



Protecting, maintaining and improving the health of all Minnesotans

MEMORANDUM

DATE: September 3, 2015

TO: Licensed and Registered Well Contractors
Advisory Council on Wells and Borings
City of Fridley
City of Columbia Heights
Minneapolis Water Works
Reviva
BAE Systems
Kurt Manufacturing
U.S. Navy
Minnesota Pollution Control Agency
Interested Persons

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

PHONE: 651-201-4675

SUBJECT: Notice of Designation of Special Well and Boring Construction Area
in Southwestern Fridley and Southwestern Columbia Heights,
Anoka County, Minnesota

Minnesota Department of Health (MDH) is designating a Special Well and Boring Construction Area (SWBCA), for portions of southwestern Fridley and southwestern Columbia Heights, Anoka County, as shown in the attached map (Figure 1). The SWBCA designation becomes effective on October 1, 2015, and will remain in effect until further notice.

AUTHORITY

Minnesota Statutes, section 103I.101, subdivision 5, paragraph 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 within a designated SWBCA, including plan review and approval, water quality monitoring, and other measures necessary to protect public health, prevent the spread of contamination and degradation of groundwater.

HISTORY

The southwest portion of Fridley, Minnesota, contains several Federal and State Superfund sites and one Resource Conservation and Recovery Act site:

- Naval Industrial Reserve Ordnance Plant (NIROP) site.
- FMC Corporation -Fridley site.
- BAE Systems RCRA site.
- Kurt Manufacturing site.
- Dealers Manufacturing (now known as Reviva).

The sites have been under investigation or have implemented remediation systems since the 1980s.

Minnesota Pollution Control Agency (MPCA) has requested the establishment of a SWBCA due to the presence of chlorinated solvents and their breakdown products in the groundwater.

HYDROGEOLOGY

The geology of the site consists of glacial and alluvial deposits of silts and clays interbedded with sand and gravel ranging up to 130 feet in thickness near the Mississippi River. These deposits overlie the basal St. Peter sandstone or the Shakopee member of the Prairie du Chien Group where the St. Peter has been eroded. The Jordan sandstone and older Paleozoic formations underlie the Prairie du Chien Group. Groundwater flow in the glacial and alluvial deposits is complex, but in general flows from the northeast to the southwest toward the Mississippi River, with vertical downward gradients in the eastern portion of the area and upward gradients near the Mississippi River. Groundwater flow in the bedrock is predominately to the southwest.

GROUNDWATER CONTAMINATION

Groundwater in proximity to the southwest Fridley sites has been impacted by a variety of chlorinated ethenes and their degradation products. The contaminants of primary concern at these sites are 1,1,2-trichloroethylene (TCE) and tetrachloroethylene (PCE). Breakdown or degradation products include dichloroethene (DCE) and vinyl chloride (VC). Concentrations of up to 19,600 micrograms per liter ($\mu\text{g/L}$) of TCE and 961 $\mu\text{g/L}$ of PCE have been detected. A number of investigations have documented extensive contamination in the glacio-fluvial terrace and alluvial deposits east of the Mississippi River and in the underlying bedrock formations, particularly the Prairie du Chien Group (dolomite and sandstone) and Jordan Sandstone.

PUBLIC HEALTH CONCERNS

The primary contaminant of concern within the SWBCA is TCE. Exposure to high levels of TCE in drinking water can damage the liver, kidneys, immune system, and nervous system. Exposure to low levels of TCE over a long period of time has been linked to an increased risk of several types of cancer (kidney, liver, and Non-Hodgkin Lymphoma). TCE may also harm a developing fetus if the pregnant mother is exposed in the first trimester. MDH Health Based Value (HBV) for TCE in drinking water is 0.4 µg/L. The Maximum Contaminant Level (MCL) established by the United States Environmental Protection Agency (USEPA) is 5 µg/L for TCE. The MCL standard applies to water delivered by community and nontransient, noncommunity public-water supplies. Other contaminants of concern include PCE and vinyl chloride. Exposure to PCE has been linked to some types of cancer and to kidney and nervous system damage. MDH Health Risk Limit (HRL) and USEPA MCL for PCE in drinking water is 5 µg/L. Exposure to vinyl chloride has been linked to liver and circulatory system cancers. MDH HRL for vinyl chloride in drinking water is 0.2 µg/L and USEPA MCL is 2 µg/L.

BOUNDARIES OF THE SPECIAL WELL AND BORING CONSTRUCTION AREA

The designated SWBCA is bounded on the west by the Mississippi River, on the south by the Anoka-Hennepin County line (37th Avenue Northeast), on the east by University Avenue, and on the north by Interstate 694. The SWBCA includes: that part of the south half (S1/2) of Section 22 lying south of Interstate 694; that part of the west half of the southwest quarter (W1/2, SW1/4) of Section 23 lying south of Interstate 694; the west half of the northwest quarter (W1/2, NW1/4) and the west half of the southwest quarter (W1/2, SW1/4) of Section 26; Section 27; Section 34; and the west half of the northwest quarter (W1/2, NW1/4) and the west half of the southwest quarter (W1/2, SW1/4) of Section 35; all in Township 30 North, Range 24 West, Anoka County.

REQUIREMENTS OF THE SWBCA

1. All wells and borings regulated by MDH are subject to the requirements of the SWBCA. Wells include water-supply wells used for domestic, public, irrigation, commercial/industrial, cooling/heating, or remedial purposes; monitoring wells; and dewatering wells. Borings include environmental bore holes, elevator borings, and bored geothermal heat exchangers. Notifications and permit applications, and their respective fees, must be submitted to MDH.
2. Construction of a new well or boring, or modification of the depth of an existing well or boring, may not occur until a plan has been reviewed and approved in writing by MDH. In addition to the normally required notification or permit application, with fee, the plan must include the following information: street address; well or boring depth; casing type(s), diameter(s), and depth(s) for each casing; construction methods, including grout materials and grouting methods; anticipated pumping rate; and use.
3. As a condition of the well or boring construction plan approval, the well or boring owner must agree to pay for a volatile organic chemical (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 must be reconstructed in another manner, or if the well must be permanently sealed. Testing requirements may be waived depending on the location, depth, and use of the well or boring.
4. Special construction, location, use, and monitoring may be required for a well or boring in order to protect the public health and groundwater quality and to prevent contaminant migration. These requirements will be based on available knowledge of groundwater contaminant movement near the well or boring location and the proposed use and pumping rate of the well. MDH may require the requestor to provide detailed hydrogeologic pumping model data, or perform pumping tests to show that pumping will not adversely impact existing remediation systems or the contamination plume.
5. Construction of a community public water-supply well must not take place unless, and until, the well site and well plans and specifications have been reviewed and approved by MDH in accordance with Minnesota Rules, part 4725.5850. MDH may approve completion of a public water-supply well within the designated SWBCA if the system owner/operator can demonstrate that the water delivered to the distribution system meets MCLs established by the USEPA or other health guidelines referenced by MDH, either through treatment, blending with other sources, monitoring, or other mechanisms.
6. A water-supply well may be allowed, provided that MDH, with assistance from the MPCA and other agencies as needed, determine that the well will not interfere with remediation efforts, cause further spread of contamination, or result in environmental or human exposures in excess of environmental and public health standards.

7. Borings, including environmental bore holes, elevator borings, and bored geothermal heat exchangers, may be allowed, provided that they are properly constructed and grouted.
8. No well or boring may be permanently sealed until MDH has reviewed and approved the plan for the proposed sealing. In addition to the required notification and fee, the plan must include the following information: street address; original well/boring depth; current well/boring depth (if different); casing type(s), diameters(s), and depth(s); methods of identifying and sealing any open annular spaces; methods for identifying and removing any obstruction(s); grout materials; and placement methods. All wells and borings within the SWBCA must be sealed with neat cement grout or cement sand grout.
9. All other provisions of Minnesota Rules, chapter 4725, are in effect.

PERSONS TO CONTACT

For additional information regarding this SWBCA, please contact Mr. Edward Schneider of MDH Well Management Section at 651-201-4586 or ed.schneider@state.mn.us.

Plans for the construction, modification (including repair), or sealing of wells or borings within the SWBCA must be submitted to:

Mr. Patrick Sarafolean
Minnesota Department of Health
Well Management Section – Metro District
P.O. Box 64975
St. Paul, Minnesota 55164-0975
651-201-3962
patrick.sarafolean@state.mn.us

Notifications/permit applications for either construction or sealing of wells and borings must still be mailed or faxed to MDH Central Office at:

Minnesota Department of Health
Well Management Section
P.O. Box 64502
St. Paul, Minnesota 55164-0502
651-201-4599 (Fax)

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For information regarding public health concerns, please contact:

Mr. Daniel Pěna
Minnesota Department of Health
Site Assessment and Consultation Unit
P.O. Box 64975
St. Paul, Minnesota 55164-0975
651-201-4920
daniel.pena@state.mn.us

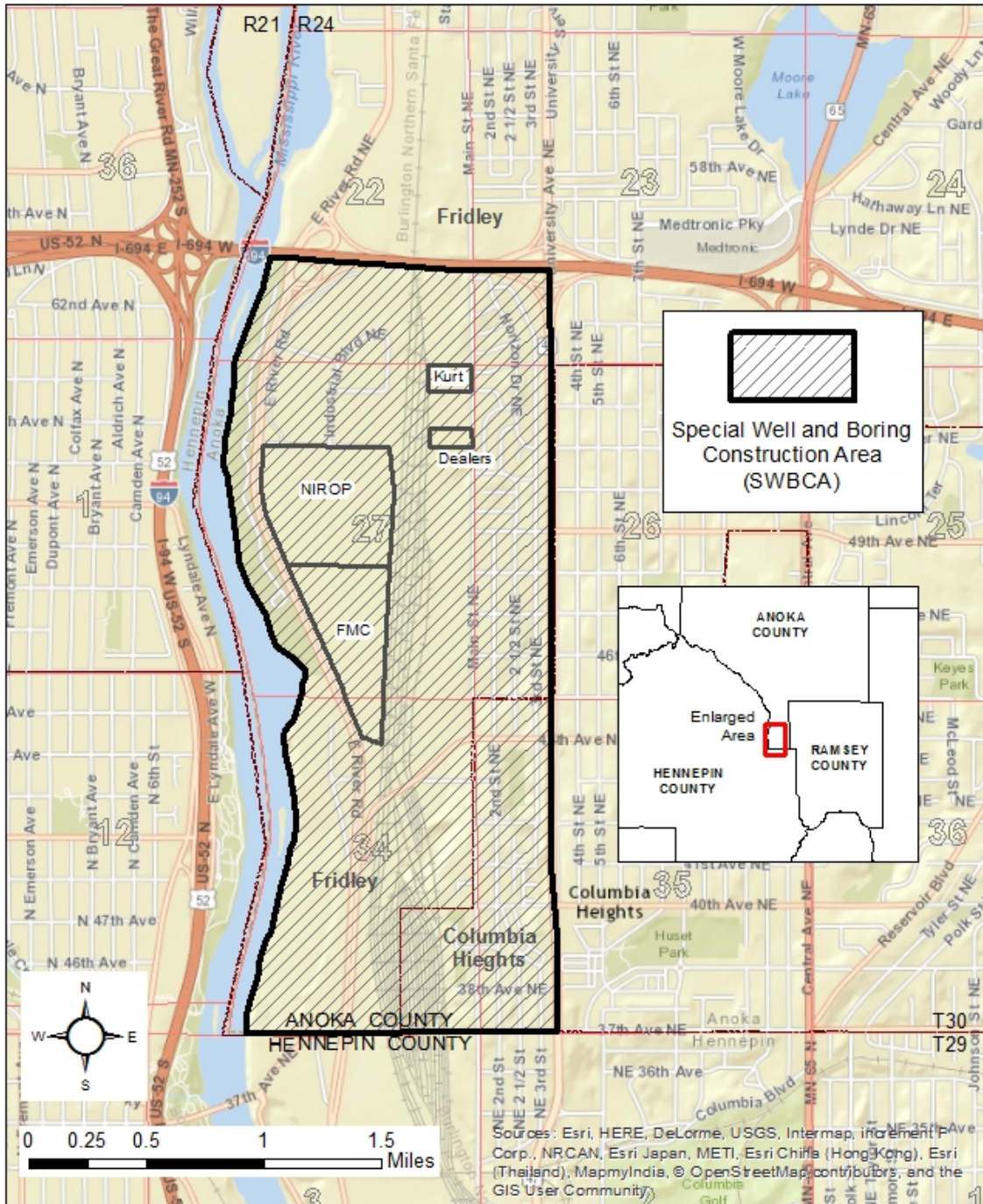
For information regarding groundwater quality and the investigation, monitoring, and remediation of groundwater contamination, please contact:

Mr. Greg Small
Minnesota Pollution Control Agency
Site Remediation and Redevelopment Section
520 Lafayette Road
St. Paul, Minnesota 55155-4194
651-757-2304
gregory.small@state.mn.us

Ms. Shanna Schmitt
Minnesota Pollution Control Agency
Site Remediation and Redevelopment Section
520 Lafayette Road
St. Paul, Minnesota 55155-4194
651-757-2697
shanna.schmitt@state.mn.us

TPH:ECS:fal
Attachment

Figure 1. Special Well and Boring Construction Area
 Southwest Fridley and Southwest Columbia Heights, Anoka County



Minnesota Department of Health - Well Management Section
 August 28, 2015
 SW Fridley Columbia Heights SWBCA.mxd