

APPENDICES

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**APPENDIX
ITEM
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ABBREVIATIONS/ACRONYMS IN THE WHP PLAN, PART II

AMP	Aquifer Management Plan
BMP	Best Management Practices
City	City of Moorhead
CLWP	Comprehensive Local Water Plan
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
DNR	Minnesota Department of Natural Resources
DWS	Drinking Water Supply
DWSMA	Drinking Water Supply Management Area
EQIP	Environmental Quality Incentives Program
ft³/s	Cubic Feet per Second
GPM	Gallons Per Minute
ISTS	Individual Sewage Treatment Systems
LCCMR	Legislative Citizen Commission on MN Resources
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MetroCOG	Metropolitan Council of Governments
MG	Million Gallons
MGD	Million Gallons per Day
MG/Y	Million Gallons per Year
MNDOT	Minnesota Department of Transportation
MPS	Moorhead Public Service
MPCA	Minnesota Pollution Control Agency
MRWA	Minnesota Rural Water Association
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Services
PCSI	Potential Contaminant Source Inventory
Plan	Moorhead Wellhead Protection Plan
PWS	Public Water Supply
SWCD	Soil and Water Conservation District
Team	Moorhead Wellhead Protection Team
TMDL	Total Maximum Daily Load
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WHP	Wellhead Protection
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Plan

APPENDIX ITEM 2



500 Center Avenue ■ PO Box 779
Moorhead, MN ■ 56561-0779
218-299-5400 ■ Fax: 218-299-5193
www.mpsutility.com

«First_Name_» «Last_Name»
«MailingAddress1»
«MailingAddress2»
«City», «State» «Zip»

RE: Parcel No. «PIN»

Dear «First_Name_» «Last_Name»:

Moorhead Public Service (MPS) has actively worked to protect our groundwater resources, like the Buffalo Aquifer, for many years. We are now in the process of amending the existing Wellhead Protection (WHP) Plan for the Buffalo Aquifer. We are requesting assistance from landowners who own property located within the Buffalo Aquifer Wellhead Protection Area and Drinking Water Supply Management Area (DWSMA).

The information we gather from landowners like you will be used to determine the presence of any possible pollutants that may threaten the water quality of the Buffalo Aquifer. Sources determined to be potentially threatening to the aquifer will be prioritized based upon three criteria: the types and quantities of contaminants used and stored in the DWSMA, their proximity to public water supply wells, and the likelihood of an undetected leak or spill of that pollutant.

A Moorhead WHP Team, with representatives from Clay County, Buffalo Red River Watershed District, City of Moorhead, City of Dilworth, Moland Township, Glyndon Township, and landowners, will review the information, prioritize the potential threats, and amend the plan that will be used to minimize the risk of polluting our groundwater resources. We are confident that the input of local landowners will be an important element in developing an effective WHP Plan. A public hearing regarding the DWSMA and vulnerability assessment will be held in late November 2012. A separate notification regarding that meeting date will be sent to you some time within the next week.

As any potential source of contamination may pose a threat to your own domestic wells, your cooperation and participation in the process is very important. I sincerely hope we can work together to protect the drinking water for everyone who draws from the Buffalo Aquifer. Please fill out the enclosed survey and return it to Moorhead Public Service in the enclosed postage-paid envelope no later than Friday, November 23, 2012. If you would prefer, you can call me or I can meet with you to answer your questions. Please feel free to contact me at 218.299.5475 with any questions or concerns.

Sincerely,

Kris Knutson
Water Division Manager

KK/cag
enclosure
cc George Minerich, Minnesota Department of Health



POTENTIAL CONTAMINATION SOURCE INVENTORY

Your property is located within the Moorhead Wellhead Protection (WHP) area. As part of the wellhead protection planning process, we need to inventory potential contaminant sources. This includes home fuel heating tanks, agricultural fuel tanks, domestic wells, irrigation wells, abandoned wells, shop drains, septic systems, livestock, commercial activities, hazardous chemicals, agricultural chemicals and fertilizers, and pipelines.

Please take a few minutes to complete the survey and return it to Moorhead Public Service in the postage-paid envelope by Friday, November 23, 2012.

Name: _____ «First Name » «Last Name»
Address: _____ «MailingAddress1» «MailingAddress2»
_____ «City», «State» «Zip»
Parcel No.: _____ «PIN»

I. Home Heating Fuels

- A. Fuel Type #1
- Propane
 - Fuel Oil
 - Electric
 - Other please specify: _____
- B. Location of Tank
- Above Ground
 - Below Ground
 - Basement
- Tank Size: _____

II. Agricultural Fuel Tanks

- None (please move to question III.)
- A. Fuel Tank #1
- Diesel
 - Gasoline
 - Above Ground
 - Below Ground
- Tank Size: _____

B. Fuel Tank #2

- Diesel
- Gasoline
- Above Ground
- Below Ground

Tank Size: _____

C. Fuel Tank #3

- Diesel
- Gasoline
- Above Ground
- Below Ground

Tank Size: _____

D. Fuel Tank #4

- Diesel
- Gasoline
- Above Ground
- Below Ground

Tank Size: _____

E. If additional space is needed, please enter the information on the back of this sheet.

III. Wells (enter a number in the spaces below)

Domestic _____
Irrigation _____
Unused/Abandoned _____
Sealed _____

IV. Septic Systems

Number of Septic Tanks _____
Number of Drain Fields _____
Number of Shop Drains _____

V. Hazardous Chemical Tanks

- None (please move to question VI.)

Number of Tanks _____
Size of Each Tank _____
Above Ground _____
Below Ground _____

VI. Agricultural Chemical and Fertilizer Storage

- None (please move to question VII.)

Number of Tanks _____
Size of Each Tank _____
Chemical _____
Fertilizer _____

VII. Livestock

- None (please move to question VIII.)

Number of Cattle_____

Number of Horses_____

VIII. Commercial Activity

- None (please move to question IX.)

a. Type of Business_____

IX. Private Pipelines on Property

- None
- Petroleum Pipeline
- Natural Gas Pipeline
- Water Pipeline

**APPENDIX
ITEM
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Protecting, maintaining and improving the health of all Minnesotans

February 5, 2013



Mr. Bill Schwandt
General Manager
P.O. Box 779
Moorhead, Minnesota 56561-0779

Dear Mr. Schwandt:

Subject: Second Scoping Decision Notice, City of Moorhead, PWSID 1140008

This letter provides notice of the results of a scoping meeting held with you Kris Knutson (Manager), Li Zhang (Public Works Engineer), Cliff Mc Lain (Consultant) on January 8, 2013, at the City of Moorhead Public Works Office regarding wellhead protection (WHP) planning. During the meeting we discussed the data elements that must be included and used to prepare the part of the WHP plan related to the management of potential contaminants in the approved drinking water supply management area. The enclosed Scoping 2 Decision Notice lists the data elements that were discussed at the meeting.

~~The city of Moorhead has met the requirements to distribute copies of the first part of the wellhead protection plan to local units of government and hold an informational meeting for the public. The city of Moorhead will have until September 10, 2013 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. Cliff Mc Lain will be working with you to develop a draft of the remainder of the wellhead protection plan. I will be contacting you to review the progress of the development of Part II of your plan. If you have any questions regarding the enclosed notice, contact me by email at George.minerich@state.mn.us or by phone at 320/223-7314.

Sincerely,

George E. Minerich
Source Water Protection Unit
Environmental Health Division
3333 West Division Street - Suite 212
St. Cloud, Minnesota 56301

GEM:dcc
Enclosures

cc: Steven Pederson, MDH Engineer, Fergus Falls District Office
Byron Adams, Water Monitoring Section, Minnesota Pollution Control Agency
Joe Richter, Division of Waters, Minnesota Department of Natural Resources
Ron Struss, Minnesota Department of Agriculture
Eric Mohring, Hydrologist, Board of Water and Soil Resources

Kris Knutson, Manager
Li Zhang, Public Works Engineer
Cliff Mc Lain, Consultant

SCOPING 2 DECISION NOTICE

3 Remainder of the Wellhead Protection Plan

Name of Public Water Supply:		Date:
City of Moorhead (PWSID=1140008)		February 5, 2013
Name of the Wellhead Protection Manager:		
Mr. Bill Schwandt – General Manager		
Address:	City:	Zip:
P.O. Box 779	Moorhead	56561-0779
Unique Well Numbers:		Phone:
241492 (Well 6), 437645 (Well 6B), 222049 (Well 8), 222050 (Well 9), 222051 (Well 10), 511085 (Well 11), 511085 (Well 12)		218/299-5404

Instructions for Completing the Scoping 2 Form

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

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

N	R	S	S = Submit to MDH. If this box is checked, this data element MUST be included in your wellhead protection plan and submitted to MDH.
		X	
If there is NO check mark in the "S" box but there is an Ax@ 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 Areas 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 Areas 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 Areas must reflect what is known about these data elements.			
N	R	S	Existing surface geophysical studies.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Areas must reflect what is known about these data elements.			
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:			

DATA ELEMENTS ABOUT THE LAND USE

LAND USE			
N	R	S	An existing map of parcel boundaries.
	X	X	
Technical Assistance Comments: The management of all the Drinking Water Supply Management Areas must reflect what is known about this data element.			
N	R	S	An existing map of political boundaries.
	X	X	
Technical Assistance Comments: The management of all the Drinking Water Supply Management Areas 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 Areas must reflect what is known about this data element.			

N	R	S	A map and an inventory of the current and historical agricultural, residential, commercial, industrial, recreational, and institutional land uses and potential contaminant sources.
	X	X	
<p>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:</p> <p><u>Low Vulnerability</u> - 1) All potential contaminant sources and facility designations as listed on the attachment, 2) a land use/land cover map and table, and 3) an inventory of the Inner Wellhead Management Zone (IWMZ).</p> <p>As a starting point, MDH will provide a 1992 or 2001 land cover map and table from federal data bases. This data set must be used unless an alternative electronic data set that is more current and detailed is available.</p> <p>Management strategies must be developed for all land uses and potential sources of contamination.</p>			
N	R	S	An existing comprehensive land-use map.
	X	X	
<p>Technical Assistance Comments: The management of all the Drinking Water Supply Management Areas must reflect what is known about this data element. Include any urban fringe planning areas.</p>			
N	R	S	Existing zoning map.
	X	X	
<p>Technical Assistance Comments: The management of all the Drinking Water Supply Management Areas must reflect what is known about this data element.</p>			
PUBLIC UTILITY SERVICES			
N	R	S	An existing map of transportation routes or corridors.
X			
<p>Technical Assistance Comments:</p>			
N	R	S	An existing map of storm sewers, sanitary sewers, and public water supply systems.
X			
<p>Technical Assistance Comments:</p>			
N	R	S	An existing map of the gas and oil pipelines used by gas and oil suppliers.
X			
<p>Technical Assistance Comments:</p>			
N	R	S	An existing map or list of public drainage systems.
X			
<p>Technical Assistance Comments:</p>			
N	R	S	An existing record of construction, maintenance, and use of the public water supply wells and other wells within the drinking water supply management area.
	X		
<p>Technical Assistance Comments: The management of all the Drinking Water Supply Management Areas must reflect what is known about these data elements.</p>			

DATA ELEMENTS ABOUT WATER QUANTITY

SURFACE WATER QUANTITY			
N	R	S	An existing description of high, mean, and low flows on streams.
X			
Technical Assistance Comments:			
N	R	S	An existing list of lakes where the state has established ordinary high water marks.
X			
Technical Assistance Comments:			
N	R	S	An existing list of permitted withdrawals from lakes and streams, including source, use, and amounts withdrawn.
X			
Technical Assistance Comments:			
N	R	S	An existing list of lakes and streams for which state protected levels or flows have been established.
X			
Technical Assistance Comments:			
N	R	S	An existing description of known water-use conflicts, including those caused by groundwater pumping.
X			
Technical Assistance Comments:			
GROUNDWATER QUANTITY			
N	R	S	An existing list of wells covered by state appropriation permits, including amounts of water appropriated, type of use, and aquifer source.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Areas must reflect what is known about these data elements.			
N	R	S	An existing description of known well interference problems and water use conflicts.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Areas must reflect what is known about these data elements.			
N	R	S	An existing list of state environmental bore holes, including unique well number, aquifer measured, years of record, and average monthly levels.
	X		
Technical Assistance Comments: The management of all the Drinking Water Supply Management Areas 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:						
X			<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">1. bacteriological contamination indicators;</td> <td style="width: 50%;">4. sedimentation;</td> </tr> <tr> <td>2. inorganic chemicals;</td> <td>5. dissolved oxygen; and</td> </tr> <tr> <td>3. organic chemicals;</td> <td>6. excessive growth or deficiency of aquatic plants.</td> </tr> </table>	1. bacteriological contamination indicators;	4. sedimentation;	2. inorganic chemicals;	5. dissolved oxygen; and	3. organic chemicals;	6. excessive growth or deficiency of aquatic plants.
1. bacteriological contamination indicators;	4. sedimentation;								
2. inorganic chemicals;	5. dissolved oxygen; and								
3. organic chemicals;	6. excessive growth or deficiency of aquatic plants.								
Technical Assistance Comments:									
GROUNDWATER QUALITY									
N	R	S	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 Areas must reflect what is known about these data elements.									
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 Areas must reflect what is known about these data elements.									
N	R	S	An existing report of groundwater tracer studies.						
	X								
Technical Assistance Comments: The management of all the Drinking Water Supply Management Areas 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 Areas 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 Areas 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 Areas must reflect what is known about this data element.									

DRAFT
SCOPING 2 DECISION NOTICE ADDEMDUM

During the January 8, 2013 Scoping Two meeting several items of interest were considered for inclusion in the plan. It is recommended (not mandatory) that the following issues be considered in the City of Moorhead's plan:

1. Work with MDH Hydrologist to develop and implement a chloride/bromide study in the Buffalo Aquifer DWSMA wells and surface waters.
 2. Work with MDH staff to sample and develop further stable isotope information in the Buffalo Aquifer DWSMA wells and surface waters.
 3. Work with MDH Hydrologist to develop and implement a groundwater/surface water temperature monitoring plan in the Buffalo Aquifer DWSMA wells and surface waters.
 4. Review and incorporate recommendations from, Part One document -- John Oswald, Environmental Engineer II, LEGGETTE, BRASHEARS & GRAHAM, INC.
 5. Consider additional spill control and clean-up information and measures for Buffalo Aquifer DWSMA's in part two plan
 6. Continue to work with Clay County to develop regulations and monitor for gravel mining operation in DWSMA.
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