contaminant (units)	Level Found		Typical Source of Contaminant
	Range (2007)	Average/ Result	
Sodium (ppm)	N/A	55	Erosion of natural deposits.
Sulfate (ppm)	N/A	115	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.

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 are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Iron and Manganese, occur naturally in the Mahnomen water system. Neither of the elements causes adverse health effects; they are in fact, essential to the human diet. However, water containing excessive amounts of iron and manganese can stain clothes, discolor plumbing fixtures, and sometimes add a rusty taste and look to the water.

Iron and manganese in water also promote the growth of iron bacteria, a group of organisms that obtains its energy for growth from the chemical reaction that occurs when iron and manganese mix with dissolved oxygen. These bacteria form thick slime growths on the walls of the piping system and on well screens. Such slimes are rust-colored from the iron and black-colored from the manganese. Variations in flow can cause these slime growths to come loose, resulting in dirty water in the system.

The growth of iron bacteria can be controlled by chlorination. However, when water containing iron is chlorinated, the iron is converted from the ferrous state to the ferric state—in other words, rust and manganese is converted into black manganese dioxide. These materials form a coating on the inside of the water main and, when they break loose, a customer will sometimes complain of "dirty" water.

The Safe Drinking Water Act (SDWA) secondary standards (aesthetic, not health related) for iron in drinking water is 0.3 parts per million (ppm); for manganese it is 0.05 ppm . If the water contains more than 0.02 ppm of manganese, the operator should implement an effective hydrant-flushing program in order to avoid customer complaints.

Treatment Plan Data

Objective	Process Mechanism	Active
Disinfection	Chlorine/Sodium hypochlorite	N
Fluoride (Z)	Fluoridation/Hydrofluosilicic acid	Y
Inorganics removal	Filtration (Pressure)/Greensand	Y
Iron removal	Aeration/Induced Draft	Y
	Detention (chemical reaction time)	Y
	Oxidation – chemical/Chlorine	Y
Manganese removal	Detention (chemical reaction time)	Y
	Oxidation – chemical/Sodium permanganate	Y

Exhibit F List of Local Governmental Units (LUG's)

The following local units of government were sent copies of the plan and notices of public meetings:

Mahnomen County

Pembina Township

Wild Rice Watershed District

White Earth Reservation

Mahnomen Soil and Water Conservation District

Headwater's Regional Development Commission

Exhibit G Minutes for Public Information Meeting on Part I

CITY OF MAHNOMEN
CITY COUNCIL MEETING MINUTES

March 17, 2008

6:30 P.M.

COUNCIL PRESENT: Warnsholz, Kochmann, Jaeger, Lee and Ballard

Also present: Wayne Ahmann – Fire Chief
Kris Carlson – Ulteig, City Engineer
Sue Kraft- Mahnomen Pioneer
Mark Wettlaufer – MN Rural Water
Brian McDonald – City Assistant Attorney

The meeting was called to order by Mayor Joyce Ballard.

APPROVAL OF THE AGENDA
MOTION by Lee, second by Kochmann to approve the Agenda as amended. All voting, "Yes."

PUBLIC COMMENTS
There were no public comments

CONSENT AGENDA
Berg informed the Council he put in the February 25, 2008 the incorrect ending check number for the January 2008 City of Mahnomen. Instead of being #46202-46265 the minutes should reflect #46202-46266. **MOTION by Jaeger, second by Warnsholz to amend the February 25, 2008 minutes to reflect the above mentioned change. All voting, "Yes".**

MOTION by Jaeger, second by Kochmann to approve the following consent agenda:

- **March 3, 2008 City Council minutes**
- **March 17, 2008 list of claims totaling $22,181.06**
- **February 2008, City of Mahnomen #46267-46331, Wild Rice Liquor #30039-30090, Lucky Seven #6835-6868.**
- **Liquor Store February Financial Report**
- **Purchase of 10 pagers from Mid States Wireless at a price not to exceed $3,900.**
- **To authorize Giziibi to prepare a fire vehicle grant for the Mahnomen Fire Department with a 5% fee, if a grant is awarded**

MOTION PASSED. All voting, "Yes."

CONSIDERATION TO HIRE A VOLUNTEER FIREFIGHTER

MOTION by Jaeger, second by Warnsholz to offer a conditional job offer of employment to the one applicant that applied to become a volunteer firefighter, subject to passing a physical and agility examination and a one (1) year probationary period. All voting, "Yes."

CONSIDERATION OF RESOLUTION 2008-2: A RESOLUTION APPROVING PLANS AND SPECIFICATIONS AND AUTHORIZING AN AD FOR BID

Berg explained Ulteig was not yet ready to present the plans for bid. However, Kris Carlson, City Engineer was present to give Council an updated timeline.

PUBLIC INFORMATION MEETING AND DISCUSSION ON A DELINEATION OF THE WELLHEAD PROTECTION AREA, DELINEATION OF THE DRINKING WATER SUPPLY MANAGEMENT AREA, AND ASSESSMENT OF THE WELL AND AQUIFER VULNERABILITY FOR PUBLIC WELLS.

Berg introduced Mark Wettlaufer, from the Minnesota Rural Water Association, to answer any questions from either the Council or the public in regards to the public information meeting. Berg mentioned the State requires the City to amend both the Wellhead Part I Plan and Part II Plan after Well No. 7 was constructed. The reason for the amendment was to update any data, resulting in a model change to the Well Head Protection Area (WHPA), Drinking Water Supply Management Area (DWSMA), and Source Water Protection Area (SWPA).

The Minnesota Department of Health assisted the City in updating the Well Head Part I Plan and as a result, has approved the plan. According to State rules, the City of Mahnomen was to send out copies of the amended plan to the neighboring political jurisdictions. The City met this requirement on February 4, 2008, when it sent out a copy of the plan to Pembina Township, Mahnomen County, Wild Rice Watershed District, and the White Earth Reservation.

Berg explained portions of the amended report to the Council, highlighting that the new data has caused the computer to model the WHPA differently than what was previously modeled. Berg also explained to the Council the city wells have shown that they are generally free of contaminants. Berg also explained the low level of tritium means surface water takes an extremely long time to reach the aquifers. However, a low level of tritium measured around Well No. 4, means the well is more susceptible to contaminates.

Furthermore, the water reaching the wells tend to gravitate to the wells from a western direction, which means the City, should adopt a land use regulation to protect the aquifers from potential vulnerability.

Wettlaufer spoke about how the model was constructed and spoke on the benefits of proper land use planning within the DWSMA.

OTHER
There was no other action taken at the meeting

COUNCIL MEMBER REPORTS
Council member Jaeger – Has a HRDC board meeting on Thursday
Council member Kochmann – Reported lift station problems to the main lift station. Attended an exit interview with the Mahnomen Health Center Auditor.
Council member Warnsholz - Nothing to report
Council member Lee – Nothing to report
Mayor Ballard – Attended sheriffs deputy interviews with the Sheriff for current opening

CITY ADMINISTRATOR'S REPORT
Berg presented his report to the Council and informed the Council the City office will be closed on Thursday, March 27, 2008. Berg also presented the Council with the 2007 Audit and Management Letter. Berg asked Council to review the audit, as the City Auditor will be presenting their report at the April 7, 2008 Council Meeting.

ADJOURNMENT
MOTION by Lee, second by Jaeger to adjourn the meeting. The meeting was adjourned.

Minutes respectfully submitted by,
Mitchell Berg

Exhibit H Scoping II Notice

April 9, 2008

Mr. Mitch Berg
Administrator - City of Mahnomen
P.O. Box 250
Mahnomen, Minnesota 56557-0250

Dear Mr. Berg:

Subject: Second Scoping Decision Notice

This letter provides notice of the results of the second scoping meeting held with you, Joan Tweedale (Consultant), Kristopher Carlson (Ulteig Engineers), and myself on April 1, 2008, at Mahnomen 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 provided documentation that 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 have been met. The City of Mahnomen will have until February 1, 2009, to complete its wellhead protection plan.

If a data element is marked on the enclosed notice as a data element that must be used and it does not exist, it is helpful if your plan notes this. Mark Wettlaufer of the Minnesota Rural Water Association 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 wellhead protection plan. If you have any questions regarding the enclosed notice, contact me by email at beth.kluthe@health.state.mn.us or by phone at 218/308-2115.

Sincerely,

Beth S. Kluthe, Principal Planner
Environmental Health Division
705 Fifth Street NW - Suite A
Bemidji, Minnesota 56601

BSK:kmc
Enclosures
cc: Todd Johnson, Minnesota Department of Health
Chuck Regan, Minnesota Pollution Control Agency
Brian Williams, Minnesota Department of Agriculture
Laurel Reeves, Minnesota Department of Natural Resources
Eric Mohring, Board of Water and Soil Resources
Kristopher Carlson, Ulteig Engineers, Inc.
Mark Wettlaufer, Minnesota Rural Water Association

SCOPING 2 DECISION NOTICE

Name of Public Water Supply:		**Date:**
Mahnomen PWSID: 1440002		April 9, 2008
Name of the Wellhead Protection Manager:		
Mr. Mitch Berg, City Administrator		
Address:	**City:**	**Zip:**
104 West Madison Avenue P.O. Box 250	Mahnomen	56557-0250
Unique Well Numbers:		**Phone:**
221667 (Well 4), 620592 (Well 6), 657387 (Well 7)		218-935-2573

Instructions for Completing the Scoping 2 Form

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

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

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

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

DATA ELEMENTS ABOUT THE PHYSICAL ENVIRONMENT

PRECIPITATION			
N	**R**	**S**	An existing map or list of local precipitation gauging stations.
X			
Technical Assistance Comments:			
N	**R**	**S**	An existing table showing the average monthly and annual precipitation in inches for the preceding five years.
X			
Technical Assistance Comments:			

GEOLOGY			
N	**R**	**S**	An existing geologic map and a description of the geology, including aquifers, confining layers, recharge areas, discharge areas, sensitive areas as defined in Minnesota Statutes, section 103H.005, subdivision 13, and groundwater flow characteristics.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area must reflect what is known about these data elements.			
N	**R**	**S**	Existing records of the geologic materials penetrated by wells, borings, exploration test holes, or excavations, including those submitted to the department.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area must reflect what is known about these data elements.			
N	**R**	**S**	Existing borehole geophysical records from wells, borings, and exploration test holes.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area must reflect the geology of the area.			
N	**R**	**S**	Existing surface geophysical studies.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area must reflect the geology of the area.			

SOILS			
N	**R**	**S**	Existing maps of the soils and a description of soil infiltration characteristics.
X			
Technical Assistance Comments:			
N	**R**	**S**	A description or an existing map of known eroding lands that are causing sedimentation problems.
X			
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:			
LAND USE			
N	**R**	**S**	An existing map of parcel boundaries.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area must reflect what is known about this data element.			
N	**R**	**S**	An existing map of political boundaries.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area must reflect what is known about this data element.			
N	**R**	**S**	An existing map of public land surveys including township, range, and section.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Area must reflect what is known about this data element.			

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

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

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).

As a starting point, MDH will provide**:**

1) a list of specific potential sources of contamination from State data bases. At least 25 of each type of potential contaminant source must be inventoried, location verified, and mapped during plan development. The remaining sources, if any, must be inventoried, location verified and mapped during the first year of plan implementation; and
2) 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.

Management strategies must be developed for the land uses and potential sources of contamination listed above.

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

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

N	R	S	
	X	X	Existing zoning map.

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

PUBLIC UTILITY SERVICES

N	R	S	
	X		An existing map of transportation routes or corridors.

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

N	R	S	
	X		An existing map of storm sewers, sanitary sewers, and public water supply systems.

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 must be included in the wellhead protection plan and must also be submitted to MDH as part of the approval.

N	R	S	
	X	X	An existing map of the gas and oil pipelines used by gas and oil suppliers.

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

N	R	S	
	X		An existing map or list of public drainage systems.

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

N	R	S	
	X		An existing record of construction, maintenance, and use of the public water supply well and other wells within the drinking water supply management area.

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

SURFACE WATER QUANTITY

N	R	S	
X			An existing description of high, mean, and low flows on streams.

Technical Assistance Comments:

N	R	S	
X			An existing list of lakes where the state has established ordinary high water marks.

Technical Assistance Comments:

N	R	S	
X			An existing list of permitted withdrawals from lakes and streams, including source, use, and amounts withdrawn.

Technical Assistance Comments:

N	R	S	
X			An existing list of lakes and streams for which state protected levels or flows have been established.

Technical Assistance Comments:

N	R	S	
X			An existing description of known water-use conflicts, including those caused by groundwater pumping.

Technical Assistance Comments:

GROUNDWATER QUANTITY

N	R	S	
	X		An existing list of wells covered by state appropriation permits, including amounts of water appropriated, type of use, and aquifer source.

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

N	R	S	
	X	X	An existing description of known well interference problems and water use conflicts.

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

N	R	S	
	X		An existing list of state environmental bore holes, including unique well number, aquifer measured, years of record, and average monthly levels.

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

DATA ELEMENTS ABOUT WATER QUALITY

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

Exhibit I DNR Letter of Approval for Emergency Contingency Plan

Minnesota Department of Natural Resources
Division of Waters
2115 Birchmont Beach Road N.E.
Bemidji, MN 56601
218-308-2621

September 5, 2008

Mitchell Berg, Administrator
City of Mahnomen
P.O. Box 250
Mahnomen, MN 56557

RE: Water Emergency and Conservation Plan Approval, City of Mahnomen, Mahnomen County

Dear Mr. Berg:

DNR Waters has reviewed the Water Emergency and Conservation Plan and attachments for the City of Mahnomen, dated August 28, 2008. The plan has been found to be consistent with Minnesota Statutes, section 103G.291, subd. 3, and is therefore approved. This approval is contingent upon the Department's receipt of confirmation that the City has adopted the Plan. Please complete and return to this office the attached "Certification of Adoption" form.

Also, note that a recent change in state law requires all communities serving in excess of 1000 people to adopt a conservation rate schedule. This is to be accomplished prior to January 1, 2013, or sooner if an increase in annual appropriation is requested. More information regarding this law change and conservation rates can be found on the DNR website at:
http://www.dnr.state.mn.us/waters/watermgmt_section/appropriations/pwsconserve.html

Thank you for your cooperation and efforts to manage and conserve water resources. If you have any questions, please contact Area Hydrologist Michele Puchalski at 218-308-2664 or by email at Michele.puchalski@dnr.state.mn.us.

Best Regards,

Robert J. Bezek
Regional Hydrologist

RJB:cda

Attachment
c: Laurel Reeves, Water Appropriation Program Manager
Michele Puchalski, Area Hydrologist
Todd Johnson, Minnesota Department of Health
file

Exhibit J Part II Letter to LUG's

P.O. Box 250 ~ Mahnomen, Minnesota 56557
Phone: City Clerk's Office (218) 935-2573
Fax: (218) 935-2574
E-mail address: Mahncity@djam.com
Web site: Mahnomen.govoffice.com

Date: 12-4-08

To: Mahnomen County Board Chairperson, PO Box 379, Mahnomen, MN 56557
Pembina Township Board Chairperson, 2645 110th Ave., Mahnomen, MN 56557
Joyce Ballard, Mayor, City of Mahnomen, PO Box 250, Mahnomen, MN 56557
Erma Vizenor, Chairman, White Earth Reservation Tribal Council, PO Box 418, White Earth, MN 56591
President of Wild Rice Watershed District, 11 5th Avenue East, Ada, MN 56510
Chairman, Mahnomen Soil & Water Conservation District, PO Box 381, Mahnomen, MN 56557
Cliff Tweedale, Executive Director, Headwaters Regional Development Commission, PO Box 906, Bemidji, MN 56601
Beth Kluthe, Minnesota Department of Health Planner, 1705 Anne Street NW, Bemidji, MN 56601

From: Mitchell Berg, City Administrator, Wellhead Protection Manager

Re: City of Mahnomen Wellhead Protection Program for the City of Mahnomen

The City of Mahnomen is in the process of developing a wellhead protection plan for its drinking water supply wells. Enclosed for your review and comment is the completed wellhead protection plan, Part 2, draft for this system as required in the Minnesota Wellhead Protection Rule (part 4720.5350, subparts 1-3). This portion of the plan includes information pertaining to:

1. The inventory of potential contaminants of concern within the drinking water supply management area;
2. The data that was considered in this portion of the plan;
3. Issues, problems, and concerns within the drinking water supply management area;
4. Goals, objectives, and action strategies to address the issues and concerns within the drinking water supply management area;
5. A plan evaluation strategy; and
6. A contingency strategy in the event of water system disruption.

Your comments on this portion of the plan will be accepted through the 60 day comment period. Please send your written comments to Mitchell Berg at PO BOX 250, Mahnomen MN, 56557 by February 1, 2009.

Consistent with the Wellhead Protect Rule (part 4720.5350, subpart 4), a Public Hearing has been scheduled on February 2, 2009 at 6:30 p.m. at the Mahnomen City Hall, 104 W. Madison Avenue, Mahnomen MN, to discuss issues and address all comments related to the enclosed document.

We look forward to your participation

Sincerely,

Mitchell Berg

City Administrator

Exhibit K Part II Public Hearing notice and minutes

City of Mahnomen
Public Hearing Notice

The City of Mahnomen will hold a Public Hearing on Monday, February 2 at 6:30 p.m. at the Mahnomen City Hall, 104 W. Madison Avenue, Mahnomen, MN. The purpose of this hearing is to discuss issues and address all comments relative to Part II of the City of Mahnomen Wellhead Protection Plan. A copy of the plan can be seen at the Mahnomen City Hall, 104 W. Madison Avenue, Mahnomen, MN from 8:00 a.m. to 4:30 p.m. Monday through Friday.
Mitch Berg
City Administrator (1tc,oc)

XVII - 30
MNA Manual Item: PUBLIC NOTICE
Affidavit of Publication

(replaces XVII - 28)

STATE OF MINNESOTA)
) ss.
COUNTY OF MAHNOMEN)

Patrick D. Kelly, being duly sworn, on oath says that he/she is the publisher or authorized agent and employee of the publisher of the newspaper known as the Mahnomen Pioneer,and has full knowledge of the facts which are stated below:
(A) The newspaper has complied with all of the requirements constituting qualifications as a qualified newspaper, as provided by Minnesota Statute 331A.02, 331A.07, and other applicable laws as amended.
(B) The printed Public Hearing Notice -Feb. 2, 2009 -Also City of Mahnomen Budget 2009

which is attached was cut from the columns of said newspaper, and was printed and published once each week, for _____ successive weeks; it was first published on Thursday, the 22 nd day of Jan. 2009, and was thereafter printed and published on every _____ to and including, Thursday the _____ day of _____, 2009; and printed below is a copy of the lower case alphabet from A to Z, both inclusive, which is hereby acknowledged as being the size and kind of type used in the composition and publication of the notice:

abcdefghijklmnopqrstuvwxyz

MOLLY A RUEL
Notary Public
Minnesota
My Commission Expires January 31, 2010

BY: Patrick D. Kelly
TITLE: Publisher

Subscribed and sworn to before me on
this 2 nd day of Feb., 2009
Molly A. Ruel
Notary Public

*Alphabet should be in same size and kind of type as the notice.

RATE INFORMATION

(1) Lowest classified rate paid by commercial users for comparable space $_____ (Per Inch Rate)

(2) Maximum rate allowed by law for the above matter $_____ (Per Inch Rate)

(3) Rate actually charged for the above matter $_____ (Per Inch Rate)

CITY OF MAHNOMEN
CITY COUNCIL MEETING MINUTES

Monday, February 2, 2009

6:30 P.M.

COUNCIL PRESENT: Jaeger, Lee, Kochmann and Warnsholz

Also present: Kris Carlson – City Engineer
Sue Kraft- Mahnomen Pioneer
Ken Flaten - Radio
Carl Malmstrom – City Attorney
Mitchell Berg – City Administrator
Residents: Robert and LuAnn Durant
Consultants: Joan Tweedale and Mark Wettlaufer

The meeting was called to order by Mayor Warnsholz.

Approval of the Agenda
MOTION by Jaeger, second by Kcohmann to approve the agenda. All voting, "Yes."

CONSIDERATION OF AN APPOINTMENT TO THE MAHNOMEN CITY COUNCIL.
Council member Lee presented the recommendation of the ad hoc nominating committee to the full Council. **MOTION by Jaeger, second by Kochmann to appoint LuAnn Durant to the Mahnomen City Council, through the end of 2010, to replace the seat left open when council member Warnsholz became Mayor. All voting, "Yes."**

OATH OF OFFICE
City Administrator Berg than administered the oath of office to LuAnn Durant and council member Durant was seated on the council.

Public Comments
There were no comments from the public

APPROVAL OF MINUTES
MOTION by Lee, second by Kochmann to approve the January 20, 2009 and December 22, 2008 meeting minutes. All voting, "Yes."

APPROVAL OF BILLS
MOTION by Lee, second by Jaeger to approve the February 2, 2009 list of claims totaling $58,700.71 All voting, "Yes."

ADDITIONAL PURCHASES AND CLAIMS
Berg indicated there were no additional purchases and/or claims

NUISANCE HEARINGS
Berg said there were no nuisance hearings to bring forward to the council at this time.

Consideration of Resolution 2009-6: A RESOLUTION AMENDING THE DATE AND TIME OF A SUPPLEMENTAL ASSESSMENT PUBLIC HEARING FOR THE 2008 CAPITAL IMPROVEMENT PROJECT

Berg informed the council the date and time of the supplemental assessment hearing on the 2009 CIP would need to be moved due to the Presidents Day holiday. **MOTION by Kochman, second by Jaeger to approve Resolution 2009-6: A RESOLUTION AMENDING THE DATE AND TIME OF A SUPPLEMENTAL ASSESSMENT PUBLIC HEARING FOR THE 2008 CAPITAL IMPROVEMENT PROJECT to Monday, February 23, 2009 at 6:00 p.m. All voting, "Yes" on a 5-0 roll call vote.**

Consideration of Resolution 2009-7: A RESOLUTION CALLING FOR THE DATE AND TIME OF A REASESSMENT HEARING TO REASESS PARCELS THAT WERE REMOVED FOR A TAX-FORFEITURE SALE AND WHICH WERE ORIGINALLY ASSESSED AS PART OF THE 1990 STREET PROJECT
MOTION by Jaeger, second by Lee to approve Resolution 2009-7: A RESOLUTION CALLING FOR THE DATE AND TIME OF A REASESSMENT HEARING TO REASESS PARCELS THAT WERE REMOVED FOR A TAX-FORFEITURE SALE AND WHICH WERE ORIGINALLY ASSESSED AS PART OF THE 1990 STREET PROJECT to Monday, February 23, 2009 at 6:30 p.m. All voting, "Yes" on a 4-0 roll call vote with Durant abstaining.

Consideration of Resolution 2009-8: A RESOLUTION CALLING FOR THE DATE AND TIME OF A REASESSMENT HEARING TO REASESS PARCELS THAT WERE REMOVED FOR A TAX-FORFEITURE SALE AND WHICH WERE ORIGINALLY ASSESSED AS PART OF THE 1983 STREET PROJECT
MOTION by Lee, second by Jaeger to approve Resolution 2009-8: A RESOLUTION CALLING FOR THE DATE AND TIME OF A REASESSMENT HEARING TO REASESS PARCELS THAT WERE REMOVED FOR A TAX-FORFEITURE SALE AND WHICH WERE ORIGINALLY ASSESSED AS PART OF THE 1983 STREET PROJECT to Monday, February 23, 2009 at 6:45 p.m. All voting, "Yes" on a 5-0 roll call vote.

Consideration of Resolution 2009-9: A RESOLUTION CALLING FOR THE DATE AND TIME OF A REASESSMENT HEARING TO REASESS PARCELS THAT WERE REMOVED FOR A TAX-FORFEITURE SALE AND WHICH WERE ORIGINALLY ASSESSED AS PART OF THE 1993 STREET PROJECT
MOTION by Kochmann, second by Jaeger to adopt Resolution 2009-9: A RESOLUTION CALLING FOR THE DATE AND TIME OF A REASESSMENT HEARING TO REASESS PARCELS THAT WERE REMOVED FOR A TAX-FORFEITURE SALE AND WHICH WERE ORIGINALLY ASSESSED AS PART OF THE 1993 STREET PROJECT to Monday February, 23, 2009 at 7:00 p.m. All voting, "Yes" on a 5-0 roll call vote.

Consideration of Resolution 2009-10: A RESOLUTION REGARDING CLAIMED CITY PROPERTY TAX LIABILITY ON THE SHOOTING STAR CASINO PROEPRTY FOR THE TAX YEARS 2006 FORWARD
The attorney presented made a brief report to the council mentioning he was in contact with the tribal attorney to discuss the resolution. **MOTION by Kochmann, second by Lee to table. All voting, "Yes."**

Consideration to complete a PER for capital improvements in relationship to the Federal Stimulus Package
MOTION by Jaeger, second by Durant to solicit an engineering firm to complete an Preliminary Engineering Report. All voting, "Yes."

Consideration of appointment to various city committees and commissions
Being the council appointed a new council member, Mayor Warnsholz asked if Durant would be interested in serving on the Police Committee and to have the administrator bring up the matter

again for vote at the next council meeting.

Consideration of the Development and Loan Agreements for the property owners lying outside of the city limits and who received new water mains and connections as part of the 2008 CIP
MOTION by Jaeger, second by Kochmann to approve the six Development, Loan and Special Assessment agreements, for the six of the 10 properties lying outside of the city limits, with two of the six properties in a deferment status. All voting, "Yes."

Consideration of rescheduling the Regular City Council meeting due to the President's Day Holiday on February 16, 2009
MOTION by Jaeger, second by Durant to move the February 16, 2009 regular council meeting to Monday, February 23, 2009 at 7:15 p.m. due to the Presidents Day Holiday. All voting, "Yes."

Consideration of a USDA Grant/Loan Application for a new Fire Hall as part of the Federal Stimulus Package
Berg explained to the council he was ready to submit two Stage I applications to the USDA for capital projects amounting to over $4.75 million. However, Berg reiterated the city was in no position to finance any of these projects. But, being there is over $6 billion in federal stimulus money being proposed, alone, for just water and waste water infrastructure, Berg indicated it would be foolish just to sit on the sidelines if there would be grant funds available that otherwise would not have been accessible. **MOTION by Kochmann, second by Jaeger to authorize the Mayor and/or City Administrator to sign the assurances for both Stage I applications for a new fire hall and over $3.75 million in water, sanitary sewer, and storm sewer improvements. All voting, "Yes."**

Consideration of an Assessment Waiver for the completion of an energy audit for the City
In preparation for an energy audit of the city's facilities, Berg asked the council to share some of the lodging expenses of the group, as they are coming from the Twin Cities. **MOTION by Jaeger, second by Durant to approve the Assessment Waiver Form and to approve their lodging expenses not to exceed $120.00. MOTION PASSED on a 4-1 "vote" with Kochmann voting "No".**

Consideration of 2010 assessing fees
MOTION by Jaeger, second by Kochmann to approve the Mahnomen County 2010 assessment rates. All voting, "Yes."

City Administrators Report
Berg presented his report to the council

Council reports
Warnsholz indicated he was invited to a meeting at the Red Apple to discuss renewable energy policies with tribal and state legislative officials.

Consideration of an amended Well Head Protection Part II plan
Both Joan Tweedale and Mark Wettlauffer made a presentation on the purpose and background of the Wellhead Protection Part I and Part II plan.

Mayor Warnsholz opened the public hearing on the Well Head Part II Protection Plan at 7:30 p.m.

Hearing no comments further comments a **MOTION was made by Jaeger, second by Lee to close the public hearing. All voting, "Yes."**

MOTION by Lee, second by Kochmann to adopt the Well Head Protection Part II Plan. All voting, "Yes."

ADJOURNMENT
MOTION by Lee, second by Kochmann to adjourn the meeting. All voting, "Yes."
The meeting was adjourned at 8:10 P.M.

Minutes respectfully submitted by,

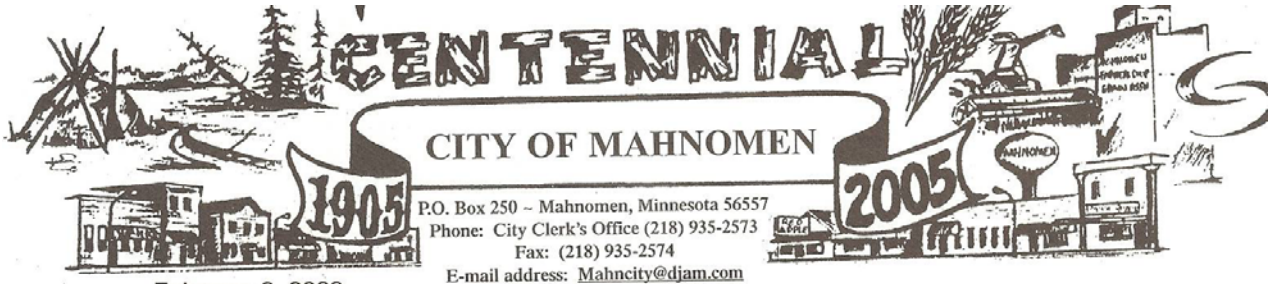
_____
Mitchell Berg
City Administrator

ATTEST:

_____
Martin Warnsholz
Mayor

Note: No Comments were received by the public during the public comment/review period. (per Mitch Berg, City Administrator as told to Joan Tweedale, consultant)

Exhibit L Letter to MDH



P.O. Box 250 ~ Mahnomen, Minnesota 56557
Phone: City Clerk's Office (218) 935-2573
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Web site: Mahnomen.govoffice.com

February 9, 2009

Trudi Witkowski
Minnesota Department of Health
121 East Seventh Place
P.O. Box 64975
St. Paul, MN 55164

Re: City of Mahnomen
Wellhead Protection Program

Dear Ms. Witkowski:

The City of Mahnomen has completed the process of developing a Wellhead Protection Plan Amendment for their drinking water supply wells. This Plan includes establishing Wellhead Protection Areas, assigning Drinking Water Supply Management Areas, and completing vulnerability assessments. The Department of Health approved this portion of the Plan previously.

At this time, the City of Mahnomen formally requests that the MDH review the enclosed Wellhead Protection Plan Amendment, Part 2 for approval as required by the MN Wellhead Protection Rule (4720.5360, subpart 1).

The City Council has reviewed the Plan, and approved the Plan as part of a Public Hearing on February 2, 2009. Please find enclosed a copy of the Public Hearing meeting notice, agenda, and minutes.

On behalf of the City of Mahnomen, I thank you for your assistance, and look forward to receiving approval from you. Please send the approval notice to Mitch Berg, Mahnomen City Administrator at 104 Madison Ave., P. O. Box 250, Mahnomen, MN 56557.

Sincerely,

Mitch Berg
Mahnomen City Administrator

Enc.

Appendix M Approval letter from MDH