

**State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES**

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July 15, 2004

**To: Wisconsin Licensed Well Drillers**

**Subject: Establishment of "Special Well Casing Pipe Depth Area"  
*Ripon FF/NN Landfill Site & Surrounding Area*  
Part of the Town of Ripon, Fond du Lac County, Wisconsin**

Dear Wisconsin Licensed Well Driller:

A "Special Well Casing Pipe Depth Area" has been established for a 1-½ square mile area including the *Ripon FF/NN Landfill Site* and a surrounding area, located just northwest of the City of Ripon. This area includes portions of Sections 7, 8, 17 & 18, T16N, R14E, Town of Ripon, Fond du Lac County. Attached please find the memo describing in detail this new "Special Well Casing Pipe Depth Area" and its requirements. This area has been established as a result of contamination of several wells and the groundwater of this area with Volatile Organic Compounds (VOCs).

Effective August 15, 2004, the construction of new private wells and the reconstruction of existing private wells within this "Special Well Casing Pipe Depth Area" shall only be undertaken according to the standards specified in the attached memo. In addition, upon completion of any newly constructed or reconstructed well, the well water shall be sampled and analyzed for (VOCs) at a certified laboratory, also as indicated in the attached memo.

Consuming water containing VOCs has been shown to pose a hazard to human health. This "Special Well Casing Pipe Depth Area" has been established under the provisions of Section NR 812.12(3) and is designed to reduce the risk that new wells, constructed or reconstructed according to the requirements of this 'Area', produce water contaminated with VOCs.

Consultation with the Department's Northeast Region's Drinking Water Program Staff is recommended, prior to construction, to help determine if a proposed well will meet the more stringent standards of this area.

Sincerely,

Mark F. Putra, R.S. Chief  
Private Water Systems Section  
Bureau of Drinking Water & Groundwater  
Attachments

cc: Statewide Drinking Water & Groundwater Program Staff  
Fond du Lac County Health Department  
City of Ripon

July 15, 2004

TO: **Wisconsin Licensed Well Drillers**

FROM: **Mark Putra – Chief, Private Water Systems Section  
Bureau of Drinking Water & Groundwater**

SUBJECT: **“SPECIAL WELL CASING PIPE DEPTH AREA”  
Ripon FF/NN (County Highways) Landfill Site & surrounding area;  
Including parts of Sections 7, 8, 17 & 18, T16N, R14E, Town of Ripon,  
Fond du Lac County.**

A “Special Well Casing Pipe Depth Area” is herewith established for the area including and surrounding the *Ripon FF/NN Landfill Site*, described in detail below. Within this area new wells shall be constructed or reconstructed to more stringent standards. In addition, a water sample shall be collected from each newly constructed or reconstructed well and the sample shall be analyzed at a certified laboratory for Volatile Organic Compounds, as indicated below. (Note: Compliance with the requirements of this “Special Well Casing Pipe Depth Area” does not alleviate the requirement to obtain a variance to construct a new well or reconstruct an existing well within 1,200 feet of this landfill.)

**Effective Date: This “Special Well Casing Pipe Depth Area” becomes effective August 15, 2004.**

This “Special Well Casing Pipe Depth Area” includes an area approximately 1-½ square miles in extent and includes parts of four Sections within T16N, R14E, Town of Ripon. This area is located just northwest of the City of Ripon. The establishment of this “Special Well Casing Pipe Depth Area” is based on contamination of the groundwater in this area, primarily by vinyl chloride and cis-1,2-Dichloroethylene (DCE). Both of these chemicals are Volatile Organic Compounds (VOCs). These compounds have been found in the groundwater of both the unconsolidated surficial aquifer and the bedrock aquifers in this area. This “Special Well Casing Pipe Depth Area” is located adjacent to and surrounding the Ripon landfill located near County Highways FF & NN. Included in this “Special Well Casing Pipe Depth Area” is the landfill itself and the area within the 1,200-foot distance radius established as a set-back requirement for landfills by the Fourth Edition of The State Private Well Code (then NR 112) in October of 1975. (The landfill proper is located just north of the centerline of the south boundary of the SE ¼ of Section 7, T16N, R14E, Town of Ripon.) The detailed description of the entire area included in this “Special Well Casing Pipe Depth Area” is listed below. (Also see enclosed map.)

This “Special Well Casing Pipe Depth Area” is established to reduce the risk wells constructed or reconstructed within this area produce water contaminated with these chemical compounds. This area is established under the Department’s authority provided by Section NR 812.12(3), Wis. Admin. Code (State Private Well Construction & Pump Installation Code).

## LOCATION

This “Special Well Casing Pipe Depth Area” is subdivided into two primary segments as listed below. Each segment has specific well construction and water sampling requirements. (See Enclosed Map) The “**Inner Area**” is a rectangular area located within Sections 7 and 18, T16N, R14E, Town of Ripon, Fond du Lac County and includes the following:

- The S ½ of the SE ¼ of Section 7;
- The N ½ of the NE ¼ of Section 18: and
- That portion of the S ½ of the NE ¼ of Section 18 lying north of both Silver Creek and S. Koro Road.
- That portion of the N ½ of the SE ¼ of Section 18 lying north of both Silver Creek.

The “**Outer Area**” is located within Sections 7, 8, 17, and 18, T16N, R14E, Town of Ripon, Fond du Lac County and includes:

- The S ½ of Section 7 except for the S ½ of the SE ¼ thereof;
- The W ½ of the SW ¼ of Section 8;
- That portion of the W ½ of the NW ¼ of Section 17 lying north of Silver Creek and west of Silver Creek’s northern tributary;
- That portion of the NW ¼ of Section 18 lying north of both Silver Creek & S. Koro Road and north of Highway 23/49; and
- None of the area described above within the “Inner Area” .

## CONTAMINANTS

Vinyl chloride; cis-1,2-Dichloroethylene (DCE) and/or other Volatile Organic Compounds (VOCs).

## WELL CONSTRUCTION SPECIFICATIONS AND SAMPLING REQUIREMENTS

Within this “Special Well Casing Pipe Depth Area” the construction of new wells and reconstruction of existing wells shall only be undertaken according to the following specifications:

**Inner Area:** The department does **not** advise the construction of new wells or the reconstruction of existing wells within this inner area. (Existing well water sample results indicate the Cambrian Sandstone layers are contaminated with VOCs throughout their vertical extent within much of this inner area.) Although not advised, construction of new wells and reconstruction of existing wells **is** allowed within this inner area, but only as indicated below.

The following types of well construction **are** allowed within this inner area:

- ***Unconsolidated aquifer wells.*** Wells completed in the unconsolidated surficial aquifer (primarily glacial drift) – lying above the first bedrock -- are allowed, but only if they are located outside the 1,200-foot radius of the landfill boundary. Such unconsolidated formation wells may be constructed according to the minimum requirements of NR 812.
- ***Precambrian bedrock wells.*** Precambrian bedrock wells are allowed if they are constructed to be cased and cement-grouted down to at least the top the Precambrian crystalline bedrock. In this area the Precambrian bedrock lies below the Cambrian Sandstone and will be encountered at depths exceeding 300 feet. This dense ‘basement’ bedrock does not usually yield sufficient quantities of water for a household so property owners should be made aware of this problem before attempting this type of well. Hydrofracturing of crystalline bedrock wells is **not** allowed in this area because this process can cause migration of contaminated water down into the Precambrian.

For any new well construction or existing well reconstruction within this “Inner Area”, a water sample shall be collected and analyzed for VOCs at the time of construction and, thereafter, during each subsequent alternate year. The water sample shall be analyzed according to the requirements of an approved Safe Drinking Water Act analytical method in accordance with Section NR 809.725, Table B, Wis. Admin. Code. If the water sample is contaminated with VOCs, a water treatment device approved by the Wisconsin Department of Commerce shall be installed for the water supply. The installation of the device shall be approved by the Department; Or, as an alternative, the residence shall be connected to a bacteriologically safe & uncontaminated water supply. (Such a connection can be to either an existing Code-complying private water supply or to a community water supply, if available.)

**Outer Area:** Within this outer area the construction of new wells and the reconstruction of existing wells shall be accomplished as follows:

An attempt shall first be made to construct or reconstruct a well that withdraws water only from the unconsolidated, surficial (glacial) aquifer. Such an unconsolidated formation well may be constructed according to the minimum requirements of NR 812.

When an unconsolidated aquifer formation well does not produce a sufficient quantity of water or produces contaminated water, a well cased and cement-grouted at least to the top of the Cambrian Sandstone **may** be constructed or reconstructed, but only with prior written Department approval. Such Cambrian Sandstone wells will be allowed **only** as a secondary choice and shall have site-specific construction specifications provided by the Department, prior to construction or reconstruction.

(The Department does not advise the construction or reconstruction of bedrock wells extending into the Precambrian crystalline ‘basement’ bedrock in this outer area. This is because it is difficult to obtain water in a sufficient quantity from this bedrock. Further hydrofracturing the well, in an attempt to increase the yield of water, is **not** allowed in this area.)

All new wells constructed or existing wells reconstructed in this outer area shall also be sampled for VOCs at the completion of the well. The water sample shall be analyzed according to the requirements of an approved Safe Drinking Water Act analytical method in accordance with Section NR 809.725, Table B, Wis. Admin. Code.

(Within both the Inner & Outer Areas, the Department may -- for any specific well -- require additional well water sampling, water treatment or permanent abandonment of the well. At the time of future property transfer, disclosure of the information about the well, water quality, water sampling requirements or any maintenance requirements for water treatment equipment, is the responsibility of the property owner. Any cross-contamination of aquifer strata caused by migration from a contaminated well may be the responsibility of the well owner.)

### **JUSTIFICATION FOR ESTABLISHING THIS “SPECIAL WELL CASING PIPE DEPTH AREA”**

Justification for establishing this “Special Well Casing Pipe Depth Area” is as follows:

- Vinyl chloride and cis-1,2-Dichloroethylene (DCE) and other Volatile Organic Compounds have been found in water samples from private supply wells and from monitoring wells in this area near the Ripon FF/NN (County Highways) Landfill. Concentrations of vinyl chloride in the water samples from several of these wells exceeded the State Groundwater (NR 140) Enforcement Standard of

0.2 µg/L. The highest concentration of vinyl chloride found in a private well was 7.0 µg/L, which is 14 times the Enforcement Standard.

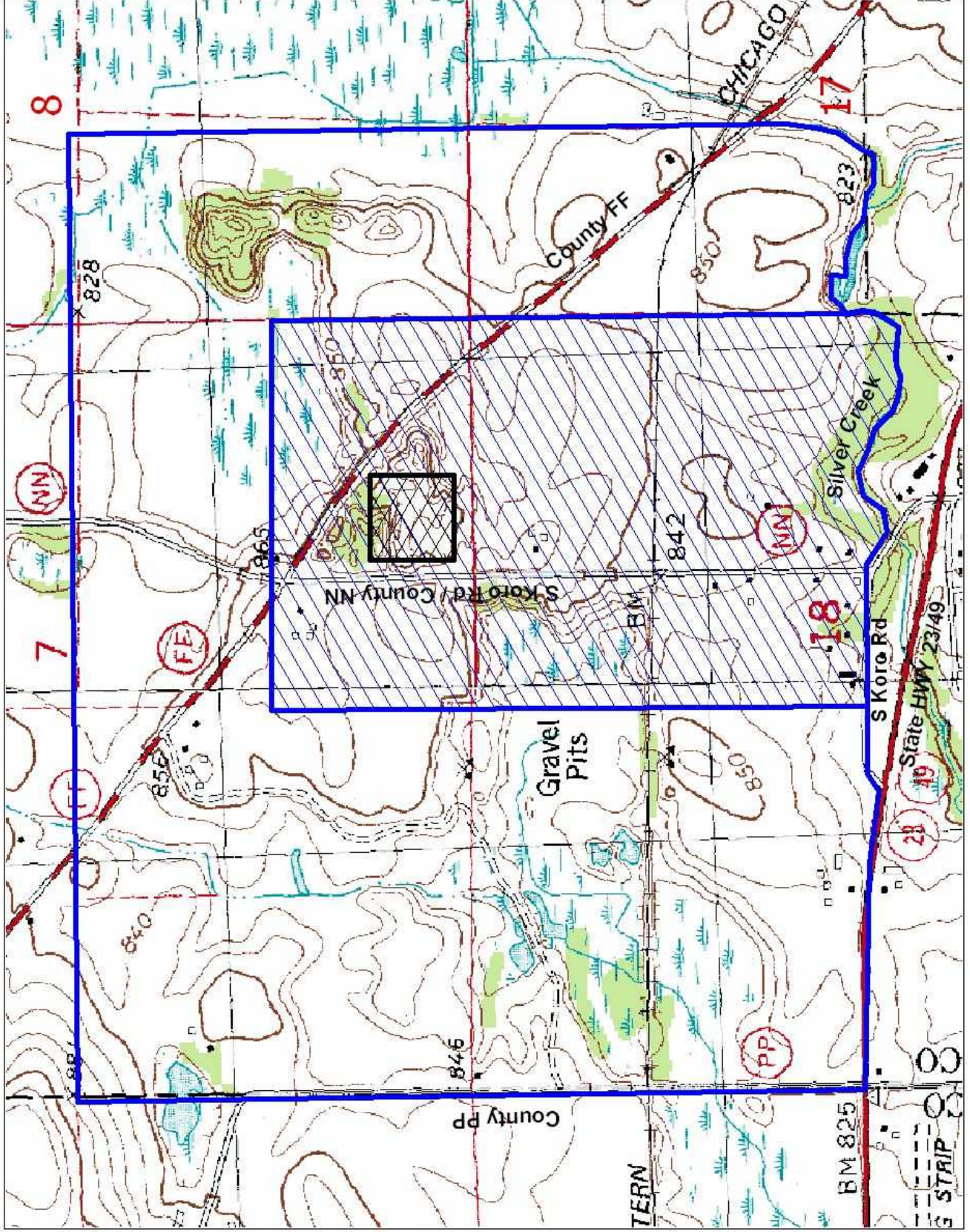
- The approximate landfill boundary and its geographic location are indicated on the accompanying map. According to Department files, this site was operated as a licensed landfill from 1969 to 1983. The entire site (approximately 7.3 acres) was used for disposal of commercial, municipal and industrial solid wastes. Further, approximately 3.3 million gallons of processed sludge from the Ripon Wastewater Treatment Facility was disposed of in this landfill. The approved Landfill Abandonment Plan required testing of groundwater from five on-site monitoring wells. In 1984, vinyl chloride was detected in a residential well located 350 feet south of the landfill. Further testing of wells confirmed the presence of vinyl chloride with some concentrations exceeding the Groundwater (NR 140, Wis. Adm. Code) Enforcement Standard. (The City of Ripon acquired this property on February 13, 2004.)
- In 1989 a replacement well was constructed for a private residential property with funding from a grant from the Well Compensation Program. This well was installed to replace an existing contaminated well on this property. The existing well was contaminated with vinyl chloride. The new well was installed 450 feet south of the landfill. It was constructed with cement-grouted casing extending to a depth of 300 feet. Although the construction and grouting of this well went perfectly according to plan, water from this deeply cased & grouted well was also contaminated with vinyl chloride. This well subsequently had to be abandoned and the property was condemned since there was no alternate water supply available to serve the residence.
- The Ripon FF/NN Landfill was placed on the Superfund National Priorities list on May 31, 1994. A *Record of Decision* was issued on February 1996 to specify a requirement for remedial action. A new composite cap and additional monitoring wells were installed during this remedial action in the summer of 1996. A 5-year review was completed on May 22, 2001. In October and November of 2001, vinyl chloride was found in two down-gradient private wells. Both of these well owners were supplied with bottled water. In addition, water treatment systems were installed on the drinking water supply line of each of these wells. In November of 2002 a privately owned municipal water line was connected to each of these households, one located south of Koro road and the other located along Charles Street).
- This “Special Well Casing Pipe Depth Area” takes into account possible increased migration of the contaminant plume, within the aquifers, extending down-gradient from the landfill site to the south and west. This is possible due to increased pumping associated with a greater well density caused by future real estate development in this area.
- This “Special Well Casing Pipe Depth Area” includes the entire area within the 1,200-foot radius ‘set-back’ well location requirement specified by s. NR 812.08(4)(g).
- Much of the area included in this “Special Well Casing Pipe Depth Area” contains gravel pits and wetlands. Volatile organic compounds were not detected in a sample of the surface water collected in this area.



# Special Well Casing Depth Area

T16N, R14E, Town of Ripon, Fond du Lac County

July 15, 2004



- Special Casing Area Boundary
- Inner Area
- Ripon Hwy FF/NN Landfill



Scale 1:12000

