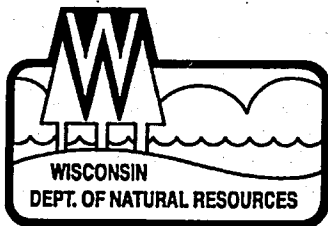


W-2008-0593 8/20/08 NAN

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES



Jim Doyle, Governor
Matthew J. Frank, Secretary

101 S. Webster St.
Box 7921
Madison, Wisconsin 53707-7921
Telephone 608-266-2621
FAX 608-267-3579
TTY Access via relay - 711

August 20, 2008

MARY RATH CLERK/TREASURER
CITY OF RHINELANDER
135 SOUTH STEVENS STREET
RHINELANDER WI 54501

Project Number: W-2008-0593
PWSID#: 74401261
DNR Region: NOR
County: ONEIDA

SUBJECT: APPROVAL OF WATER SYSTEM WELLHEAD PROTECTION PLAN.

Dear Ms. Raith:

The Wisconsin Department of Natural Resources, Division of Water, Bureau of Drinking Water and Groundwater, is conditionally approving a Wellhead Protection Plan for the following project. Information of sufficient detail to meet the requirements of s. NR 811.13 (3), Wis. Adm. Code, was submitted to the Department for the review of this project.

Water system name: City of Rhineland
Date received: 7/28/08 with revisions received on 8/12/08
Consulting firm: Wisconsin Rural Water Association, Plover
Consultant: Patrick Harrington
Regional DNR contact: Bill Dobbins, Rhineland, 715-365-8923

Project description: The project consists of a Wellhead Protection Plan (WHPP) for well No. 7 at the City of Rhineland. The Department hereby approves the Wellhead Protection Plan subject to the conditions below. It is noted that the plan also covers existing wells Nos. 4, 5, and 6.

The WHPP indicates that the City will develop and adopt a Wellhead Protection Ordinance that will cover wells Nos. 4, 5, 6, and 7 within six months of the completion of construction of well No. 7. The Department assumes this to mean within six months of placing well No. 7 in service. The ordinance will include maintaining the minimum contamination source setback requirements listed in s. NR811.16 (4) (d), Wis. Adm. Code.

Variances being issued to Chapter NR 811, Wis. Adm. Code: None.

Approval condition related to Chapter NR 811, Wis. Adm. Code:

1. The City shall adopt a Wellhead Protection Ordinance for all four of the City's wells as soon as possible but no later than within six months of the date that well No. 7 is placed in service. A draft copy of the ordinance shall be routed through the Department for review and comment prior to being formally adopted by the City.
2. Bill Dobbins shall be notified upon completion of all the necessary water system improvements associated with placing renovated well No. 6 and new well No. 7 in service so that he can perform an



3. inspection of each pumpstation as he deems it necessary and to obtain his approval to place wells Nos. 6 and 7 in service.

Approval conditions related to other Department requirements: None.

Approval constraints: The project was reviewed in accordance with ss. 281.34 and 281.41, Statutes for compliance with Chapters NR 108, NR 811 and NR 820, Wis. Adm. Code and is hereby approved in accordance with ss. 281.34 and 281.41, Statutes subject to the conditions listed above. This approval is valid for two years from the date of approval. If construction or installation of the improvements has not commenced within two years the approval shall become void and a new application must be made and approval obtained prior to commencing construction or installation.

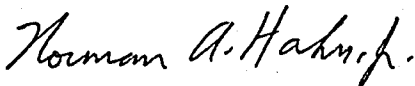
This approval is based upon the representation that the plans submitted to the Department are complete and accurately represent the project being approved. Any approval of plans that do not fairly represent the project because they are incomplete, inaccurate, or of insufficient scope and detail is voidable at the option of the Department.

Appeal rights: If you believe you have a right to challenge this decision, you should know that the Wisconsin statutes, administrative rules and case law establish time periods within which requests to review Department decisions must be filed. To request a contested case hearing pursuant to s. 227.42, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources.

For judicial review of a decision pursuant to ss. 227.52 and 227.53, Stats., you must file your petition with the appropriate circuit court and serve the petition on the Department within the prescribed time period. A petition for judicial review must name the Department of Natural Resources as the respondent.

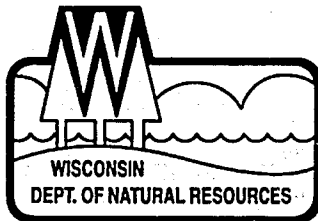
STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

For the Secretary



Norman A. Hahn, Jr., P.E.
Public Water Supply Section
Bureau of Drinking Water and Groundwater
(608) 267-7661

cc: John Zatopa – Superintendent, Water and Wastewater Utilities, City of Rhinelander; 135 S. Stevens Street, Rhinelander, WI 54501
Patrick Harrington - Wisconsin Rural Water Association, 350 Water Way, Plover, WI 54467
Gene Laschinger – Town & Country Eng., Inc., 5225 Verona Road, Building 4, Box 44451, Madison, WI 53744-4451
Bill Dobbins – DNR, Rhinelander
Jeff Helmuth – DNR, Madison, DG/5 w/WHPP
Linda Miller – DNR, CF/2
Norm Hahn – DNR, Madison, DG/5
Peter Feneht – PSC, Madison



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary

101 S. Webster St.
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Telephone 608-266-2621
FAX 608-267-3579
TTY Access via relay - 711

July 28, 2008

RHINELANDER WATER UTILITY
RHINELANDER WATER & WASTEWATER
135 S STEVENS ST
RHINELANDER WI 54501

Acknowledgement of Receipt

The Department has received the following plan submittal and request for Department approval in accordance with s. 281.41 Statutes. If you have questions regarding the status of the project review, please contact the listed review engineer.

DATE RECEIVED: 07/28/2008

OWNER: RHINELANDER WATER & WASTEWATER

SUBMITTING ENGINEER: PATRICK HARRINGTON

PROJECT TYPE: Engineering Report

PROJECT DESCRIPTION: WELLHEAD PROTECTION PLAN - DRAFT.

DNR PROJECT NUMBER: W-2008-0593

DNR REGION: Northern

DNR REVIEWER: Norm Hahn, Jr, PE

(608) 267-7661

FAX: (608) 267-7650

E-MAIL: hahnn@dnr.state.wi.us

Copy To:

PATRICK HARRINGTON
WISCONSIN RURAL WATER ASSOCIATION
350 WATER WAY
PLOVER WI 54467

Bill Dobbins 7/29/08

MEMORANDUM

TO: NORM HAHN – DNR, PUBLIC SUPPLY SECTION
FROM: PATRICK HARRINGTON – WI RURAL WATER ASSOC.
SUBJECT: RHINELANDER WHP PLAN REVISIONS
DATE: 8/11/2008
CC: JOHN ZATOPA, CITY OF RHINELANDER

Norm- Enclosed are three copies of the Rhinelander WHPP that include revisions as per your 7/31 correspondence. I have also taken out 'draft' references as per your communication. Thank you for your time and your expedition of this review. Please let me know if you have any questions or concerns.

cc: Bill Dobbin - 8/19/08

RECEIVED-DNR
AUG 12 2008
DRINKING WATER & GW

DATE: July 31, 2008 FILE REF: W-2008-0593

TO: Patrick Harrington – Wisconsin Rural Water Association, 350 Water Way, Plover, WI 54467

FROM: Norm Hahn – DNR, Public Water Supply Section, P O Box 7921, Madison, WI 53707
N.H.

SUBJECT: Department plan review comments on the Wellhead Protection Plan (WHPP) for the City of Rhinelander well No. 7, received on the City's behalf from you on 7/28/08.

Hello Pat. The WHPP is missing some elements that must be addressed before the Department can approve the WHPP. Please respond as appropriate to each of the following issues. Submit three copies of any necessary revised pages and/or figures. Call me as necessary at 608-267-7661. Thank you.

1. The WHPP needs to be clarified as to whether it is meant to cover well No. 7 only or all of the City's wells.
2. Recharge area: Is the zone of contribution shown on Figure 4 intended to also be the recharge area?
3. Zone of influence, Appendix A: The aquifer thickness used in the calculations should be the saturated thickness (61 feet) not the total well depth (88 feet). If I have correctly examined the calculations the zone of influence to one foot of drawdown (1,243 feet) was calculated at 580 gpm for a 24 hour period. That is fine but the Department would also like to see the zone of influence calculated assuming 30 days of continuous pumpage and no recharge. Please revise and submit the calculations. Please include the calculations.
4. Groundwater flow direction: Can you place some arrows on Figure No. 3 that indicate the assumed groundwater flow direction?
5. Potential contamination sources:
 - a. How does the location of the contamination sources shown on Figure 6.2 compare with the minimum contamination source setback distances listed in s. NR811.16 (4) (d)? Do they all comply? If not, discuss those that do not. Include any non-complying separation distances.
 - b. Page 8: I recommend taking out the vulnerability assessment language relative to noncommunity wells. This could be confusing.
6. Public education program: What actions, specifically, does the City plan to take in regard to the listed options?
7. Management strategies, page 14:
 - a. By what approximate date will the City attempt to adopt a Wellhead Protection Ordinance (WHPO)? Will it cover all four of the City's wells?
 - b. I could not find in the current WHPP any language requiring that the minimum contamination source setback distances listed in s. NR81.16 (4) (d), Wis. Adm. Code, be

maintained as is required by s. NR811.16 (5) (i). How will the City accomplish this task both before and after any WHPO is adopted? The Department recommends that these requirements be inserted into any WHPO that is adopted.

8. I recommend that the City well numbers (4, 5, 6 & 7) be added to the figures along with or in place of the Wisconsin Unique Well Numbers. This should help people reading the WHHP who are not familiar with the WUWN process.
9. Before preparing a response, I recommend that you speak to Dave Johnson of this Bureau to gain his assistance in clarifying what the Department is looking for in some of the above areas. Dave's phone number is 608-261-6421.

RHINELANDER WHPP\NAH

CC: John Zatopa – Superintendent, Water and Wastewater Utilities, City of Rhineland, 135 S. Stevens Street, Rhineland, WI 54501
Mary Raith – Clerk, City of Rhineland, 135 South Stevens Street, Rhineland, WI 54501
Gene Laschinger – Town & Country Eng., Inc., 5225 Verona Road, Building 4, Box 44451, Madison, WI 53744-4451
Bill Dobbins – DNR, Rhineland
Dave Johnson – DNR, DG/5

Hahn jr, Norman A - DNR

From: Patrick Harrington [wrwa-sourcewater@sbcglobal.net]
Sent: Tuesday, August 19, 2008 3:15 PM
To: Johnson, Dave M - DNR; Hahn jr, Norman A - DNR
Subject: Rhinelander Corrections
Attachments: Rhinelander WHP 08 19 08 pg 30.pdf; Rhinelander WHP 08 19 08 pg 7.pdf

Norm, Dave:

I made the corrections. Pdf files of pages 2 and 7 are attached. Not sure when or where I made the mistake first time around. I also plugged in 71 feet instead of 72' for the aquifer thickness. Ended up with $r = 1913'$. Hopefully this computes with your findings. Let me know. I appreciate your time and assistance. Thank you.

Patrick Harrington
Source Water Specialist
Wisconsin Rural Water Assoc.
715-498-0383
wrwa-sourcewater@sbcglobal.net

08/20/2008

**City of Rhinelander
Wellhead Protection Plan
Wells #4, #5, #6, and #7**

July 2008

RECEIVED-DNR

AUG 12 2008

DRINKING WATER & GW



Developed With Assistance From:
Wisconsin Rural Water Association
Source Water Protection Program
350 Water Way
Plover, WI 54467
715-344-7778

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Introduction

This Wellhead Protection Plan has been prepared by the City of Rhinelanders in cooperation with the Wisconsin Rural Water Association for the protection public drinking water sources in and around the City of Rhinelanders, WI. This plan addresses the City of Rhinelanders's wells #4, #5, #6 and #7.

In 1974, the Federal Safe Drinking Water Act (SDWA) was enacted. The goal ^{of} ~~for~~ the SDWA was to provide safe drinking water and to protect the sources of drinking water from contaminants. Amendments to the SDWA were passed in 1986 that strengthened provisions for protecting groundwater resources by requiring every state to develop and implement a state wellhead protection program.

In Wisconsin, the Department of Natural Resources is the agency that administers the state wellhead protection program. The goal of Wisconsin's wellhead protection program is to achieve additional groundwater pollution prevention measures within public water supply wellhead areas consistent with the state's overall goals of minimizing the concentration of polluting substances in groundwater and providing adequate safeguards for public health and welfare.

Beginning May 1, 1992 every newly constructed municipal well in the State must have a plan, approved by the WI DNR prior to being put into service. Wisconsin administrative code NR811.16(5) establishes 9 required elements for wellhead protection plans. Each of these must be addressed in a required wellhead protection plan:

1. Identification of the recharge area for the proposed well.
2. Identification of the zone of influence for the proposed well.
3. Identification of the groundwater flow direction.
4. An inventory of existing potential sources of contamination within a ½ mile radius of the well and an assessment of existing potential sources of contamination within the recharge area of the well.
5. Establishment of a wellhead protection area (WHPA) for the proposed well. The WHPA shall encompass, at a minimum, that portion of the recharge area equivalent to a 5 year time of travel to the well. The WHPA may be determined by a hydrogeologic investigation.
6. A public education program for wellhead protection.
7. A water conservation program.

8. A contingency plan for providing safe water in the event of any contamination incident.
9. A management plan, based on the assessment of alternatives for addressing potential sources of contamination, describing the local ordinances, zoning requirements, monitoring program and other local initiatives proposed for the delineated WHPA. At a minimum, the management plan must address maintaining the separation distances established in the well siting portion of section NR 811.16(4), Wis. Adm. Code.

Many Wisconsin communities get involved in wellhead protection voluntarily. These communities develop and implement a plan as described above for their existing wells. Being proactive in wellhead protection can save communities money in treatment, cleanup, and/ or well replacement by avoiding drinking water contamination – see below.

Why Wellhead Protection?

The benefits to a community protecting their drinking water supplies might best be understood by describing the costs of failing to protect them. These costs include those that are relatively easy to quantify in monetary or economic terms and those that are not. Easily quantifiable costs of drinking water supply contamination include:

- Treatment and/or remediation prior to distribution.
- Finding and developing new supplies and/or providing emergency replacement water.
- Abandoning a drinking water supply due to contamination.
- Paying for consulting services and staff time.
- Litigating against responsible parties.
- Conducting public information campaigns when incidents arouse public and media interest in source water pollution.
- Meeting the regulations of the Safe Drinking Water Act, such as the disinfection byproduct rule and monitoring requirements.
- Loss of property value and/or tax revenue.
- Loss of revenue from tourism opportunities.

Costs that are not easily quantifiable include:

- Health related costs from exposure to contaminated water.
- Lost production of individuals and businesses, interruption of fire protection, loss of economic development opportunities.
- Lack of community acceptance of treated drinking water.

Many materials ^{have} such as pesticides, fertilizers, organic chemicals, and human and animal wastes can contaminate groundwater. The degree of contamination is contingent on many factors including; soil characteristics, volume of contaminant, contaminant's chemical properties, climate, and groundwater flow. Once groundwater becomes contaminated it is difficult and expensive to clean up. A public water system that is supplied by a source that has become contaminated will probably do additional monitoring and may need to install water treatment equipment or find a new source of drinking water. The most cost-effective approach is to prevent contamination before it occurs, rather than attempting to remedy contamination problems after they have occurred. A Wellhead Protection Plan identifies water system vulnerabilities and enumerates techniques to manage potentially contaminating land uses.

Planning Area

See Figure 1

The planning area was delineated based on the natural and political boundaries in the Rhineland area. The planning area is established to provide an area for communities to focus on for drinking water protection activities. The planning area takes into consideration groundwater flow, recharge areas, and other natural features that may be significant to the communities source water.

Civil Units in the Wellhead Planning Area

Municipal Water Utilities

Rhineland Municipal Utilities

Units of Local Government

Oneida County

City of Rhineland

Town of New Bold

Town of Pine Lake

Town of Pelican

Town of Crescent

Municipal Wells

See Figure 2

Owner	Well #	Unique ID	Depth (feet)	Formation	Static Water Level	Pumping Water Level	Pumping Rate (gpm)
City of Rhinelander	4	BG535	80	Sand and Gravel	20	48	1500
City of Rhinelander	5	BG536	68	Sand and Gravel	12	45	1700
City of Rhinelander	6	BG544	91	Sand and Gravel	19	46	1200
City of Rhinelander	7	WK851	88	Sand and Gravel	17	52	580

Geology / Hydrogeology

Rhinelander is located on the Wisconsin River in southeastern Oneida County; an area characterized by ice-contact topography with rolling ground moraine hills and ridges of end moraines, and pitted outwash. The subsurface consists of a relatively thin and variable thickness of glacial drift overlying Precambrian rock. The glacial drift around Rhinelander consists of an interlayered mixture of clay-rich glacial tills, outwash sands and gravels, and silty glacial lake deposits. The bedrock consists of granite and metavolcanic rock. Examination of the logs of more than 100 wells around Rhinelander shows that depth of bedrock is generally about 100 feet with a maximum depth of 300 feet recorded in the northeast part of town. There are silt and clay layers within the outwash; however, driller's logs do not indicate that they are continuous. Therefore, it is assumed that the outwash deposits constitute a single aquifer, which is under water table conditions and accordingly, a storage coefficient of 0.2 has been assumed. There are numerous private wells in the Rhinelander area, most of which are screened in outwash, although a few obtain water from the granite.

Aquifer(s) Serving the Municipal Wells

All four of the City of Rhinelander wells are located in the sand and gravel aquifer. The sand and gravel aquifer consists of unconsolidated deposits of sand and gravel. This aquifer is vulnerable to contamination due to its shallow depth and lack of continuous overlying clays.

Groundwater Flow

See Figure 3

The direction of groundwater movement may be inferred from the slope of the water table and the regional topography. Shallow groundwater generally moves in the direction which the water table slopes. In the vicinity of Rhinelander, the water table generally slopes toward the Wisconsin and Pelican Rivers, into which

groundwater discharges. Figure 3 was digitized from a groundwater flow map that was constructed for the City's wellhead protection plan in 2003. The contours were established using lake levels and existing well logs in the region.

Recharge Area

Groundwater captured by the Rhinelander municipal wells is recharged by infiltration of precipitation in areas extending up-gradient from each well to the groundwater divides. However, the groundwater flow path is made very unpredictable by the mixture of lenses of outwash, lake silt, and till as well as irregularities in the depth of bedrock. A recharge area calculation was completed using the uniform flow equation.

Wellhead Protection Zones

City of Rhinelander

Several calculations have been made to determine where the water that is pumped through the municipal wells originates and how fast the groundwater moves. Through these calculations, determinations can be best made to which areas around the wells are most critical to protect and prevent contamination of the wells.

Zone of Influence: This is the area of land above what is referred to as the 'cone of depression'. The cone of depression is the hydraulic heads around a well caused by the withdrawal of water. The Thies equation was used assuming 30 days of continuous pumpage and no recharge.

This Equation:

$$W(\mu) = \frac{s T}{114.6Q}$$

$$r^2 = \frac{T t u}{1.87 S}$$

- W(μ) = Well Function
- s = Drawdown (1ft)
- Q = Pumping Rate
- T = Transmissivity
- S = Storativity
- μ = From table based on Wu
- t = Time since pumping began (30days)
- r = Radius of the cone of depression

Zone of Contribution: A groundwater recharge area that is the source of water for a well is known as the zone of contribution or catchment area. This may include only a portion of a larger aquifer recharge area. The zone of influence due to well pumping, that overlies the cone of depression, may extend beyond the zone of contribution. The uniform flow equation was used to define the zone of contribution.

Uniform Flow Equation:

$$X_L = \frac{Q}{2\pi Kbi}$$

$$Y_L = \frac{Q}{2Kbi}$$

Where:

X_L = down gradient null point (ft)

Y_L = side gradient width (ft)

Q = pumping rate (gpd)

K = hydraulic conductivity (ft/day)

b = aquifer thickness (ft)

Kb = transmissivity (gpd/ft)

i = hydraulic gradient (ft/ft)

Calculated Fixed Radius – 5 Year Time of Travel:

$$r^2 = \frac{Qt}{\pi nH}$$

Q = volume pumped per day

t = time (5 years)

n = porosity of the aquifer

H = height of the open interval or screen (ft)

Well Calculations Results

See Appendix A for full calculations.

Well	Zone of Influence - Radius (feet)	Zone of Contribution Null Point/Width (feet)	Calculated Fixed Radius - 5 Year Time of Travel – Radius (Feet)
Well#4 (BG535) ¹	2158	784/ 4898	3392
Well#5 (BG536) ¹	2158	784/ 4898	3392
Well#6 (BG544) ¹	1587	813/ 5083	2528
Well#7(WK851) ²	1243	403/ 1265	1913

¹ - Calculations performed for a previous wellhead protection plan – March 2003

² - These calculations were performed separately from the WI DNR calculations.

Wellhead Protection Areas for City of Rhinelander Wells

See Figures 5.0 and 5.1

Wellhead protection areas were established for wells 4, 5, and 6 in a previous wellhead protection plan (March 2003). The wellhead protection area for well #7 was established for this plan. The boundaries take into consideration the above calculation areas, hydrogeologic conditions, the topographic setting, and political boundaries.

Susceptibility Ratings

During the source water assessment process, the Wisconsin Department of Natural Resources made susceptibility ratings of each well. For the purpose of Wisconsin's Source Water Assessment Program (SWAP), susceptibility is defined as the likelihood that a contaminant or contaminants will enter a public water supply at a level which may result in an adverse human health impact. Contaminants of concern are those which are regulated under the Safe Drinking Water Act. Susceptibility is affected by four factors:

- the construction of the well or intake
- the location of the well or intake with respect to potential contaminant sources
- the geologic or hydrologic sensitivity of the area around the well or intake
- the results of water quality monitoring

Susceptibility determination methods differ for groundwater and surface water systems.

Groundwater System Susceptibility Analysis

Wisconsin's pre-existing Vulnerability Assessment program was the basis of this component of the SWAP. The Vulnerability Assessment program was developed in 1992 to eliminate unnecessary costly monitoring and is performed for all community and non-transient non-community public water systems every three years.

A vulnerability assessment consists of:

- an inventory of potential sources of contamination within the Wellhead area
- an assessment of well construction
- pesticide susceptibility
- industrial chemical use
- vulnerability to volatile organic compounds, ethylene dibromide, asbestos and coal tar

For municipal wells the State expanded the range of factors considered in the vulnerability assessment process for the SWAP susceptibility determination to include the following additional factors:

- presence, thickness and continuity of hydrogeological barriers
- type of bedrock (not for wells screened in unconsolidated formations)
- permeability of soil/ surficial deposits
- presence of naturally occurring inorganics or radionuclides in geologic units
- presence of microbial, nitrate and inorganic contaminant sources
- connectedness of a well to surface water
- Age of well (i.e. condition of casing)

See Appendix B for the exact susceptibility determination process used for municipal systems.

City of Rhinelander – Well Susceptibility to Contamination

Well	Rating	Susceptible To:	Reason
Well #4 BG535	Moderately Susceptible	Microbes	<ul style="list-style-type: none"> • Well is in a sand and gravel area. • No hydrological barrier is present to prevent or retard the downward movement of contaminants from the land surface to the groundwater.
	Susceptible	Nitrate	<ul style="list-style-type: none"> • Potential Nitrate source(s) were found in the Wellhead area. • Nitrate monitoring detections, or nitrite > 0.55mg/l.
	Susceptible	VOC	<ul style="list-style-type: none"> • VOC monitoring detections
	Moderately Susceptible	SOC/ Pesticides	<ul style="list-style-type: none"> • Well terminates in unconsolidated formation and there is <60 feet of clay (confining layer). • Well has <60 feet of grout casing. • Potential SOC source(s) were found in the Wellhead area, but no SOC monitoring detections.
	Low Susceptibility	Ethylene dibromide (EDB), inorganic compounds (IOCs)	
Well #5 BG536	Moderately Susceptible	Microbes	<ul style="list-style-type: none"> • Well is in a sand and gravel area. • No hydrological barrier is present to prevent or retard the downward movement of contaminants from the land surface to the groundwater.
	Susceptible	Nitrate	<ul style="list-style-type: none"> • Potential Nitrate source(s) were found in the Wellhead area. • Nitrate monitoring detections, or nitrite > 0.55mg/l.
	Susceptible	VOC	<ul style="list-style-type: none"> • VOC monitoring detections

	Moderately Susceptible	SOC/ Pesticides	<ul style="list-style-type: none"> Well terminates in unconsolidated formation and there is <60 feet of clay (confining layer). Well has <60 feet of grout casing. Potential SOC source(s) were found in the Wellhead area, but no SOC monitoring detections.
	Low Susceptibility	Ethylene dibromide (EDB), inorganic compounds (IOCs)	
Well #6 BG544	Moderately Susceptible	Microbes	<ul style="list-style-type: none"> Well is in a sand and gravel area. No hydrological barrier is present to prevent or retard the downward movement of contaminants from the land surface to the groundwater.
	Susceptible	Nitrate	<ul style="list-style-type: none"> Potential Nitrate source(s) were found in the Wellhead area. Nitrate monitoring detections, or nitrite > 0.55mg/l.
	Moderately Susceptible	VOC	<ul style="list-style-type: none"> < 100 feet of casing
	Moderately Susceptible	SOC/ Pesticides	<ul style="list-style-type: none"> Well terminates in unconsolidated formation and there is <60 feet of clay (confining layer).
	Low Susceptibility	Ethylene dibromide (EDB), inorganic compounds (IOCs)	
Well#7 WK851	Well #7 is a new well and has not had a susceptibility analysis done by the WI DNR.		

Potential Contaminant Sources

Potential contaminant sources are locations of human activity that creates byproducts, has potential for spillage, or can infiltrate the soil and move into the groundwater or runoff into surface waters and contaminate the source of a public water system. These contaminants 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 occur naturally 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, 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.

See Appendix C for a comprehensive list of potential contaminant sources and abbreviations.

Inventory of Potential Contaminant Sources City of Rhinelander

Potential Contaminant Sources in Wellhead Protection Area

Wells 4(BG535) & 5(BG536) See Figure 6.0

Potential Contaminant Source - Abbreviation	Potential Contaminant Source	Comments
GSA/ GST	Sewage Absorption Area/ Sewage Tank	Multiple – see map
GWA	Water Well (active production)	Multiple – see map
CBS	Auto body Shop	Nicolet Service Center
WRP	ERRP Site	
WRF	Recycling Facility	
IPC	Plastic Manufacturing/ molding	Great Lakes Plastics
WLS	Leaking Underground Storage Tank	Grossman Ave Bulk Fuel Oil (closed 2-07-97)
MMP	Medical Installations (e.g. hospital)	St. Mary's Hospital
IFM	Furniture or wood manufacturing/ refinishing/ stripping	Enterprise Wood Products
WLS	Leaking Underground Storage Tank	Lassig Bros Construction Warehouse (closed 8-14-01)
GFA	Fuel Storage Tank – above ground	Lassig Bros Construction
WHS	Hazardous Waste Generator	Nicolet Area Technical College
WLS	Leaking Underground Storage Tank	Nicolet Area Technical College (closed 7-20-94)
GFA	Fuel Storage Tank – above ground	Nicolet Area Technical College

Well#6 BG544 See Figure 6.1

Potential Contaminant Source - Abbreviation	Potential Contaminant Source	Comments
GSA/ GST	Sewage Absorption Area/ Sewage Tank	Multiple – see map
GWA	Water Well (active production)	Multiple – see map
GSL	Sewer Line (municipal)	Multiple – see map
WLS	Leaking Underground Storage Tank	Spur Gas Station/ Remington Oil (closed 9-6-02)
WLS	Leaking Underground Storage Tank	WI DOT Sign Shop (closed 2-16-96)
CBS	Auto body Shop	Bergstrom
CSS	Gas Service Station	Shell Station

Well#7 WK851 See Figure 6.2

Potential Contaminant Source - Abbreviation	Potential Contaminant Source	Comments	Distance From Well #7 (feet)
GSA/ GST	Sewage Absorption Area/ Sewage Tank	Multiple – see map	400+
GWA	Water Well (active production)	Multiple – see map	400+
CAI	Airport	Rhinelander Airport	Runway- 700' Transportation Facilities- 5000'+
CRT	Railroad Track		2100
CMW	Machine/ metal working shop	John Deere	2200
IPC	Plastics Manufacturer/ molder	Advanced barrier Extensions	2600
IEE	Electrical and electronics products manufacturer	Laser Pro	2700
CMW	Machine/ metal working shop	Ponsee	3000
CRV	Motor Vehicle Repair Shop	Bubba's Repair Shop (N. Fox Ranch Road)	2700
WLS	Leaking Underground Storage Tank	Oneida County Hot Mix Plant (closed 12-5-02)	7100

The separation distances between Well#7 and the potential contaminant sources listed in NR811.16 have been met.

OPEN GROUNDWATER REMEDIATION SITES

See Figure 6.3

The sites below are listed in the State of Wisconsin groundwater remediation database as 'open'. Open remediation sites have uncompleted remediation activities and therefore still have groundwater contamination. The site are listed so public officials can be aware of the contamination when making decisions. Updates on activities can be found on the WI Department of Natural Resources website.

BRRTS Activity Number	Activity Name	Activity Type	Juris	Address	Municipality
02-44-000122	RHINELANDER LF (1920-1939)	ERP	DNR	CTH G 515 W DAVENPORT ST	RHINELANDER
02-44-000589	RHINELANDER PAPER CO - COGEN	ERP	DNR	ST	RHINELANDER
02-44-200967	RHINELANDER CTY LF	ERP	DNR	NEWELL ST	RHINELANDER
02-44-207981	TRIUMPH TWIST DRILL- PIT C/FLOOR TRENCH	ERP	DNR	1176 COON ST	RHINELANDER
02-44-270190	HOOK OIL/MOBIL OIL - FORMER	ERP	DNR	563 EAGLE ST	RHINELANDER
02-44-483197	CITGO QUICK MART (FORMER HOME OIL)	ERP	DNR	724 - 728 LINCOLN	RHINELANDER
02-44-544091	JEVNE BULK PLANT (FORMER)	ERP	DNR	220 DRISCOLL RD	RHINELANDER
02-44-546794	RHINELANDER AMERIGAS (FMR MGP)	ERP	DNR	112 W PARK ST	RHINELANDER
03-44-000463	HOME OIL CO - FORMER ICO STATION	LUST	DNR	724 - 728 LINCOLN	RHINELANDER
03-44-000937	PINE LAKE TN GARAGE	LUST	DNR	RIVER RD	RHINELANDER
03-44-123691	CITGO QUIK FOOD MART	LUST	DNR	623 LINCOLN ST	RHINELANDER
03-44-133137	HOOK OIL (FORMER)	LUST	DNR	3846 HWY 47	RHINELANDER
03-44-218714	HOOK OIL/WI CENTRAL LTD	LUST	DCOM	555 EAGLE ST	RHINELANDER

CERCLIS Sites

The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) is the official repository for site and non-site specific Superfund data in support of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). It contains information on hazardous waste site assessment and remediation from 1983 to the present.

Rhinelander Landfill
 Old Highway 8 Road
 Rhinelander, WI 54501
 EPA ID – WID980820088

EnviroFacts Search

Listed below are sites that have toxic chemical release permits, water discharge permit compliance, and hazardous waste handling permits. This information is useful for public education. Supplying these businesses with information on Best Management practices can help prevent future spills and contamination of groundwater.

See Appendix E for EnviroFacts Search results.

Management Plan

DRINKING WATER PROTECTION MANAGEMENT TOOLS

This plan presents several water protection management concepts that communities may wish to consider as they develop and implement Wellhead protection plans for their water supplies. Non-regulatory approaches rely on voluntary implementation to be effective. At the core of any non-regulatory method is education and information. The ultimate goal of public education is to inform the public so they can support Wellhead protection efforts.

Management Tools for Drinking Water Protection Areas

Zoning Overlay	Overlay districts can be used in conjunction with conventional zoning and to create special districts to protect the Wellhead protection area. Overlay zones are applied to areas singled out for special protection, such as the Wellhead protection area itself, and add regulation to those controls already in place. This method helps address "grand-fathered" potential contaminant sources in drinking water protection areas.
Zoning Ordinances	Zoning ordinances typically are comprehensive land-use requirements to direct the development of an area. Many local governments have used zoning to restrict or regulate certain land uses, which have the potential to contaminate drinking water sources.
Subdivision Ordinances	Local governments use its subdivision ordinance to protect water in which ongoing development is causing contamination. An example of a subdivision ordinance would be to require a minimum lot size for single family homes using septic systems to limit septic system density and subsequent groundwater contamination.

Potential Source Prohibitions or Restrictions	Source prohibitions or restrictions are regulations that prohibit or place restrictions on the use of certain chemical that pose a high risk to water contamination such as atrazine or trichloroethene; or prohibit or place restrictions on the placement of some high-risk, potential contaminant sources such as underground storage tanks, underground injection wells, landfills, lagoons, and feedlots.
Design Standards	Design standards typically are regulations that apply to the design and construction of buildings and structures. This tool can be used to ensure that new buildings, structures, and facilities places within a drinking water protection area are designed so as not to pose a threat to the water supply, such as requiring an impermeable liner, settling pond or catch basin.
Operating Standards	Operating standards are regulations that apply to ongoing land-use activities to promote safety or environmental protection. Such standards can minimize the threat to the Wellhead protection area from ongoing activities such as the storage and use of hazardous substances through requirements such as secondary containment and spill response capabilities, or requiring proper and regular maintenance of septic systems.
Building Codes	Local building codes offer protection through special standards applicable to facilities which are remodeled or constructed in the drinking water protection area. Building codes can require low flow fixtures or backflow preventers, or enforce existing gray water systems.
Site Plan Review	Site plan reviews are regulations requiring developers to submit for approval plans for development occurring within a given area. This tool ensures compliance with regulations or other requirements made within a drinking water protection area.

Management Strategies

City of Rhinelander

General Protection

1. The City of Rhinelander will develop and adopt a wellhead protection ordinance that establishes minimum setbacks set forth in NR811.16(4)(d) from municipal wells to critical potential contaminant sources that could threaten drinking water supplies. This ordinance will cover all of the City's existing municipal wells. The ordinance will be adopted within 6 months of the completion of construction of well #7. The ordinance will be adopted as

- an 'overlay' zoning district to the City's existing zoning ordinance which is enforced by the City Building Inspector.
2. The City will work with City Plan Commission to incorporate wellhead protection areas in future planning efforts. The protection areas should be included in any new comprehensive planning efforts to allow for maximum protection and awareness for future land use decisions in the area.
 3. The City will provide public education on source water/ wellhead protection and general groundwater protection. Education materials will be provided at the City office on groundwater protection. In addition, residents and businesses within the wellhead protection areas will be mailed information on the importance of protecting the area from contamination.
 4. The City will work with surrounding Townships that control lands within wellhead protection areas to develop well abandonment ordinances and wellhead protection ordinances for groundwater protection outside of the City. Working to protect the aquifer(s) in areas outside of the City will help protect the groundwater serving the city wells and help provide better water quality throughout the area.
 5. Water Conservation: The City will take the following steps to promote and implement water conservation in the community:
 - a. Develop and adopt an outdoor water use restriction ordinance. Restricting outdoor water use can promote more efficient water use and reduce peak summertime flows.
 - b. Public Education – the general public needs to be aware of the aquifer drawdown so they can make sound choices. Public education will focus on household water conservation measures through distribution of educational materials. Presentations at local service groups, schools, conservation and environmental groups, governmental boards and committees are also effective means to educating the public.
 - c. Water Use Monitoring - Water bills will be screened for 'spikes' in water use that might be caused by leaking plumbing.
 - d. Leak Detection Surveys_- The City will develop an ongoing leak detection program as well as locating and repairing ongoing leaks to reducing unaccounted for water use.
 - e. Water Meter Testing_- The City will test water meters regularly to assure that meters are accurate and efficient.

Further suggested activities:

Public Education and Outreach

Wellhead Protection Communities should actively promote public education and awareness relating to the protection of drinking water sources by:

- Developing public information and education campaigns that emphasize groundwater quality protection in the area.
- Designing presentations or workshops that could be used to present groundwater protection concepts to a variety of target audiences. For example, targeted audiences may include small system owners, high school science students, homeowners who use fertilizers, agricultural operators, people who change their own oil and antifreeze (do-it-yourselfers), and real estate developers.
- Preparing media addressing different aspects of groundwater quality protection.

Wellhead Protection Communities may wish to develop and sponsor specific campaigns supporting drinking water protection. These campaigns could be sponsored jointly with other municipalities within the area. Examples of specific campaigns include:

- Drinking water awareness week
- Household hazardous waste drop-off weekends
- Used oil and antifreeze drop-off stations
- Well tours for public officials
- Other educational forums co-sponsored various non-governmental organizations active in the Wellhead protection area.

Within the area, there are several non-governmental organizations that have interests in protecting the county's water resources. In terms of public education, these organizations are important and have programs and missions that are well suited for the disbursement of information related to drinking water protection. Furthermore, these organizations could serve as clearinghouses for voluntary public programs.

Contingency Plan – Emergency Response Plan

Rhinelanders Waterworks has developed an Emergency Response Plan that meets requirements of NR811.11(8). The plan consists of contacts for City employees, emergency alternate water sources (bottled water), emergency disinfection procedures, contacts for contractors, and emergency notification numbers.

FIGURES

Figure 1 – Planning Area

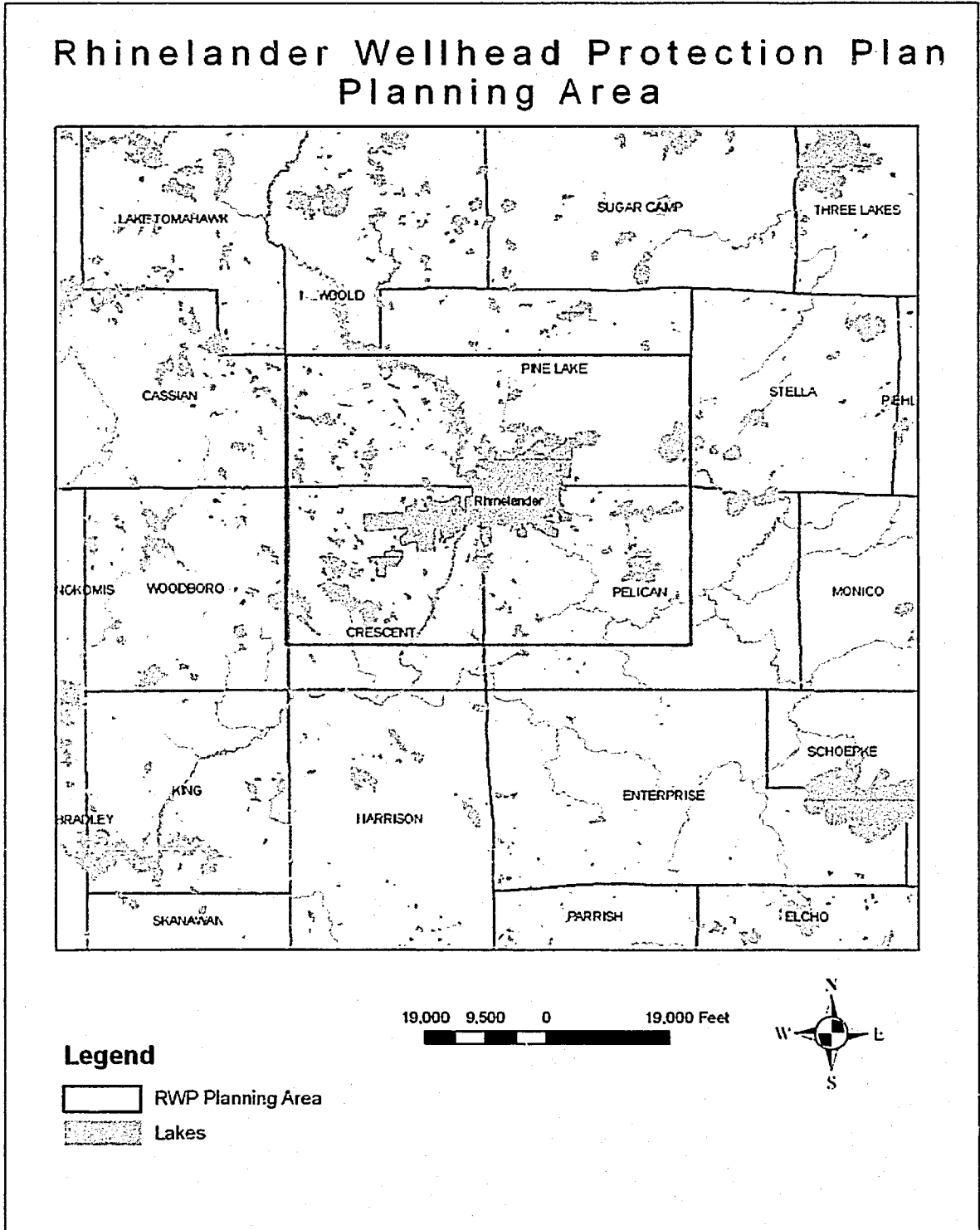


Figure 2 – City of Rhinelander Wells

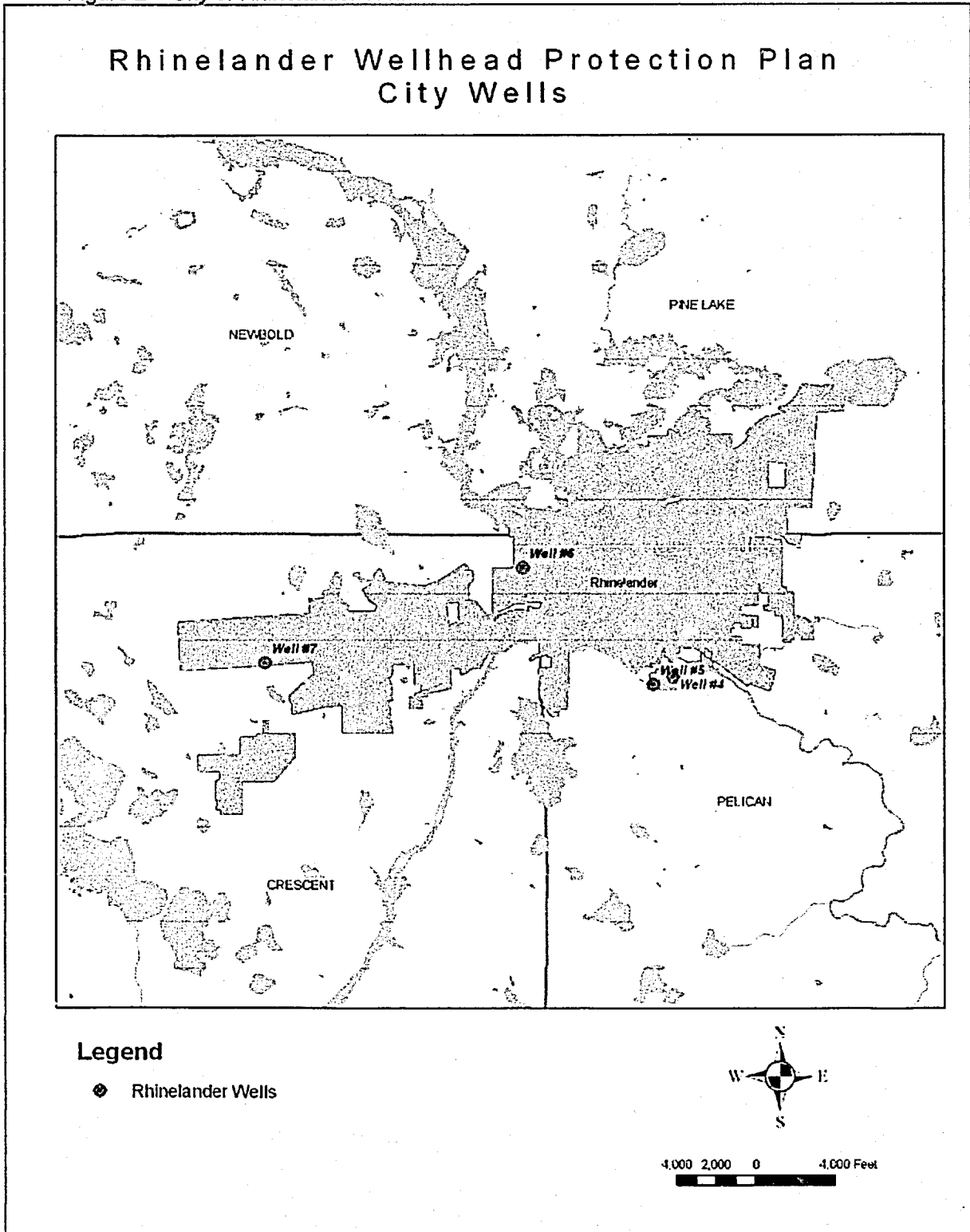


Figure 3 – Regional Groundwater Flow

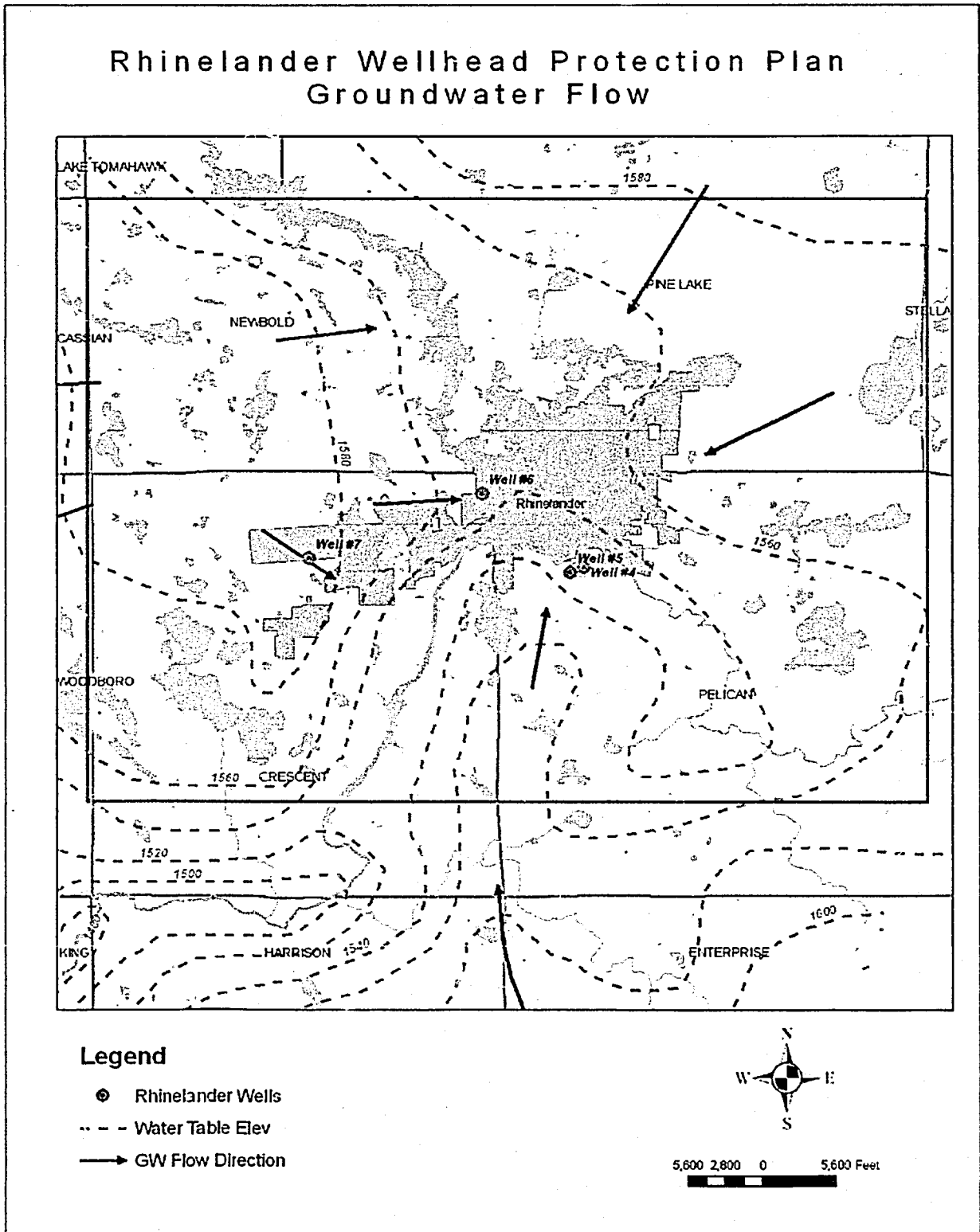
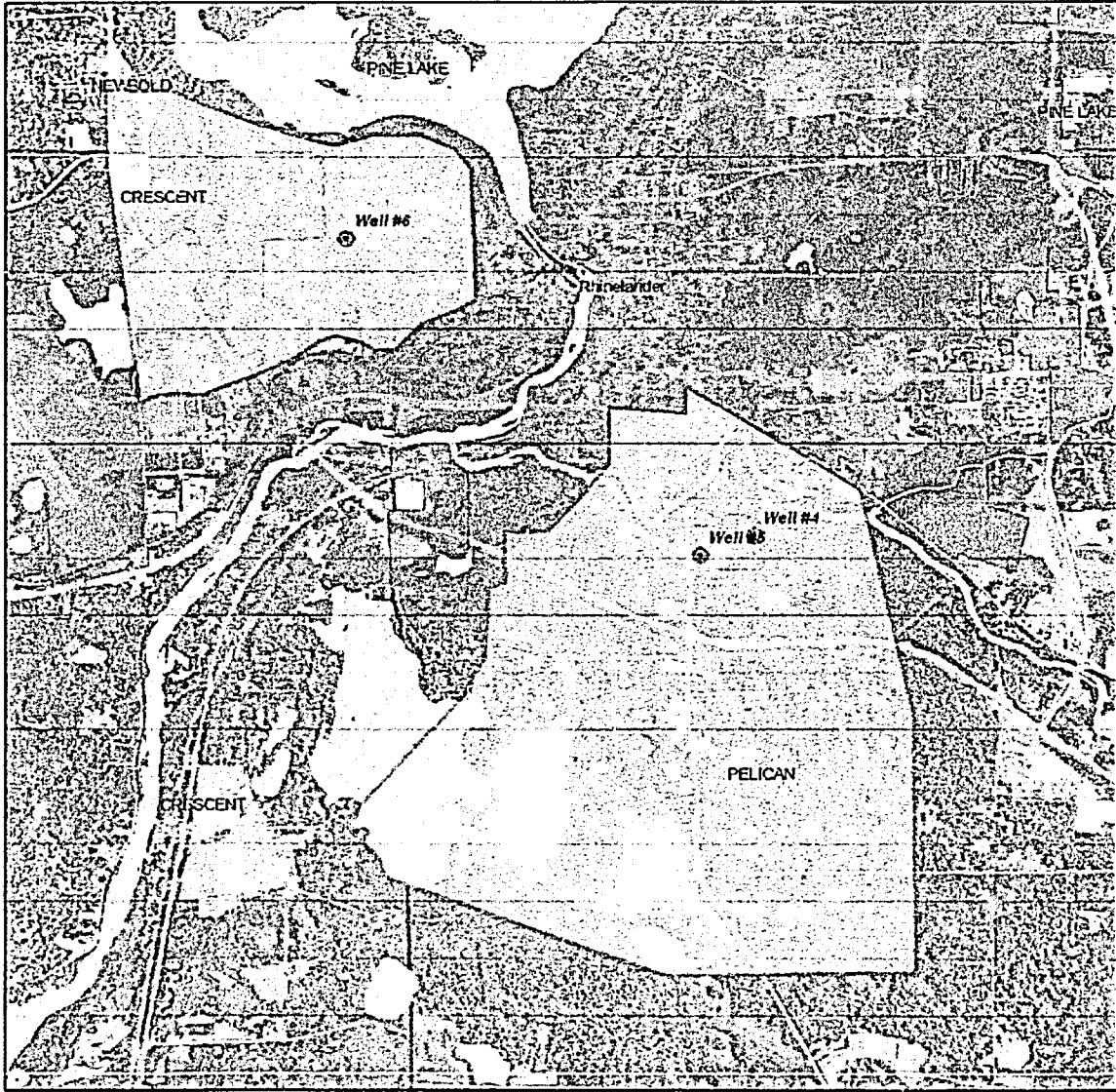


Figure 5.0 – Wellhead Protection Areas - City of Rhinelander



Rhinelander Wellhead Protection Plan

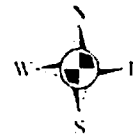
Wellhead Protection Areas

Wells #4, #5, and #6




Legend

-  Rhinelander Wells
-  Wellhead Protection Areas



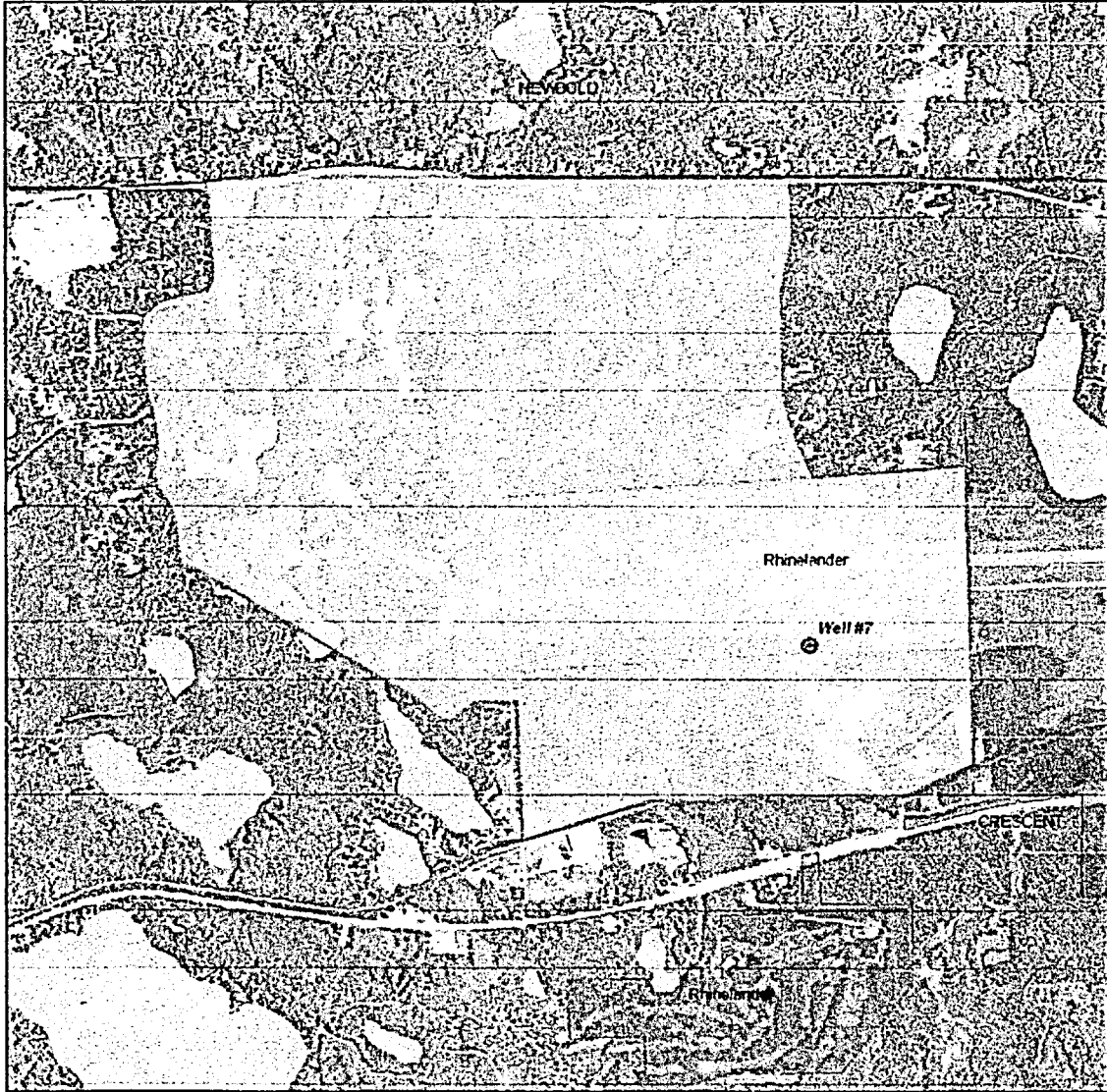
1,700 850 0 1,700 Feet



A horizontal scale bar with four segments, corresponding to the 1,700, 850, 0, and 1,700-foot markings.

Figure 5.1 – Wellhead Protection Areas - City of Rhinelander Well #7

Rhinelander Wellhead Protection Plan Wellhead Protection Area Wells #7



Legend

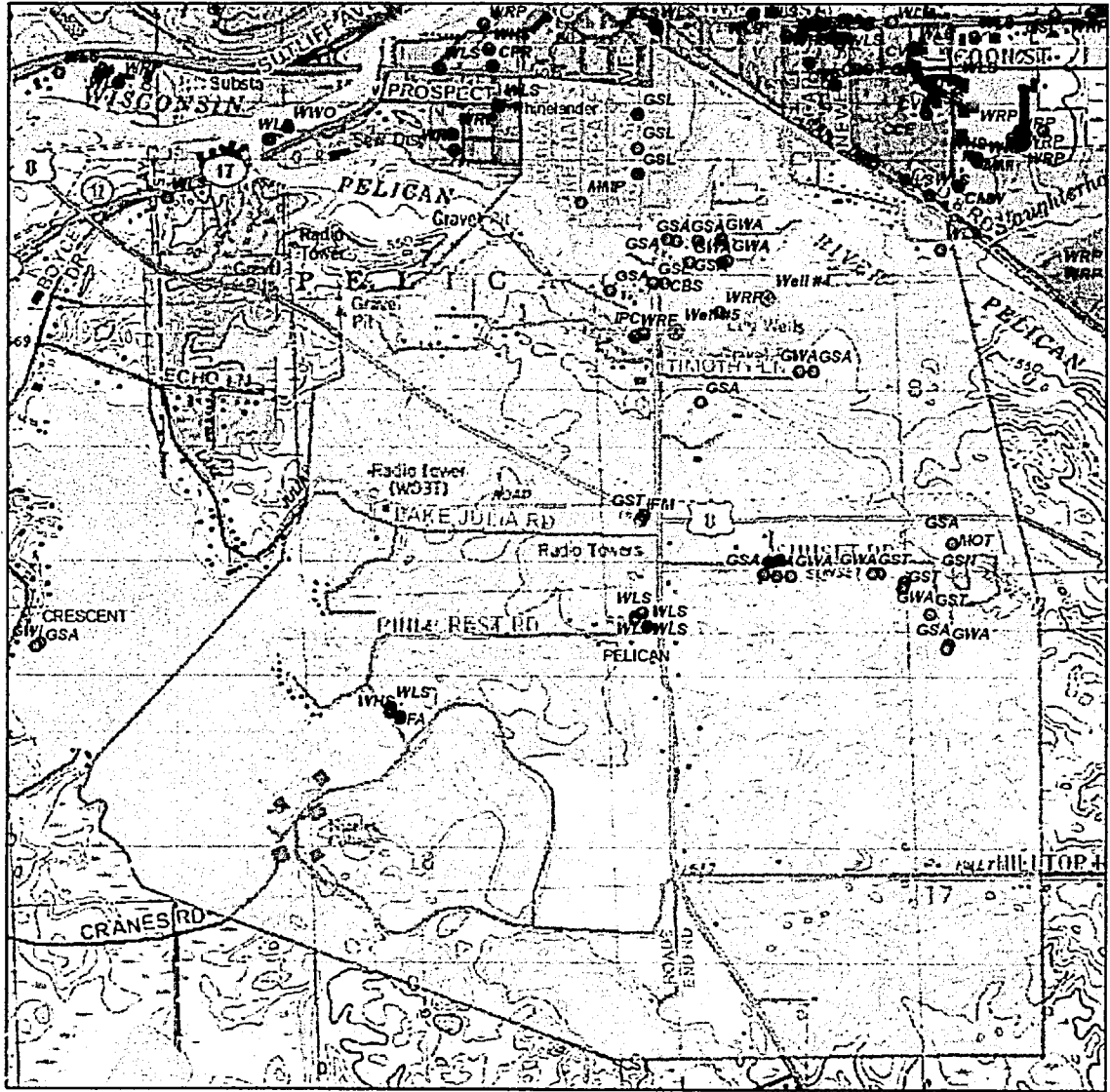
- Rhinelander Wells
- Well #7 Wellhead Area



1,250 625 0 1,250 Feet

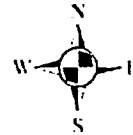
Figure 6.0 Potential Contaminant Sources – City of Rhinelander

Rhinelander Wellhead Protection Plan Potential Contaminant Sources Wells #4 and #5



Legend

- ⊙ Rhinelander Wells
- ▭ Wellhead Protection Areas
- RWHP PCS -ln
- RWHP PCS -pt
- ▨ RWHP PCS - area



875 437 5 0 875 Feet

Figure 6.1 Potential Contaminant Sources – City of Rhinelander

Rhinelander Wellhead Protection Plan Potential Contaminant Sources Well #6

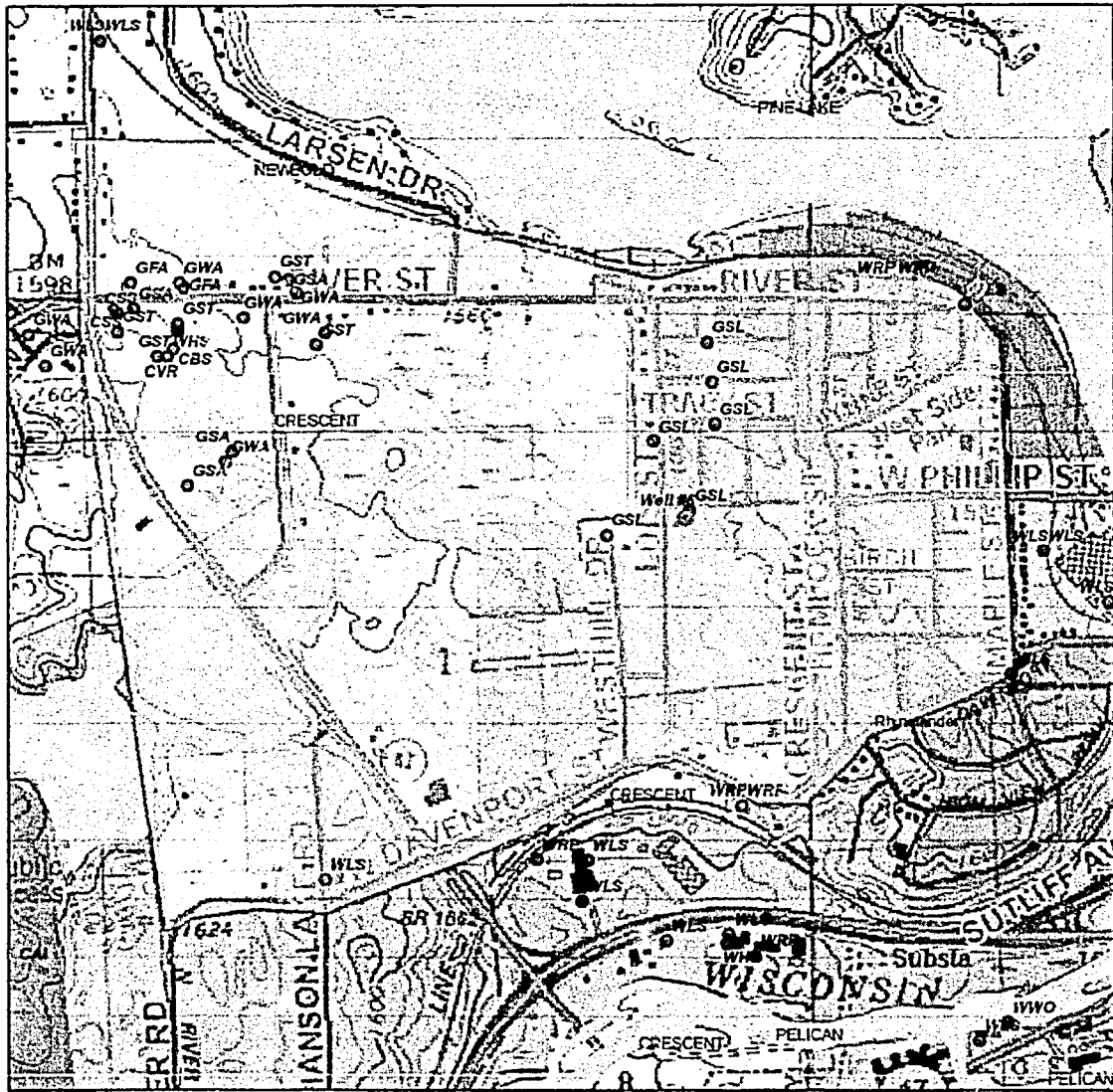
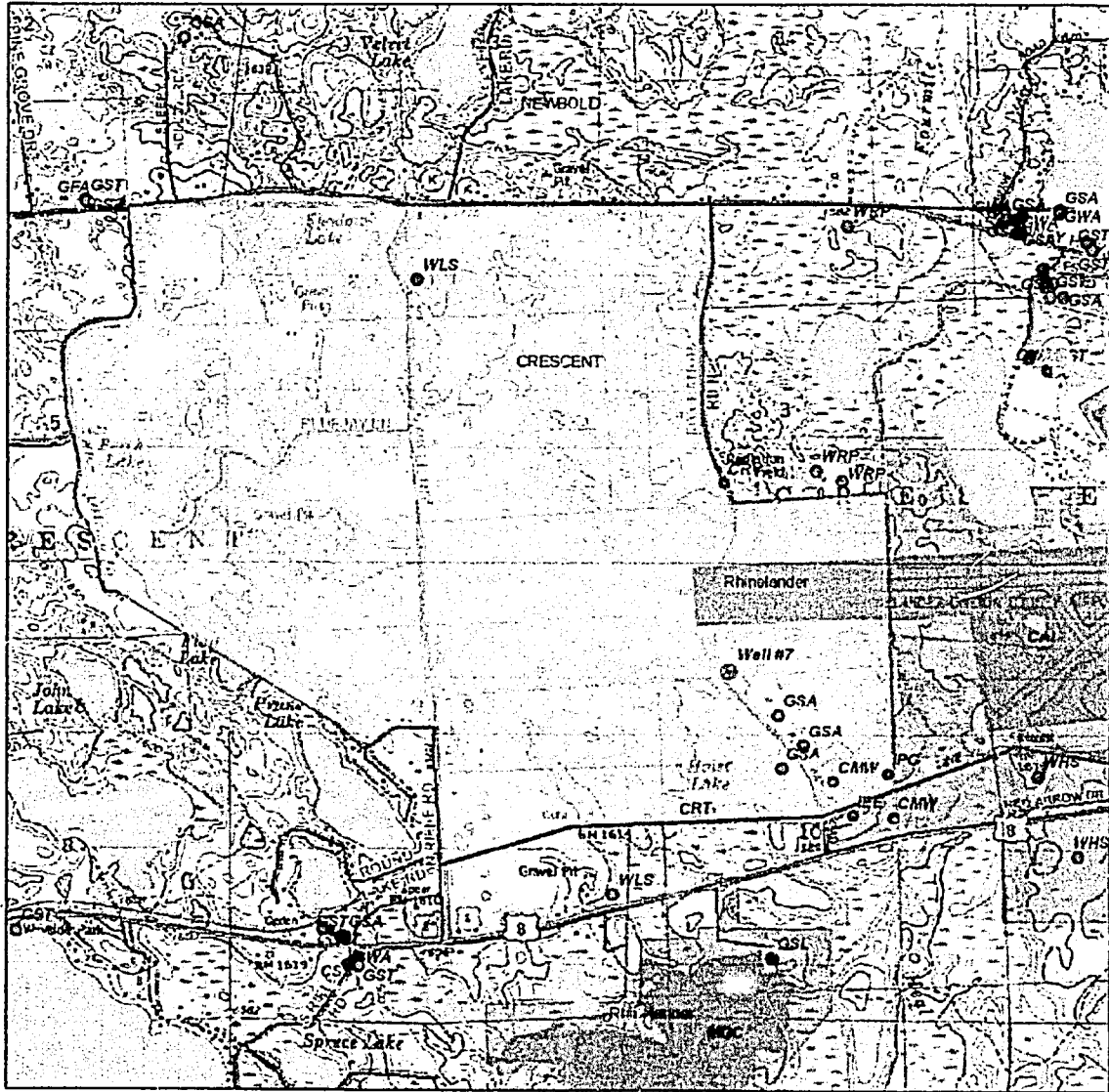


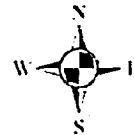
Figure 6.2 Potential Contaminant Sources – City of Rhinelander

Rhinelander Wellhead Protection Plan Potential Contaminant Sources Wells #7



Legend

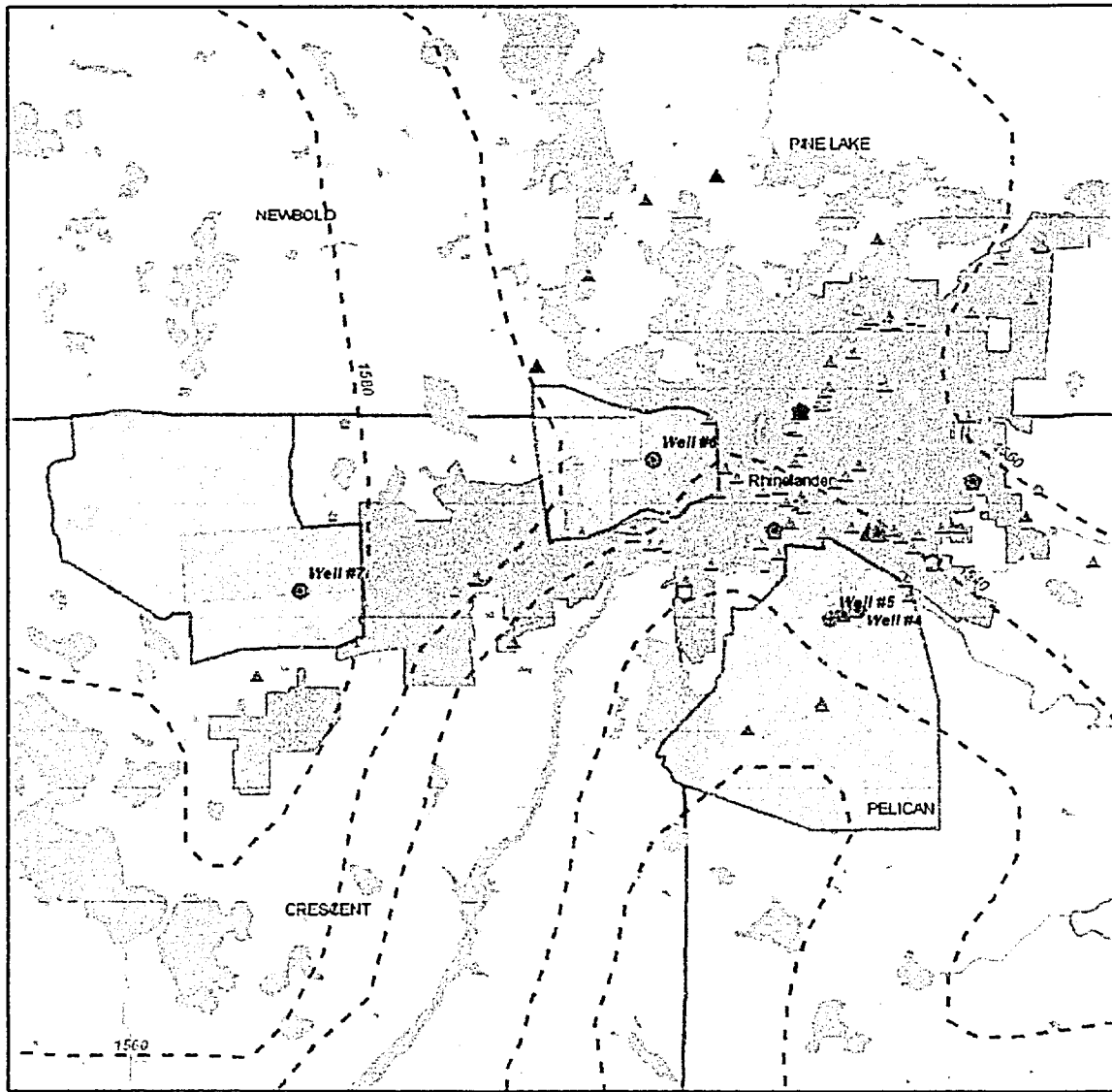
- Rhinelander Wells
- ▭ Well #7 Wellhead Area
- RWHP PCS - In
- RWHP PCS - pt
- ▨ RWHP PCS - area



1,250 625 0 1,250 Feet

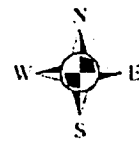
Figure 6.3 Groundwater Remediation Sites

Rhinelander Wellhead Protection Plan Remediation Sites



Legend

- ⊕ Rhinelander Wells
- - - Wellhead Elev
- Remediation Sites**
- ⊗ ERP closed
- ⊕ ERP open
- ▲ LUST closed
- ▲ LUST open



2,400,200 0 2,400 Feet

References

Roadside Geology of Wisconsin, R.H. Dott and J.W. Attig, 2004

Bedrock Geology Map of Wisconsin; M.G. Mudrey Jr, B.A. Brown, and J.K. Greenberg; 1982, Scale 1:1,000,000

Wellhead Protection Plan Wells #4, #5 and #6, City of Rhinelander Wisconsin, March 2003.

Well Site Investigation Report New Well #7- City of Rhinelander, Wisconsin, February 2006; Town and Country Engineering, Inc. February 2006.

Water Resources of Wisconsin- Upper Wisconsin River Basin; E.L. Oakes and R.D. Cotter, United States Geological Survey; Atlas HA-536; 1975

Status of Quantity Groundwater in Wisconsin; Wisconsin Department of Natural Resources, April 1997; PUBL-DG-043-97

Wisconsin Department of Natural Resources Website. www.dnr.state.wi.us/

United States Environmental Protection Agency Website www.epa.gov

Wisconsin Well Construction Reports, Water Well Data, Wisconsin Department of Natural Resources – Bureau of Drinking Water and Groundwater, January 2007 CD.

Appendix A

Well Calculations
City of Rhinelander

Well No.	7
Well Construction	
Total Depth (ft)	88
Open Interval Depth (ft)	60
Open Interval (ft)	28
Diameter (in)	18
Pump Test	
Pumping Rate (gpm)	580
Duration (hr)	24
Static WL (ft)	17
Pumping WL (ft)	52
Drawdown (ft)	35
Specific Capac (gpm/ft)	16.571429
Well Capacity (gpm) ^a	580
Aquifer Thickness (ft)	
Aquifer Thickness (ft)	71
Storage Coef	0.2
Effective Porosity	0.25
Hydraulic Gradient	0.003
Transmissivity	
(ft ² /sec)	0.08514
(gpd/ft)	55000
Hydraulic Conductivity	
(ft/sec)	0.0011992
(ft/d)	103.60699
(gpd/ft ²)	774.65408
GW Velocity	
(ft/d)	1.2432838
(ft/yr)	453.7986

Zone of Contribution:

Uniform Flow Equation:

$$X_L = \frac{Q}{2\pi Kbi}$$

$$Y_L = \frac{Q}{2Kbi}$$

Where:

X_L = down gradient null point (ft)

Y_L = side gradient width (ft)

Q = pumping rate (gpd)

K = hydraulic conductivity (ft/day)

b = aquifer thickness (ft)

Kb = transmissivity (gpd/ft)

i = hydraulic gradient (ft/ft)

Well #7

Null point $X_L = \frac{(580)(60)(12)}{2(3.14)(55000)(0.003)} = 403.01$ feet

Width $Y_L = \frac{(580)(60)(12)}{(2)(55000)(0.003)} = 1265.45$

Zone of Influence:

Theis Equation:

$$W(\mu) = \frac{sT}{114.6Q}$$

$$r^2 = \frac{Ttu}{1.87S}$$

$W(\mu)$ = Well Function

s = Drawdown (ft)

Q = Pumping Rate

T = Transmissivity (gpd/ft)

S = Storativity

μ = From table based on Wu

t = Time since pumping began (30days)

r = Radius of the cone of depression

Well #7

$$W(\mu) = \frac{(1)(55000)}{(114.6)(580)} = .8274$$

$$\mu = .35$$

$$r = \sqrt{\frac{(55000)(30)(.35)}{(1.87)(.2)}} = 1242.62$$

Calculated Fixed Radius - 5 Year Time of Travel:

$$r^2 = \frac{Qt}{\pi nH}$$

Q = volume pumped per day

t = time (5 years)

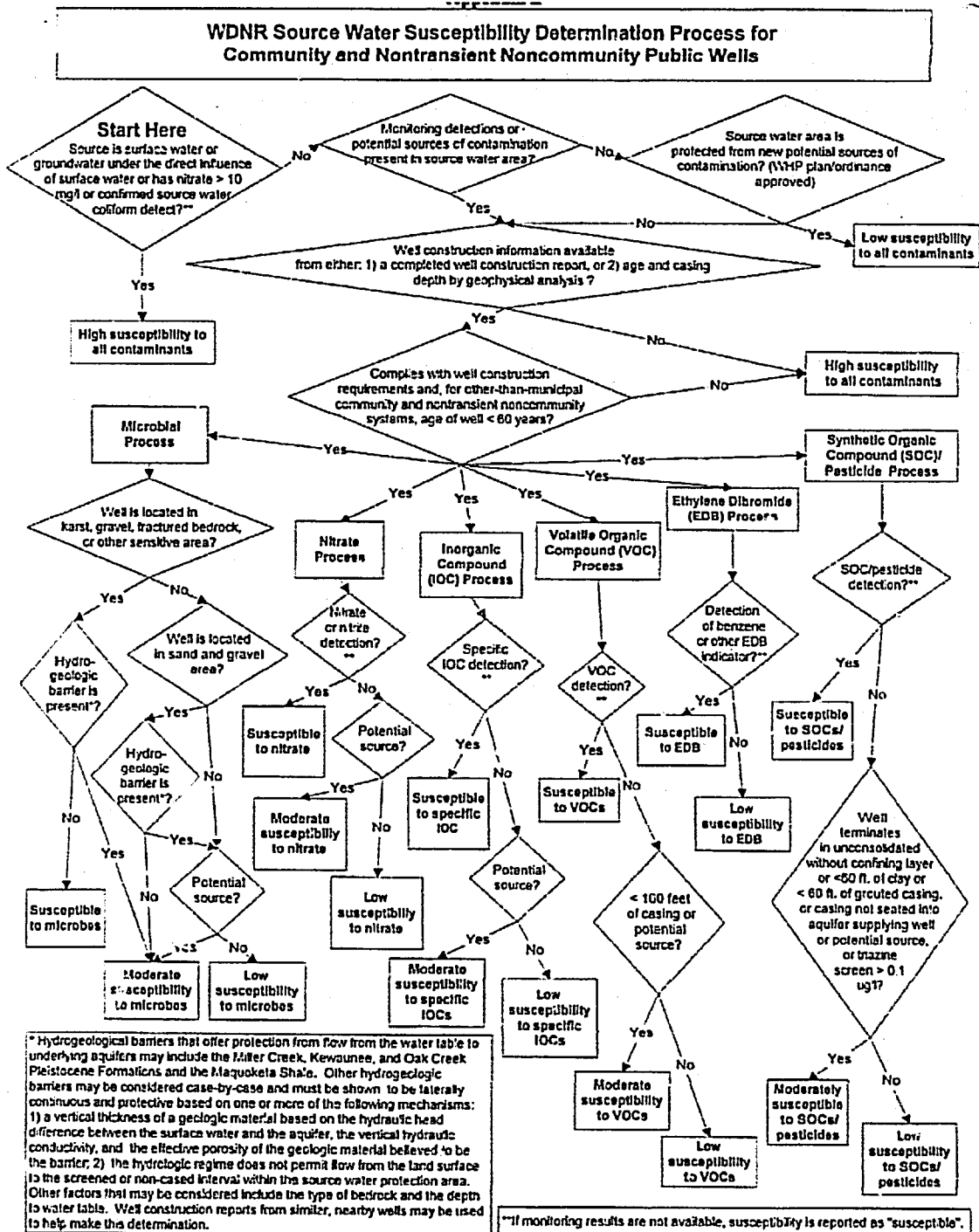
n = porosity of the aquifer

H = height of the open interval or screen (ft)

Well #7

$$\text{Radius} = \sqrt{\frac{(580 \times .00223 \times 86400 \times 365)(5)}{(3.14)(.25)(71)}} = 1913$$

Appendix B



Appendix C: POTENTIAL CONTAMINANT SOURCES
[Rev 03/03]

CONT CODE	CONTAMINANT SOURCE	DESCRIPTION	SPECIFIC CONTAMINANTS
AAH	Animal housing		Livestock sewage wastes, nitrates, phosphates, chloride, chemical sprays and dips for controlling insect, bacterial, viral, and fungal pests, coliform
AFA	Animal Feedlot		Livestock sewage wastes, nitrates, phosphates, chloride, chemical sprays and dips for controlling insect, bacterial, viral, and fungal pests, coliform
AFP	Agricultural farming	Active farming operations	Pesticides, fertilizers
ALA	Irrigation system	Agricultural irrigation	Pesticides, fertilizers
AMH	Agriculture milkhouse		Livestock sewage wastes, nitrates, phosphates, chloride, chemical sprays and dips for controlling insect, bacterial, viral, and fungal pests, coliform
AMS	Manure storage	Lined and unlined manure storage facilities	Livestock sewage wastes, nitrates, phosphates, chloride, chemical sprays and dips for controlling insect, bacterial, viral, and fungal pests, coliform
BCT	Chemical storage	500 gallon or more	Specific to chemical product stored at site
BFS	Fertilizer storage/mixing	Feed mill, agricultural co-op	Nitrates
BFT	Petroleum storage	500 gallon or more	Specific to petroleum product stored at site
BGS	Grain storage site		Fungicides
BPS	Pesticide storage / mixing / load	Feed mill, agricultural co-op	Herbicides, insecticides, rodenticides, fungicides,
BSS	Road salt storage	Bulk storage sites	Sodium chloride, calcium chloride, waste oil
CAI	Airport		Jet fuels, deicers, batteries, diesel fuel, chlorinated solvents, automobile wastes, rating oil, building
CBS	Auto body shop		Paints, solvents
CBY	Boat yard		Diesel fuels, batteries, oils, septage from boat waste disposal areas, wood preservatives, paints, waxes, varnishes, automotive wastes
CCE	Cemetery		Leachate (formaldehyde), and maintenance
CCW	Car wash	Car washes in unsewered areas	Soaps, detergents, waxes, miscellaneous chemicals
CDC	Dry cleaning		Solvents (tetrachloroethylene, petroleum solvents, freon), spotting chemicals (trichloroethane,
CLD	Laundromat	Laundromats in unsewered	Detergents, bleaches, fabric dyes
CMP	Plating facility	Jewelry and metal plating	Cyanide, heavy metals
CMW	Machine / metal working shop		Solvents, metals, organics, sludges, cutting oils,
CPH	Photo processing	Only include processing facilities, don't include photo	Cyanides, biosludges, silver sludges
CPR	Printing		Solvents, inks, dyes, oils, organics, chemicals
CPS	Paint shop		Paint, paint thinner, solvents
CRT	Railroad track		Spills
CRY	Rail yard		Spills
CSP	Seed production plant		Fumigants
CSS	Gas service station		Gasoline, oils, solvents, miscellaneous wastes
CSV	Scrap/junkyard		Oil, gasoline, antifreeze, PCB contaminated soils, lead acids batteries
CVR	Motor vehicle repair shop		Waste oils, solvents, acids, paints, automotive
GFA	Fuel storage tank - above	Non-service station tanks	Gasoline, diesel fuel, other petroleum products
GFB	Fuel storage tank - underground	Non-service station tanks	Gasoline, diesel fuel, other petroleum products
GSA	Sewage absorption area	Drainfields, mounds, dry wells	u
GSL	Sewer line (municipal)	Municipal sewer lines	Septage, coliform bacteria, viruses, nitrates
GSN	Sewer line (non-municipal)	Non-municipal sewer lines	"

GST	Sewage tank	Holding tanks, septic tanks, sumps	Septage, coliform bacteria, viruses, nitrates, heavy metals, synthetic detergents, cooking and motor oil, bleach, pesticides, paints, paint thinner, photographic chemicals, septic tank cleaner chemicals, chlorides, sulfate, calcium, magnesium,
GWA	Water well (active production)		Potential conduit
GWI	Water well (unused or improperly abandoned)		Potential conduit
IAS	Asphalt plant		Petroleum derivatives
ICM	Chemical production	Industrial chemical production facilities	Chemicals
IEE	Electrical and electronic manufacturing		Cyanides, metal sludges, caustics, solvents, oils, paints, methylene chloride, tetrachloroethylene, trichloroethane, acetone, toluene, PCBs
IBS	Electroplating / metal finishing facility		Acids, alkaline solutions, cyanide, metallic salts, solvents, cyanide, heavy metal contaminated
IFM	Furniture or wood		Paints, solvents (toluene, methylene chloride),
IFW	Foundry / smelting plant		Cyanides, sulfides
IGS	Gravel and Sand pits		Spills, miscellaneous chemicals, bacteria
IMQ	Mining / Mine waste		Cyanide, sulfides, metals, acids drainage
IPC	Plastics manufacturer / molder		Solvents, oils, organics and inorganics, paint wastes, cyanides, acids, alkalis, sludges, esters, surfactants, alcohols, phenols, formaldehyde
IPM	Paper mill		Metals, acids, minerals, sulfides, chemicals, sludges, chlorine, hypochlorite, chlorine dioxide,
IPP	Pipeline (petro/chem.)		Petroleum, chemicals
ISQ	Stone quarries		Spills, miscellaneous chemicals, potential conduit,
ITP	Textile / polyester manufacturer		Chemicals
IWT	Wood preserving facility		Treated wood residue, preservatives (pentachlorophenol, chromate, copper arsenate,), tanner gas, paint sludges, solvents, creosote, coating
MFT	Fire training facility		Chemicals
MGC	Golf course		Fertilizers, herbicides, pesticides for controlling mosquitoes, ticks, ants, gypsy moths, and other
MGP	Manufactured gas plant /		Petroleum VOCs, Benzo(a)pyrene, PAHs, cyanide
MLA	Laboratory (college, medical, school, private, etc.)		Biological wastes, disinfectants, acids, formaldehyde, miscellaneous chemicals
MMI	Military installation		
MMP	Medical Installation (e.g. Hospital)		X-ray developers and fixers, infectious wastes, radiological wastes, biological wastes, disinfectants, asbestos, beryllium, acids, formaldehyde,
MOT	Other (specify)		
WDR	Class V injection well	Any well, drilled or dug hole, used to inject fluids	Chlorides, pathogens, petroleum products, pesticides
WHS	Hazardous waste generator (SARA Title III) / RCRA authority clean-ups	Any facility listed on the SARA Title III list thought to pose a threat to the well /	Hazardous waste
WIN	Incinerator (municipal)		Metals, combustion by-products
WLA	Landfill	Solid and hazardous waste sites listed in the DNR "Registry of Waste Disposal	Leachate
WLS	Leaking underground storage tank (LUST)	LUST Sites included in the DNR "Leaking Underground Storage Tank	Gasoline, diesel fuel, other petroleum products
WRF	Recycling facility		Petroleum products, chemicals
WRP	ERRP Site	Sites on the DNR "Emergency and Remedial	Spills

City of Rhinelander Wellhead Protection Plan – July 2008

WSI	Wastewater Spray Irrigation		Coliform bacteria, nitrate, chloride, pathogens,
WSS	Sludge spreading	Municipal wastewater sludge, paper mill sludge	Viruses, coliform bacteria, heavy metals, dioxins
WSW	Storm water retention pond		Metals, petroleum products
WTS	Solid waste transfer station		Miscellaneous chemicals
WUC	Superfund site	Sites listed in the DNR "Superfund Sites in	Miscellaneous contaminants
WWL	Wastewater lagoon	Treatment and/or storage	Coliform bacteria, viruses
WVO	Wastewater discharge to	Surface water outfall	Coliform bacteria, viruses
WWP	Wastewater treatment plant		
WWS	Wastewater discharge to groundwater	Absorption and seepage cells, spray irrigation, subsurface systems, etc.	Coliform bacteria, viruses

Appendix D

WISCONSIN UNIQUE WELL NUMBER Source: SWAP PROJECT KEYED BG535		State of WI Private Water System-D612 Department Of Natural Resources, Box 7921 Madison, WI 53707		Form 3300-77A (Rev. 02/02/04)	
Property Name: RHINELANDER, CITY OF Telephone: 715-369-1845		I. Well Location T. Town C. City V. Village T. of PELICAN		Depth 80 FT	
Mailing Address: BOX 658 City: RHINELANDER State: WI Zip Code: 54501		Street Address or Road Name and Number E OF CT 1 G #4			
County of Well Location: 44 No. Well Permit No.: A		Well Completion Date: JANUARY 27, 1999		Subdivision Name: Lot: Block #:	
Well Constructed By: MILLER WELL & PUMP Licensed #: 208 Facility ID (15/04): 744012610		Date of Approval: 06/12/1999		Location of Well: SE 1/4 of 147 E 1/2 of Section 5 T 25 N R 9 E Inset: Deg. Min. Low: Deg. Min.	
Address:		Public Well Plan Approval#: E9 0321		2. Well Type: 1 (See item 12 below) 1-New 2-Replacement 3-Reconstructed of previous unique well # _____ constructed in _____	
City: State: Zip Code:		Date of Approval: 06/12/1999		Reason for replaced or reconstructed Well?	
Design Parameters: Design Well #: 83394 Common Well #: 004 Specific Capacity: 117.6 gpm/ft		High Capacity Well?		1- Drilled 2- Driven Point 3- Jetted 4- Other	
3. Well Service: # of homes and/or (eg. barn, restaurant, church, school, industry, etc.)		High Capacity Well?		1- Drilled 2- Driven Point 3- Jetted 4- Other	
4. Is the well located on slope or on side slope and not down slope from any contamination sources, including those on neighboring properties? Well Located in this plane? Distance in feet from well to nearest (including proposed):					
1. Landfill 2. Building Overhang 3. 1- Septic 2- Holding Tank 4. Sewage Absorption Unit 5. Nonconforming Pit 6. Buried Home Heating Oil Tank 7. Buried Petroleum Tank 8. 1-Shoreline 2- Swimming Pool					
9. Downspout Yard Hydrant 10. Driveway 11. Foundation Drain to Clearwater 12. Foundation Drain to Sewer 13. Building Drain 14. Building Sewer 1- Gravity 2- Pressure 1-Cast Iron or Plastic 2-Other 15. Collector Sewer 1- into 2- Jam 16. Clearwater Sump 17. Wastewater Sump 18. Paved Animal Barn Pen 19. Animal Yard or Shelter 20. Silo 21. Barn Custer 22. Abandon Pipe 1- Gravity 2- Pressure 1-Cast Iron or Plastic 2-Other 23. Other on-site Storage 24. Ditch 25. Other Not 312 Waste Source					
5. Drillhole Dimensions and Construction Method					
From (ft) To (ft)		Upper Enlarged Drillhole		Lower Open Bottom	
72.0 surface 26		-1. Rotary - Mud Circulation -2. Rotary - Air -3. Rotary - Air and Foam -4. Drill-Through Casing Hammer -5. Reverse Rotary -6. Cable-tool Drill -7. Temp. Outer Casing Removed?		1. Cast Iron or Plastic 2-Other 1- Gravity 2- Pressure 1-Cast Iron or Plastic 2-Other 1- into 2- Jam	
56.0 20 36					
51.0 36 48					
57.0 48 80					
6. Casing liner Section Material, Weight, Specification From (ft) To (ft)					
42.0 NEW 0 312 WALL		surface 50			
26.0 NEW A53 GR 0 375 WALL		? 40			
9. Static Water Level 5.0 feet B ground surface A-Above B-Below					
10. Pump Test Pumping level: 26.0 ft below surface Pumping at 2000.0 GPM 12.0 Hrs					
11. Well Is: Developed? Unaffected? Capped?					
12. Did you notify the owner of the need to permanently abandon and fill all unused wells on this property? If yes, explain					
13. Initials of Well Constructor or Supervisory Driller Date Spent					
Initials of Drill Rig Operator (Mandatory unless same as above) Date Spent					
7. Grout or Other Sealing Material Method: CEMENT From (ft) To (ft) Sacks of Cement: 400					
Additional Comments? Owner Sent Label? Y Variance Issued? More Geology?					
Batch 560					

City of Rhineland Wellhead Protection Plan - July 2008

WISCONSIN UNIQUE WELL NUMBER Source: SWAP PROJECT KEYED		BG536		State of Wis-Private Water Systems-DG2 Department of Natural Resources, Box 7921 Madison, WI 53707		Form 3300-77A (Rev 02/02/06)	
Property Owner: RHINELANDER, CITY OF		Telephone Number: 715-369-1845		1. Well Location		Depth 68 FT	
Address: BOX 558		City: RHINELANDER		1-Town/City & Village T of PELICAN		Field	
State: WI Zip Code: 54501		Street Address or Road Name and Number CTH G WELL #5		Subdivision Name		Lot #	
County of Well Location: 44		In Well Permit No:		Well Complete Date:		Submitter Name	
Well Industry: MILLER WELL & PUMP		License #: 208		License ID (Prefix): 744012610		Grid Loc. of SW 1/4 of NW 1/4 of Section: 9 1 35 N.R. 9 E	
Address:		Public Well Plan Approval #: 77-1209		Latitude:		Longitude:	
City:		Date of Approval: 11/14/1977		2. Well Type: 1 (See exam 12 below)		Lasting Method:	
Deep Permanent Well #: 83335		Common Well #: 005		Specific Capacity: 177.4 gpm/ft		1-New 2-Replacement 3-Reconstruction of previous unique well # _____ constructed in _____	
3. Well Service: # of horses and/or (eg. barn, restaurant, church, school, industry, etc.)		High Capacity Well?		Reason for replaced or reconstructed Well?		1-Dug 2-Driven Point 3-Jetted 4-Other	
4. Is the well located uplope of side-slope and/or down-slope from any contamination sources, including those on neighboring properties?							
Well Located in (by type)?							
Distance in feet from well to nearest (including proposed):							
1. Landfill 2. Building Overhang 3. 1-Septic 2-Holding Tank 4. Sewage Absorption Unit 5. Nonconforming Pit 6. Buried Home Heating Oil Tank 7. Buried Petroleum Tank 8. 1-Shoreline 2-Swimming Pool							
9. Downspout/Yard Hydrant 10. Potty 11. Foundation Drain to Clearwater 12. Foundation Drain to Sewer 13. Building Drain 1-Cast Iron or Plastic 2-Other 14. Building Sewer 1-Gravity 2-Pressure 1-Cast Iron or Plastic 2-Other 15. Collector Sewer ___ in. ___ in. diam. 16. Chemical Sump							
17. Wastewater Sump 18. Paved Animal (Barn) Pen 19. Animal Yard or Shelter 20. Silo 21. Barn/Garage 22. Manure Pipe 1-Gravity 2-Pressure 1-Cast Iron or Plastic 2-Other 23. Other manure Storage 24. Ditch 25. Other NR #12 Waste Source							
5. Drillhole Dimensions and Construction Method							
From (ft) To (ft)		Upper Enlarged Drillhole		Lower Open Drillhole		Log/Log Codes	
72.0 surface 16		1. Rotary - Mud Circulation 2. Rotary - Air 3. Rotary - Air and Foam		10. Potty		0 60	
60.0 28 41		4. Drill-Through Casting Hammer 5. Reverse Rotary		12. Foundation Drain to Sewer		50 55	
54.0 41 55		6. Cable-tool Bit ___ in. dia. 7. Temp. Over Casing Removal?		13. Building Drain 1-Cast Iron or Plastic 2-Other		65 68	
48.0 55 68		Other		14. Building Sewer 1-Gravity 2-Pressure 1-Cast Iron or Plastic 2-Other		_____	
6. Casing Tier Screen Material, Weight, Specification, Manufacturer & Method of Assembly							
Dia. (in.)		From (ft) To (ft)		From (ft) To (ft)		From (ft) To (ft)	
36.0		NEW STEEL 0.375 WALL API 5L WELDED US STEEL		surface		43	
24.0		NEW STEEL 0.375 WALL API 5L WELDED US STEEL		2		35	
Dia. (in.)		Screen type, material & size		From (ft) To (ft)		From (ft) To (ft)	
26.0		SS 0.009 24X25		43		68	
7. Grout or Other Sealing Material							
Method		Kind of Sealing Material		From (ft) To (ft)		# Sacks of Cement	
_____		CONCRETE		surface		35.0	
8. Static Water Level							
8.5 feet		B ground surface		Developed?		in. Grade	
9. Pump Test							
Dumping level: 20.1 ft. below surface		Pumping at: 2000.0 (GPM) 24.0 Hrs		Discovered?		A Above B Below	
10. Did you notify the owner of the need to permanently abandon and fill all unused wells on this property?							
If no, explain							
Initials of Well Constructor or Supervisory Driller							
Initials of Drill Rig Operator (Manufacturer, unless same as above)							
Additional Comments?		Variance Issued?		Date Signed		Date Signed	
Owner Sent Label?		Note Geology?		_____		_____	

Batch 560

City of Rhinelander Wellhead Protection Plan - July 2008

WISCONSIN UNIQUE WELL NUMBER Source: SWAP PROJECT KEYED		BG544		State of WI Private Water Systems-DG2 Department Of Natural Resources, Box 7921 Madison, WI 53707		Form 3300-77A (Rev. 02/02/04)	
Property Owner: RHINELANDER, CITY OF		Telephone Number: 715-369-1845		1. Well Location:		Depth: 91 FT	
Mailing Address: BOX 658		City: RHINELANDER		To: Town (City or Village): C of RHINELANDER		Filled:	
City: RHINELANDER		State: WI		Zip Code: 54501		Street Address or Road Name and Number: PHILLIP ST #5	
County of Well Location: DOUGLASS		No. Well Permit No.: W		Well Completion Date: March 2, 1987		Subdivision Name: _____	
Well Contractor: SYLVESTER R HAUPT		License # 489		Facility ID (if NA): 744012610		Govt Lot or NE 1/4 of NE 1/4 of Section 1 T 35 N R 5 E	
Address: 5847 3RD ST		Public Well Plan Approval: B7-0579		Latitude: _____ Deg _____ Min _____ Sec		Longitude: _____ Deg _____ Min _____ Sec	
City: AUBURNDALE		State: WI		Date of Approval: 09/12/1987		2. Well Type: 1 (See item 12 below)	
Incap Permanent well # 80313		Common Well # 006		Specific Capacity: 36 B gpm/ft		1-New 2-Replacement 3-Reconstruction	
3. Well Serves # of homes and/or _____		High Capacity Well? _____		Reason for replaced or reconstructed Well? _____		1-Drilled 2-Driven Point 3-Jetted 4-Other	
4. Is the well located uplope or saddle pt and not down-slope from any contamination sources, including those on neighboring properties?		9. Downspout/ Yard Hydrant _____		17. Wastewater Sump _____		18. Paved Animal Barn/Pen _____	
Distance in feet from well to nearest (including proposed):		10. Privy _____		21. Foundation Drain to Clearwater _____		19. Animal Yard or Mchler _____	
1. Landfill _____		11. Building Drain _____		1-Cast Iron or Plastic 2-Other _____		20. Silo _____	
2. Building Overhang _____		12. Foundation Drain to Sewer _____		14. Building Sewer 1-Grassy 2-Pressure _____		21. Rain Gutter _____	
3. 1-Septic 2- Holding Tank _____		13. Building Drain _____		1-Cast Iron or Plastic 2-Other _____		22. Manure Pipe 1-Grassy 2-Pressure _____	
4. Sewage Absorption Unit _____		14. Building Sewer _____		1-Cast Iron or Plastic 2-Other _____		1-Cast Iron or Plastic 2-Other _____	
5. Nonconforming Pit _____		15. Colander Sewer _____ in. diam.		15. Colander Sewer _____ in. diam.		23. Other manure Storage _____	
6. Buried Home Heating Oil Tank _____		16. Clearwater Sump _____		16. Clearwater Sump _____		24. Ditch _____	
7. Buried Petroleum Tank _____		17. Wastewater Sump _____		17. Wastewater Sump _____		25. Other NR 312 Waste Source _____	
8. 1-Shoreline 2-Swimming Pool _____		18. Paved Animal Barn/Pen _____		18. Paved Animal Barn/Pen _____		25. Other NR 312 Waste Source _____	
5. Drillhole Dimensions and Construction Method		Lower Open Bedrock _____		Geology: _____		From (ft) To (ft)	
From (ft) To (ft)		Types Employed Details:		Cuckles _____		Type, Color, Noncature, Color, Hardness, etc.	
48.0 surface 12		-1. Rotary - Cased Circulation _____		_____		0 25	
26.0 12 25		-2. Rotary - Air _____		_____		26 58	
28.0 25 91		-3. Rotary - Air and Foam _____		_____		58 91	
_____		-4. Drill-Through Casing Hammer _____		_____		_____	
_____		-5. Reverse Rotary _____		_____		_____	
_____		-6. Cased-Hole _____ in. dia _____		_____		_____	
_____		-7. Temp. Outer Casing _____ in. dia _____ depth ft _____		_____		_____	
_____		Other _____		_____		_____	
6. Casing Filter Screen		Material, Weight, Specification _____		From (ft) To (ft)		9. Static Water Level	
24.0		ASTM A53 GR B 0500 WALL WELDED		surface 60		19.0 feet B ground surface	
18.0		ASTM A53 GR B 0375 WALL WELDED		0 65		A-Above B-Below	
18.0		SCREEN PIPE 1/2" DIA X 1/4" THK 55 JOHNSON SCREEN		60 91		10. Pump Test	
_____		_____		_____		Pumping level 48.2 ft. below surface	
_____		_____		_____		Pumping at 1000.0 GPM at 12.0 hrs	
7. Grout or Other Sealing Material		Method _____		From (ft) To (ft)		Developed? _____	
Method _____		Kind of Sealing Material _____		From (ft) To (ft)		Disinfected? _____	
NEAT CEMENT		surface 60.0		_____		Capped? _____	
GRAVEL PACK		0.0 91.0		_____		12. Did you modify the cover of the need to permanently abandon and fill all unused wells on this property?	
Additional Comments? _____		Variance Issued? _____		_____		If no, explain _____	
Owner Sign Label? _____		More Geology? _____		_____		13. Initials of Well Contractor or Supervisory Driller _____ Date Signed _____	
_____		_____		_____		Initials of Drill Rig Operator (Mandatory unless same as above) _____ Date Signed _____	
_____		_____		_____		Batch 560	

City of Rhinelander Wellhead Protection Plan - July 2008

Well Construction Report
WISCONSIN UNIQUE WELL NUMBER **WK851**

Project Name: **CITY OF RHINELANDER** Telephone Number: **(715) 365-5409**

Address: **135 S STEVENS ST**

City: **RHINELANDER** State: **WI** Zip Code: **54501**

County of Well Location: **ONEIDA** Co. Well Permit No.: **WV** Well Completed & Date Installed: **02/05/2008**

Well Constructor (Business Name): **TMV CORPORATION** License # **364** Specialty ID Number (Public Works): **74421261**

Address: **2150 W GOOD HOPE RD** Public Well Plan Approval # **WV-2307-0524**

City: **LANNON** State: **WI** Zip Code: **52016-9720** Date of Approval (month/year): **07/31/2007**

Threat Potential Well # **007** Specific Capacity: **growth**

1. Well Location: Town City Village Precinct (if any): **CITY OF RHINELANDER**

Grid or Street Address or Road Name and Number: **DEAD END OF SOUTH FOX RANCH RD**

Subdivision Name: _____ Lot #: _____ Block #: _____

Flow's Lat # _____ on NW 1/4 of NW _____ of NW _____

Section: **10** T. **36** N. R. **8** R W

Latitude: **45** Min. **37** Sec. **38**

Longitude: **89** Min. **29** Sec. **5**

2. Well Type: Replenishment New 1-1/2" Long Method

Recharge Protection Recirculation **GP560N**

(See Item 12 below)

of previous unique well # _____ constructed in _____

Reason for replacement or non-constructed well?

1. Well serves _____ # of homes and/or _____ City (Eg: base, restaurant, church, school, industry, etc.)

High Capacity: Well? Yes No Property? Yes No

3. To the well head type/type or structure and run diameter from any connection on service, list of 25 items on back side of report Yes No (If no, explain on back side.)

Well located in floodplain? Yes No

Distance in Feet From Well To Nearest Gate to property: _____

1. Layflat _____ 9. Downspout/Tank Hydrant _____ 17. Wastewater Sump _____

2. Building Overhang _____ 10. Pit _____ 18. Paved Access/Drive _____

3. Sepsis Holding Tank 11. Foundation Drain to Clearwater _____ 19. Animal Yard or Shelter _____

4. Sewage Absorption Unit _____ 12. Foundation Drain to Sewer _____ 20. Sid _____

5. Nonsewering Pit _____ 13. Soil Bag Drain _____ 21. Burn Gasler _____

6. Rural Home Heating Oil Tank _____ 14. Building Sewer Gravy Pressure Cast Iron or Plastic Other _____ 22. Alternate Pipe Gravy Pressure Cast Iron or Plastic Other _____

7. Diesel Production Tank _____ 15. Collector Sewer _____ in, diameter _____ 23. Other Alternate Storage _____

8. Sump/line Swimming Pool 16. Clearwater Sump _____ 24. Ditch _____ 25. Other NR 812 Water System _____

4. Drift hole dimensions and construction method

From (ft.)	To (ft.)	Upper Section	Lower Section	Geology	Type, Coating, Slaving, Color, Headings, etc.	From (ft.)	To (ft.)
24	surface	38	_____	T S G	_____	0	RR

5. Casing, Liner, Screen Material, Well ID, Specification, Manufacturer & Method of Assembly

From (ft.)	To (ft.)	Material	Method
18	surface	59.84	SEAM STEEL 70.5% ASME A53 WELD
			I.D. 59.84

6. Screen type, material & slot size

From (ft.)	To (ft.)	Material	Method
18	59.84	87.75	SS WELDED 10 SLOT

7. Grout or Other Sealing Material

From (ft.)	To (ft.)	Material	Method
100	59.5	100	Neat cement grout
			(Insert pack if applicable)
			100 AMERICAN MATERIALS GILVEL PA
			55.84 38 G1

8. Geology

9. Static Water Level: _____ ft. above ground surface _____ ft. below ground surface

10. Pump Test: Pumping Level _____ ft. below surface Pumping at _____ GPM for _____ hours

11. Well Is: Above Grade Below Grade Developed? Yes No Disinfected? Yes No Capped? Yes No

12. Has your name the owner of the land in proximity adjacent and (if all water) well on this property? Yes No If yes, explain: **SCHEDULED FOR SPRING 2008**

13. Signature of Well Constructor or Supervisory Driller: _____ Date Signed: **02/24/2008**

Signature of Civil Eng. Operator (Mandatory unless same as above): _____ Date Signed: **02/26/2008**

14. Make additional comments on reverse side about geology, additional screens, water quality, etc. Well Notification Number

Comments on reverse side: **X** (CHECK ✓, IF YES) Variance Issued Yes No

Appendix E

<u>FACILITY NAME/ADDRESS</u>	<u>Permitted Discharges to Water?</u>	<u>Toxic Releases Reported?</u>	<u>Hazardous Waste Handler?</u>	<u>Active or Archived Superfund Report?</u>	<u>Air Releases Reported?</u>
<u>A 1 SEPTIC TANK SERVICE INC</u> RT 6 RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>ALLEN BRADLEY CO</u> 1021 AIR PARK RD RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>AMERICAN PLASTICS COMPANY, INC.</u> 3606 RED ARROW DRIVE, BOX 737 RHINELANDER, WI 545010737	NO	NO	NO	NO	YES
<u>AMOCO</u> 186 S ANDERSON RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>AUTO PARTS PLUS INC</u> 503 SHEPARD ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>AUTO VALUE PARTS STORES</u> 535 LINCOLN ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>BERGSTROM FORD LINCOLN MERCURY</u> 3620 HWY 47 N RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>BIRGINAL MOTORS/ NORTHGATE GM</u> 639 W KEMP ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>BOREL AUTO BODY& ALIGNMENT INC</u> 514 EVERGREEN ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>BUTTERNUT LAKE SITE/NICOLET FOREST</u> SECTION 33 T40N R12E	NO	NO	NO	YES	NO

City of Rhinelander Wellhead Protection Plan – July 2008

RHINELANDER, WI 54501					
<u>CEMENT TRANSFER COMPANY (MEDUSA CEMENT)</u> 3283 COUNTY HWY. G RHINELANDER, WI 54501	NO	NO	NO	NO	YES
<u>CHEM-LIG INTERNL INC</u> AIR INDUSTRIAL PARK RHINELANDER, WI 54501	NO	NO	NO	NO	YES
<u>CITY CLEANERS& LAUNDRY INC</u> 224 THAYER RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>COURTNEY INDUSTRIAL BATTERY INC</u> 1681 MENOMINEE DR RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>CRESCENT TN COMPOST SITE</u> 2241 TOWN HALL RD RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>CUSTOM COLLISION</u> 41 E PEARL ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>DAVENPORT ST BRIDGE</u> DAVENPORT ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>DAVES CRANKSHAFT</u> 3012 GERMOND RD RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>EMRO MARKETING NO 2033</u> 825 N STEVENS RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>FED AV ADMIN VORTAC</u> RHINELANDER ONEIDA CNTY AIRPORT	NO	NO	YES	NO	NO

City of Rhinelander Wellhead Protection Plan – July 2008

RHINELANDER, WI 54501					
FORE WAY EXPRESS INC ROUTE 4 HIGHWAY 8 RHINELANDER, WI 54501	NO	NO	YES	NO	NO
FORMER ZIEBART SITE 1825 N STEVEN ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
FRITO LAY RESEARCH 4925 TENDERFOOT RD RHINELANDER, WI 54501	NO	NO	YES	NO	NO
GALLO CHUCK PROPERTY 909 N STEVENS ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
GATEWAY CHEVROLET BUICK HONDA 1935 N STEVENS ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
HILL, HELEN PROPERTY 1508 N STEVENS ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
HILLTOP MOTORS (FORMER) 1419 LINCOLN ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
HOLIDAY ACRES RESORT 4060 SOUTH SHORE DR RHINELANDER, WI 54501	NO	NO	YES	NO	NO
HOLIDAY STATION (FORMER) 158 S ANDERSON ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
HOLIDAY STATIONSTORE #218 255 COURTNEY ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO

City of Rhinelander Wellhead Protection Plan – July 2008

HOME DEPOT USA HD4930 1400 E LINCOLN ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
JAMES WILLIAMS MIDDLE SCHOOL 915 ACACIA LN RHINELANDER, WI 54501	NO	NO	YES	NO	NO
JEVNE BULK PLANT (FORMER) 220 DRISCOLL RD RHINELANDER, WI 54501	NO	NO	YES	NO	NO
JIM FIELDS TRUCK REPAIR 611 W KEMP RHINELANDER, WI 54501	NO	NO	YES	NO	NO
KMART 1035 LINCOLN ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
LAKE SHORE INC RHINELANDER 3600 LAKE SHORE LANE RHINELANDER, WI 545018139	NO	YES	YES	NO	NO
LAKWOOD PROD INC 1445 EAGLE ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
LASER PROS INTERNATIONAL 1 INTERNATIONAL LN RHINELANDER, WI 54501	NO	NO	YES	NO	NO
LEHMAN OIL CO 807 N STEVENS ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
LEHMAN OIL CO INC 547 EAGLE ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
LINDEY CLEANERS 34 S STEVENS RHINELANDER, WI 54501	NO	NO	YES	NO	NO
MARPLEX INC 2221 N STEVENS ST	NO	NO	YES	NO	YES

City of Rhinelanders Wellhead Protection Plan – July 2008

RHINELANDER, WI 545010279					
MESABA AIRLINES 3375 AIRPORT RD- HANGAR 21 RHINELANDER, WI 54501	NO	NO	YES	NO	NO
MUSSON BROS INC FAUST LAKE ROAD RHINELANDER, WI 54501	NO	NO	NO	NO	YES
NEWBOLD ELEMENTARY SCHOOL 4630 APPERSON DR RHINELANDER, WI 54501	NO	NO	YES	NO	NO
NICOLET AREA TECHNICAL COLLEGE HWY G FIRE NO 2951 RHINELANDER, WI 54501	NO	NO	YES	NO	NO
NICOLET SERVICE CTR 1209 S ONEIDA RHINELANDER, WI 54501	NO	NO	YES	NO	NO
NORSE PREMIUM WOOD PRODUCTS 1975 N. RIVER ROAD RHINELANDER, WI 54501	NO	NO	NO	NO	YES
NORTHERN AUTO SUPPLY CO 1830 N STEVENS ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
NORTHWOODS MOBIL 5 E MONICO ST RHINELANDER, WI 545012244	NO	NO	YES	NO	NO
ONEIDA CNTY AIRPORT 3375 AIRPORT RD RHINELANDER, WI 54501	NO	NO	YES	NO	NO
ONEIDA CNTY SOLID WASTE DEPT 7450 CTH K RHINELANDER, WI 54501	NO	NO	YES	NO	NO
ONEIDA COUNTY HWY DEPT	NO	NO	YES	NO	YES

<u>RHINELANDER</u> 730 W KEMP ST RHINELANDER, WI 54501					
<u>PELICAN</u> <u>ELEMENTARY</u> <u>SCHOOL</u> 4615 HWY 8 E RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>PINE LAKE TOWN OF</u> <u>GARAGE</u> RIVER RD RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>PINWOOD LODGE</u> 4218 LAKE THOMPSON DR RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>PRECISION TWIST</u> <u>DRILL RHINELANDER</u> <u>MFG.</u> 1176 COON ST RHINELANDER, WI 545010188	NO	YES	YES	NO	NO
<u>PRINTPACK</u> <u>ENTERPRISE INC</u> 114 W KEMP ST RHINELANDER, WI 545013813	NO	YES	YES	NO	YES
<u>QUALITY COLLISION</u> <u>CENTER</u> 3349 BOYCE DR RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>RAY'S CASTLE FOODS</u> RTS 8 & 47 WEST RHINELANDER, WI 54501	NO	NO	NO	NO	YES
<u>RED ARROW</u> <u>PRODUCTS</u> <u>COMPANY, INC</u> 4000 RED ARROW DRIVE, RHINELANDER, WI 54501-1068 RHINELANDER, WI 545011068	NO	NO	YES	NO	YES
<u>REMINGTON OIL CO</u> 716 RIVER ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>RESTORATION CTR</u>	NO	NO	YES	NO	NO

City of Rhinelander Wellhead Protection Plan – July 2008

6153 VELVET LAKE RD RHINELANDER, WI 54501					
RHINELANDER CTY 128 W FREDERICK ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
RHINELANDER CTY 644 WASHINGTON ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
RHINELANDER DAILY NEWS 314 COURTNEY ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
RHINELANDER HIGH SCHOOL 665 COOLIDGE AVE RHINELANDER, WI 54501	NO	NO	YES	NO	NO
RHINELANDER LANDFILL OLD HIGHWAY 8 ROAD RHINELANDER, WI 54501	NO	NO	NO	YES	NO
RHINELANDER SCHOOL DIST 315 S ONEIDA AVE RHINELANDER, WI 54501	NO	NO	YES	NO	NO
RHINELANDER WASTEWATER TREATMENT FACILITY 869 BOYCE DRIVE RHINELANDER, WI 54501	YES	NO	YES	NO	NO
SHERWIN WILLIAMS CO THE 123 S BROWN ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
SHIMKUS AUTO BODY 1855 W DAVENPORT ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
SHOEDERS AUTO CENTER 2226 N STEVENS RHINELANDER, WI	NO	NO	YES	NO	NO

54501					
ST MARYS HOSPITAL RHINELANDER 2251 N SHORE DRIVE SUITE 100 RHINELANDER, WI 54501	NO	NO	NO	NO	YES
ST MARYS HOSPITAL RHINELANDER SACRED HEART 1044 KABEL AVE RHINELANDER, WI 545013998	NO	NO	YES	NO	NO
STORA ENSO NA FOREST RESOURCES/CPI 803 LINCOLN ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
SUPERAMERICA STATION MARKSTURM 48 W KING RHINELANDER, WI 54501	NO	NO	YES	NO	NO
TANGAS JOHN W AND ASSOCIATES 5702 BLACK LAKE RD RHINELANDER, WI 54501	NO	NO	YES	NO	NO
TESS DOROTHY 1983 RAMELING LN RHINELANDER, WI 54501	NO	NO	YES	NO	NO
TRAFFIC SIGNING & MARKING INC 1672 MENOMONIE DR RHINELANDER, WI 54501	NO	NO	YES	NO	NO
UNITED PARCEL SERVICE 625 WASHINGTON ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
US STICK CORP 1975 N RIVER RD RHINELANDER, WI 54501	NO	NO	YES	NO	NO
USFS FORESTRY SCIENCES LABORATORY 5985 CTH K RHINELANDER, WI	NO	NO	YES	NO	NO

54501					
<u>UW RHINELANDER AGRICULTURE RESEARCH STATION</u> 4181 CAMP BRYN AFON RD RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>WALKER & STAFFORD PAINT & DRYWALL</u> 4125 TRAILS END RD RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>WALMART STORE #1931</u> 2121 LINCOLN ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>WAUSAU-MOSINEE PAPER - SPECIALTY PAPER GROUP</u> 515 WEST DAVENPORT STREET RHINELANDER, WI 545013328	YES	YES	YES	NO	YES
<u>WDNR-BUREAU OF ENGR.</u> ONEIDA CO. AIRPORT RHINELANDER, WI 54501	NO	NO	NO	NO	YES
<u>WEBSTER OIL</u> 1419 EAGLE ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>WEST ELEMENTARY SCHOOL</u> 309 MAPLE RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>WI ARMY NATL GUARD</u> RHINELANDER 1136 MILITARY RD RHINELANDER, WI 545012324	NO	NO	YES	NO	NO
<u>WI DOT BRIDGE B43-0003</u> KEMP ST BRIDGE OVER WI RIVER RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>WI DOT DIST 7 SIGN SHOP</u> 501 HANSON LAKE	NO	NO	YES	NO	NO

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RD RHINELANDER, WI 54501					
<u>WIDNR</u> RHINELANDER RANGER STATION HWY 17 S RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>WIDOT HWY 17</u> RHINELANDER COON ST CITY PUB WKS DEPT RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>WISCONSIN BE'L</u> <u>INC</u> 45 N STEVENS ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>WISCONSIN</u> <u>CENTRAL</u> RHINELANDER 435 N BROWN ST RHINELANDER, WI 54501	NO	NO	YES	NO	NO
<u>WISCONSIN DEPT OF</u> <u>NATL RES N CNTRL</u> <u>DIST</u> 107 SUTCLIFF AVE RHINELANDER, WI 54501	NO	NO	YES	NO	NO