Platte West Wellhead Protection Plan

2013

Created by HDR Engineering, Inc. and JEO Consulting Group, Inc. for Metropolitan Utilities District

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FIGURES

SECTION 1: INTRODUCTION

Wellhead Protection is the management of the land surrounding a water supply well to prevent contamination of the water supply. The Safe Drinking Water Act of 1974, as amended (SDWA), recommended that public water supply systems develop Wellhead Protection Plans (WHPPs). The SDWA defines a wellhead protection area as: "the surface and subsurface area surrounding a water well or well field, supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or well fields." In response to this recommendation, the State of Nebraska (State) adopted the Nebraska Wellhead Protection Area Act in 1998, by Nebraska Legislature Bill (LB) 1161. This act's main goal is to minimize the amount of potentially polluting activities occurring on the designated lands that surround public water supply wells. Wellhead protection is a voluntary program in Nebraska. Public Water Supply Systems (PWSSs) in Nebraska have the option of developing a WHPP. The WHPP is generally written by a local community official or a technical advisor and provides the PWSS with a detailed account of the potential threats to the system and general management strategies, including ordinances related to wellhead protection.

The WHPP provides a detailed account of the potential threats to the Platte West Water Treatment facility and a summary of existing and recommended management strategies. Understanding the importance of protecting the water supply source, the Metropolitan Utilities District (MUD or the District) has developed this WHPP for the Platte West Water Treatment facility.

1.1 WELLHEAD PROTECTION PLAN PROGRAM ACTIVITIES

In Nebraska, the WHPP program is administered by the Nebraska Department of Environmental Quality (NDEQ). The process for developing a WHPP includes five steps, as summarized below:

1. Delineate the WHPA – The WHPA can be calculated from information such as geologic materials and annual pumping rates of the wells. A WHPA map can be computer-generated from NDEQ to depict the approximate path groundwater or a contaminant in groundwater may take to reach a well. The flow lines are associated with 20-year flow lines to determine the WHPA boundary.

2. Potential contaminant source inventory – A potential contaminant source inventory is conducted to determine any locations, activities, or structures that may pose a threat to drinking water. Inventories should be compiled from existing databases.

3. Contaminant source management – Management of a groundwater supply should be enacted upon to minimize the threat to drinking water. The community can involve multiple management steps such as zoning restrictions on specific land uses, purchasing of land or conservation easements, ordinances, and voluntary actions including working with land owners to encourage best management practices (BMPs).

4. Emergency, contingency, and long-term planning – A plan should be developed to enable a community to react and provide a replacement source of drinking water in events such as natural disasters, contamination, or mechanical failures. The plan should include a reference or copy of the emergency plan, a short-term temporary source, and options for obtaining a long-term source of water.

5. Educate and involve the public – Community awareness can help provide citizens with information about what can be done to protect groundwater and drinking water. This will increase the likelihood that a WHPP will be successful.

1.2 WELLHEAD PROTECTION PLAN – INTENT AND USE

The MUD Platte West WHPP will be used to develop appropriate future plans and programs designed to help protect the water supply of the Greater Omaha Area. It shall address, at a minimum, the requirements stated in Section 1.1, above. The WHPP was not developed in response to any single specific issue, but rather was developed as a proactive approach to document existing conditions and to provide a means to develop future programs and activities aimed to reduce the potential for groundwater contamination within the WHPA.

It is recognized that the local aquifer provides water not only to the inhabitants of the Greater Omaha Area, but is also used by inhabitants that live within the WHPA. Therefore, a major component of this plan is to foster communication and partnership among all stakeholders within the WHPA.

The District currently provides some protection from the potential of off-site contamination for its water supply wells through ownership of the property immediately surrounding the wells. While property ownership provides some protection, it does not provide the recommended 20-year time-of-travel protection. The District does not have the authority to enforce or implement zoning. Developing partnerships with local jurisdictions and exploring the possibility to enact a wellhead protection overlay zone is one goal of the WHPP.

1.3 METROPOLITAN UTILITIES DISTRICT WELLHEAD PROTECTION CONTACTS

Table 1 below provides contact information for agencies that are responsible for the day to day management of this plan including the establishment of the WHPP, gathering data, providing summaries, or providing technical assistance with wellhead protection activities.

TABLE 1: METROPOLITAN UTILITIES DISTRICT WELLHEAD PROTECTION CONTACTS

Agency/Role	Name	Title	Phone/Email
MUD	Russel Iwan	Water Supply Engineer	(402) 504-7870 russ_iwan@mudnebr.com
NDEQ	Ryan Chapman	WHP Coordinator	(402) 471-2186 ryan.chapman@nebraska.gov
JEO Consulting Group	Jeffrey Ray	Planner	(402) 392-9931 jray@jeo.com
HDR Engineering, Inc.	Luca DeAngelis	Hydrogeologist	(816) 347-1138 luca.deangelis@hdrinc.com

SECTION 2: METROPOLITAN UTILITIES DISTRICT WATER SYSTEM

2.1 HISTORY OF METROPOLITAN UTILITIES DISTRICT

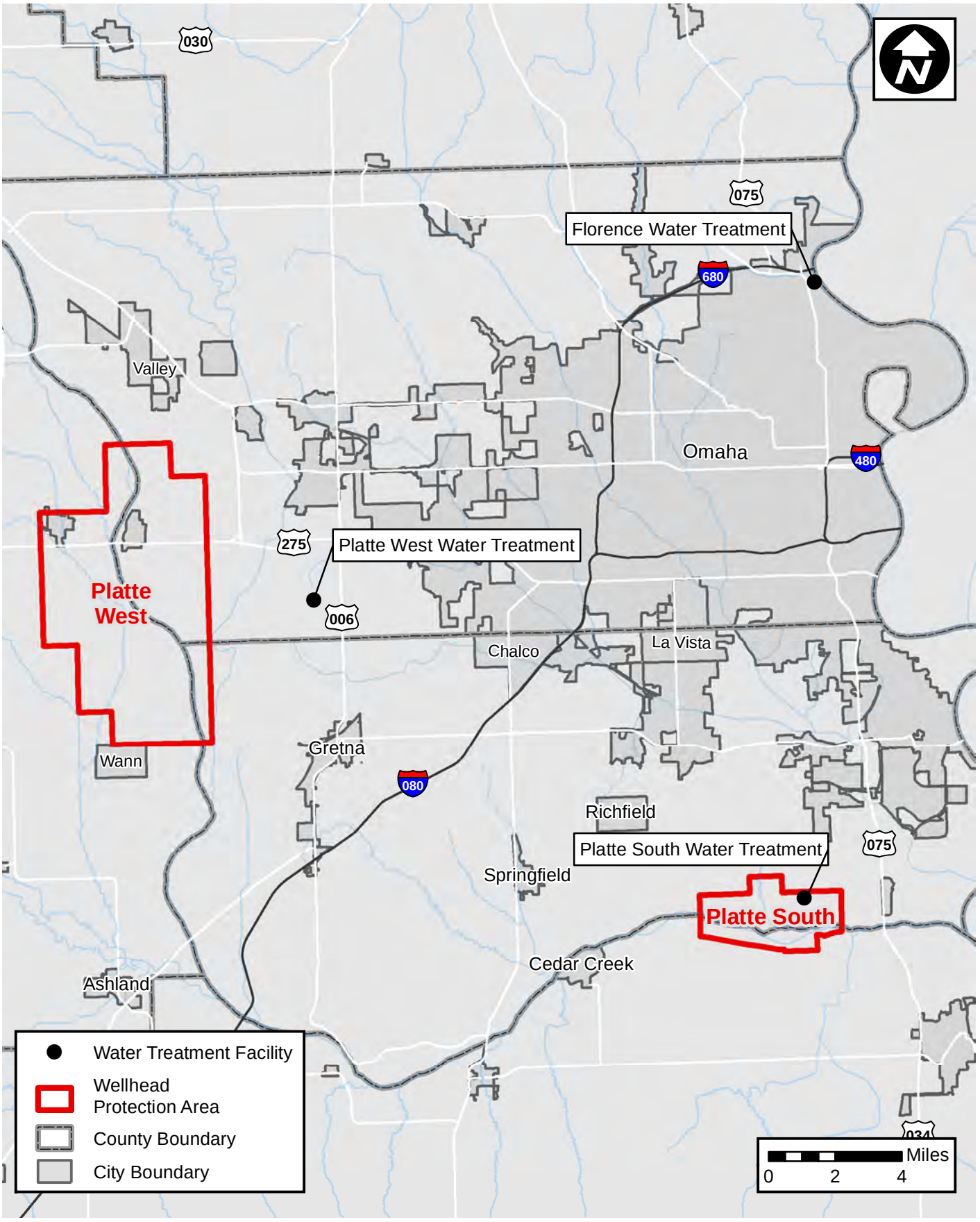
MUD was created in 1913, to take control of water service to the City of Omaha. Five years later, the District was formed after being assigned responsibility for operation of the gas system. It was created by the State to provide water and natural gas to the Greater Omaha Area.

2.2 METROPOLITAN UTILITIES DISTRICT WATER SERVICE

MUD provides safe drinking water to more than 200,000 customer-owners in Omaha, Bellevue, Bennington, Carter Lake, LaVista, Ralston, Waterloo, and the Papio-Missouri Natural Resources District (NRD). It is the only Metropolitan Utility District in the State. MUD began providing drinking water in 1922, with the operation of the Florence Water Treatment facility, which has a maximum day production capacity of 158 million gallons per day (mgd). The Florence Water Treatment facility obtains water from an intake in the Missouri River. In 1968, a second water treatment facility (the Platte South Water Treatment facility) was constructed south of the metropolitan area. The Platte South Water Treatment facility uses shallow wells constructed in the Platte River alluvial aquifer as the source of raw water. This facility provides MUD with a maximum day production capacity of 60 mgd. In 1971, Omaha annexed the Village of Millard, which operated wells that are constructed in the Dakota Sandstone Aquifer. MUD obtained control of these wells as a result of the annexation. These wells are operated as peak shaving wells to supplement the supply from the other sources. The only treatment for the peak shaving wells is disinfection.

In 1988, and again in 1995, maximum demand for water nearly exceeded the District's maximum production capacity. To address this issue, an additional well field and water treatment facility (Platte West Water Treatment facility) was added to MUD's system. In 2008, the Platte West Water Treatment facility was opened to add to the increasing demands due to MUD's expanding customer base. In July 2008, the Platte West Water Treatment facility began operations with the capacity to treat and distribute an additional 100 mgd of potable water, for a total system capacity of 333 mgd.

Omaha's MUD water system is now comprised of three treatment facilities: Florence Water Treatment facility, Platte South Water Treatment facility, and Platte West Water Treatment facility, shown in Figure 1. The placement of the three water treatment facilities and their alternative water supply sources create a triangle of reliability for the district's water supply. The diversity of the District's source of water supply provides a significant advantage to the District in its ability to use an alternative supply source in the event of an emergency in any one of the sources.



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Metropolitan Utilities District
Water Treatment Facilities

MUD Wellhead Protection Plans

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FIGURE
1

2.3 METROPOLITAN UTILITIES DISTRICT WATER RIGHTS

MUD holds ten water rights from waters from the State. Water rights are from the Big Papillion Creek, the Platte River, the Missouri River, and the Mulhalls Regulating Pit. The Platte West well field utilizes one of the ten water rights. The use of the Platte River water right is for induced groundwater recharge (IG). Table 2 below lists additional details about MUD water right for the Platte West well field.

TABLE 2: METROPOLITAN UTILITIES DISTRICT WATER RIGHTS

App Number Priority Date Water Division RightID	Use Status Date Can / Dism Downstream	Source POD Facility Name County	Cur Tot Acres Grant Rate GPM
A-17318 10/6/1993 2A 6633	IG Active 670000	Platte River Sec: 7 T: 14 R: 10 E Begin Wellfield Saunders	0.000 1000.0000 CFS - 448,800 GPM
A-17318 10/6/1993 2A 6636	IG Active 670050	Platte River Sec: 20 T: 14 R: 10 E End Wellfield Sarpy	0.000 1000.0000 CFS - 448,800 GPM
A-17356 3/1/1994		Ground Water permit under the Municipal and Rural Domestic Ground Water Transfer Act	104,000,000 GPD

Water Right A-17356, a ground water permit under the Municipal and Rural Domestic Ground Water Transfer Act, limits the combined pumping rate from 42 wells. The limits placed by this permit are: a maximum instantaneous pumping rate not to exceed 104 mgd and a total annual average pumping rate not to exceed 52 mgd. In addition to the water right listed above, the well field operates under Clean Water Act Section 404 Permit (No. 199910085), which is administered by the Omaha District of the U.S. Army Corps of Engineers (USACE). This permit includes requirements for wetland and ground water elevation and quality monitoring on operation of the well field.

2.4 PLATTE WEST WATER TREATMENT FACILITY

The Platte West Water Treatment facility was added to the District's water system to help provide the necessary potable water to the expanding customer base in Omaha's western boundary. The facility is anticipated to accommodate the needs of Omaha residents for the next 30 years or more. The well field is located on 2,230 acres of land encompassing both sides of the Platte River in Douglas and Saunders counties. The water supply is obtained from 42 production wells that pump water from the Platte River alluvial aquifer. The raw water is delivered to a treatment facility in western Douglas County through a 72-inch diameter pipeline. The treatment facility includes pre-treatment basins, lime softening for hardness, organics reduction, and iron and manganese removal, as well as filtration and disinfection. The finished water storage for the facility is 15,000,000 gallons. The facility is located on a 158-acre site northeast of the intersection of Q and 216th streets.

The 42 water supply wells are each approximately 100 feet deep and were classified through groundwater modeling (for operational purposes) as either river wells or storage wells. This classification was

developed through the use of a groundwater flow model, but the distinction is highly dependent on the setback distance from the river.

Tables 3, 4, and 5, below, provide more information about MUD in general and Platte West specifically. Table 3 includes information regarding MUD in general, including the number of customers and average water use. Table 4 provides pumping and capacity data for the Platte West facility. Table 5 contains contact information for various points of contact for MUD.

TABLE 3: METROPOLITAN UTILITIES DISTRICT WATER SYSTEM – GENERAL WATER SYSTEM INFORMATION

General Water System Information	
Customers Served: 203,230	Water Hydrants Maintained: 27,471
Main Customer-Owners: Omaha, Bellevue, Bennington, Carter Lake, LaVista, Ralston, Waterloo, the Papio-Missouri NRD (which supplies water to Fort Calhoun), and unincorporated Douglas County	
Average Daily Consumption (1988-2011): 90,250,000 gallons	Average Peak Daily Consumption (1988-2011): 186,330,000 gallons
Average Summer Consumption (1988-2011): 110,708,000 gallons	Average Winter Consumption (1988-2011): 79,958,000 gallons
2012 General Water System Information	
Average Daily Demand: 148 mgd	Water Storage Capacity: 333,000,000 gallons
Average Summer Usage: 148,000,000 gallons	Peak Daily Usage: 103,000,000 gallons
Average Winter Usage: 73,000,000 gallons	Peak Monthly Average: 194,000,000 gallons

TABLE 4: METROPOLITAN UTILITIES DISTRICT PLATTE WEST WATER TREATMENT FACILITY INFORMATION

Platte West Water Treatment Facility Information	
Average Monthly High Service Pumpage (2011): 38,750,000 gallons	Peak Daily High Service Pumpage (June 2011): 72,000,000 gallons
Peak Total Monthly High Service Pumpage (September 2011): 1,732,000,000 gallons	Peak Total Yearly High Service Pumpage (2011): 12,748,000,000 gallons
2012 Platte West Water Treatment Facility Information	
Average Summer Usage: 43,700,000 gallons	Peak Daily Usage: 35,700,000 gallons
Average Winter Usage: 29,300,000 gallons	Peak Monthly Average: 57,500,000 gallons
Water Storage Capacity: 15,000,000 gallons	

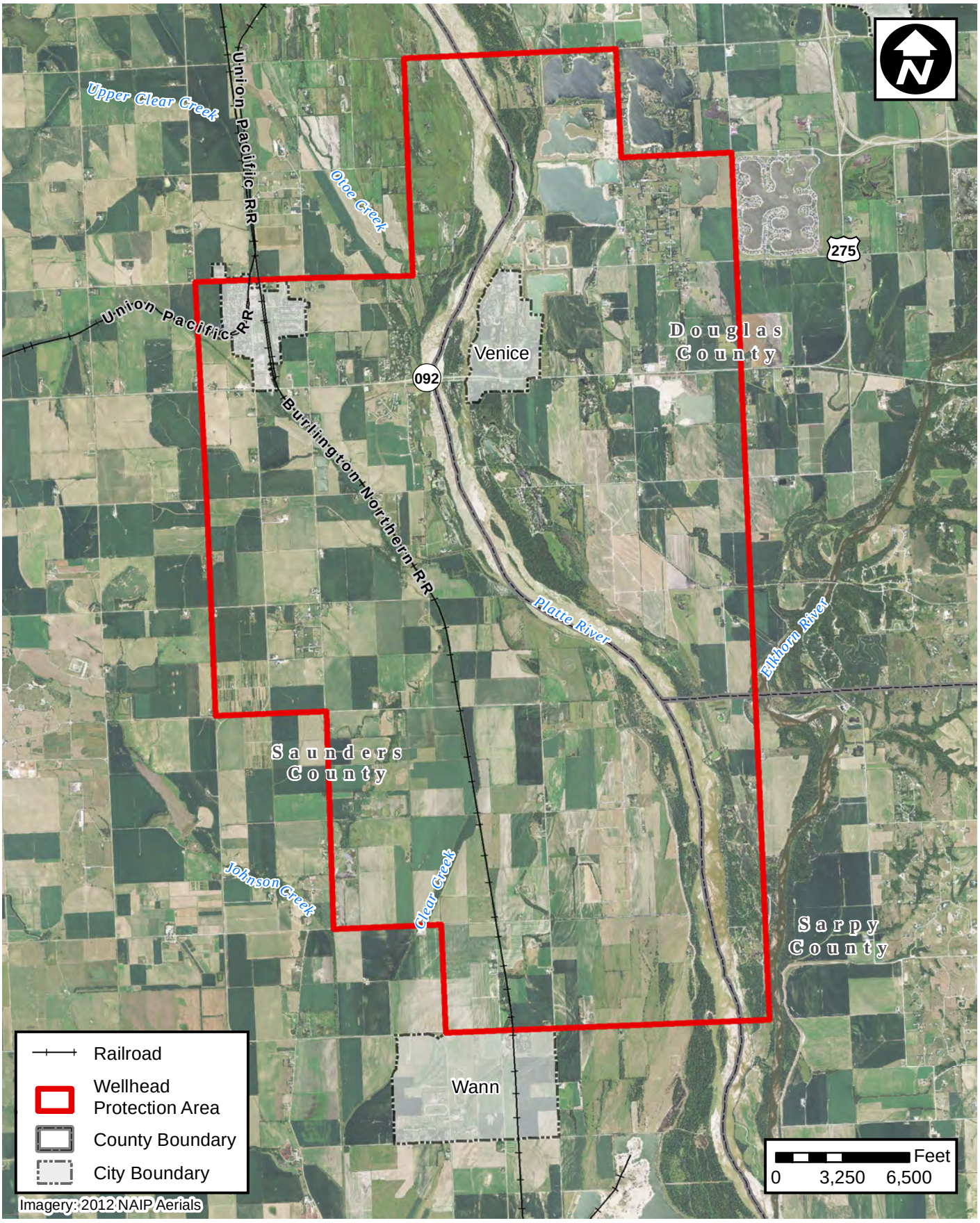
TABLE 5: METROPOLITAN UTILITIES DISTRICT PLATTE WEST WATER TREATMENT FACILITY – CONTACT INFORMATION

System Contact Information:	
Contact: Kevin P. Tobin	**Address:** 21212 West Q Road
City/State/ZIP: Omaha/Nebraska/68022-3218	
System Phone Number: (402) 504-7560	**System Fax Number:** (402) 504-5560
System E-Mail: kevin_tobin@mudnebr.com	
Water System Owned By: MUD	**Operated By:** MUD
Governing Body: MUD Board	
Administrative Contact Person:	
Financial Contact Person:	
Name: Deborah Schneider	**Phone:** (402) 504-7128
Operational Contact Person:	
Name: Scott Keep	**Phone:** (402) 504-7106
Legal Contact Person:	
Name: Ron Bucher	**Phone:** (402) 504-7238
Operational Information:	
Operator in Responsible Charge: Joel Christensen	**Title:** Vice President, Water Operations
Certification Grade: Grade I	**Certificate Number:** 28
Expiration Date: December 31, 2013	**Home Address:** 5909 S. 115th Street, Omaha, NE 68137
	Phone Number: (402) 504-7774

SECTION 3: METROPOLITAN UTILITIES DISTRICT WELLHEAD PROTECTION AREA

MUD's Platte West WHPA map is shown in Figure 2. The Platte West WHPA covers 22,912 total acres. A set of time-of-travel path lines were determined for the Platte West WHPA by using a calibrated groundwater flow model that was developed to assist with the design and permitting of the well field (Chatman and Associates, Inc. 2005). The groundwater model was constructed using the U.S. Geological Survey (USGS) computer code MODFLOW (McDonald and Harbaugh 1988) and the USGS particle tracking code MODPATH (Pollock 1989).

The Platte West WHPA was developed using the reverse particle tracking option in MODPATH to identify areas upstream of a well field that will likely contribute waters to the pumping wells of the well field. A MODPATH run was prepared to delineate the WHPA, using a steady state 52 mgd pumping scenario. For this simulation, four particles per pumping well were located in a circular pattern at the pumping well and tracked backward. The model's predicted reverse particle tracking simulation is presented in Figure 3. The outer boundaries of the WHPA are the 20-year time-of-travel boundaries as predicted by the model. Figure 3 also illustrates arrows which represent the 5 year time-of-travel for each particle. The WHPA is determined according to the 20 year time-of-travel.



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Platte West Wellhead Protection Area

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FIGURE
2

NE3106710

R 9 E

R 10 E

R 11 E

Wellhead Protection Area Boundary

Platte River

Elkhorn River

Yutan

Elkhorn

Mead

T 15 N

T 14 N

R 8 E

R 9 E

R 10 E

G-130839
G-130840
G-130842
G-075361
G-130844
G-130929
G-130845
G-100692
G-130968
G-130659
G-130656
G-130698
G-130697
G-130696
G-130663
G-100694
G-130658
G-130654
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G-100698
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G-100696
G-100695
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G-100693
G-075360
G-130753
G-130821
G-130662

Time of Travel computed with Modflow

Time of Travel

0-20 Year

Miles

0 0.5 1 2 3

M.U.D. WEST

Douglas County

WHPA Boundary Drawn by Chatman and Associates, Inc., 2005. Phase II Platte West Well Field Groundwater Modeling Study. Metropolitan Utilities District. Platte West Well Field, Nebraska. Prepared for HDR, Inc. November. WHPA Boundary Adopted by Nebraska Department of Environmental Quality, March 2011

3.1 LAND COVER USE

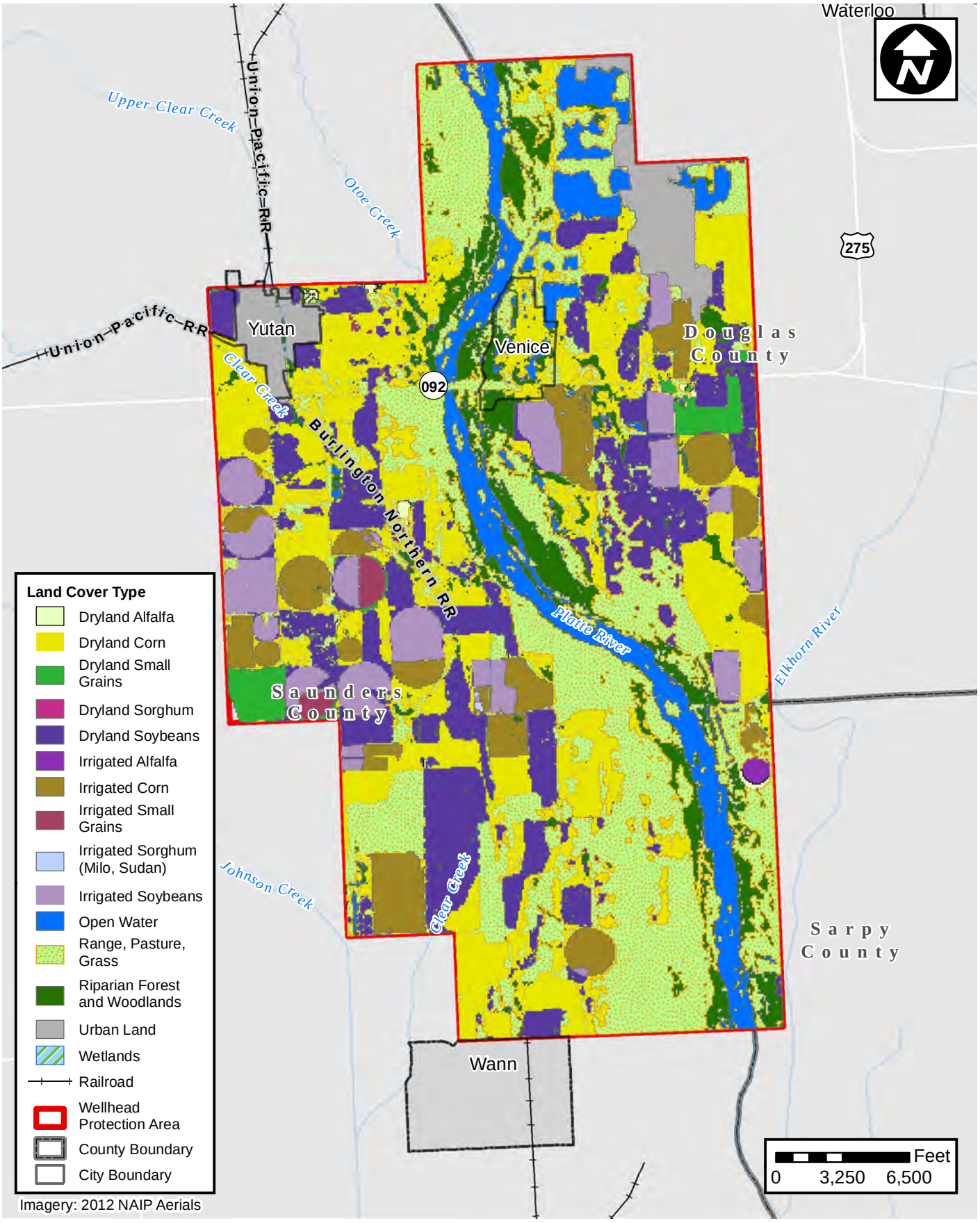
Land cover in the Platte West WHPA was analyzed using Geographic Information System (GIS) software and data collected from University of Nebraska-Lincoln (UNL) 2005 land cover database. Percentages of land cover type were compiled and presented in Table 6, for Platte West WHPA. See Figure 4, for the graphic breakdown of land cover type. Data for land cover type and total areas in the WHPA can be beneficial for land management practices and to prevent contamination. Land cover types in the Platte West WHPA are listed and described below (2005 NE Land Use Final Report):

- Barren – Areas with no vegetation, including blowouts and sandbars.
- Dryland alfalfa – Non-irrigated alfalfa harvested three to four times during the growing season starting in early May and ending in early October.
- Dryland corn – Includes non-irrigated corn used for grain or silage and harvested September through November.
- Dryland small grains – Includes non-irrigated winter wheat, spring wheat, oats, barley, rye, and millet.
- Dryland sorghum – Includes non-irrigated sorghum for grain and silage, as well as milo, sudan, and cane; harvested September through October.
- Dryland soybeans – Non-irrigated soybean fields.
- Irrigated alfalfa – Irrigated alfalfa harvested three to four times during the growing season starting in early May and ending in early October.
- Irrigated corn – Includes irrigated corn used for grain or silage and harvested September through November.
- Irrigated small grains – Includes irrigated winter wheat, spring wheat, oats, barley, rye, and millet.
- Irrigated sorghum – Includes irrigated sorghum for grain and silage, as well as milo, sudan, and cane; harvested September through October.
- Irrigated Soybeans – Irrigated soybean fields.
- Open water – Includes lakes, streams, ponds, and reservoirs. Water level varies due to irrigation draw-downs and evaporation.
- Range, pasture, and grass – Mostly range grasses and pastures with some cultivated grass and hay. Includes brome grass and land in the Conservation Reserve Program. Grazing occurs at irregular intervals.
- Riparian forest and woodlands – Forested areas including areas next to streams, lakes, and wetlands.
- Urban land – Areas defined as towns or cities with a population greater than 100 people.
- Wetlands – Emergent wetlands. Lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. May also include sub-irrigated grassland areas and shallow water areas.

TABLE 6: PLATTE WEST WELLHEAD PROTECTION AREA LAND USE COVER

Land Cover Type	Acres in WHPA	Percent of Total Cover
Dryland alfalfa	63	0.28%
Dryland corn	4,931	21.52%
Dryland small grains	339	1.48%
Dryland sorghum	8	0.04%
Dryland soybeans	3,352	14.63%
Irrigated alfalfa	33	0.14%
Irrigated corn	1,545	6.74%
Irrigated small grains	111	0.48%
Irrigated sorghum (milo and sudan)	5	0.02%
Irrigated soybeans	1,289	5.63%
Open water	1,738	7.58%
Range, pasture, and grass	6,619	28.89%
Riparian forest and woodlands	1,957	8.54%
Urban land	857	3.74%
Wetlands	63	0.27%
Total	**22,912**	**100%**

Platte West WPHA is comprised mostly of combined dryland and irrigated crops making up approximately 51 percent of the total area, or 11,677 acres of the total 22,912 acres in the Platte West WHPA. Range, pasture, and grass land provide the next largest contribution to the Platte West WHPA with approximately 29 percent of the total cover or 6,619 acres. Urban land is not a significant contribution to Platte West WHPA with less than 4 percent of the total acres.



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Platte West Wellhead Protection Area
Land Use / Land Cover

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FIGURE
4

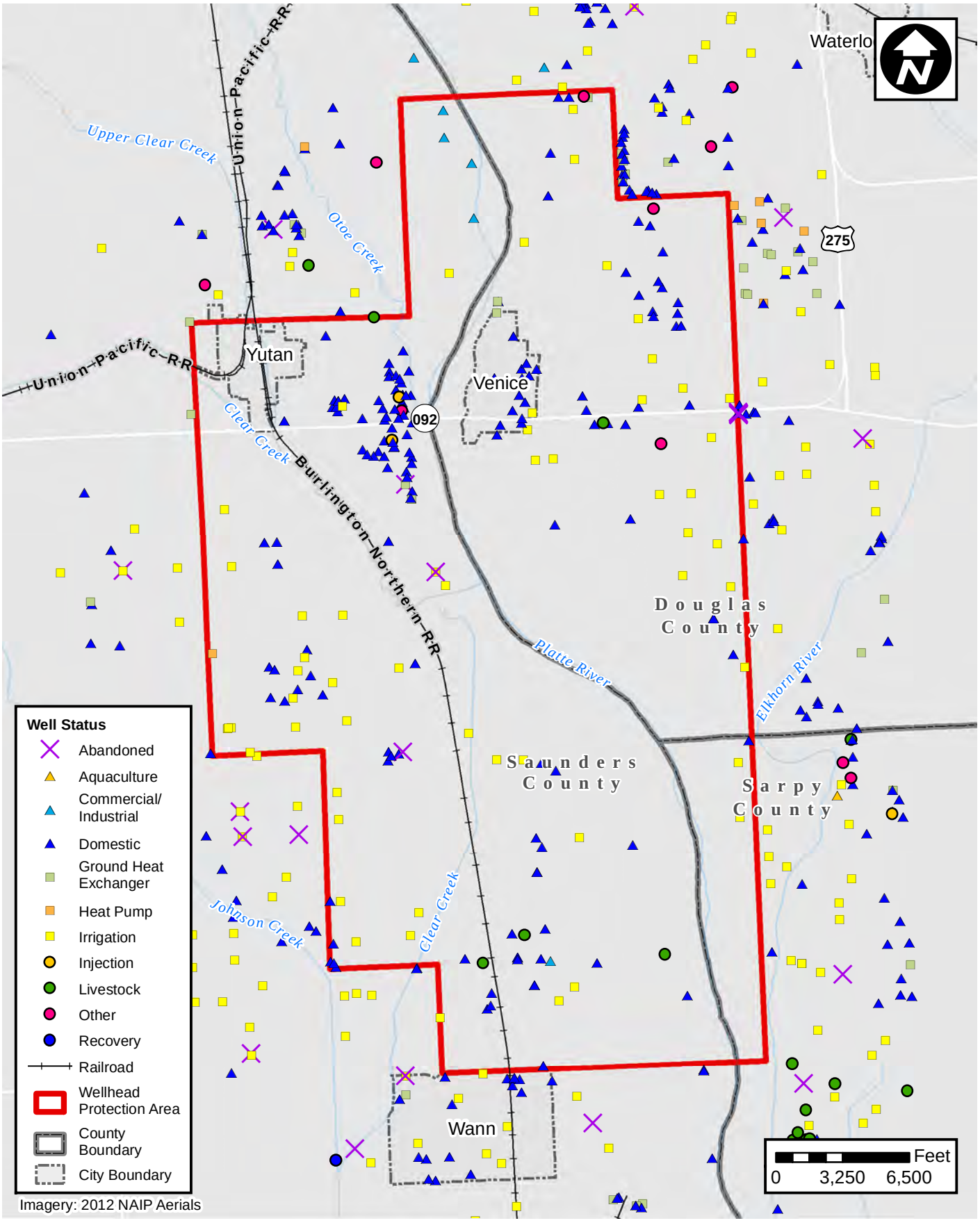
SECTION 4: POTENTIAL CONTAMINANT SOURCE INVENTORY

A contaminant source inventory is provided to compile sources and activities that could potentially contribute to pollution of the groundwater supplies. Databases for each of the potential contaminant sources were mapped using GIS software and aerial photography. Sources obtained include:

- Registered water wells (provided by NDEQ).
- NDEQ regulated facilities.
- Nebraska oil and gas wells from Nebraska Oil and Gas Conservation Commission (NOGCC) database.
- State Fire Marshal database for hazardous sites
- Underground storage tanks (USTs) database (State Fire Marshal database)

4.1 REGISTERED WATER WELLS

Registered water wells located in the Platte West WHPA include commercial and industrial, domestic, irrigation, ground heat exchanger, livestock, heat pump, and abandoned wells. An aquaculture well is also located on the east side of Platte West WHPA. All wells in and around Platte West WHPA are shown in Figure 5.



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Platte West Wellhead Protection Area
Registered Water Wells

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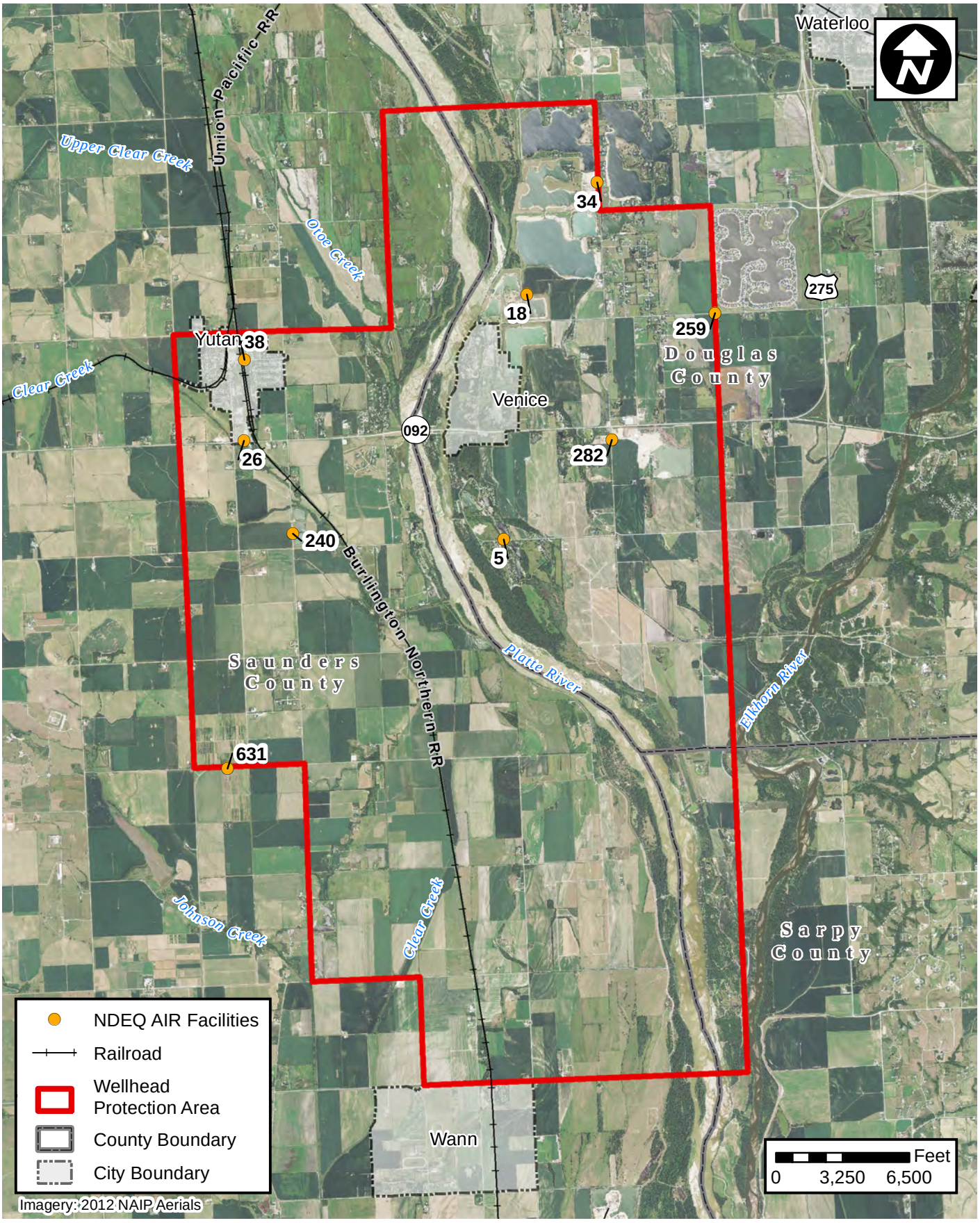
FIGURE
5

4.2 REGULATED FACILITIES

A database containing all NDEQ regulated facilities was mapped for the Platte West WHPA. This database includes any facilities that are associated with one or more of the NDEQ programs. NDEQ regulated facilities located within and around Platte West WHPA are mapped according to their registered programs and are shown in Figure 6 through Figure 15. A detailed list of each facility and their corresponding registered programs are presented in Table 7.



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Platte West Wellhead Protection Area
Clean Air Act Facilities

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FIGURE
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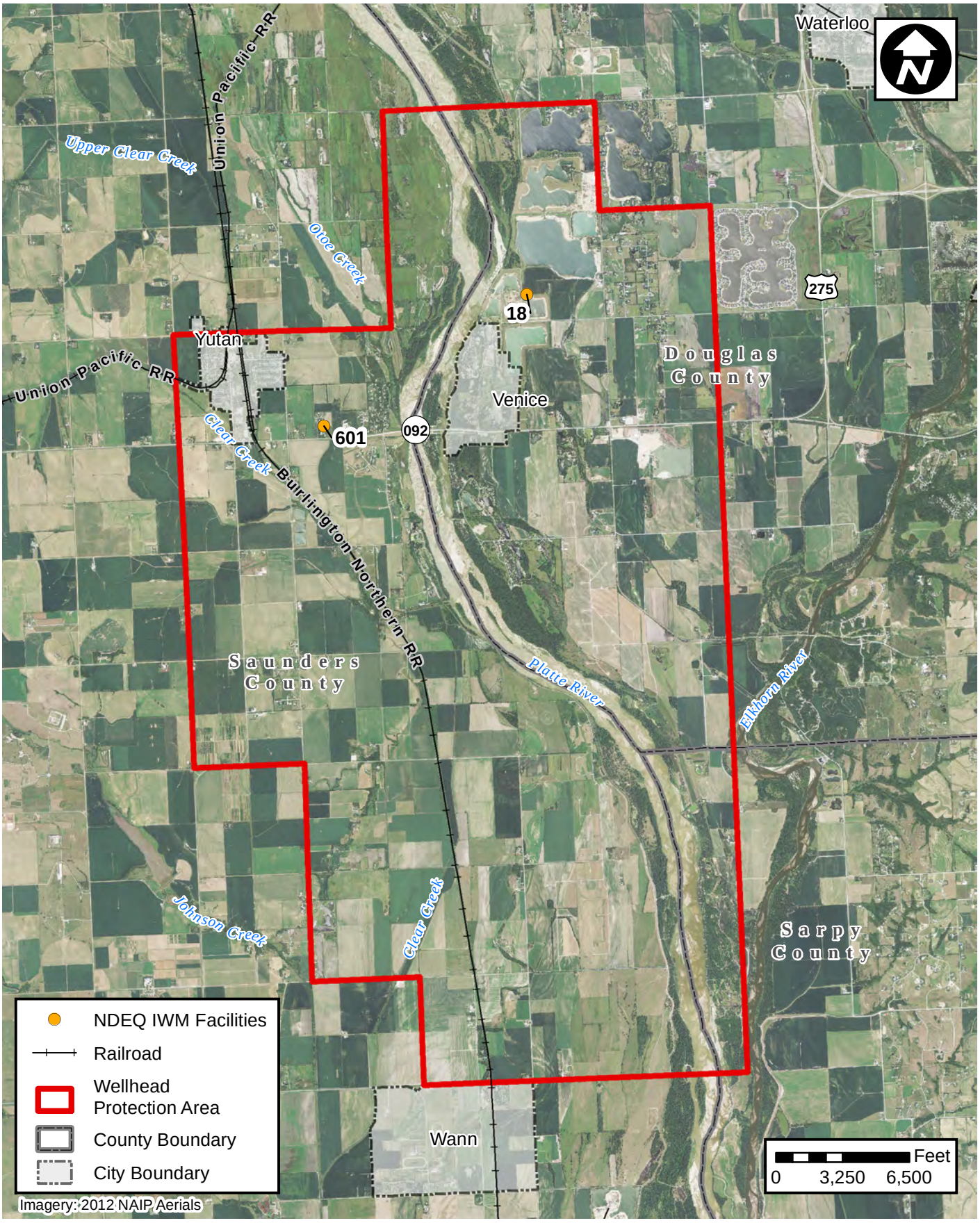

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Platte West Wellhead Protection Area
Integrated Waste Managaement Facilities

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FIGURE
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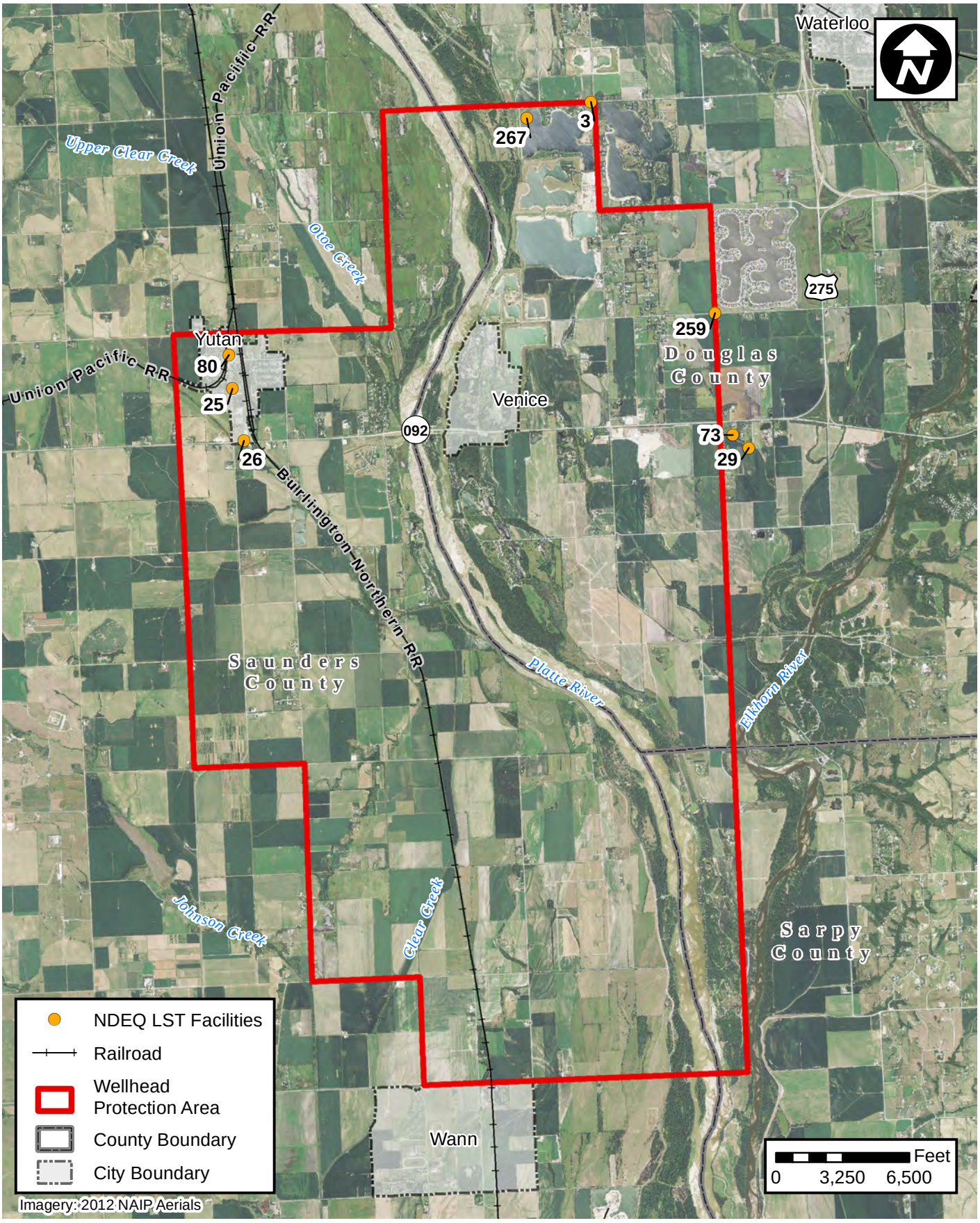

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Platte West Wellhead Protection Area
Leaking Storage Tank Facilities

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FIGURE
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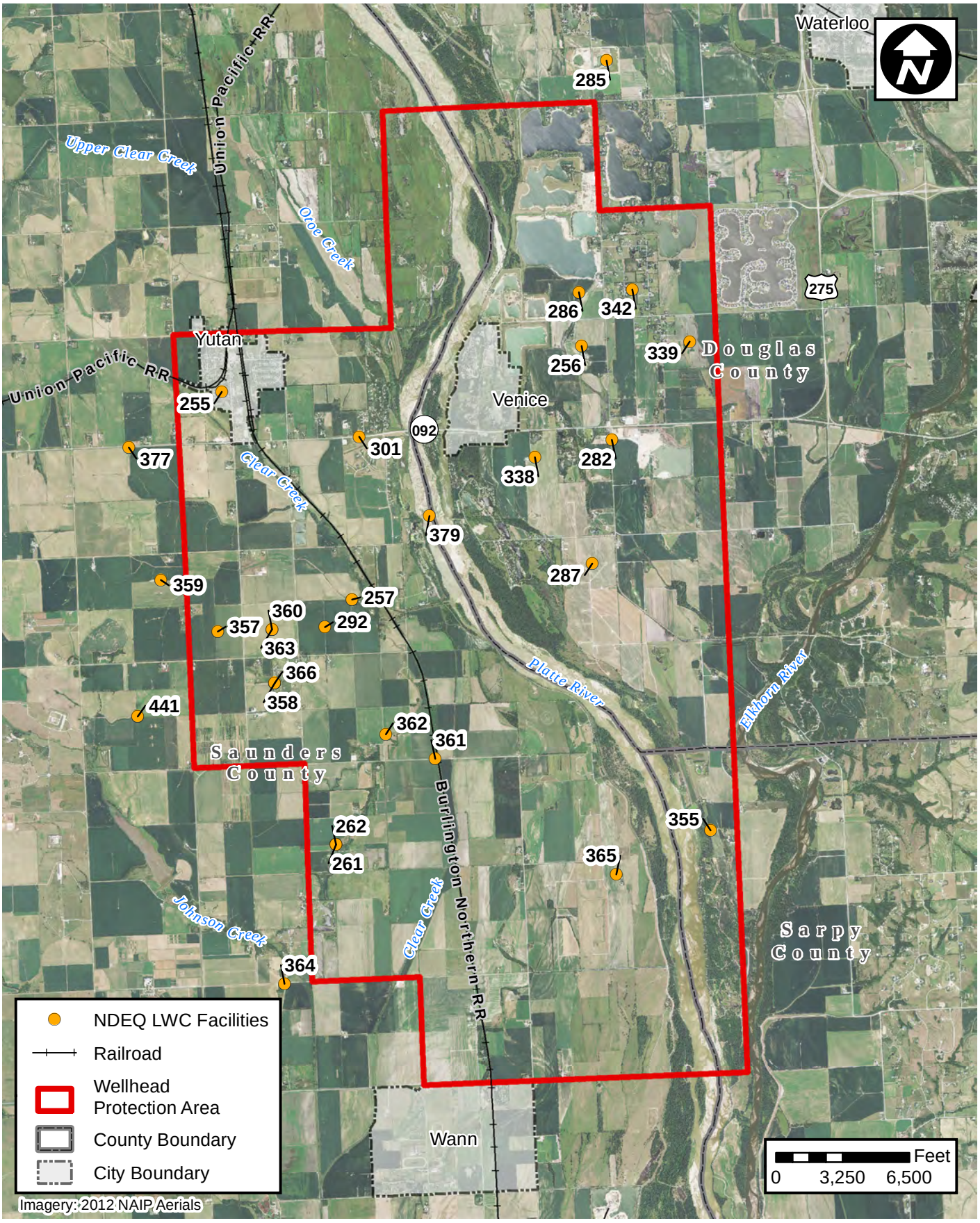

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Platte West Wellhead Protection Area
Livestock Waste Control Facilities

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FIGURE
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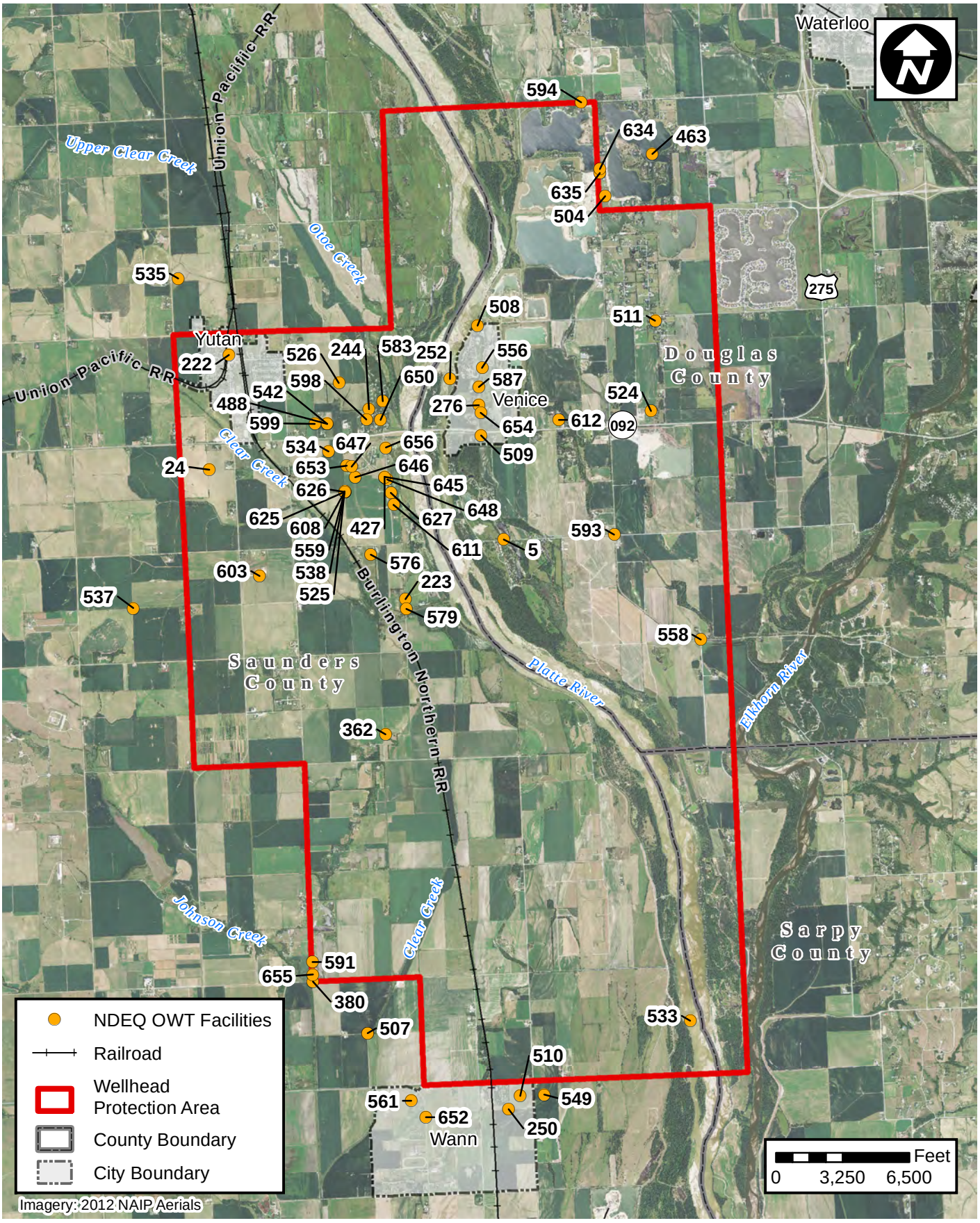

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Platte West Wellhead Protection Area
Onsite Wastewater Treatment Facilities

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FIGURE
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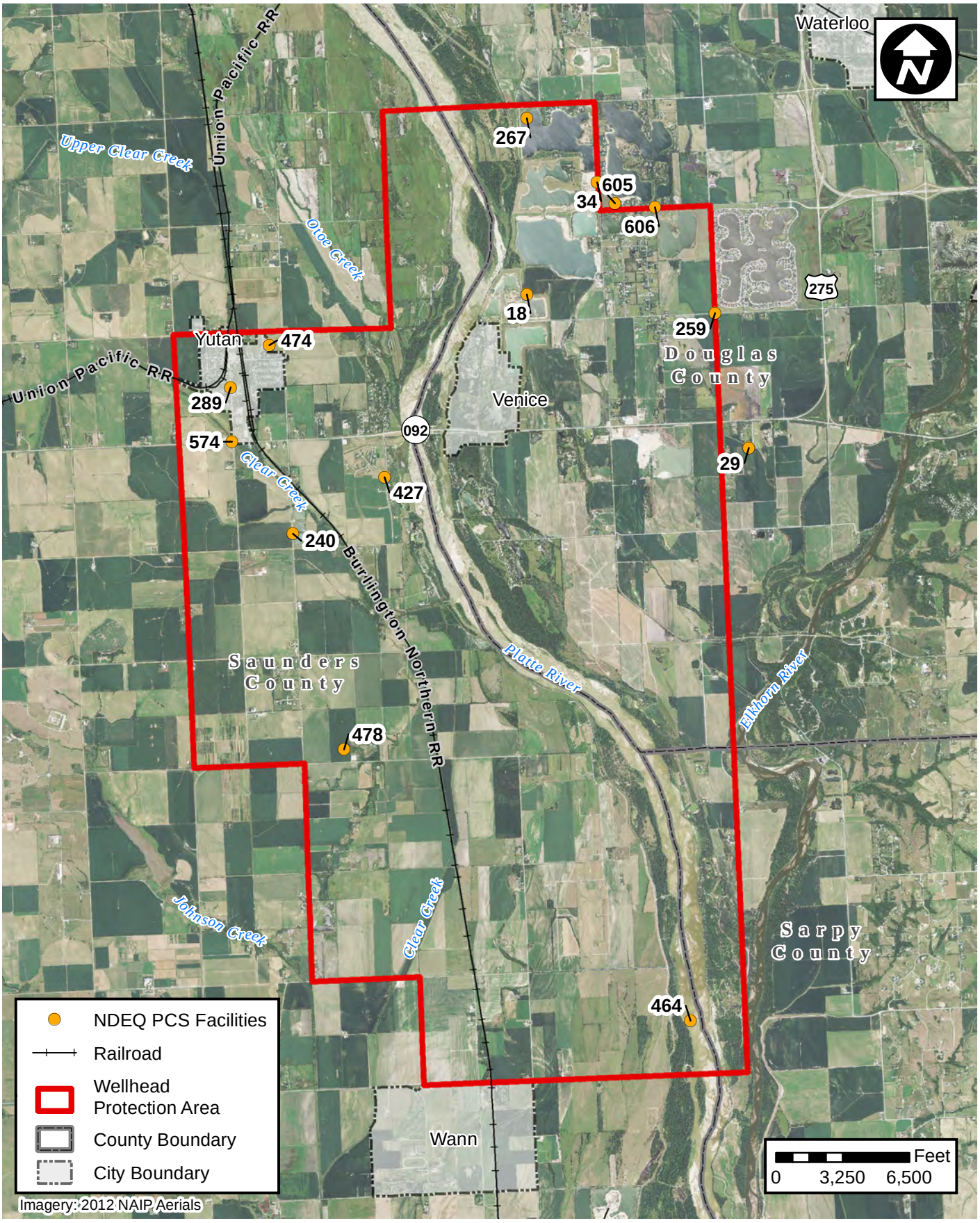

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Platte West Wellhead Protection Area
NPDES Permits and Compliance Facilities

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FIGURE
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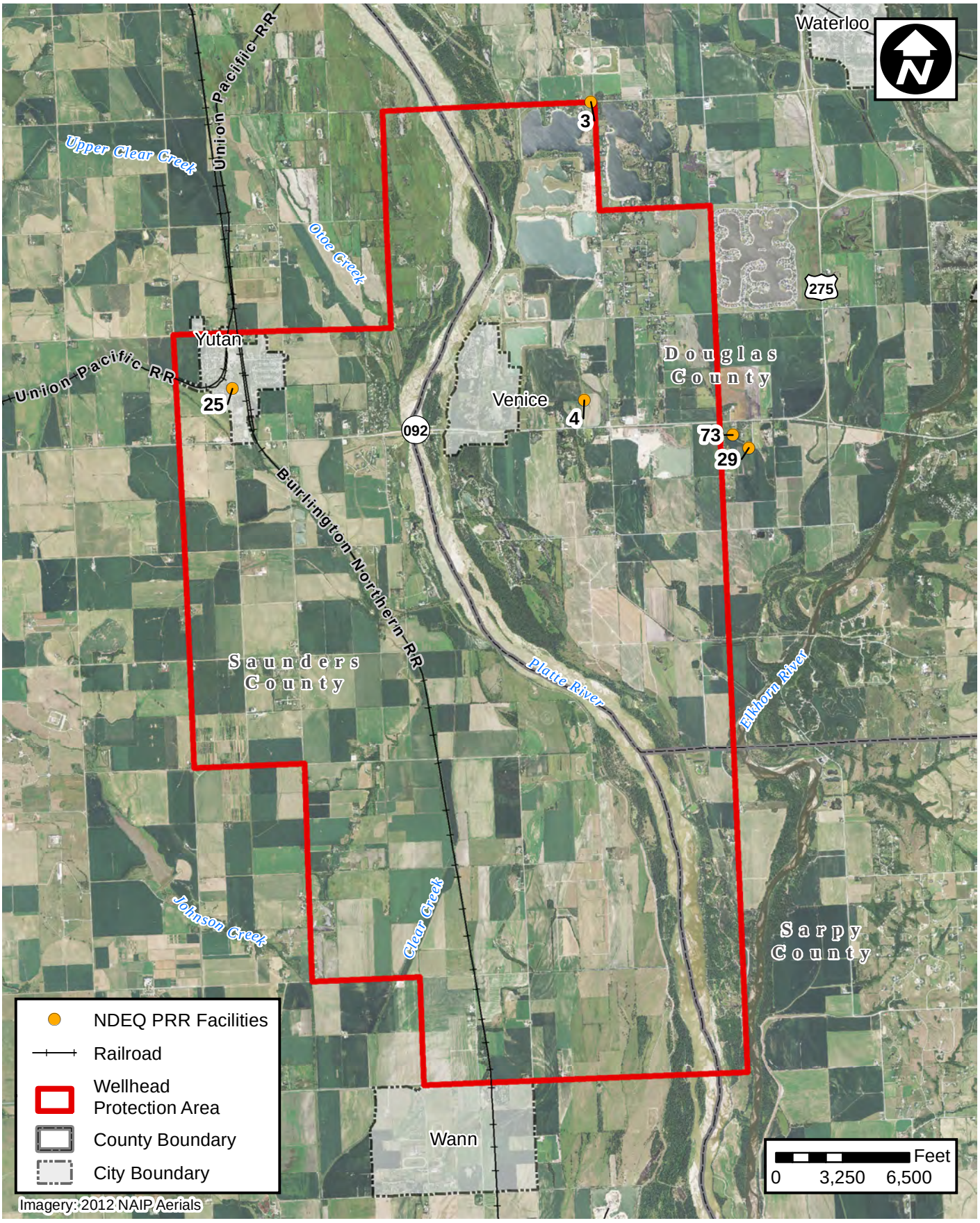

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Platte West Wellhead Protection Area
Petroleum Release Remediation Facilities

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FIGURE
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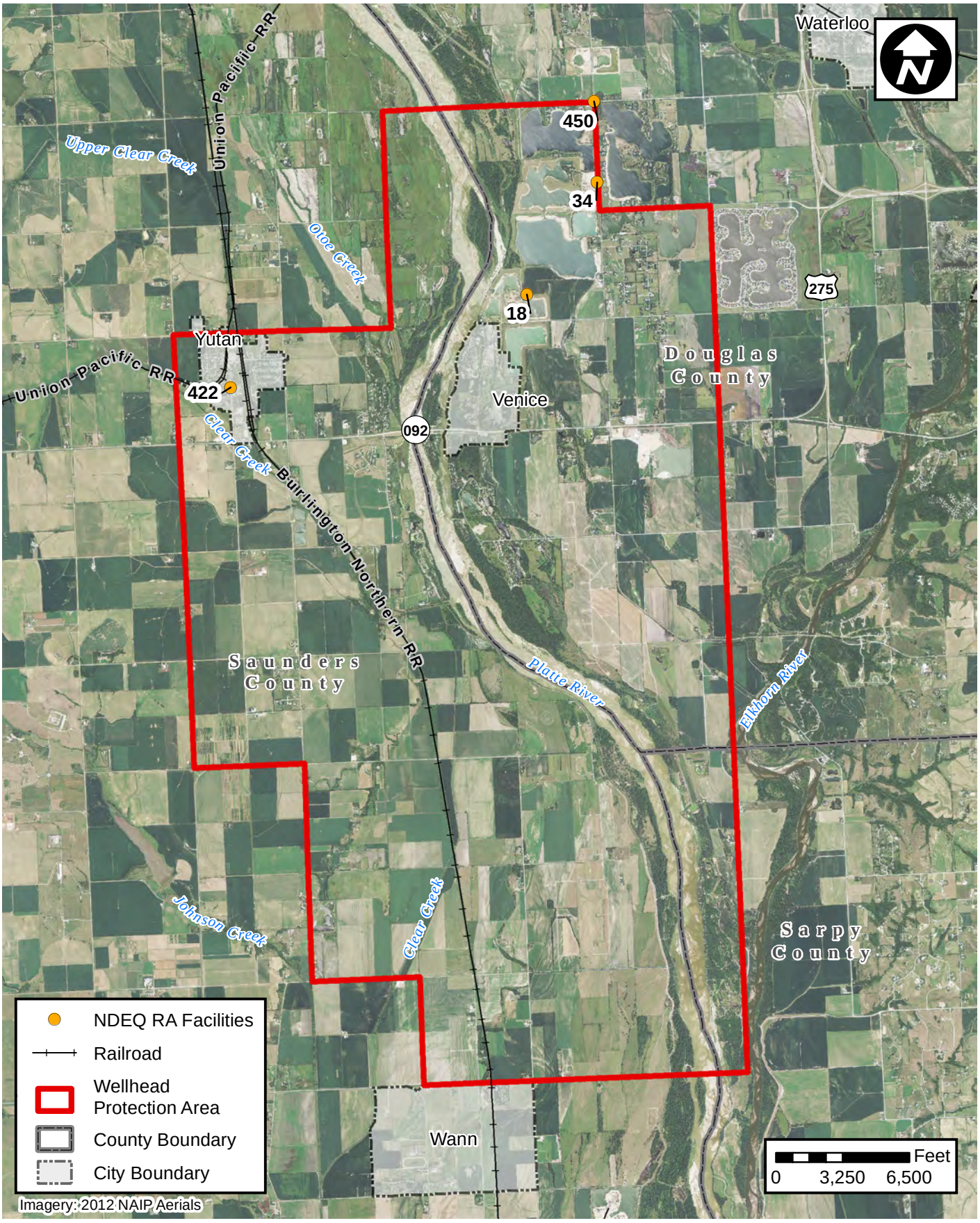

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Platte West Wellhead Protection Area Release Assessment Facilities

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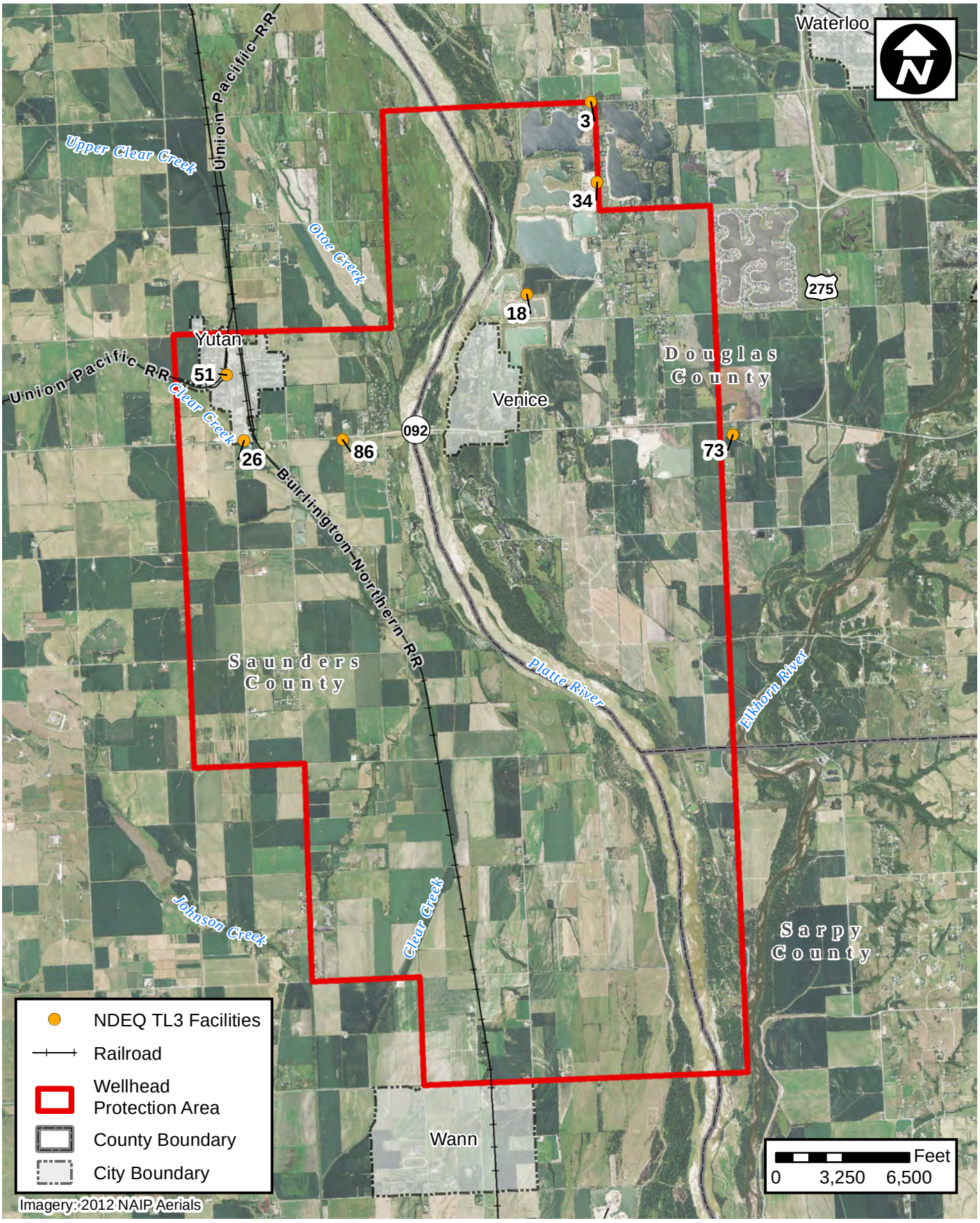
FIGURE
13



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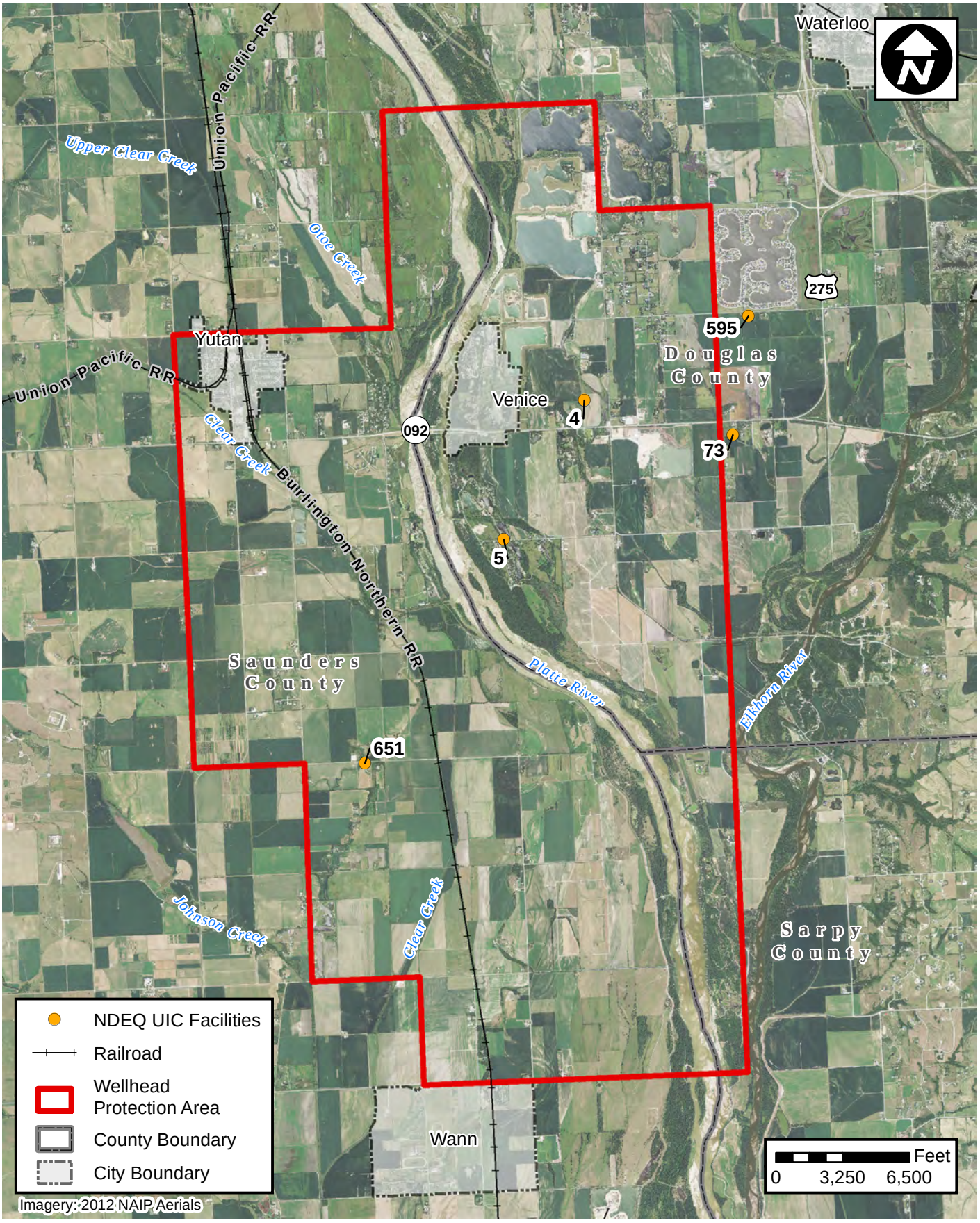
HDR

Platte West Wellhead Protection Area
SARA Title III Facilities

MUD Wellhead Protection Plans

DATE
May, 2013

FIGURE
14



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HDR

Platte West Wellhead Protection Area
Underground Injection Control Facilities

MUD Wellhead Protection Plans

DATE
May, 2013

FIGURE
15

TABLE 7: PLATTE WEST REGULATED FACILITIES

Platte West WHPA - NDEQ Regulated Facilities						
Record Number	**Facility Name**	**Address**	**City**	**County**	**ZIP Code**	**Registered Programs**
3	Mallard Sand and Gravel	26405 Blondo Street	Waterloo	Douglas	68069	LST, PRR, TL3
4	Merchant of Venice 66	26404 West Center Road	Waterloo	Douglas	68069	PRR, UIC
5	Trost Grain and Trucking	403 2nd Street	Yutan	Saunders	68073	AIR
5	Two Rivers State Recreation Area	27702 F Street	Waterloo	Douglas	68069	OWT, UIC
18	Lyman-Richey Sand and Gravel 48	27404 Pacific Street	Waterloo	Douglas	68069	AIR, IWM, PCS, RA, TL3
24	Yutan Country Club	1581 Yutan Road	Yutan	Saunders	68073	OWT
25	Yutan Public Schools	820 2nd Street	Yutan	Saunders	68073	LST, PRR
26	Cubby's	546 County Road M	Yutan	Saunders	68073	AIR, LST, TL3
29	Nielsen Construction Company	25005 West Center Road	Waterloo	Douglas	68069	LST, PCS, PRR
34	Lyman-Richey Sand and Gravel 40	910 North 264th Street	Waterloo	Douglas	68069	AIR, PCS, RA, TL3
38	Schulz Fertilizer and Grain Inc.	East Vine Street	Yutan	Saunders	68073	AIR
51	Windstream Communications	205 Oak Street	Yutan	Saunders	68073	TL3
73	Bill's Bait and Tackle	2703 South 252nd Street	Waterloo	Douglas	68069	LST, PRR, TL3, UIC
80	Yutan Oil Company	Junction of 2nd Street and Poplar Street	Yutan	Saunders	68073	LST
86	Omaha Public Power District Substation No. 983	Highway 92 East	Yutan	Saunders	68073	TL3
222	Trey Honke residence	1116 Ep Lane	Ashland	Saunders	68003	OWT
223	Todd and Ginger Graham acreage	437 Cannes Street	Yutan	Saunders	68073	OWT
240	Yutan Wastewater Treatment Facility	Junction of County Road 5 and County Road L	Yutan	Saunders	68073	AIR, PCS
244	Chris Brabec residence	1609 Windwillow Road	Yutan	Saunders	68073	OWT
250	Thomas Dasenbrock acreage	2325 Campanile Road	Waterloo	Douglas	68069	OWT
252	Robin Cornell residence	1909 Campanile Road	Waterloo	Douglas	68069	OWT
255	Charles Zaugg Livestock	1893 County Road 6	Yutan	Saunders	68073	LWC
256	Ham and Eggs Inc. East	1626 South 264th Street	Waterloo	Douglas	68069	LWC
257	Casey Schenck farm	441 County Road L	Yutan	Saunders	68073	LWC
259	West Shores Subdivision	Junction of South 252nd Street and Dodge Street	Waterloo	Douglas	68069	AIR, LST, PCS
261	Integrity Pork Inc.	1230 County Road 5	Ashland	Saunders	68003	LWC
262	Sandridge Feedlot	1230 County Road 5	Ashland	Saunders	68003	LWC
267	Lake Aero	26405 Blondo Street	Waterloo	Douglas	68069	LST, PCS
276	Garold Whaley residence	27370 West Center Road	Waterloo	Douglas	68069	OWT

Platte West WHPA - NDEQ Regulated Facilities						
Record Number	**Facility Name**	**Address**	**City**	**County**	**ZIP Code**	**Registered Programs**
282	Mallard Sand and Gravel Plant 06	26245 West Center Road	Waterloo	Douglas	68069	AIR, LWC
285	Gus Graske Livestock	2501 North 264th Street	Waterloo	Douglas	68069	LWC
286	Edward Andersen Livestock		Waterloo	Douglas	68069	LWC
287	Clarence Kahlandt Livestock	735 South 264th Street	Waterloo	Douglas	68069	LWC
289	Bull Run Subdivision	Hillside Avenue	Yutan	Saunders	68073	PCS
292	David Lutton farm	498 County Road K	Yutan	Saunders	68073	LWC
301	Pitzel Feedlot	420 County Road M	Yutan	Saunders	68073	LWC
338	William Trader Livestock	Highway 92	Waterloo	Douglas	68069	LWC
339	Omaha Public Schools farm	2304 South 258th Plaza	Waterloo	Douglas	68069	LWC
342	Bayse Poultry Farm	Junction of North 264th Street and Pacific Street	Waterloo	Douglas	68069	LWC
355	Don Feller and Sons	South 252nd Street	Gretna	Sarpy	68028	LWC
357	Ted Frye Livestock	1566 County Road 5	Yutan	Saunders	68073	LWC
358	Ed Knox Livestock	County Road 5	Yutan	Saunders	68073	LWC
359	W J Stamp Livestock	611 County Road L	Yutan	Saunders	68073	LWC
360	Ken Neff Livestock	Junction of County Road 12 and County Road K	Yutan	Saunders	68073	LWC
361	Bernie Gehl Livestock	County Road J	Yutan	Saunders	68073	LWC
362	Kenneth Mumm Livestock	448 County Road J	Ashland	Saunders	68003	LWC, OWT
363	Karloff Brothers	1354 County Road 5	Yutan	Saunders	68073	LWC
364	Kenneth Kirchmann Livestock	536 County Road H	Ashland	Saunders	68003	LWC
365	Marion Haldeman Livestock	189 County Road I	Ashland	Saunders	68003	LWC
366	Robert Geranis Livestock	Junction of County Road 5 and County Road K	Yutan	Saunders	68073	LWC
377	Charles Stepanek farm	653 County Road M	Yutan	Saunders	68073	LWC
379	Cain-Funk Game farm	West Center Road	Waterloo	Saunders	68069	LWC
380	Randy Jacobsen residence	1102 Ep Lane	Ashland	Saunders	68003	OWT
422	Randy Turner residence	411 5th Street	Yutan	Saunders	68073	RA
427	Estates Provence	Highway 92	Yutan	Saunders	68073	OWT, PCS
441	Heldt Cattle Field Feeding	621 County Road K	Yutan	Saunders	68073	LWC
450	Curtis Acres	Junction of North 264th Street and Blondo Street	Waterloo	Douglas	68069	RA
463	Bob Farmer residence	26170 West Dodge Road	Waterloo	Douglas	68069	OWT
464	Vencil's Island	Junction of Schram Road and 252nd Street	Ashland	Saunders	68003	PCS

Platte West WHPA - NDEQ Regulated Facilities						
Record Number	**Facility Name**	**Address**	**City**	**County**	**ZIP Code**	**Registered Programs**
474	Itan Parkview	Junction of Hillside Avenue and Itan Drive	Yutan	Saunders	68073	PCS
478	Omaha Public Power District Substation No. 6846	County Road J	Ashland	Saunders	68003	PCS
488	Osage Acres	Osage Road	Yutan	Saunders	68073	OWT
504	Chris Bober residence	605 North 264th Street	Waterloo	Douglas	68069	OWT
507	Greg Heldt farm	431 County Road H	Ashland	Saunders	68003	OWT
508	Vern Elske residence	1110 Campanile Road	Waterloo	Douglas	68069	OWT
509	Jane Juedes residence	27909 West Center Road	Waterloo	Douglas	68069	OWT
510	Jerry Richard residence	996 Wilson Avenue	Ashland	Saunders	68003	OWT
511	Lowell Blecke residence	1124 South 258th Street	Waterloo	Douglas	68069	OWT
524	Divine Mowing Service Inc.	26020 West Center Road	Waterloo	Douglas	68069	OWT
525	Dave Koelmel residence	1552 Provencal Street	Yutan	Saunders	68073	OWT
526	Randy Henke property	1617 Windwillow Road	Yutan	Saunders	68073	OWT
533	Al Dinzole residence	210 County Road G	Ashland	Saunders	68003	OWT
534	Alpine Homes residence	1540 Provencal Rue	Yutan	Saunders	68073	OWT
535	Brian Steinkruger farm	1750 County Road 6	Yutan	Saunders	68073	OWT
537	Charles McEvoy residence	670 County Road K	Yutan	Saunders	68073	OWT
538	Jay Warren property	418 Louvre Circle	Yutan	Saunders	68073	OWT
542	John Arensberg residence	400 Hedgewood Lane	Yutan	Saunders	68073	OWT
549	Dan Marchand residence	998 County Road 3	Ashland	Saunders	68003	OWT
556	Craig Farrell property	1775 Campanile Road	Waterloo	Douglas	68069	OWT
558	Ed Pesek property	25494 West Q Road	Waterloo	Douglas	68069	OWT
559	Bob Brau property	432 Avignon Street	Yutan	Saunders	68073	OWT
561	Shawn Sleezer residence	921 County Road 4	Ashland	Saunders	68003	OWT
574	Rocky Mountain Boulder Company	554 County Road M	Yutan	Saunders	68073	PCS
576	Dan and Melanie Miller residence	450 County Road L	Yutan	Saunders	68073	OWT
579	Todd and LuAnn Rannals acreage	County Road 4	Yutan	Saunders	68073	OWT
583	Tom and Dorothy Newell acreage	1592 Provencal Street	Yutan	Saunders	68073	OWT
587	R J Neary property	2080 Campanile Road	Waterloo	Douglas	68069	OWT
591	Randy Jacobsen property	1108 Ep Lane	Ashland	Saunders	68003	OWT
593	Bud Kester residence	4004 South 264th Street	Waterloo	Douglas	68069	OWT
594	Dave Vencil property	26515 Blondo Court	Waterloo	Douglas	68069	OWT
595	Chris Petersen residence	24801 Pacific Street	Waterloo	Douglas	68069	UIC
598	Mark & Molly Lloyd residence	1620 Eagle Drive	Yutan	Saunders	68073	OWT

Platte West WHPA - NDEQ Regulated Facilities						
Record Number	**Facility Name**	**Address**	**City**	**County**	**ZIP Code**	**Registered Programs**
599	Warren Digman property	1617 Osage Road	Yutan	Saunders	68073	OWT
601	Alan Neukirch acreage	466 County Road M	Yutan	Saunders	68073	IWM
603	Joe and Sherri Hallett acreage	531 County Road L	Yutan	Saunders	68073	OWT
605	Lee Seemann acreage	26230 West Dodge Road	Waterloo	Douglas	68069	PCS
606	Les Hellbusch residence	25840 West Dodge Road	Waterloo	Douglas	68069	PCS
608	Jerry Schuette acreage	427 Avignon Street	Yutan	Saunders	68073	OWT
611	Jim and Cathy Lundberg acreage	1534 Provencal Street	Yutan	Saunders	68073	OWT
612	Cottonwood Kennels Inc.	26910 West Center Road	Waterloo	Douglas	68069	OWT
625	Steve and Jill Ell acreage	1580 Saint Tropez Circle	Yutan	Saunders	68073	OWT
626	Roger Meisinger acreage	1579 Saint Tropez Circle	Yutan	Saunders	68073	OWT
627	James and Amy Tichota acreage	1548 Provencal Rue	Yutan	Saunders	68073	OWT
631	Lanoha Nurseries Inc.	Junction of Yutan Road and County Road J	Yutan	Saunders	68073	AIR
634	Zach Wiegert residence	919 North 264th Street	Waterloo	Douglas	68069	OWT
635	Ronald Nelson residence	809 North 264th Street	Waterloo	Douglas	68069	OWT
645	Kriss and Chris Downey acreage	414 Saint Tropez Circle	Yutan	Saunders	68073	OWT
646	Marcus Rabe acreage	1566 Avignon Circle	Yutan	Saunders	68073	OWT
647	Tracy and Karen Cogdill acreage	451 County Road J	Ashland	Saunders	68003	OWT
648	Jon and Addie Devish acreage	1526 Provencal Circle	Yutan	Saunders	68073	OWT
650	Jeff and Stephanie Henn acreage	1615 Riverview Road	Yutan	Saunders	68073	OWT
651	Tom Christopherson residence	419 Coyote Walk	Yutan	Saunders	68073	UIC
652	William Kirkpatrick acreage	974 County Road 4	Ashland	Saunders	68003	OWT
653	Tim Croshaw residence	322 Saunders Street	Ashland	Saunders	68003	OWT
654	Terry and Carol Widman acreage	628 County Road Q	Yutan	Saunders	68073	OWT
655	Trevor and Leah Wiskus acreage	438 Cannes Street	Yutan	Saunders	68073	OWT
656	Todd and LuAnn Rannals Cabin	1450 County Road 4	Yutan	Saunders	68073	OWT

AIR: Clean Air Act - Ambient air monitoring not associated with point sources, Emissions from point sources

IWM: Integrated Waste Management - Facilities for the disposal of municipal solid waste (landfills), Construction and demolition debris, fossil fuel ash, and industrial waste

LST: Leaking Storage Tank - Above or underground storage tanks of petroleum substances

LWC: Livestock Waste Control - Prevent the discharge of wastes from livestock operations to waters of the State

OWT: Onsite Wastewater Treatment - Any type of individual septic tank or domestic lagoons, Any facility that is not connected to a community wastewater treatment facility

PCS: NPDES Permits and Compliance - Discharge of monitored pollutants to waters of the State including wastewater treatment facilities for industrial or domestic wastewater, remediation wells, and discharge of cooling water. Construction sites with area 5 acres or larger

PRR: Petroleum Release Remediation - Petroleum release sites eligible for Title 200 reimbursement funds

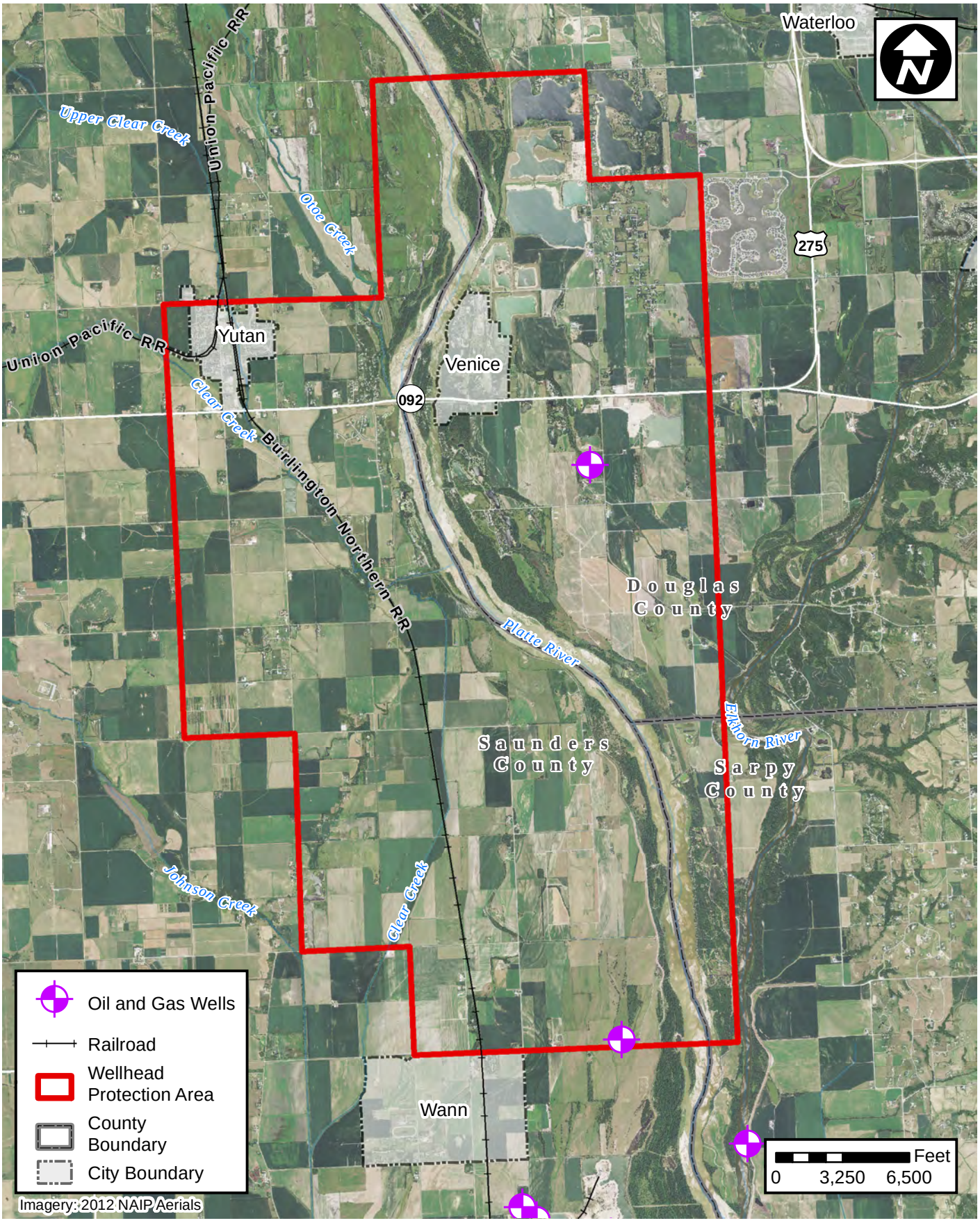
RA: Release Assessment - Notification of spills, leaks, and other environmental emergencies to provide technical assistance and regulatory oversight to those that pose an immediate hazard to either the environment or public health

TL3: SARA Title III - Voluntary reporting of hazardous chemical storage

UIC: Underground Injection Control - Septic tanks that handle things other than domestic waste (shop drains) or that are large capacity. Injection or discharge of monitored fluids into a well, including non-domestic wastewater and open loop heat pumps

4.3 OIL AND GAS WELLS

Oil and gas well data obtained from NOGCC database for Platte West WHPA is shown in Figure 16. Two dry holes were located within Platte West WHPA. These dry holes designate borings and not operational oil and gas wells.



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HDR

Platte West Wellhead Protection Area
Oil and Gas Wells (Dry Holes)

MUD Wellhead Protection Plans

DATE
May, 2013

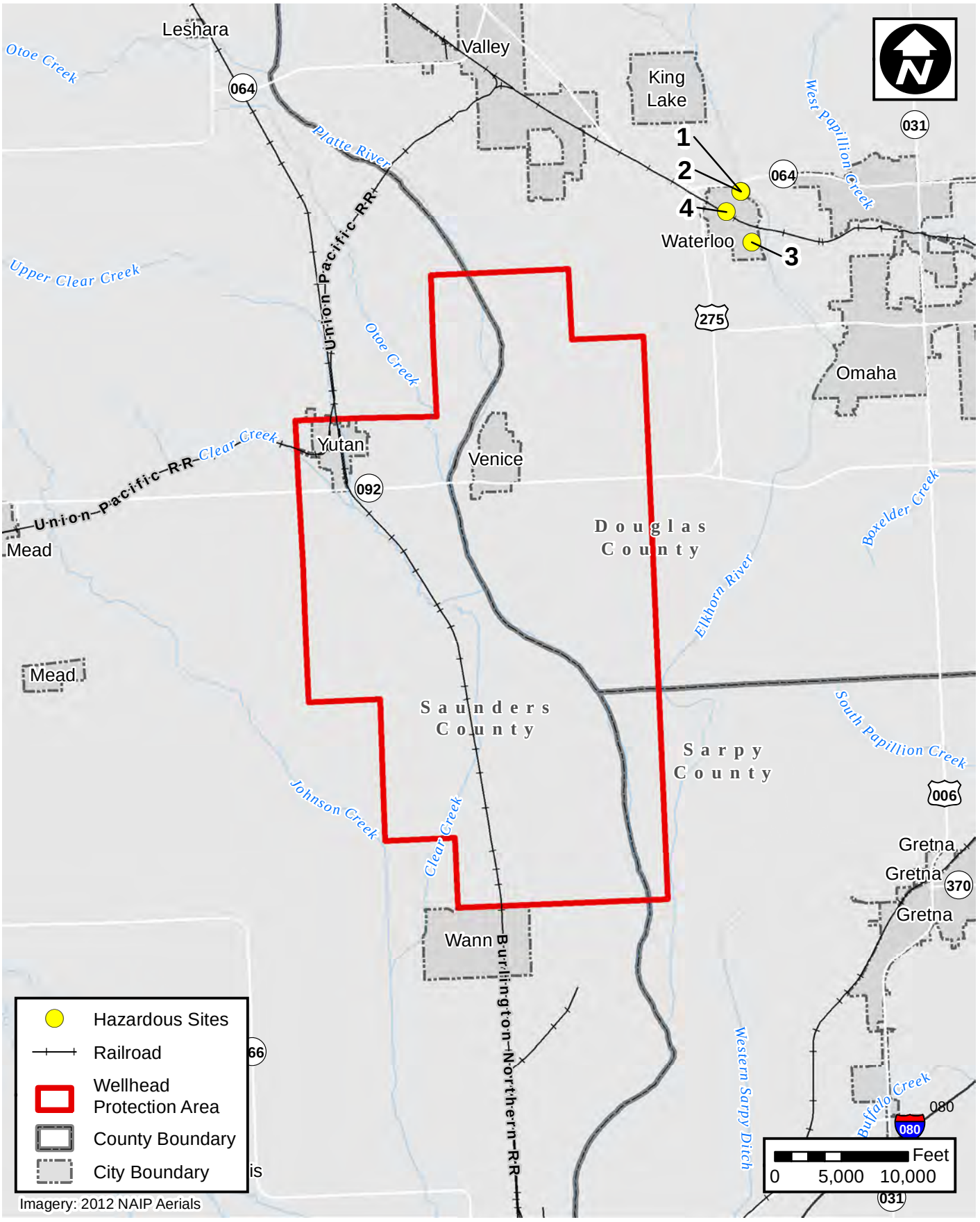
FIGURE
16

4.4 STATE FIRE MARSHAL REGISTERED HAZARDOUS SITES

Data obtained from the State Fire Marshal database for hazardous sites did not provide latitude and longitude coordinates, therefore the data plotted in GIS was conducted with use of the Geocoding function. This function plots the hazardous sites based on provided addresses of each facility found in the database. The plotted addresses may not be precisely located on the exact facility; therefore the points provided are estimations on the location of the actual facility. No State Fire Marshal hazardous sites were located within the Platte West WHPA; however four hazardous sites were located to the north-east of the WHPA, shown in Figure 17. Details for each of the sites located near Platte West WHPA are described in Table 8.

TABLE 8: PLATTE WEST STATE FIRE MARSHAL HAZARDOUS SITES

Record Number	Facility Name	Address	City	State	ZIP Code
1	Robinson Seed Company	100 JC Robinson Boulevard	Waterloo	NE	68069
2	Syngenta Seeds	101 JC Robinson Boulevard	Waterloo	NE	68069
3	Verizon Napoleon	2390 River Road Drive	Waterloo	NE	68069
4	Waterloo Fire and Rescue	4th and North Front Street	Waterloo	NE	68069



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HDR

Platte West Wellhead Protection Area
State Fire Marshal Hazardous Sites

MUD Wellhead Protection Plans

DATE
May, 2013

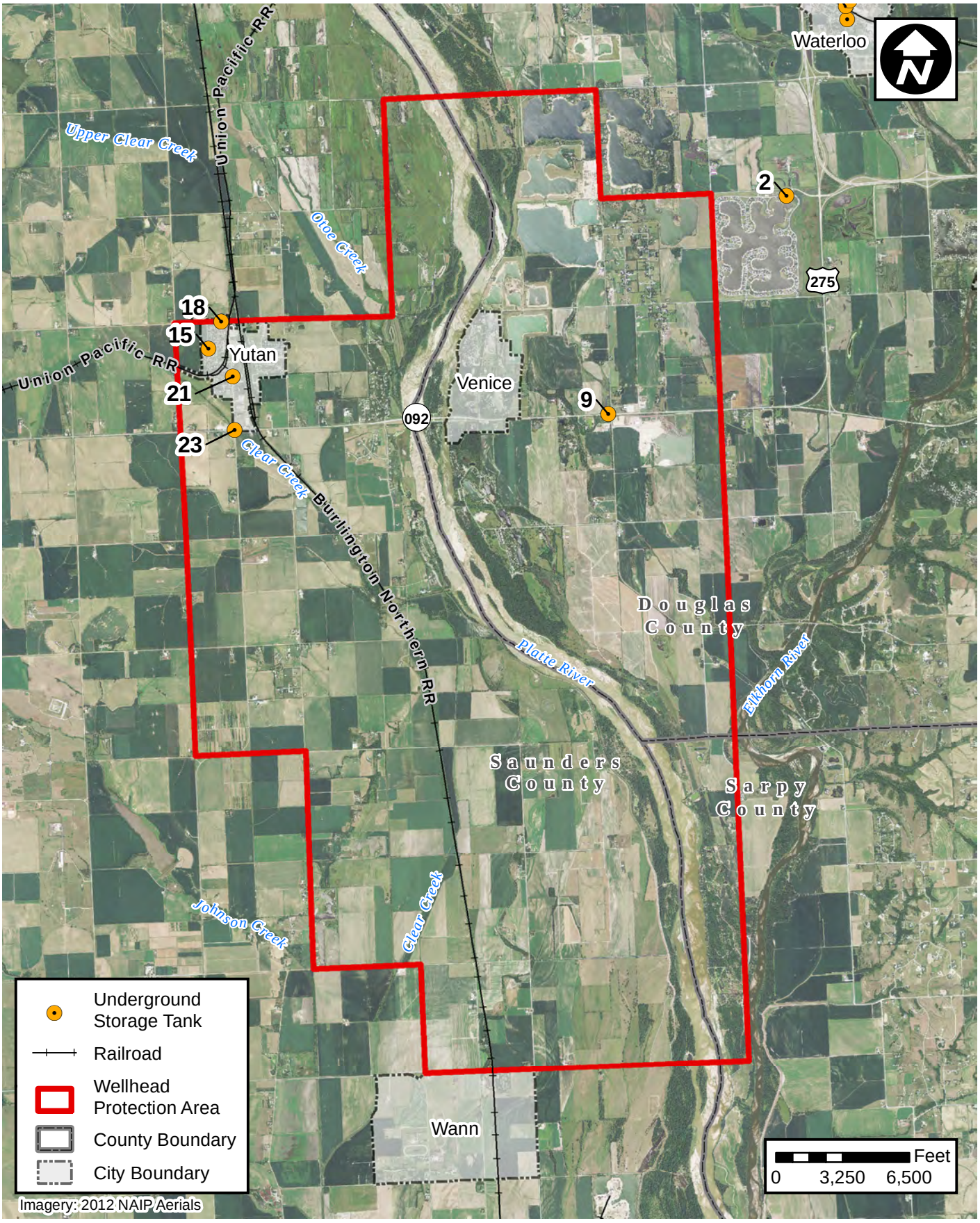
FIGURE
17

4.5 UNDERGROUND STORAGE TANKS

The database obtained from NDEQ for USTs was mapped for Platte West WHPA as shown in Figure 18. Data obtained for USTs did not provide latitude and longitude coordinates, therefore the data plotted in GIS was conducted with use of the Geocoding function. This function plots the USTs based on provided addresses of each UST found in the database. The plotted addresses may not be precisely located on the exact facility; therefore the points provided are estimations on the location of the actual USTs. Five USTs were located within Platte West WHPA and one more UST was found north-east of the WHPA. All tanks located within and near Platte West WHPA are described in Table 9.

TABLE 9: PLATTE WEST UNDERGROUND STORAGE TANKS

Record Number	Facility Name	Address	City	State	ZIP Code
1	Cihal Body Shop	204 Jefferson Street	Waterloo	NE	68069
2	Westshores Marina	24349 Chicago Street	Waterloo	NE	68069
3	Monke Bros. Fertilizer	301 North Front Street	Waterloo	NE	68069
9	Travis Merchants of Venice Corporation	26404 West Center Road	Waterloo	NE	68069
13	Stouffer Fence	302 3rd Street	Waterloo	NE	68069
15	Gilbert Speckmann	501 5th Street	Yutan	NE	68073
18	Kruse Transfer Inc.	306 Hillside Avenue	Yutan	NE	68073
21	Yutan Elementary School	820 2nd Street	Yutan	NE	68073
23	Cubby's Inc.	Highway 92 and Yutan Spur	Yutan	NE	68073



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HDR

Platte West Wellhead Protection Area
Underground Storage Tanks

MUD Wellhead Protection Plans

DATE
May, 2013

FIGURE
18

4.6 SURFACE WATER QUALITY

USGS has a stream gage located in the Platte River at Louisville, Nebraska (USGS 06805500). This gage has collected stream discharge data from June 1, 1953 to May 2, 2013. Collection of Nitrate data has been conducted at this gage from June 5, 2012, to May 2, 2013. Table 10 provides statistical data obtained from the gage for nitrates.

Another USGS stream flow gage is located upstream of the Platte West WHPA at Leshara, Nebraska (06796500). Water quality data was collected at this location by the USGS from 1994 to 2002. Comparing this data to the EPA Drinking Water Standards, all reported data regulated under the National Primary Drinking Water Standards were below maximum contaminant levels (MCLs).

TABLE 10: NITRATE LEVELS AT PLATTE RIVER GAGE AT LOUISVILLE

Nitrate plus Nitrite (mg/L as Nitrogen)				
USGS Gage	**Gage Number**	**Average**	**Maximum**	**Minimum**
Platte River at Louisville	6805500	0.849408	9.29	0

SECTION 5: MANAGEMENT STRATEGIES

A WHPP may not be successful unless local ordinances, county zoning, or voluntary activities within the WHPA are enacted. A management plan for the WHPA is designed to layout the framework for available options to help protect drinking water supplies. Some examples of management options include incentives to use agricultural BMPS and best management of the well field.

5.1 EXISTING WELL FIELD MANAGEMENT PRACTICES

Under most climatic and water demand conditions, the operating plan for well field is to simultaneously pump wells on both the Douglas County and Saunders County sides at an approximate distribution of 35 and 65 percent of total pumping, respectively. However, given the number of wells and the distribution of these wells, the well field can be managed to respond to a variety of different climatic and demand situations.

As stated in Section 1, the WHPP was not developed in response to any single specific issue. However, there are several parameters that are monitored that could impact the operation of the well field, including: low streamflow levels, changes in source water quality associated with spring runoff (such as an increase in nitrate or atrazine), and nitrate in groundwater. The following section explains what procedures are in place to monitor for these concerns and what can be done to address these concerns in the future.

5.1.1 Monitoring Stream Flow Conditions

MUD monitors the stream flow conditions in the Platte River by reviewing the instantaneous data available at several gages that are upstream and downstream of the well field. MUD provides funding assistance to USGS to ensure that these stream gages continue to remain available. The gages that are monitored by MUD include:

- 06796500 Platte River near Leshara, Nebraska (upstream of the well field);
- 06796550 Platte River near Venice, Nebraska (at the well field); and
- 06801000 Platte River near Ashland, Nebraska (downstream of the well field).

The stream flow conditions observed at these gage locations influence the operation of the well field. For example, during periods of sustained low flow in the Platte River, MUD can shift well pumping to wells that are located further from the Platte River in an attempt to preserve flow in the river. During periods of high river flow, MUD can shift pumping to wells near the river in an attempt to maximize infiltration.

5.1.2 Water Quality Monitoring

The quality of the source water entering the water treatment facility is monitored by testing the blended raw water as it enters the treatment facility. This monitoring is performed by MUD staff using an Enzyme-Linked Immunosorbent Assay (ELISA) testing method. The specific ELISA test method used by MUD is the triazine metabolite, which is an immunoassay for the quantitative and sensitive detection of diaminochlorotriazine and other triazine herbicide metabolites (of which atrazine is a member). The test is suitable for the quantitative and qualitative detection of these triazine metabolites in water samples.

Although the ELISA tests are triazine specific rather than atrazine specific, the ELISA test is used by MUD as a rapid screen test to determine if triazines are present in the raw water. During the spring planting season, which typically begins in April, MUD collects two samples per week from both the raw water intake and the finished water exiting the treatment facility.

The results of the tests are used to adjust the pumping distribution in the well field. For example, if triazine is detected in the raw water, pumping can be shifted from wells that are close to the river to wells that are further inland.

5.1.3 Well Field Operation

During times of average stream flow and river water quality conditions, the base well field production will typically be provided by the wells that are located closest to the river. This operational practice minimizes the drawdown induced in the aquifer as a majority of the water is derived from river bank filtration. The benefit to using this as the BMP of the well field is that it minimizes the water pumped from aquifer storage, leaving this water available for use during periods when the water quality in the river is less desirable.

During periods of undesirable water quality in the Platte River, the well field can be managed by shutting off wells closest to the river and shift to pumping from wells that are located farther from the Platte River; or MUD may completely shut down the well field and shift the water supply production to either or both the Platte South or Florence water treatment facilities.

5.2 EXISTING LAND USE CONTROLS

The communities and counties located within the Platte West WHPA control land uses with their adopted Comprehensive Plans and Zoning Ordinances. A list of the existing zoning controls in place within the Platte West WHPA is presented in Appendix A. No well head protection ordinances exist within the Platte West WHPA.

MUD cannot enforce or implement zoning. However, through partnerships with the local jurisdictions, an inter-local agreement can assist MUD and the jurisdictions with the enactment of a wellhead protection overlay zone or adjust current zoning to allow for oversight of activities in portions of the zoning jurisdictions of the communities and counties. An example of a well head protection ordinance is provided in Appendix B.

5.2.1 Natural Resource District Groundwater Management

The area of influence for the MUD Platte West well field is within the Lower Platte North (LPN) NRD and the Papio-Missouri River (Papio) NRD's jurisdictions. These NRDs have Groundwater Management Plans, which outline specific steps necessary to protect and enhance the resource.

Since 1985, the Lower Platte North NRD has been monitoring nitrate levels across the district. In certain areas of the district, nitrate levels have already exceeded the health standard of 10 parts per million, and in other areas contamination seems to be on the rise. This was the major impetus for the creation of the Ground Water Management Area in 1997.

Excessive nitrates in drinking water, often linked to irrigated row crop production, can endanger pregnant women and infants by interfering with the oxygen-carrying capacity of the blood. Some studies have also linked excessive nitrate consumption with increased incidence of gastrointestinal cancer, but these reports remain unconfirmed.

To help correct the rising nitrate levels in the groundwater, the LPN NRD has set requirements for producers who use fertilizer in the district. The MUD Platte West well field is within Phase I of the plan, which emphasizes education about fertilizer use.

The Papio-Missouri River NRDs Groundwater Management Plan focuses on maintaining the quantity and quality of ground-water in our area. This task includes:

- Testing the water of 100 wells for nitrates every five years

- Establishing management areas if the ground-water reservoir life goal can't be met
- Continuing to administer permits for chemigation (application of agricultural chemicals through irrigation)
- And evaluating the need of rural landowners for a dependable drinking water supply.

5.3 POTENTIAL FUTURE MANAGEMENT STRATEGIES

MUD can establish a comprehensive management strategy to layout the framework for on-the-ground actions to protect its drinking water source over the next 10 to 20 years. The ultimate goal of the management practice recommendations is to provide the community with the best possible management strategies, which are both implementable and protective of the water supply for the community. It is important to note that the management strategies outlined below, while endorsed by NDEQ, were developed based on the potential pollution sources identified through the potential contaminant source inventory, land use evaluation, and comments gathered through the community planning process.

Educational activities and voluntary approaches should be considered the core of the recommended management strategies for MUD's WHPP because these can be implemented now. Furthermore, even though MUD is owner and operator of the community water system, it does not have jurisdiction over all of the land identified in the WHPAs. Consequently, educational activities, inter-local agreements, and voluntary approaches offer the greatest potential for more immediate and successful plan implementation.

Management strategies outlined below are general in nature. Specific strategies should be developed on a case-by-case basis through working with the Wellhead Advisory Committee, the community, and the landowners.

5.3.1 Public Education –

MUD has provided education opportunities in the past and will continue to provide opportunities to educate all ages of citizens and property owners, in and around the WHPA, about the importance of source water protection. Public education efforts may include, but are not limited to**:**

- Focus groups
- Community workshops
- Press releases
- Distributing brochures
- School poster contests
- News/information articles
- Utility bill stuffers

Education opportunities could be on a variety of topics, such as:

- Proper animal waste handling
- Aquifer and groundwater basics
- Private well and lagoon management
- Urban and rural BMP practices

5.3.2 Wellhead Protection Area Signs

Once the WHPP is approved, MUD can post WHPA signs in the affected areas to alert property owners to the issues. These signs can be supplemented with information regarding the existing land use regulations and directing property owners to contact MUD.

5.3.3 Conservation Reserve Program

Agricultural producers with farmed land in a WHPA are eligible for increased payment amounts for enrolling land in the Conservation Reserve Program (CRP) when located in a WHPA. The local NRD and Natural Resources Conservatoin Service (NRCS) office will assist in this.

5.3.4 Best Management Practices

BMPs offer an effective prevention strategy or solution to a potential water quality challenge. Selection of the most appropriate BMP or combination of BMPs under a voluntary approach is each individual's decision.

Well decommissioning – If not properly sealed at the surface, water wells can become a conduit between surface water runoff and ground water. Financial assistance programs to ensure that wells are properly decommissioned are available through the LPN NRD and Papio Missouri NRD. There may also be assistance in the future through MUD.

Agricultural BMP – Incentives BMPs focus on management of agricultural inputs to provide for economic, environmental, and agronomic efficiency in agriculture. Implementation of BMPs will reduce the potential of contamination of the source water aquifer. The LPN NRD provides cost-share assistance to landowners for establishing a variety of agricultural related conservation practices such as:

- Construction of new terraces
- Irrigation Water Management
- Planned Grazing Management Systems – including: cross fencing, livestock water dugouts, livestock well installation, pumping plants for livestock wells, livestock water tanks, and livestock water pipeline installation)
- Windbreak Management
- Construction of sediment and water control basins
- Nitrogen Management
- Establish of warm and cool season grasses on crop ground

Urban BMP Incentives – MUD and the local NRDs could encourage residents to utilize incentives to adopt BMPs in the urban setting such as:

- Use of native plants in lawns and landscapes
- Recycling
- Soil sampling of lawns
- Mulching lawn clippings
- Rain barrels and rain gardens
- Household hazardous waste collection

SECTION 6: EMERGENCY AND CONTINGENCY PLANS

As described in Section 2, Omaha's MUD water system is now comprised of three treatment facilities: Florence Water Treatment facility, Platte South Water Treatment facility, and Platte West Water Treatment facility (see Figure 1). In total, these three facilities can produce up to 333 mgd of treated water supply to meet peak day demands. The source water for these three treatment facilities is approximately split in half between the Missouri and Platte rivers, minimizing the threat of a loss of supply should the supply from one river source be temporarily unavailable. The placement of the three water treatment facilities and their alternative water supply sources create a triangle of reliability for the District's water supply. The diversity of MUD's source of water supply provides a significant advantage to the District in its ability to use an alternative supply source in the event of an emergency in any one of the sources. This concept of the triangle of reliability, with varied sources of supply, is key in MUD's emergency and contingency planning. A description of those plans is provided below.

6.1 EMERGENCY PLANS

MUD's water operations emergency plan, including emergency contact sheets, was last updated in June 2012. The cover page for the emergency plan is located in Appendix C. Because of the sensitive security information in the emergency plan, a full copy of the plan is not included. In case of a water operations emergency at the Platte West Water Treatment facility, the proper personnel (as outlined in the emergency plan) will be contacted, an assessment of the problem will be conducted, and an isolation of the damaged facility or system will occur if necessary. Inspection of the site will determine the next step and what decisions may need to made according to the type of problem.

6.2 SPILLS

In the event of a spill of hazardous material into the Missouri River or Platte River above the MUD intakes, the spill procedure, located in Appendix D, should be followed. In general, one of the following agencies may notify the district:

- Omaha Public Power District
- U.S. Coast Guard
- U.S. Environmental Protection Agency
- USACE
- Nebraska State Health Department
- Nebraska Game and Parks Commission
- NDEQ
- Iowa Department of Natural Resources

The agencies will notify the Districts Communications Clerk, who will record the following information:

1. The type and quantity of material spilled, if known.
2. The location of the spill.
3. The time of the spill, if known.
4. The name, phone number, and agency of the person calling.

The District Communications Clerk will then immediately notify the facility Superintendent and the Vice President of Water Operations. In the absence of the Vice President of Water Operations, the District Communications Clerk will notify the Water Supply Engineer or other designated person in charge of

Water Operations. The Vice President of Water Operations, or designee, will notify the President and the Senior Vice President of Operations, if operation is affected.

Subsequently, the Vice President of Water Operations, or designee, will decide on an appropriate response. More information about the spill may be needed. Consultation with Water Quality or others may be needed. Actions may include observation of river conditions and raw water quality, additional treatment or temporarily discontinuing water intake. The Vice President of Water Operations will be responsible for appropriate communication regarding the situation and response.

The Vice President of Water Operations or the District Communications Clerk will notify the appropriate water treatment facility supervisor, the Director of Water Quality, the Safety and Security Office, and/or the Senior Communication Specialist.

6.3 OPERATIONS EMERGENCY PLANS

If a major emergency or disaster would cause curtailment of water from the facility, the duty operator will notify the facility Superintendent, the Vice President of Water Operations, and Systems Control. The Vice President of Water Operations will evaluate the problem and notify the Senior Vice President of Operations (if necessary). The Superintendent of the Platte West Water Treatment facility and/or facility foreman will report to the facility (if necessary).

A command room will be set up in the conference room. Additional help will be called in if phones are in service. Mobile radios will also be used to relay phone numbers and messages to people needed to report to work. Additional help could come from Water Distribution, Engineering, Platte South, Florence, the Maintenance Division, or the Construction Division.

6.3.1 Assessment of Problem

The Superintendent of the Platte West Water Treatment facility shall call in additional supervisors and operating personnel (if phones are available) to determine the extent of the damage. The personnel should be sent out in teams to evaluate the damage and report back to the command center. The command center leader (Superintendent of Platte West Water Treatment facility or Vice President of Water Operations) will report the following to District Management:

1. Nature and extent of damage
2. Estimated time to repair
3. Pumping capacity available
4. Need to curtail water pumpage
5. Support personnel and other resources needed for repair and clean-up
6. Applicability of the District's Water Conservation Plan

6.3.2 Isolation of Damaged Facilities

The Superintendent of the Platte West Water Treatment facility, Vice President of Water Operations, or other designated management, shall direct the isolation of affected area. The Superintendent of Water Distribution shall make personnel available for valve operation if needed. When affected areas have been isolated, the Superintendent of the Platte West Water Treatment facility, Vice President of Water Operations, Engineering, and possibly the Superintendent of Water Distribution, shall determine the type of repairs needed and provide people needed to complete repairs, etc. The Director of Water Quality should also be informed of the type of problems, and supply personnel for bacteriological testing, if it is determined to be necessary.

The command center personnel should keep management informed. The reports received by management from the command center should enable the following decisions to be made:

1. The need to curtail production
2. Notifying appropriate regulatory agencies
3. The need to isolate water in storage
4. News releases to the public

6.3.3 Chlorine or Ammonia Leak Emergency

A chlorine or ammonia leak emergency will be handled in accordance with the Chlorine and Ammonia Manual.

6.3.4 Flood Emergency

A flooding emergency within and around the Platte West well field will be handed in accordance with the Platte West Flood Emergency Response Plan in the Emergency Notification Procedures manual.

6.4 SUPERVISORY CONTROL AND DATA ACQUISITION EMERGENCY PLANS

If the emergency involves the Supervisory Control and Data Acquisition (SCADA) system, tele-communications or other circumstance where the operating center is usable for voice communications, the systems control area will be the command center.

If the Operating Center is unusable, the Command Center will be located at the Florence Water Treatment facility or other, suitable location. (It is assumed that if the operating center is unavailable, the dispatchers and others will be using the Platte West Water Treatment facility or the construction center.)

The Controller, Water Supply Engineer, or Vice President of Water Operations will be the coordinator.

6.4.1 Assessment of Problem

The coordinator will assess the problem and report to District Management the following:

1. Nature and extent of the problem
2. Estimated time to repair
3. Personnel and other resources needed for continued operation and repair
4. Need to notify the public of the problem
5. Need to notify appropriate regulatory agencies
6. Need for isolating water in storage

6.4.2 Emergency Operations

The coordinator will determine the need for manual operation of facilities and call out personnel such as off-duty operating personnel, electricians, instrument technicians, and others to manually operate key facilities. Repump stations should be put on automatic operation to the extent possible. The controllers will initiate manual recordkeeping of the system operation.

If the emergency operation is extended, dedicated telephone lines and a backup SCADA system will be installed at the command center. Note: A backup systems control center at Platte West Water Treatment facility will be operational in the future.

6.5 STANDBY CAPACITY DURING AREA-WIDE LOSS OF ELECTRICITY

The maximum facility standby production capacities are 60 mgd at Florence Water Treatment facility and 30 mgd each at Platte West and Platte South water treatment facilities, for a total of 120 mgd. With the largest unit (one Florence low service generator, reducing Florence production to 35 mgd) out of service, the total firm standby production capacity is 95 mgd.

MUD has 18 natural gas engine driven pumps with a total pumping capacity of 341 mgd.

TABLE 11: METROPOLITAN UTILITIES DISTRICT NATURAL GAS ENGINE DRIVEN PUMPS

Station	Name	Capacity
Walnut Hill	Pump #4	24 mgd
Turner Boulevard	Pump #2	25 mgd
132nd and Harney	Pump #3	10 mgd
132nd and Harney	Pump #4	10 mgd
36th and Edna	Pump #3	10 mgd
78th and Harrison	Pump #2	14 mgd
Rainwood	Pump #3	20 mgd
Skyline	Pump #Z2-3	25 mgd
Skyline	Pump #Z2-5	25 mgd
Skyline	Pump #Z2-6	25 mgd
Skyline	Pump #Z3-1	9.5 mgd
Skyline	Pump #Z3-3	9.5 mgd
Maple Road	Pump #3	6 mgd
Maple Road	Pump #4	8 mgd
Platte South	Pump #1	20 mgd
Platte South	Pump #3	20 mgd
Florence	Pump #5-7	60 mgd
Platte West	Generators	20 mgd

6.6 CONTINGENCY PLANS

MUD is fortunate to be located near two reliable sources of water; the Missouri and Platte rivers and gets about one-half of its production total from each river. The Florence Water Treatment facility, located on the banks of the Missouri River, has a capacity of 158 mgd. This is more than enough water to meet the

customers' average daily usage of 90 to 100 mgd. USACE regulates the Missouri River flow. The minimum sustained flow in the river is 8,000 cubic feet per second (cfs). At this rate, an amount of water equivalent to the 158 mgd facility capacity flows by MUD's intakes every 44 minutes. The Platte South Water Treatment facility is located in Sarpy County on the Platte River. While the Platte River is more susceptible to low flows caused by a drought, as long as there is some flow in the river, the facility can produce 60 mgd capacity. The Platte West Water Treatment facility is located in Douglas County with well fields along the Platte River in both Douglas and Saunders counties. The facility can produce 100 mgd capacity. The triangle of reliability created with the three MUD water treatment facilities relieves the overall reliance of supply water from only one source by allowing other treatment facility sources to supply water demands to customers if needed.

The chance of experiencing a long-term water shortage in MUD's water sources is remote, as the Platte and Missouri rivers are reliable long-term supplies. However, a possibility does exist for short-term water shortages. These could be drought-related, caused by limited facility or distribution system failures or due to any number of emergency situations. As previously described in the Emergency Plan, MUD's contingency for most short-term water shortages is to shift the water production to the facilities that are not impacted. For example, if a long drought impacts the Platte River, more water production will be produced at the Florence Water Treatment facility.

If water demands exceed available production for any reason, it may be necessary to implement water use restrictions as a contingency. The water conservation contingency plan relies on public education, system conservation measures (such as leak detection and accurate metering), and public alerts.

Some examples of pieces of the Public Education Plan include:

- Wise water use messages on customer bills and wise water use tips in customer newsletters.
- Wise water use messages on the on-hold customer voice message system.
- Sponsor a wise water use flower garden at the Village Pointe Shopping Center in conjunction with the UNL Extension Office and Master Gardeners.
- A Water Conservation section on MUD's website at www.mudomaha.com, which also includes wise water use tips, charts, statistics, and links to helpful resources.
- "Make Every Drop Count" rain gauges and moisture sensors are distributed to customers at community events.
- New customer booklet section with an extensive list of water conservation tips.

The water alert system part of the contingency plan is grouped into four levels, each imposing more restrictions than the last. The responsibility for calling for these alerts will be with the President and will be based on consultations with the Senior Vice President of Operations and with the Vice President of Water Operations. Once the decision has been made, it will be the responsibility of the Senior Vice President, Chief Customer Officer, and the Director of Corporate Communication to make the appropriate notification to the news media. The Water Conservation and Alert Plan is included in Appendix E, but the four levels are listed below.

- Level 1 Water Alert (Voluntary A Alternate Day Watering)
- Level 2 Water Alert (Voluntary No-Watering Days)
- Level 3 Water Alert (Mandatory watering restrictions)
- Level 4 Water Emergency (All non-sanitary, non-essential use of water must be discontinued.)

6.7 LONG-TERM PLANNING

With the most recent addition of the Platte West Water Treatment facility in 2008, a reliable supply of high quality drinking water can be provided to the Greater Omaha Area. The Platte West Water Treatment facility added 100 mgd of capacity to the existing 234 mgd capacity from the Florence and Platte South water treatment facilities and ensures that MUD will be able to meet the maximum daily water demand beyond the year 2030. The completion of the Platte West well field provided an alternative source of supply water to enhance system reliability. It decreases the overall reliance on the water supplied from a surface water intake located in the Missouri River to the Florence Water Treatment facility and the Platte River supply to the Platte South Water Treatment facility. These three treatment facilities form a triangle of reliability to provide drinking water to the area. At this time, no additional water supply sources are required to meet the needs within the MUD service area beyond the year 2030.

SECTION 7: PUBLIC EDUCATION AND NOTIFICATION

During the establishment of the Platte West WHPP, MUD identified key stakeholders that would be interested in the plan and established an Advisory Committee to provide input into the plan development. After two Advisory Committee meetings, MUD made the plan publicly available and collected comments and responded to questions from the general public about the plan. Appendix F contains additional Public Education and Notification materials.

7.1 METROPOLITAN UTILITIES DISTRICT PLATTE WEST WELLHEAD ADVISORY COMMITTEE

A seventeen-member Advisory Committee was established at the beginning of the plan development. Members of the Advisory Committee include representatives of Douglas County, City of Lincoln, Lower Platte North NRD, Papio-Missouri River NRD, Two Rivers State Recreation Area, Lyman-Richey Corporation, Western Sand and Gravel, Lower Platte River Corridor Alliance, City of Yutan, and Saunders County. The Advisory Committee was responsible for providing key input into the plan through their attendance and discussions at the two Advisory Committee meetings. Below is a brief summary of the two Advisory Committee meetings and a list of the members.

TABLE 12: METROPOLITAN UTILITIES DISTRICT PLATTE WEST WELLHEAD ADVISORY COMMITTEE

Title	First Name	Last Name	Company Name
Mr.	Phillip	Wenta	NEBCO
Mr.	Kent	Holm	Douglas County Planning Department
Mr.	Jerry	Obrist	City of Lincoln Water Department
Mr.	John	Miyoshi	Lower Platte North NRD
Mr.	Larry	Angle	Lower Platte North NRD
Mr.	Michael	Carrick	Two Rivers State Recreation Area
Mr.	Douglas	Cook	Douglas County Planning Department
Mr.	Steve	Huggenberger	City of Lincoln Water Department
Mr.	Bob	Roos	Lyman-Richey Corporation
Ms.	Meghan	Sittler	Lower Platte River Corridor Alliance
Mr.	Brian	Vencil	
Ms.	Carol	White	Lyman-Richey Corporation
Mr.	John	Winkler	Papio-Missouri River NRD
Mr.	Mike	Heldt	
Ms.	Dawn	Schmidt	City of Yutan
Mr.	George	Borreson	Saunders County Zoning
Mr.	Dave	Brakenhoff	Western Sand and Gravel, General Manager
Mr.	Brian	Buckingham	Western Sand and Gravel

7.1.1 Advisory Committee Meeting 1: April 17, 2013

The first Advisory Committee meeting was held to share the purpose and process of the WHPP. Project staff provided presentation that summarized the information that was currently available in terms of groundwater conditions and potential contaminants within the WHPA. Committee members were asked for their input in helping identify any additional locations with potential groundwater contaminants.

Advisory Committee members were invited to attend the second meeting where the draft WHPP was presented and discussed.

7.1.2 Advisory Committee Meeting 2: June 4, 2013

The second Advisory Committee meeting was held to present a draft version of the WHPP. Project staff provided a presentation that summarized the WHPP and requested input and formal comments from the Advisory Committee members. The comment period was held open until July 10, 2013. The comments provided by the Advisory Committee members were included in this document.

7.2 PUBLIC COMMENT PERIOD AND PUBLIC BOARD MEETING

Public comment on the WHPP was sought as part of the plan development. The plan was advertised on August 4, 2013, in a Sunday printing of the Omaha World-Herald. Communication regarding the availability of the plan was improved by including notification of the plan with MUD's July utility bill.

7.2.1 Public Comment Period: August 5, 2013

The plan was made available to the public on August 5, 2013, as an online document found on MUD's website.

(Placeholder for future summary of comments received)

7.2.2 MUD Board Meeting – Public Comment Received: September 4, 2013

The public was invited to attend a regularly scheduled MUD Board meeting on September 4, 2013, to hear discussion of the plan, ask questions, and provide comments.

(Placeholder for future summary of discussion and comments made)

SECTION 8: REFERENCES

Chatman and Associates, Inc. 2005. Phase II Platte West Well Field Groundwater Modeling Study. Metropolitan Utilities District. Platte West Well Field, Nebraska. Prepared for HDR Engineering, Inc. November.

McDonald, M.G. and Harbaugh, A.W. 1988. A Modular Three-Dimensional Finite-Difference Ground-Water Flow Model. U.S. Geological Survey, Techniques of Water-Resources Investigations of the U.S. Geological Survey, Book 6, Chapter A1.

Pollock, D.W. 1989. Documentation of Computer Programs to Compute and Display Pathlines Using Results from the U.S. Geological Survey Modular Three-Dimensional, Finite-Difference, Groundwater Flow Model. USGS Open File Report.

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APPENDIX A

Existing Zoning Controls

EXISTING LAND USE CONTROLS

Within the MUD's Platte West Wellhead Protection Area (as delineated by NDEQ) the Counties of Douglas, Sarpy, and Saunders, along with the City of Yutan have zoning controls within their adopted Comprehensive Plans and Zoning Ordinances. A summary of those zoning controls is presented below.

DOUGLAS COUNTY ZONING

4.12 AG Agricultural District

A. **Purpose**

> The AG Agricultural District applies primarily to areas that are unlikely to experience urban development. The likely long-term use of these areas is **agriculture, open space, or very low density development**. In addition, areas currently in agricultural or open space uses but designated for future development in the Comprehensive Plan should be retained in the AG District to prevent premature or inappropriate development.

The AG Agricultural District applies primarily to **areas that are unlikely to experience urban development**. The likely long-term use of these areas is agriculture, open space, or very low density development. In addition, areas currently in agricultural or open space uses but designated for future development in the Comprehensive Plan should be retained in the AG District to prevent premature or inappropriate development.

TABLE 4.2 – SITE DEVELOPMENT REGULATIONS

Regulator	1-Family Units	Other Permitted Uses
Site Area per Housing Unit	20 Acres	NA
Minimum Lot Area	20 Acres	20 Acres
Minimum Parcel Width (feet)*	300	300
Minimum Yards (feet) Front Yard Side Yard Street Side Yard Rear Yard	50 (Note 1) 15 25 35	50 25 25 35
Maximum Height (feet)	35	35; 50 for Farm Buildings, 100 for Grain Storage Structures
Maximum Building Coverage	Note 2	Note 2
Maximum Impervious Coverage	NA	NA
Maximum Amount of Total Parking Located in Street Yard	NA	NA

*amended March 18, 2008

Note 1: Front yard setback is measured from property line of platted lots. For unplatted parcels along roads, residential structures shall be set back sufficiently to allow for future right-of-way dedications. This setback is typically 75 feet from the center line of the adjacent road. The Zoning Coordinator may establish a different set-back requirement based on the specific context of a parcel. The reason for any such variation shall be documented in writing by the Zoning Coordinator.

Note 2: Farm building coverage up to 5% of total parcel area. Residential accessory building coverage up to 20% of the rear yard.

Note 3. Parcel Width shall mean the average horizontal distance between the side parcel boundary lines, measured at right angles to the parcel depth at a point midway between the front and rear parcel boundary lines. (amended March 18, 2008)

B. Additional Requirements

1. All new subdivisions and lots must comply with the Conservation Development Regulations in Article 7.

C. Exception for Farmstead Lots.

The intent of this exception is to allow a one-time split of a farmstead lot out of any qualifying parcel as of the effective date of these regulations.

1. Farmstead Lots must meet the following requirements:

a. The parcel of land before subdivision must be greater than 23 acres and the remaining parcel after subdivision must be greater than 20 acres; and,

b. The minimum lot area shall be three (3) acres in size; and,

c. The lot created shall meet the requirements as defined in the subdivision regulations.

d. A given parcel is restricted to one (1) farmstead lot split as of the effective date of the amendment. The remaining (20+ acres) parcel of land cannot have another farmstead lot split. The intent is to prevent creation of more than one farmstead lot out of any qualifying parcel existing as of the effective date of these regulations. At the discretion of the Zoning Coordinator, additional farmstead lot splits may be considered if structures related to the uses in part “e” exist, an individual well and septic already exist on the proposed lot (i.e. are in existence as of the effective date of these regulations), and the additional farmstead lot split(s) is/are done at the same time.

e. The primary use of the original parcel must be associated with crop production, animal production, or a commercial feedlot.

4.14 RR-2 District. Rural Residential with individual services

A. **Purpose**

Provides for the rural residential use of land, accommodating low density developments on individual wells and septic systems. The district also provides for previously platted acreage lots in (formerly) agricultural zone districts of between 3 and 20 acres in size that would be nonconforming as of the effective date of this regulation. TABLE 4.4 – SITE DEVELOPMENT REGULATIONS

Regulator	1-Family Units	Other Permitted Uses
Site Area per Housing Unit	3 Acres	NA
Minimum Lot Area	3 Acres	3 Acres
Minimum Lot Width (feet)	100	100
Minimum Yards (feet) Front Yard Side Yard Street Side Yard Rear Yard	50 25 25 35	50 25 20 35
Maximum Height (feet)	35	36
Maximum Building Coverage	Note 1	Note 1
Maximum Impervious Coverage	NA	NA
Maximum Amount of Total Parking Located in Street Yard	NA	NA
Project Size Requiring Planned Development District (PD)	NA	NA

Note 1: Residential accessory building coverage up to 20% of the rear yard.

Note 2. Subdivision of property for residential use is not allowed in the one half mile buffer zone around the active industrial waste monofill operation at the Douglas County RDF Landfill site, the industrial waste monofill site located south of the Douglas County RDF Landfill site permitted by Conditional Use Permit issued to Waste Management, and the Pheasant Point Landfill. (amended March 18, 2008)

B. Additional Requirements.

1. All new subdivisions and lots must comply with the Conservation Development Regulations in Article 7.

2. Currently platted lots, in existence as of the effective date of this regulation, are encouraged to use elements of Conservation Development if possible.

3. Open space requirements for new subdivisions (percentage of the development that must be dedicated open space and protected from future development)

For gross densities:

(i) 1 unit per 3 to 5 acres inclusive – 50%

(ii) Greater than 1 unit per 5 acres to 1 unit per 10 acres inclusive – 70%

(iii) Greater than 1 unit per 10 acres to 20 acres inclusive – 90%

SARPY COUNTY ZONING

SECTION 9 – AG - AGRICULTURAL FARMING DISTRICT (20 acres)

The **intent and purpose** of this district is for the conservation and preservation of the agriculture areas of the County and to retain its economic asset to the County.

9.1 PRINCIPAL PERMITTED USES

The following principal uses are permitted in the Agricultural District:

9.1.1 Agricultural, horticultural, viniculture, aquaculture, ranching and the usual agricultural buildings and structures associated with such uses.

9.1.2 Farm dwellings for the owners and their families, tenants, and employees.

9.1.3 Feeding and raising of livestock where a portion of the feed is raised and the feeding and raising is in the normal operation of an agricultural use.

9.1.4 Public utility main transmission lines or pipelines including substations, distribution centers, regulator stations, pumping stations storage, equipment buildings towers, or similar public service uses.

9.1.5 Public parks and recreation areas, playgrounds, forests and conservation areas. Private recreation areas and facilities, including lakes and ponds.

9.1.6 Personal use of Recreational Vehicles.

9.1.7 Religious facilities, including residences for religious leaders and teachers.

9.1.8 Roadside stands offering for sale agricultural products produced on the premises.

9.1.9 Single Family Dwellings

9.2 PERMITTED SPECIAL USES

The following special uses are permitted in the Agriculture Farming District with the issuance of a special use permit:

9.2.1 Automobile wrecking and junk yards provided the yards are at least 500 feet from a State or U.S. designated highway and screened by a wall at least 50 percent solid or uniformly painted solid fence not less than 6 feet in height with deciduous evergreen trees and large shrubs to provide a landscape screen at least 10 feet high.

9.2.2 Commercial feed lots for cattle, swine, poultry facilities, mink, fox, chinchilla, or similar farms.

9.2.3 Commercial recreational areas and camping areas including fishing lakes, gun clubs, rifle ranges, trap shoots, and similar uses.

9.2.4 Commercial fertilizer trailer tank farms.

9.2.5 Construction and demolition waste disposal sites.

9.2.6 Country clubs, golf courses, tennis clubs, and swimming clubs.

9.2.7 Extraction and processing of rock, gravel or sand, clay, and dirt.

9.2.8 Mobile homes with intermittent occupancy for recreational use only.

9.2.9 Nursing homes, cemeteries, and charitable institutions.
9.2.10 Open and enclosed storage of recreational vehicle and trailers; when recreational vehicles are stored in the open, the recreational vehicles must be operable.
9.2.11 Other agricultural wastes disposal and storage sites.
9.2.12 Private and commercial kennels and facilities for raising, breeding, and boarding of dogs and other small domestic animals, provided all buildings and facilities are at least 100 feet from any property line and 300 feet from any residential zoning districts.
9.2.13 Private small non-commercial air landing fields or strips.
9.2.14 Private schools, colleges and universities.
9.2.15 Publicly-owned and operated buildings and facilities such as community centers, auditoriums, libraries, museums, and privately owned non-commercial museums and historic areas.
9.2.16 Radio, television, and communication towers and transmitters
9.2.17 Sanitary sewage treatment facilities.
9.2.18 Sanitary landfills.
9.2.19 Seasonal dwellings.
9.2.20 Sludge disposal and storage sites.
9.2.21 In-home Child Care Facility
9.2.22 Wind Energy Generation Systems
9.2.23 Use of recreational vehicles in a commercial recreational or camping area
9.2.24 Home Occupations I (Major).

SAUNDERS COUNTY ZONING

Section 6.01. A-1 Agricultural District
6.01.01 Intent:
The intent of this district is:

1. To preserve areas best suited for agricultural uses of all types including feed lots and the commercial feeding of livestock and accessory uses.
2. To prevent the encroachment of uses which may be mutually incompatible, and
3. To continue to provide for agricultural uses as a major asset to the economy of the county.

6.01.02 Permitted Principal Uses and Structures
Uses within this section of the Resolution are permitted and allowed to exist upon the approval of a zoning permit from the County.

1. Agricultural uses and all associated buildings and structures, including the residences of the owners and their families and any tenants and employees who are engaged in agricultural operations on the premises, except that:
   a. All use of farm chemicals, including application of pesticides and herbicides, shall be governed by State Agencies and applicants using restricted-use pesticides shall be required to be certified as required by law.
   b. The spreading of manure by an LFO. (as defined in Article 2 of this Resolution)
   c. Agricultural operations not defined as a "Large CAFO" are permitted by right, provided other requirements in this district are met and submission of a no-fee livestock registration permit to the Zoning Administrator.
2. Mobile homes only when the land is used or intended to be used only for agricultural operations. All mobile homes require a special one (1) year conditional use permit which must be renewed annually and which shall be subject to the conditions of the permit.
3. Churches, seminary and convent.
4. Publicly owned and operated buildings and facilities such as community centers, auditoriums, libraries, museums
5. The sale and distribution of flammable or toxic materials
6. The sale and distribution of farm machinery.
7. Existing Farmstead on a tract as defined by natural boundaries such as wind breaks that has existed at least five (5) years prior to application; that has been lawfully occupied within the last twelve (12) month period; that has public access; approved access location and design and otherwise meets the requirements of the District.
8. Keeping of horse, cattle or other livestock but not as a farm or LFO, on tracts of 2 to 20 acres, provided:
   a. There are adequate and properly maintained buildings
   b. The buildings and the pasture shall be so located as not to be reasonably objectionable to the adjacent properties.
   c. Density of one animal unit per acre of usable pasture up to a total of five A.U.'s.
   d. Any individual owning a stallion(s) must maintain a suitable and safe enclosure that meets the following requirements:

   1) When not confined to a stall, all stallions will be contained within an enclosure that has its perimeter a fence which is 6 feet high with a hot wire around the top. Such a fence shall be maintained around the entire enclosure occupied by a stallion.

   2) For purposes of this regulation, a colt will be considered a stallion upon reaching 18 months of age.
   3) All horse owners and/or boarding facilities must comply with the requirements of this section by December 31, 2006. ***(AMENDED MAY 2, 2006 RESOLUTION # 23-2006)***
9. Single-family dwellings, provided that:
   a. the location contains a minimum of 20 acres on the site,
   b. There is a ¼ mile separation maintained from all medium and large CAFO's said ¼ mile separation can be waived when a dwelling is part of an existing operation.
   c. Single-family dwelling not on the owners property,
   d. The proposed location is along an improved county road, and

e. The maximum density of dwelling units is not more than one (1) dwelling unit per 20 acres of land within a particular section of ground

f. Exception to ¼ mile separation: Where a Single-family dwelling was pre-existing prior to the adoption of this Resolution and is on a pre-existing lot, a replacement dwelling may encroach upon the ¼ mile required separation.

6.01.03 Conditional Uses

The following uses are allowed only when Saunders County has determined that all the conditions for said use have been met and/or that the use presents no threat to the health, safety and general welfare of the general public and/or the natural environment.

1. Single family dwellings including those dwellings associated with farming operations, provided the following criteria are met:
   a. Each lot shall contain suitable soils for a state approved wastewater treatment system and an adequate, potable water supply or demonstrate the adequacy and suitability of shared facilities with an adjacent lot or lots.
   b. A site plan shall be submitted that designates a required location for each well and septic system.
   c. The dwelling shall be constructed on a minimum of three (3) acres of land, including the land to any section line.
   d. The maximum density of dwelling units is not more than one (1) dwelling unit per 20 acres of land within a particular quarter section of ground.
   e. All dwelling units shall have access to an improved county road.
   f. There is a ¼ mile separation maintained from all medium and large CAFO's said ¼ mile separation can be waived when a dwelling is part of an existing operation.
   g. The application shall show adjacent land uses and demonstrate such uses will not be seriously affected by the proposed application.
   h. The application shall be submitted to the affected school and fire districts, Sheriff and Highway Superintendent for review and comment on potential impacts and approved access location and design. The application shall not be approved if the applicant does not adequately resolve concerns.
   i. Where an acreage splits two ¼ sections the new tract will be assigned to the ¼ section where the majority of land lies. If acreage splits a ¼, the county shall declare which ¼ section it is to be assigned to.
   j. The ratio of lot depth width shall not exceed 4 to 1.
   k. Exception to ¼ mile separation: Where a Single-family dwelling was pre-existing prior to the adoption of this Resolution and is on a pre-existing lot, a replacement dwelling may encroach upon the ¼ mile required separation.
2. Farms for breeding, raising and sale of wild game, fish, or other animal or plant life
3. Publicly and privately owned parks, playgrounds, golf courses, forest and conservation areas, swimming pool, golf driving ranges, or other outdoor recreational areas such as campgrounds.
4. Public, parochial and private schools having similar curricula as public schools.
5. Railroads but not including depots, warehouses or offices
7. Private lakes, ponds, and outdoor recreation facilities
8. Stables and kennels and animal hospitals
9. Cemeteries
10. Keeping of horse, cattle or other livestock but not as a farm or LFO, on tracts of 2 to 20 acres, provided:
    a. there are adequate and properly maintained buildings
    b. The buildings and the pasture shall be so located as not to be reasonably objectionable to the adjacent properties.
    c. Density of one animal unit per acre of usable pasture for five animal units or more.
11. Communications stations and towers, provided that they shall not be closer to a dwelling or place of public assembly and that they shall be no closer to any property line, a distant equal to their height and that the height and location shall not interfere with the operation of any airport or landing strip, nor interfere with the radio, telephone or television receivers of adjacent properties. The county may require joint use of sites in order to avoid fragmentation of land.

12. Mining and extraction of minerals, water or raw material and the manufacturing, processing, treating and storing of mineral, water, or raw materials, which are extracted from any portion of the district shall include but not limited to the following conditions:
    a. located at least fifty (50) feet from the right-of-way line of any public road;
    b. That access to a public road shall not be situated in such a way as to cause real or potential traffic hazards;
    c. that such operation shall not be closer than five hundred (500) feet to any dwelling park or school;
    d. that one parking space for each employee plus one space for each company vehicle be provided;
    e. further as to water wells, no such well shall cause pre-existing subirrigated lands in the flood district (as defined by N.R.S. 46-656.07 (13) or a pre-existing wetland area (as defined by the Federal Emergency Management Agency Floodplain Management and Protection of Wetlands Regulations 44 CFR 9.4) from becoming a non-subirrigated or non-wetland area without an operation and maintenance plan which within one (1) year creates an equal or greater mitigating replacement subirrigated or wetland area in Saunders County as approved by the Saunders County Board of Supervisors;
    f. all other provision of Section 6.12 are met upon completion of any project;
    g. any application shall include an operation and maintenance plan;
    h. A plan for suitable reclamation shall be provide with the application that would return the land to a condition compatible with the surrounding area;
    i. These requirements do not apply to such agricultural activities as terracing, leveling or other minor grading activities but does apply to sale of soil, grading or spreading of stock waste or grading in a Flood District.
    j. The provision in this use shall not apply to the extraction of water that is used for agricultural purposes in Saunders County.
13. Airports and landing fields subject to review by the Federal Aviation Authority and/or the Nebraska Department of Aeronautics.
14. Public utility distribution systems, substations, terminal facilities and other essential facilities but not including equipment, storage or maintenance yards and building or general administrative and sales offices. Location, site layout, operating and maintenance plans shall be reviewed for conformity with the Comprehensive Plan and may be modified so as to conform to the intent of the plan.
15. Livestock Feeding Operation, as defined under "Large CAFO", provided that such use is located one quarter (1/4) mile from the nearest dwelling use other than that of the owner or operator of an agricultural operation.
16. Keeping of horse, cattle or other livestock but not as a farm or LFO, on tracts of 2 to 20 acres, provided:
    a. there are adequate and properly maintained buildings
    b. The buildings and the pasture shall be so located as not to be reasonably objectionable to the adjacent properties.
    c. Density of one animal unit per acre of usable pasture for five animal units or more.
17. Alfalfa mills.
18. Campgrounds
19. Home Business.
20. Sale and storage of farm chemicals, fertilizer and fuels, provided storage is located one-half (½) mile from the nearest residence *(***Amended February 6, 2007)*

21. Expansion of a nonconforming use and/or structure, provided the following:
    a. The reestablishment of the nonconformity is not harmful to any other use or environmental condition in close proximity to the requested use
    b. The nonconformity use will be reestablish at the original location
    c. The destruction or removal of the nonconformity was not willfully done by the applicant
22. Use of nonstandard lot of record. Where not otherwise prohibited, allow for conversion of publicly owned or used lots for single family dwelling.
23. Temporary uses of mobile home during construction of single family dwelling.

24. The spreading, stockpiling, or composting of dead livestock, sludge, by-products from manufacturing or any processing plant, and/or paunch manure on agricultural land by municipalities or operations inside or outside of the County.
25. The application of livestock manure in Saunders County by operations located outside the County shall require a conditional use permit.
26. Eating and drinking facilities ********(added June 28, 2005)*

6.01.04 Permitted Accessory Uses and Structures

1. Buildings and uses customarily incidental to the permitted and conditional uses.
2. Home occupation.
3. Off-street parking
4. Temporary buildings used in conjunction with construction work.
5. Private swimming pools, tennis courts, gardens and greenhouses.

APPENDIX B

Model Zoning Ordinance

State of Nebraska Well Head Protection Statutes and Model Well Head Protection Ordinance

WELLHEAD PROTECTION STATUTES

Below is a listing of Nebraska's legislature statutes that allow local jurisdictions to protect public health and safety. NDEQ administers the wellhead protection program and provides technical assistance to any controlling entity designating a wellhead protection area and adopting controls to limit potential threats to the public water supply. The Nebraska Rural Water Association also can assist with wellhead protection in Nebraska. State statues and laws are summarized below.

Sections 46-1501 to 46-1509 shall be known and may be cited as the Wellhead Protection Area Act.

46-1502 - Terms defined
For purposes of the Wellhead Protection Area Act:
(1) Controlling entity means a city, a village, a natural resources district, a rural water district, any other entity, including, but not limited to, a privately owned public water supply system, or any combination thereof operating under an agreement pursuant to the Interlocal Cooperation Act or the Joint Public Agency Act that operates a public water supply system;
(2) Department means the Department of Environmental Quality;
(3) Director means the Director of Environmental Quality; and
(4) Wellhead protection area means the surface and subsurface area surrounding a water well or well field, supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or well field.

46-1503 - Wellhead protection area; designation
Any controlling entity may designate a wellhead protection area and adopt controls pursuant to the Wellhead Protection Area Act for the purpose of protecting the public water supply system. The department shall provide technical assistance to any controlling entity designating a wellhead protection area and adopting controls pursuant to the act.

46-1504 - Wellhead protection area designation; controlling entity; duties
Any controlling entity proposing to designate a wellhead protection area and adopt controls shall:
(1) Designate the boundaries of the wellhead protection area following the procedure in section 46-1505. The wellhead protection area shall be based on all reasonably available hydrogeologic information on ground water flow, recharge, and discharge and other related information necessary to adequately determine the wellhead protection area for the purposes stated in this section;
(2) Identify within each proposed wellhead protection area all potential sources of contaminants which may have any adverse effect on the health of persons;
(3) Describe a program that contains, as appropriate, technical assistance, financial assistance, implementation of controls, education, training, and demonstration projects to protect the water supply within the wellhead protection area from such contaminants;
(4) Include contingency plans for the location and provision of alternate drinking water supplies for each affected public water supply system in the event of water well or well field contamination by such contaminants; and
(5) Propose the controls necessary to provide protection from contaminants which may have any adverse effect on the health of persons served by the public water supply system of each participating controlling entity.

46-1505 - Proposed wellhead protection area; public notice and comment
The controlling entity shall publicize proposed boundaries for the wellhead protection area and the proposed controls and shall provide time for public comment at one or more regularly scheduled public meetings of the governing board of the controlling entity. Notice of the time for public comment shall be published in conjunction with notice of such regularly scheduled meeting. A description of the proposed boundaries and the text of the proposed controls shall be available at the office of the controlling entity for thirty days before such meeting. Persons shall be given the opportunity to speak on the proposed designation and the proposed controls or to submit written testimony for consideration by the controlling entity.

46-1506 - Boundaries of wellhead protection area; designation; procedure

Within sixty days after the last time for public comment under section 46-1505, the controlling entity shall make a final designation of the boundaries of the wellhead protection area and the controls necessary to protect the water in the wellhead protection area and shall submit them to the director for approval or disapproval. Such approval shall be based on whether the boundaries of the wellhead protection area are reasonably defined, the controls are reasonably related to the purpose of ground water protection in the area, and such approval is in the public interest. The director shall act on the proposed designation of boundaries and proposed controls within ninety days after the date the proposals are received by him or her.

If the director approves the proposed boundaries and controls, he or she shall so notify the controlling entity, but the boundaries and controls shall not be deemed effective until the controlling entity has adopted such boundaries and controls by ordinance or resolution. If the director disapproves either or both of the proposals, he or she shall return the proposals to the controlling entity with an explanation of the reasons for such disapproval. The controlling entity may revise such proposed designation of boundaries and proposed controls and, after notice and hearing as provided for in the original proposed designation of boundaries and proposed controls, submit the revised proposed designation of boundaries and proposed controls to the director for approval or disapproval.

If the director does not act on either the original or revised proposed designation of boundaries and proposed controls within ninety days after submission by the controlling entity, the proposed designation of boundaries and proposed controls shall be deemed approved by the director.

46-1507 - Existing wellhead protection areas; effect of act

Any wellhead protection area established before July 15, 1998, by resolution or ordinance of the controlling entity need not be reestablished under the Wellhead Protection Area Act unless controls are proposed. If such controls are proposed, the controls and the boundaries of the wellhead protection area are subject to the requirements of sections 46-1504 to 46-1506. Any wellhead protection area purported to have been established before July 15, 1998, other than by official action of a controlling entity shall be null and void beginning nine calendar months after July 15, 1998, unless reestablished by resolution or ordinance of the controlling entity.

46-1508 - Designated wellhead protection area; boundary area changes

A designated wellhead protection area may be amended as to boundaries and controls as provided for in the initial designation of a wellhead protection area in the Wellhead Protection Area Act.

46-1509 - Environmental Quality Council; rules and regulations

The Environmental Quality Council shall adopt and promulgate rules and regulations to carry out the Wellhead Protection Area Act.

MODEL ZONING ORDINANCE

ORDINANCE NO. _____

AN ORDINANCE TO PROVIDE FOR A WELLHEAD PROTECTION ZONE FOR THE CITY OF _____, NEBRASKA IN _____ COUNTY, NEBRASKA PURSUANT TO SECTION 17-536 OF THE REVISED STATUTES OF NEBRASKA BY ESTABLISHING LIMITATIONS UPON THE LOCATION OF POTENTIAL SOURCES OF POLLUTION OR INJURY TO THE MUNICIPAL WATER SUPPLY; TO ESTABLISH RULES AND REGULATIONS DEFINING AND ENFORCING SUCH LIMITATION; TO PROVIDE PROCEDURES FOR IMPLEMENTATION OF RULES AND REGULATIONS; TO PROVIDE FOR REPEAL OF ALL ORDINANCES OR PARTS OF ORDINANCES IN CONFLICT HEREWITH; AND TO PROVIDE FOR AN EFFECTIVE DATE.

WHEREAS, Section 17-536 of the Revised Statutes of Nebraska provides that the jurisdiction of the City to prevent pollution or injury to the source of its water supply shall extend 15 miles beyond its corporate limits;

WHEREAS, Section 46-1503 of the Nebraska Wellhead Protection Area Act in the Revised Statutes of Nebraska provides that the City may designate a wellhead protection area and adopt controls pursuant to said Act for the protection of the public water supply system;

WHEREAS, pursuant to the Nebraska Wellhead Protection Act, Sections 46-1501 et. Seq. of the Revised Statues of Nebraska, the Mayor and City Council has adopted the _____ Wellhead Protection Plan;

WHEREAS, it is necessary to place limitations upon the location of potential sources of pollution or injury to the municipal water supply and groundwater within the Wellhead Protection Area and to prescribe rules and regulations with respect to such limitation and the enforcement thereof;

WHEREAS, based on data collected by the City, the Nebraska Department of Environmental Quality has conducted studies and prepared a map (Exhibit 1) reflecting recommended boundaries for the City of _____ Wellhead Protection Area;

WHEREAS, _____ County has no adopted zoning at the time of the enactment of this ordinance, this ordinance shall be precedent;

WHEREAS, the City of _____ intends to enforce wellhead protection regulations of the City to the extent of the boundary recommended by the Nebraska Department of Environmental Quality and has adopted a wellhead protection area map (Exhibit 1) as per Section _____ of the Municipal Code, as may be amended and which includes the following described real estate:

LEGAL DESCRIPTION:

NOW THEREFORE BE IT ORDAINED BY THE MAYOR AND COUNCIL OF THE CITY OF _____, NEBRASKA:

Section 1
The findings set forth above are hereby made a part of this ordinance as fully as if set out at length herein.

Section 2
Words or phrases used in this ordinance shall be interpreted so as to give them the same meaning as they have in common usage and so as to give this ordinance its most reasonable application.

Section 3
The area inside the bold lines on the attached map (Exhibit 1, _____ Wellhead Protection Area) and made part of this ordinance, shall be the official Wellhead Protection Area for the City of _____, Nebraska.

Section 4
It shall be unlawful for any person, other than the City of _____, to place, install, construct or replace any of the following structures or conduct any of the following activities and those listed in Section 82-201 of the Municipal Code which has be designated by the City as a potential threat to the water supply within the Wellhead Protection Area(s) without the proper permit from the City of _____, except as may be provided herein, to-wit:

Activity or structure:

1) Non-potable water well
2) Sewage lagoon, or sludge or livestock manure storage and stockpiling
3) Absorption or disposal field for water or waste
4) Cesspool (prohibited under NDEQ Title 124, Chapter 1, Section 032)
5) Dumping grounds
6) Feedlot or feedlot runoff, or manure application
7) Livestock Pasture or Corral
8) Pit toilet (prohibited under NDEQ Title 124, Chapter 1, Section 032
9) Sanitary landfill
10) Chemical or petroleum product storage
11) Septic tank
12) Sewage treatment plant
13) Sewage wet well (prohibited under NDEQ Title 122, Chapter 3, Section 005)
14) Sanitary sewer connection
15) Sanitary sewer manhole
16) Sanitary sewer line
17) OTHERS
    a. Potable water well
    b. Sandpoint well
    c. Feed mill
    d. Packing plant
    e. Fertilizer plant
    f. Anhydrous ammonia storage tank facilities or plants
    g. Fuel tank storage
    h. Gas Station
    i. Automotive service station
    j. Geothermal well and system

Section 5
The Department of Utilities and Public Works shall be responsible for implementation and enforcement of the rules and regulations established by this ordinance and shall consider all applications filed pursuant hereto. Such applications must be presented to the city council at any regular or special meeting. After reviewing the application of any person desiring to drill or operate any of the above-described facilities

within the designated area(s), the city council must approve or deny said permit. The City shall designate one of its employees as Wellhead Protection Administrator. This employee shall be charged with administration of the rules and regulations.

Section 6
The placing, installing, constructing or replacing of any structure or activity as set forth in Section 4 of this ordinance, hereinafter termed "wellhead structure or activity", within the Wellhead Protection Areas shall not be permitted after the effective date of this ordinance unless a permit, approved by the City Council, has been obtained. The owner of any wellhead structure or activity shall have the burden of establishing the existence and use of said wellhead structure or activity at the time of the effective date of this ordinance.

Section 7
No permit shall be issued by the City Council within the following setback distances from any City municipal water well:

ACTIVITY	MINIMUM DISTANCE (feet)
Non-potable and potable water well	1,000
Sewage lagoon, or sludge or livestock manure storage and stockpiling	1,000
Closed loop geothermal well	100
Absorption or disposal field for water or waste	500
Cesspool	Not allowed
Dumping grounds	500
Feedlot or feedlot runoff, or manure application	500
Livestock pasture or corral	500
Pit toilet	Not allowed
Sanitary landfill	500
Chemical or petroleum product storage	500
Septic tank	500
Septic tank (greater than1,000 gallons per day)	1,000
Sewage treatment plant	1,000
Sewage wet well	Not allowed
Sanitary sewer connection	100
Sanitary sewer manhole	100
Sanitary sewer line	50
Sanitary sewer line (water tight)	10

Any activity described above located within the defined setback distance shall be considered prima facie a hazard to the quality of the municipal water supply. Such distances will change automatically if said footages are revised as per Nebraska Statutes.

Section 8
For purposes of this ordinance, in the event conditions at an animal feeding operation, as defined by Title 130 of the regulations of the Nebraska Department of Environmental Quality, shows indication there is a high potential for waste discharge which may threaten the municipal water supply or groundwater, as determined by NDEQ, the city's permit for the operation shall be subject to revocation, unless the owner of the operation can provide evidence to the Department of Utilities and Public Works and City Council that the threat has been eliminated.

Section 9
Any wellhead structure or activity, not prohibited by Section 7 above, shall be allowed upon determination by City that such activity does not constitute a hazard or threat to the quality of the municipal water supply and upon issuance of a permit by the City.

Section 10
Prior to placing, installing, constructing, expanding or replacing any wellhead structure or activity, the owner of the real estate upon which the structure or activity is proposed shall file with the Administrator an application for a wellhead structure or activity permit. Said application shall be on a form furnished by the Administrator and shall include supporting information indicating why approval would not adversely impact the quality of the City's municipal water supply or groundwater. The Administrator shall thereafter submit the application to the City Council for consideration. Prior to acting upon such application, the City Council may refer back to the Department of Utilities and Public Works or may seek an engineering report, recommendations of the Lower Elkhorn Natural Resources District, the Nebraska Department of Environmental Quality or any other party or agency in evaluating the impact of the proposed structure or activity on the quality of the municipal water supply. A permit shall only be issued if it is determined the structure or activity is unlikely to contaminate or pollute the water supply. In the event that the wellhead structure or activity is closed for more than one year and re-opened, the owner-operator shall re-apply for a new permit.

Section 11
Wellhead structures or activities in existence and use in the Wellhead Protection Area as of the effective date of this ordinance shall continue to be permitted unless such continued existence or use, in the opinion of the Department of Utilities and Public Works, presents a hazard to the quality of the municipal water supply or groundwater. If the Department of Utilities and Public Works determines an existing wellhead structure or activity presents a water quality hazard, the Department of Utilities and Public Works shall authorize the Administrator to notify the owner of the structure or activity to cease and desist said structure or activity. If the owner of the wellhead structure or activity desires to continue operation of said structure or activity, the owner may seek to procure a permit pursuant to this ordinance. If the owner does not cease and desist pursuant to such notice, the Administrator may proceed pursuant to Section 12 of this ordinance against said owner and/or the wellhead structure or activity.

Section 12
Any person found violating any provision of this ordinance shall be subject to a fine not to exceed $100.00. The continuation of a violation of this ordinance shall be deemed an additional crime for every 24 hours of such continued violation. In addition, the City may obtain injunctive relief and sue for damages and remediation, and pursue any other remedy available to it under the laws of the State of Nebraska or other authority having jurisdiction over such matters. (Section 82-205 of the Municipal Code)

Section 13
Should any section, paragraph, sentence or word of this ordinance hereby adopted be declared, for any reason, to be invalid, it is the intent of the Mayor and City Council of the City of _____, Nebraska, that it would have passed all other portions of this ordinance independent of the elimination hereof of any such portion as may be declared invalid.

Section 14
All ordinances or parts of ordinances in conflict with the provisions of this ordinance are hereby repealed.

MODEL ZONING ORDINANCE

Note: this model ordinance intends to limit or prohibit specific uses and activities within a close proximity to a public well(s) providing potable water.

ORDINANCE NO. _____

AN ORDINANCE TO PROVIDE FOR A WELLHEAD PROTECTION ZONE FOR THE CITY OF _____, NEBRASKA IN _____ COUNTY, NEBRASKA PURSUANT TO SECTION 17-536 OF THE REVISED STATUTES OF NEBRASKA BY ESTABLISHING LIMITATIONS UPON THE LOCATION OF POTENTIAL SOURCES OF POLLUTION OR INJURY TO THE MUNICIPAL WATER SUPPLY; TO ESTABLISH RULES AND REGULATIONS DEFINING AND ENFORCING SUCH LIMITATION; TO PROVIDE PROCEDURES FOR IMPLEMENTATION OF RULES AND REGULATIONS; TO PROVIDE FOR REPEAL OF ALL ORDINANCES OR PARTS OF ORDINANCES IN CONFLICT HEREWITH; AND TO PROVIDE FOR AN EFFECTIVE DATE.

WHEREAS, Section 46-1503 of the Nebraska Wellhead Protection Area Act in the Revised Statutes of Nebraska provides that the _____ may designate a wellhead protection area and adopt controls pursuant to said Act for the protection of the public water supply system;

WHEREAS, pursuant to the Nebraska Wellhead Protection Act, Sections 46-1501 et. Seq. of the Revised Statues of Nebraska, the controlling entity has adopted the _____ Wellhead Protection Plan;

WHEREAS, it is necessary to place limitations upon the location of potential sources of pollution or injury to the municipal water supply and groundwater within the Wellhead Protection Area and to prescribe rules and regulations with respect to such limitation and the enforcement thereof;

WHEREAS, the Nebraska Department of Environmental Quality has analyzed available data and prepared a map (Exhibit 1) reflecting recommended boundaries for the City of _____ Wellhead Protection Area;

WHEREAS, the _____ intends to enforce wellhead protection regulations of the _____ to the extent of the boundary recommended by the Nebraska Department of Environmental Quality and has adopted a wellhead protection area map (Exhibit 1) as per Section _____ of the Code, as may be amended and which includes the following described real estate:

LEGAL DESCRIPTION:

NOW THEREFORE BE IT ORDAINED BY THE _____ OF _____, NEBRASKA:

Section 1
The findings set forth above are hereby made a part of this ordinance as fully as if set out at length herein.

Section 2
Words or phrases used in this ordinance shall be interpreted so as to give them the same meaning as they have in common usage and so as to give this ordinance its most reasonable application.

Section 3
The area inside the bold lines on the attached map (Exhibit 1, _____ Wellhead Protection Area) and made part of this ordinance, shall be the official Wellhead Protection Area for the City of _____, Nebraska.

Section 4
It shall be unlawful for any person, other than the _____, to place, install, construct or replace any of the following structures or conduct any of the following activities and those listed in Section _____ of the Municipal Code which has be designated by the _____ as a potential threat to the water supply within the Wellhead Protection Area(s) without the proper permit from the _____, except as may be provided herein, to-wit:

Activity or structure:

1) Non-potable water well
2) Sewage lagoon, or sludge or livestock manure storage and stockpiling
3) Absorption or disposal field for water or waste
4) Cesspool (prohibited under NDEQ Title 124, Chapter 1, Section 032)
5) Dumping grounds
6) Feedlot or feedlot runoff, or manure application
7) Livestock Pasture or Corral
8) Pit toilet (prohibited under NDEQ Title 124, Chapter 1, Section 032
9) Sanitary landfill
10) Chemical or petroleum product storage
11) Septic tank
12) Sewage treatment plant
13) Sewage wet well (prohibited under NDEQ Title 122, Chapter 3, Section 005)
14) Sanitary sewer connection
15) Sanitary sewer manhole
16) Sanitary sewer line
17) OTHERS
    a. Potable water well
    b. Sandpoint well
    c. Feed mill
    d. Packing plant
    e. Fertilizer plant
    f. Anhydrous ammonia storage tank facilities or plants
    g. Fuel tank storage
    h. Gas Station
    i. Automotive service station
    j. Geothermal well and system

Section 5
The _____ shall be responsible for implementation and enforcement of the rules and regulations established by this ordinance and shall consider all applications filed pursuant hereto. Such applications must be presented to the _____ at any regular or special meeting. After reviewing the application of any person desiring to drill or operate any of the above-described facilities within the designated area(s), the_____ must approve or deny said permit. The _____ shall designate one of its employees as Wellhead Protection Administrator. This employee shall be charged with administration of the rules and regulations.

Section 6
The placing, installing, constructing or replacing of any structure or activity as set forth in Section 4 of this ordinance, hereinafter termed "wellhead structure or activity", within the Wellhead Protection Areas shall not be permitted after the effective date of this ordinance unless a permit, approved by the _____, has been obtained. The owner of any wellhead structure or activity shall have the burden of establishing the existence and use of said wellhead structure or activity at the time of the effective date of this ordinance.

Section 7
No permit shall be issued by the _____ within the following setback distances from any _____ water well:

ACTIVITY	MINIMUM DISTANCE (feet)
Non-potable and potable water well	1,000
Sewage lagoon, or sludge or livestock manure storage and stockpiling	1,000
Closed loop geothermal well	100
Absorption or disposal field for water or waste	500
Cesspool	Not allowed
Dumping grounds	500
Feedlot or feedlot runoff, or manure application	500
Livestock pasture or corral	500
Pit toilet	Not allowed
Sanitary landfill	500
Chemical or petroleum product storage	500
Septic tank	500
Septic tank (greater than1,000 gallons per day)	1,000
Sewage treatment plant	1,000
Sewage wet well	Not allowed
Sanitary sewer connection	100
Sanitary sewer manhole	100
Sanitary sewer line	50
Sanitary sewer line (water tight)	10

Any activity described above located within the defined setback distance shall be considered prima facie a hazard to the quality of the municipal water supply. Such distances will change automatically if said footages are revised as per Nebraska Statutes.

Section 8
For purposes of this ordinance, in the event conditions at an animal feeding operation, as defined by Title 130 of the regulations of the Nebraska Department of Environmental Quality, shows indication there is a high potential for waste discharge which may threaten the municipal water supply or groundwater, as determined by NDEQ, the_____ permit for the operation shall be subject to revocation, unless the owner of the operation can provide evidence to the _____ and _____ that the threat has been eliminated.

Section 9
Any wellhead structure or activity, not prohibited by Section 7 above, shall be allowed upon determination by _____ that such activity does not constitute a hazard or threat to the quality of the municipal water supply and upon issuance of a permit by the _____.

Section 10
Prior to placing, installing, constructing, expanding or replacing any wellhead structure or activity, the owner of the real estate upon which the structure or activity is proposed shall file with the Administrator an application for a wellhead structure or activity permit. Said application shall be on a form furnished by the Administrator and shall include supporting information indicating why approval would not adversely impact the quality of the _____ water supply or groundwater. The Administrator shall thereafter submit the application to the _____ for consideration. Prior to acting upon such application, the _____ may refer back to the Department of Utilities and Public Works or may seek an engineering report, recommendations of the Natural Resources District, the Nebraska Department of Environmental Quality or any other party or agency in evaluating the impact of the proposed structure or activity on the quality of the municipal water supply. A permit shall only be issued if it is determined the structure or activity is unlikely to contaminate or pollute the water supply. In the event that the wellhead structure or activity is closed for more than one year and re-opened, the owner-operator shall re-apply for a new permit.

Section 11
Wellhead structures or activities in existence and use in the Wellhead Protection Area as of the effective date of this ordinance shall continue to be permitted unless such continued existence or use, in the opinion of the Department of Utilities and Public Works, presents a hazard to the quality of the municipal water supply or groundwater. If the Department of Utilities and Public Works determines an existing wellhead structure or activity presents a water quality hazard, the Department of Utilities and Public Works shall authorize the Administrator to notify the owner of the structure or activity to cease and desist said structure or activity. If the owner of the wellhead structure or activity desires to continue operation of said structure or activity, the owner may seek to procure a permit pursuant to this ordinance. If the owner does not cease and desist pursuant to such notice, the Administrator may proceed pursuant to Section 12 of this ordinance against said owner and/or the wellhead structure or activity.

Section 12
Any person found violating any provision of this ordinance shall be subject to a fine not to exceed $100.00. The continuation of a violation of this ordinance shall be deemed an additional crime for every 24 hours of such continued violation. In addition, the_____ may obtain injunctive relief and sue for damages and remediation, and pursue any other remedy available to it under the laws of the State of Nebraska or other authority having jurisdiction over such matters. (Section _____ of the Code)

Section 13
Should any section, paragraph, sentence or word of this ordinance hereby adopted be declared, for any reason, to be invalid, it is the intent of the _____and _____ of the _____, Nebraska, that it would have passed all other portions of this ordinance independent of the elimination hereof of any such portion as may be declared invalid.

Section 14
All ordinances or parts of ordinances in conflict with the provisions of this ordinance are hereby repealed.

Section 15
This ordinance shall be in full force and effect from and after its passage, approval and publication according to law.

PASSED AND APPROVED this _____ day of _____, 20__.

(Seal) _____, _____ COUNTY, NE

_____
Title

Attest:

_____
Clerk

APPENDIX C

Water Operations Emergency Plan

METROPOLITAN UTILITIES DISTRICT

OF OMAHA

WATER OPERATIONS

EMERGENCY PLAN

Limited Distribution
Contains Sensitive Security Information

June 2012

APPENDIX D

Spills into the Missouri or Platte River

Spills into the Missouri or Platte Rivers

In the event of a spill of hazardous material into the Missouri River above the District intakes or into the Platte River above the District, one of the following agencies may notify the District:

Omaha Public Power District
U. S. Coast Guard
U. S. Environmental Protective Agency
U. S. Army Corps of Engineers
Nebraska State Health Department
Nebraska Game and Parks Commission
Nebraska Department of Environmental Quality
Iowa Department of Natural Resources

The agencies have been instructed to notify the Communications Clerk on 402-504-7970. The Communications Clerk will record the information, including:

1. The type and quantity of material spilled, if known.
2. The location of the spill.
3. The time of the spill, if known.
4. The name, phone number, and agency of the person calling. THIS IS IMPORTANT!

The District Communications Clerk will immediately notify:

1. The Vice President of Water Operations:

In the absence of the Vice President of Water Operations, the Communications Clerk will notify the Water Supply Engineer or other designated person in charge of Water Operations.

The Vice President of Water Operations or designee will notify the President and the Senior Vice-President of Operations, if plant operation is affected.

The Vice President of Water Operations or designee will decide appropriate response. More information about the spill may be needed. Consultation with Water Quality or others may be needed. Actions may include observation of river conditions and raw water quality, additional treatment or temporarily discontinuing water intake. The Vice President of Water Operations will be responsible for appropriate communication regarding the situation and our response.

2. If directed by the Vice President of Water Operations, the Communications Clerk will notify the appropriate water treatment plant supervisor, the Director of Water Quality, the Safety and Security Office and/or the Senior Communication Specialist.

APPENDIX E

MUD Water Conservation and Alert Plan

Water Conservation and Alert Plan

METROPOLITAN
UTILITIES DISTRICT

Metropolitan Utilities District
Water Conservation Plan
September 2012

Goal

The goal of the Water Conservation Plan is to promote the wise use of water through public education programs, rate structure and operating plans and to assure our customers receive safe water in sufficient quantity and quality to serve their needs.

General Discussion

Our community is fortunate to be located near two reliable sources of water; the Missouri and Platte Rivers. M.U.D. has about one-half of our production total from each river. The Florence Water Treatment Plant, located on the banks of the Missouri River, has a capacity of 158 million gallons per day. This is more than enough water to meet our customers' average daily usage of 90 to 100 million gallons per day. The Corps of Engineers regulates the Missouri River flow. The minimum sustained flow in the river is 8,000 cubic feet per second. At this rate, an amount of water equivalent to the daily plant capacity flows by M.U.D.'s intakes every 44 minutes.

The Platte South Water Treatment Plant is located in Sarpy County on the Platte River. While the Platte River is more susceptible to low flows caused by a drought, as long as there is some flow in the river, the plant can produce near its 60 million gallons per day capacity.

The Platte West Water Treatment Plant is located in Douglas County with well fields along the Platte River in both Douglas and Saunders Counties. The plant can produce 100 million gallons per day capacity.

Water supplies are reliable. The chance of experiencing a long-term water shortage is remote. A possibility does exist, however, for short-term water shortages. These could be drought-related, caused by limited plant or distribution system capacities or due to any number of emergency situations. If water demands exceed available production for any reason, it may be necessary to implement water use restrictions.

M.U.D. must not lose sight of the fact that it does share the natural resources of the rivers with other users and there may be conditions in which the wise use of water would benefit those users. M.U.D. has and will continue to support all types of water conservation measures.

Benefits

There are many benefits that can be derived from the wise use of water both for M.U.D. and for our customers. Our customers benefit by receiving lower bills – the result of

using less water and possibly delaying capital expenditures. We all benefit by conserving natural resources and by having a safe, reliable supply of water to our community.

Public Education Plan

The Education Plan promotes the overall wise use of water and encourages water conservation during peak usage periods and will familiarize our customers with the Water Conservation Plan.

The audience for the Education Plan is residential, commercial and industrial customers, school-aged children, government officials, and regulators.

Specific items in the Public Education Plan include:

Wise water use messages on customer bills and wise water use tips in customer newsletters

Wise water use messages on our "on-hold" customer voice message system.

Sponsor a wise water use flower garden at the Village Pointe Shopping Center in conjunction with the UNL Extension Office and Master Gardeners.

A Water Conservation section on our website at *www.mudomaha.com*, which also includes wise water use tips, charts, statistics and links to helpful resources.

"Make Every Drop Count" rain gauges and moisture sensors are distributed to customers at community events.

New customer booklet section with an extensive list of water conservation tips.

Our Employee Speakers Bureau presented more than 100 programs during the past year, reaching nearly 200,000 members of the community through civic groups, schools, and water plant tours.

Through ESB, we have a water mascot called "Thirstin," to promote wise water use in classrooms and at community events.

For the 23rd consecutive year, we participated in the Annual "Eyes on Conservation" Water Festival, held in the spring at Schramm Park. The Festival attracts approximately 1,600 fifth grade students.

We distributed "Make Every Drop Count" water conservation wheels to people attending community events, such as World of Water! and the Omaha Safety Council Exposition.

We created two videos, “Trip Behind Your Water Faucet” and “Wise Use of Resources,” which include wise water use messages. These videos are used in Speakers Bureau presentations and copies were distributed to area libraries.

We have scheduled individual meetings with editors and reporters of the daily newspaper, two radio stations and four television stations so they could get to know our people and our operations. We also have given tours of our facilities, prior to any news event, for information purposes.

Water Conservation Measures

Since 1979, M.U.D.'s rate structure has been designed to encourage water conservation. During the summer months, when usage is at its peak, the majority of M.U.D.'s customers are under an increasing block rate structure. This type of rate encourages conservation by charging a higher rate as the water usage is increased. This is the most effective way of using rates to encourage water conservation.

M.U.D. has also created a separate rate category for customers with a high peak usage factor. Customers who use water for commercial and industrial sprinkling, lake-recharge and cooling pay a higher rate to help compensate for the increased peak load. This encourages these heavy users to pay closer attention to how often and when they use water.

M.U.D. has an understandable water bill with water consumption and cost clearly identified. We also have regular meter readings so seasonal use can be identified.

M.U.D. has universal metering including public use. Meters are regularly tested and calibrated, repaired, or replaced to maintain accuracy.

Water loss is minimized by regular leak surveys and leak repairs.

We utilize pressure management techniques including use of pressure reducing valves within selected areas of the water distribution system.

M.U.D. promotes landscape efficiency with projects such as the wise water use garden at the Village Pointe Shopping Center and other public education presentations.

We use supply side technologies such as chemical-efficient split treatment and natural gas energy management to reduce peak electrical demands.

We support demand side technologies by educating our customers about wise water use and supporting the use of water-efficient plumbing.

The responsibility for calling for these alerts will be with the President and will be based on consultations with the Senior Vice President of Operations and with the Vice President of Water Operations. Once the decision has been made, it will be the responsibility of the Senior Vice President, Chief Customer Officer and the Director of Corporate Communication to make the appropriate notification to the news media.

All of the following actions or restrictions may only be required in certain sections of the system, depending on circumstances. In this case the press releases will include a delineation of the restricted area.

Level 1 Water Alert (Voluntary Alternate Day Watering)

Trigger:

Water Consumption reaches 95% (about 300 million gallons per day) of available supply or system capacity, or any of the water storage reservoirs cannot be refilled from day to day, or low pressure jeopardizes fire fighting or causes numerous customer complaints.

Action:

The M.U.D. Director of Corporate Communication will issue a press release notifying the public that we are issuing the alert. The press release will include a basic list of water conservation tips.

M.U.D. will limit hydrant flushing and main filling, comply with alternate day water restrictions, and shut down decorative fountains at the Florence Plant and the Headquarters Building.

All customers will be asked to voluntarily adhere to alternate day watering. Customers will be asked to water no more often than every other day. If possible, customers should water every third or fourth day. Customers may use their own discretion regarding which days they water and which days they refrain from watering.

Customers will be told what to expect if a level 2 alert is issued.

All customers will be asked to voluntarily discontinue hosing down driveways, shut off decorative fountains, discontinue filling swimming pools, and other actions deemed appropriate by M.U.D.

The City of Omaha and other municipalities served by M.U.D. will be asked to voluntarily comply with alternate day watering restrictions, curtail sewer flushing, lake filling, fire fighting drills, street washing and other non-essential uses of water.

Enforcement:

There will be no enforcement at this level.

Level 2 Water Alert (Voluntary No-Watering Days)

Purpose:

Specified no-watering days will allow M.U.D. to fill the water system reservoirs.

Trigger:

Water Consumption reaches 95% of available supply or system capacity, or
any of the water storage reservoirs cannot be refilled from day to day, or
low pressure jeopardizes fire fighting or causes numerous customer complaints.

Action:

The M.U.D. Director of Corporate Communication will issue a press release notifying the public that we are issuing the alert. The press release will include a basic list of water conservation tips.

M.U.D. will limit hydrant flushing and main filling, comply with no-watering day restrictions, and shut down decorative fountains the Florence Plant and the Headquarters Building.

All customers will be asked to voluntarily discontinue all outdoor uses of water on specified days. The days will be determined by M.U.D. at the time the alert is issued. They will allow one full day after the press release for notification.

All customers will be asked to voluntarily discontinue hosing down driveways, shut off decorative fountains, discontinue filling swimming pools, and other actions deemed appropriate by M.U.D.

The City of Omaha and other municipalities served by M.U.D. will be asked to voluntarily comply with no-watering day restrictions, curtail sewer flushing, lake filling, fire fighting drills, street washing and other non-essential uses of water.

Enforcement:

There will be no enforcement at this level.

Level 3 Water Alert (Mandatory)

Trigger:

Water Consumption meets or exceeds available supply or system capacity, or useable water storage has been reduced 50%, or there are widespread pressure problems.

Action:

The M.U.D. Director of Corporate Communication will issue a press release notifying the public that the voluntary requirements of the Level 1 or Level 2 water alerts have become mandatory.

M.U.D. will stop hydrant flushing and main filling, comply with designated restrictions, including shut down decorative fountains at the Florence Plant and the Headquarters Building.

All customers will be required to adhere to watering restrictions.

All customers will be required to discontinue hosing down driveways, shut off decorative fountains, discontinue filling swimming pools, and other actions deemed appropriate by M.U.D.

The City of Omaha and other municipalities served by M.U.D. will be required to comply with watering restrictions, stop sewer flushing, lake filling, fire fighting drills, street washing and other non-essential uses of water.

Enforcement:

Customers who do not comply with the watering restrictions will be subject to having their water shut off until mandatory restrictions are lifted. The current turn-on fee will be charged to restore service.

Exceptions:

Circumstances sometimes dictate that customers must water on designated non-watering days. Exceptions may be made for new sod less than three weeks old and other circumstances deemed appropriate by M.U.D.

Level 4 Water Emergency (Water Quantity)

Trigger:

Water usage exceeds production or distribution capacity due to emergency situations.

Action:

The M.U.D. Director of Corporate Communications will issue a press release notifying the public that a Water Emergency is in effect.

All non-sanitary, non-essential use of water must be discontinued.

Enforcement:

Customers who do not comply with the watering restrictions will be subject to having their water shut off until the Water Emergency is lifted. The current turn-on fee will be charged to restore service.

Level 5 Water Quality Emergency

Trigger:

Water quality for human consumption cannot be assured due to a contamination or suspected contamination.

Action:

The M.U.D. Director of Corporate Communications will issue a press release notifying the public that the water cannot be consumed safely unless it is boiled or cannot be consumed safely at all. This will include water used in food preparation.

M.U.D., in cooperation with the State of Nebraska Health and Human Services Department, will take action to make the water safe for consumption and conduct tests to assure it is safe.

M.U.D. will issue a press release informing customers the water is now safe for consumption.

Enforcement:

None.

APPENDIX F

Public Involvement Materials

METROPOLITAN
UTILITIES DISTRICT

MUD Wellhead Protection Planning
Platte West Well Field – Advisory Group Meeting 1
Wednesday, April 17, 2013
Platte West Water Treatment Plant
21212 West Q Street, Omaha

7:00 pm – 9:00 pm

Attendees:

Dave Brakenhoff, Western Sand & Gravel Co.
Russ Iwan, MUD
Brian Buckingham, Western Sand & Gravel Co.
Jeff Ray, JEO
Ryan Chapman, NDEQ
Brian Henkel, P-MRNRD
Brian Vencil, Farmer/Landowner
Mike Heldt, Farmer/Landowner
George Borreson, Saunders County
Steve Huggenberger, City of Lincoln
Doug Cook, Douglas County
Carol White, Lyman-Richey Corp.
Mike Carrick, NGPC-2 Rivers State Park
Larry Angle, Lower Platte South NRD
Marlin Petermann, P-MRNRD
Kevin Tobin, MUD
Scott Keep, MUD
Joel Christensen, MUD
Luca DeAngelis, HDR
Stephen Sykes, HDR

Agenda:

I. Introductions of Project Staff
II. Introductions of Advisory Group
    a. Name
    b. Affiliation
    c. What you hope to get out of this process
III. Wellhead Protection Plan Presentation
    a. Goals of the Wellhead Protection Plan
    b. Stakeholder Engagement Process and Review of Advisory Group Involvement Expectations
    c. Role of the Advisory Group
    d. Provide input on the Plan
        i. If you have input, provide written communication to Luca DeAngelis (see below) by the end of April
IV. Next Meeting – Tuesday, June 4, 7:00 pm – 9:00 pm, same location
    a. HDR will present technical portions of the Plan
V. Questions/Closing Comments

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UTILITIES DISTRICT

Notes:

After a PowerPoint presentation by DeAngelis, the discussion was opened to the group for questions and comments on the Plan process and information gathered to date. (The PowerPoint accompanies these notes for Advisory Group members to use as a reference.)

- Petermann asked how surface water of the Platte affects groundwater in terms of this particular project. DeAngelis responded that this Wellhead Protection Plan is going to incorporate contingency planning for pollution from the river.
- DeAngelis mentioned that a draft Wellhead Protection Plan would be provided to this group prior to the Advisory Group meeting in June. The Plan will be available to the public in July for review. The Plan is scheduled to be reviewed by the MUD Board and approved at their Board meeting in August.
- A question was asked related to other wellhead plans that address agricultural chemicals such as nitrates; is there an issue with nitrates that we need to be concerned about? The general consensus from MUD, NDEQ, and NRD staff was that in some areas and at certain times of the year there are problems with water quality due to nitrates.
    - LPNNRD staff have offered to assist with low cost seed for winter crops to address spring fertilization runoff.
    - Chapman mentioned that they are working on areas with nitrate problems. NDEQ has a land use assessment program to understand if changing irrigation practices may help. A land use map could help the group better understand this.
    - Chapman asked if we can color code the regulated facilities to break the maps down further for the next Advisory Group meeting.
- Advisory Group members are not required to attend the MUD Board meeting, where the public is likely to comment, but all are welcome and encouraged to attend. MUD staff encourage Advisory Group members to act as representatives and community educators regarding the Wellhead Protection Plans.
- MUD staff encouraged all Advisory Group members to share their comments and concerns during this meeting so the Plan can represent all stakeholders.
- P-MRNRD and NDEQ staff indicated that there is assistance available to landowners for well decommissioning. MUD staff said that depending on scope and costs there may be assistance available from MUD. Chapman mentioned that state regulations related to well decommissioning may be changing soon and will likely make it more expensive to decommission in the future.
- During the planning and design phases for the Platte West Water facility there was extensive research into the locations of existing wells. Many abandoned wells were found in the project area. Chapman added that based on experience at NDEQ, there are likely twice as many abandoned wells compared to what the maps represent.
- The group discussion moved to potential state or local regulation as a result of the Wellhead Protection Plan development. Chapman explained that he doesn't see regulation coming from the State on these Plans. Rather, experience has shown that local entities have grouped together to establish an interlocal agreement or overlay. Chapman used the example of a mutually agreeable zoning overlay that addresses groundwater and wellhead protection

between three NRD's, four counties, and the city of Creighton, NE. Ray explained that a zoning overlay is adopted by the county and forwarded to the NRD's for support. Chapman added that Fremont has an overlay zone that addresses the number of feedlots allowed. Additional examples of overlay restrictions include restricting the depth of certain activities or development from groundwater levels. Chapman added that a housing development in Saunders County has language that requires the monitoring of potential wastewater leaks from the residential area that could impact the wellhead protection zone. Cook added that Washington County has wellhead protection plan zoning regulations in their code. Ray explained that in some counties there is language in their code that addresses the future establishment of protection areas.

- The Advisory Group discussed highway signs that read "Entering Groundwater Area." Chapman described the signs as good tools to raise public awareness of the potential impacts to groundwater supply areas. In the event of a hazardous spill on a roadway the signs can remind first responders that they need to contact NDEQ and any water providers in the area. There was general support for posting these signs once the Plan is adopted.
- Iwan mentioned that if Advisory Group members were interested there could be a brief tour of the water facility before the next meeting.
- White asked if a list of Advisory Group members can be sent out to group members. MUD staff responded that this is possible.
- Brakenhoff asked if there are any known negative impacts to ground water quality from their gravel operations or if there is an expectation of future setback requirements. Tobin said that MUD is not aware of any current challenges or any plans to change setback requirements.
- Regarding the boundaries of the wellhead protection zone, there was discussion related to how the area was established and whether NDEQ established the area. Chapman explained that the area has been defined for a few years based on the results of groundwater modeling and that NDEQ would consider adding or removing a segment of the proposed area if there was a compelling reason.
- Chapman suggested that the Plan describe MUD's surface water rights to help explain the distinction between groundwater resources and surface water resources.
- The meeting was ended with words of thanks and appreciation for the Advisory Group members' time and commitment to working with MUD on the development of this Plan.

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UTILITIES DISTRICT

MUD Wellhead Protection Planning
Platte West Well Field – Advisory Group Meeting 2
Tuesday, June 4, 2013
Platte West Water Treatment Plant
21212 West Q Street, Omaha

Plant Tour: 6:30 p.m. – 7:00 p.m.
Meeting: 7:00 p.m. – 9:00 p.m.

Attendees:

Dave Brakenhoff, Western Sand & Gravel Co.
Brian Buckingham, Western Sand & Gravel Co.
Brian Henkel, P-MRNRD
Brian Vencil, Farmer/Landowner
George Borreson, Saunders County
Bret Schomer, LPNNRD
Megan Sittler, LPRCA
Carol White, Lyman-Richey Corp.
Mike Carrick, NGPC-2 Rivers State Park
Marlin Petermann, P-MRNRD
Russ Iwan, MUD
Kevin Tobin, MUD
Scott Keep, MUD
Joel Christensen, MUD
Ryan Chapman, NDEQ
Luca DeAngelis, HDR
Jeff Ray, JEO
Stephen Sykes, HDR
Bob Roos, Lyman-Richey Corp.
Jerry Obrist, City of Lincoln-Lincoln Water System

Agenda:

I. Introduction of Project Staff
II. Introduction of Advisory Group
    a. Name
    b. Affiliation
III. Discuss Wellhead Protection Plan
    a. Provide input on the Plan - If you have comments or other input; please provide written communication to Luca DeAngelis by June 18.
IV. Questions/Closing Comments

Notes:

After brief introductions from Iwan and a PowerPoint presentation by DeAngelis that reviewed the information covered in the first Advisory Group meeting, the project team presented an overview of the draft Wellhead Protection Plan (a copy of the Draft Wellhead Protection Plan was emailed to Advisory Group members prior to the meeting for their review). The discussion was opened to the group for questions and comments on the draft Plan and the information gathered to date.

The following is a summary of the group discussion:

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- A clarification question was asked about the 20-year time of travel map. This is the standard map that is used for this type of study and when determining the Wellhead Protection Area.
- A question was asked regarding the term NDEQ Air Facility that is shown on one of the maps in the WHPP. The NDEQ representative, Chapman, described these facilities as locations where NDEQ is monitoring quality at a discharge point from a facility.
- Borreson noted that two of the locations shown on the 'NDEQ Regulated Facilities' list don't exist anymore due to recent development. DeAngelis indicated that this information should be sent to him so the draft Plan can be updated and so NDEQ can update their database.
- Christensen requested that a paragraph be added to the document that asks the public to comment on the draft Plan and on the map that shows the 'NDEQ Regulated Facilities.'
- Iwan asked about sand point wells, wells that property owners install on their own, typically without permits. These well kits are sold publicly but, according to Chapman, are illegal; Iwan asked what should be done about these and if they should be reported. Christensen added that the existence of these wells is further support for protecting the groundwater. Keep added that there might need to be an opportunity for public comment on sand point wells.
- Christensen explained that the ELISA test for water quality identifies Triazines (herbicides).
- Iwan asked the NRD representatives if there are any plans to perform Nitrate test on a broader basis (Louisville, Elkhorn, Salt Creek or other locations). The group discussed a need and opportunity to provide education to farmers and the agricultural community about water quality impacts from nitrates.
- Petermann asked where we would want to connect a nitrate gauge; the LeShara gauge was suggested as a good location. There was additional discussion about adding the 20 years of water quality monitoring data that PMRNRD and LPNNRD can contribute to the Plan. Chapman said there is a variety of water quality data from NDEQ that could be included if MUD is interested. DeAngelis said that the data can be included in the Plan.
- Ray explained wellhead protection overlay zones and related ordinances at the county and municipal level. Borreson asked if MUD plans on talking to the respective counties about adopting a wellhead protection ordinance. Keep stated that MUD's first goal was to work with stakeholders to develop a Wellhead Protection Plan and then to talk with County staff about zoning overlays and related ordinances. Chapman said that it will take time to work through the details and develop support for the effort with three separate counties. Keep added that the Plan development process and coordination with county staff provides a good opportunity for educating the public about groundwater protection. Borreson added that in order for an overlay zone to be adopted by the counties and municipalities it will need to demonstrate benefits in order to get traction.
- Chapman suggested that MUD consider which of the appendices get published on the web during the public review portion of the Plan development. Consideration should be given regarding appendices that contain contact information for property owners.
- DeAngelis mentioned that the Plan is scheduled to be publicized on the MUD website for 30 days beginning approximately August 4, 2013 and will be presented to the MUD Board tentatively on September 4, 2013.

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- The meeting was concluded with words of appreciation to the Advisory Group members from all MUD staff in attendance.