

M E M O R A N D U M

DATE: January 2, 2018

TO: Licensed Well and Boring Contractors
Pelican Rapids Township
City of Pelican Rapids
Otter Tail County
Advisory Council on Wells and Borings

FROM: Thomas P. Hogan, Director
Environmental Health Division
P.O. Box 64975
St. Paul, Minnesota 55164-0975

SUBJECT: Notice of Designation of a Special Well and Boring Construction Area for Portions of the City of Pelican Rapids and Pelican Township, Otter Tail County, Minnesota

Introduction

The Minnesota Department of Health (MDH) is designating a Special Well and Boring Construction Area (SWBCA) that includes portions of the city of Pelican Rapids and Pelican Township in Otter Tail County, as shown in the attached figure. The SWBCA designation, which becomes effective January 2, 2018, applies to the construction, repair, and sealing of all wells and borings regulated by MDH and remains in effect until further notice.

Authority

Minnesota Statutes, section 103I.101, subdivision 5, (7), grants the commissioner of health the authority to establish standards for the construction, maintenance, sealing, and water quality monitoring of wells in areas of known or suspected contamination. Minnesota Rules, part 4725.3650, details the requirements for construction, repair, and sealing of wells and borings within a designated SWBCA, including plan review and approval, water quality monitoring, and other measures to protect public health and prevent degradation of groundwater.

Site History

In 1995, the Minnesota Pollution Control Agency (MPCA) designated Leak Site Number 8524 for the Park Region Coop bulk facility after a release of unleaded gasoline. Through the course of the investigation, MPCA installed 66 monitoring wells to determine the lateral and vertical extent of contamination. MPCA investigations determined that the contamination migrated north and downward from the leak site to the water table, then spread to the northeast and east. Regional groundwater flow is transporting the contaminant plume southeast. Pumping of Pelican Rapids public water-supply wells also created a gradient to the west. In 2004, gasoline-related contaminants, including benzene, ethylbenzene, toluene, and xylene, were detected in Pelican Rapids Well Numbers 10, 11, and 14. These wells were removed from service in 2006. Subsequently, contamination appeared in Pelican Rapids Well Number 5a, which was removed from service in 2008. All of these wells, plus Pelican Rapids Well Number 12, were permanently sealed in September 2010.

The approximate lateral extent of the plume is from the source area east to County Road 9, and south to the intersection of County Road 9 and Highway 53. Dissolved gasoline-related contaminants have been detected as deep as 100 feet in the southeast portion of the plume.

Site Hydrogeology

The city of Pelican Rapids is situated along the northern edge of the Alexandria Moraine. The moraine was deposited through a series of glacial advances and retreats. The most recent depositions by the Rainy Lobe and Superior Lobe deposited 350 to 420 feet of silt- and clay-rich till with at least two significant sand units, a shallow and deep sand aquifer. Locally, the shallow sand aquifer is located approximately 105 to 120 feet below ground. The deep sand aquifer is located approximately 420 feet below ground and is approximately 150 feet thick. These two units are separated by approximately 250 feet of massive clay till. The glacial deposits are underlain by Precambrian crystalline bedrock.

Groundwater flow in the deep sand aquifer appears to be primarily from east to west, ultimately discharging to the Red River to the west. Groundwater flow in the shallow sand aquifer is complex. The regional flow appears to be from north to south, but flow patterns in and around the city of Pelican Rapids have been strongly influenced by pumping of high-capacity public water-supply wells, leakage from the municipal wastewater treatment ponds, and heterogeneity in the glacial deposits.

The shallow sand aquifer is considered vulnerable to contamination from surface or near-surface activities (MDH, 2015). Vulnerability of the shallow aquifer is demonstrated by detections of tritium and elevated chloride in Pelican Rapids Well Numbers 5a and 14, and petroleum products in Pelican Rapids Well Numbers 5a, 10, 11, and 14. These wells were completed in the shallow sand aquifer and have been removed from service and sealed. Wells completed in the deeper aquifer show none of these influences and are not considered vulnerable to contamination.

Public Health Concerns

Groundwater within the Pelican Rapids SWBCA has been impacted by gasoline-related contaminants, including benzene, ethylbenzene, toluene, and xylene. In 1995, unleaded gasoline was released from the Park Region Coop bulk storage facility.

Exposure to high concentrations of benzene, ethylbenzene, toluene, and xylene in drinking water can affect human development; and damage the blood, immune, liver, nervous, and kidney systems. Exposure to low concentrations of benzene over a long period of time may be linked to an increased risk of cancer. Benzene, ethylbenzene, toluene, and xylene have been detected at the site above their respective Health Risk Limits (HRLs) (WCEC, 2017).

Special Well and Boring Construction Area Boundaries

The Pelican Rapids SWBCA is a nearly rectangular shaped area with the following boundaries:

- The southern boundary west of Highway 59 follows the centerline of Fifth Avenue Northwest and the extension of that centerline west to Third Street Northwest. East of Highway 59, the southern boundary follows the centerline of Fifth Avenue Northeast east to the center of the SE¼ of Section 22, Township 136 North, Range 43 West;
- The northern boundary extends along the centerline of Industrial Park Drive and the extension of that centerline east and west to the following described western and eastern boundaries;
- The western boundary extends from the southern boundary north along the centerline of Third Street Northwest and the extension of that centerline north to the northern boundary;
- The eastern boundary extends north along the quarter section line from the center of the SE¼ of Section 22, Township 136 North, Range 43 West to the northern boundary.

The Pelican Rapids SWBCA is depicted in the attached figure.

Special Well and Boring Construction Area Requirements

1. All wells and borings regulated by MDH are subject to the requirements of this SWBCA. Wells include potable water-supply wells, irrigation wells, commercial and industrial water-supply wells, environmental wells, wells for heating and cooling, remedial wells, and dewatering wells. Borings include elevator borings and bored geothermal heat exchangers.
2. Construction of a new well or boring, or modification of the depth of an existing well or boring, may not take place until after MDH has reviewed and approved plans for the proposed construction. The purpose of the MDH plan review is to ensure that the proposed well or boring will not adversely impact groundwater or other wells. In addition to the required permit application or notification, the plan must include the following information: street address; well or boring depth; casing type, diameter, and depth; method of construction, including grout materials and grout method; pumping rate; and use.

3. As a condition of the well construction plan approval, the well owner must agree to pay for a volatile organic compound (VOC) analysis, to be performed by MDH Public Health Laboratory. MDH will review the analytical results and determine if the well can be completed, if the well can be reconstructed in another manner, or if the well must be permanently sealed. Additional sampling after the well is in service may be required.
4. The permanent sealing of a well or boring within the Pelican Rapids SWBCA may not take place until after MDH has reviewed and approved plans for the proposed sealing. In addition to the sealing notification that is required prior to sealing a well, the plan must include the following information: street address; original well or boring depth; current well or boring depth; casing type(s), diameter(s), and depth(s); methods for identifying and sealing any open annular space; methods for identifying and removing any obstructions; and grout material and methods.

Persons to Contact

You may contact the following list of people regarding the Pelican Rapids SWBCA.

Additional Information

For additional information regarding this SWBCA, please contact:

Mr. Alex Martell
Minnesota Department of Health
Well Management Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975
651-201-4595
alex.martell@state.mn.us

Plan Review

Plans for the construction, repair, and sealing of wells (water-supply wells, environmental wells, and dewatering wells) and borings (elevator borings and bored geothermal heat exchangers) within the SWBCA must be submitted to:

Mr. Jeff Grugel
Minnesota Department of Health
Well Management Section
1505 Pebble Lake Road, Suite 300
Fergus Falls, Minnesota 56537-3858
218-332-5148
jeff.grugel@state.mn.us

Construction and Sealing Notifications and Permits

Notifications for the construction or sealing of wells and borings and permits for the construction of elevator borings and bored geothermal heat exchangers must be mailed or faxed to:

Minnesota Department of Health
Well Management Section
P.O. Box 64502
St. Paul, Minnesota 55164-0502
651-201-4600 or 800-383-9808
Fax: 651-201-4599

Leak Site Information

For information regarding the investigation, monitoring, and remediation of the Park Region Coop Site (MPCA Leak Site 8524) in the city of Pelican Rapids, contact:

Ms. Amy Miller
Minnesota Pollution Control Agency
651-757-2569
amy.miller@state.mn.us

References

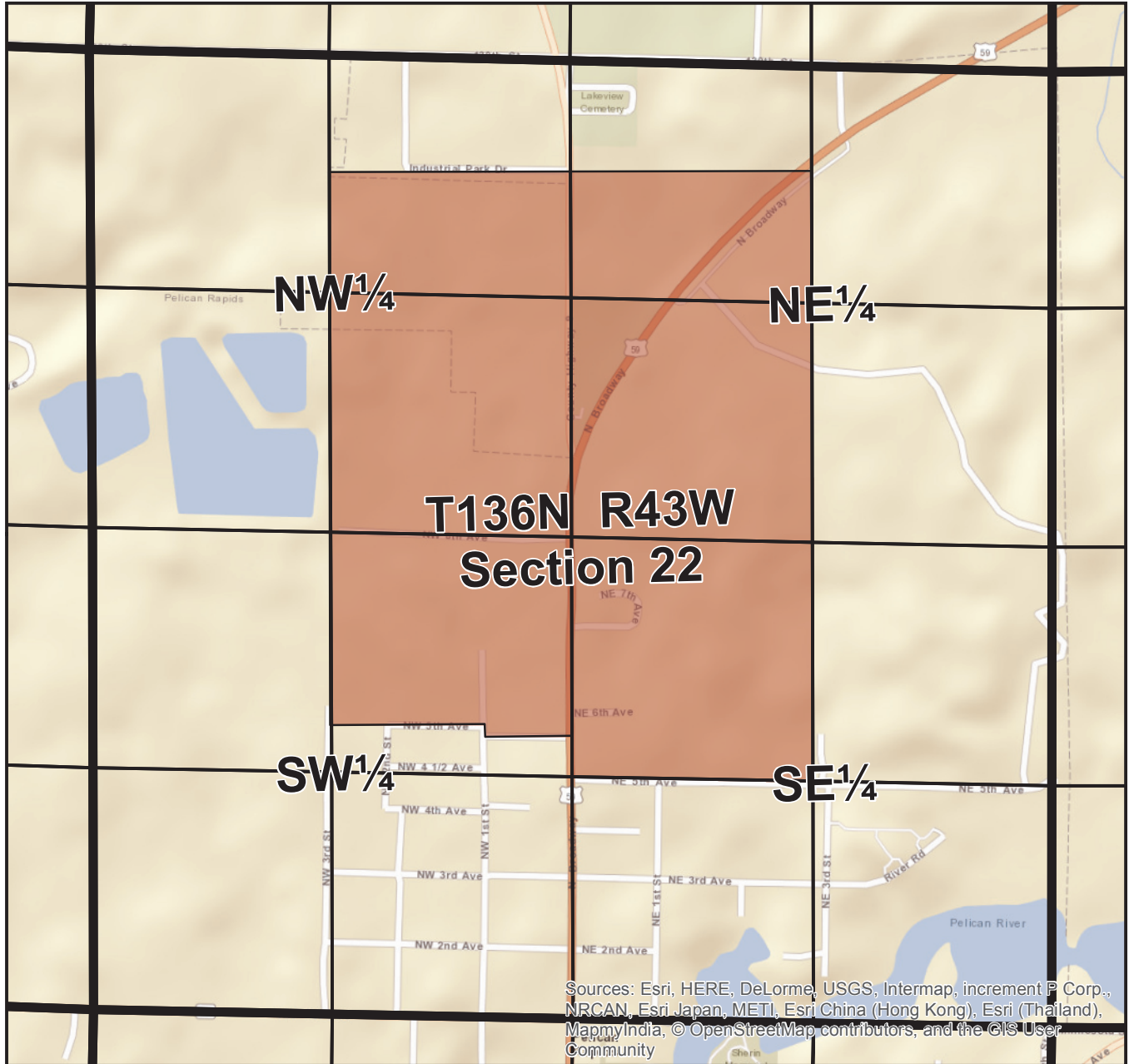
Minnesota Pollution Control Agency (MPCA), "Request for a Special Well and Boring Construction Area (SWBCA)," Memorandum, August 8, 2017.

Minnesota Department of Health (MDH), "Amendment to the Wellhead Protection Plan Part 1 Wellhead Protection Area Delineation Drinking Water Supply Management Area Delineation Well and Drinking Water Supply Management Area Vulnerability Assessments for City of Pelican Rapids," January 2015.

West Central Environmental Consultants, Inc. (WCEC), "Monitoring Report Park Region Co-op Bulk Site," May 12, 2017.

TPH:AMM:kad
Enclosure

Pelican Rapids Special Well and Boring Construction Area



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

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