

Otter Tail County: Final Overview of Nitrate Levels in Private Wells (2015-2017)

The Minnesota Department of Agriculture (MDA) determines current nitrate-nitrogen concentrations in private wells, on a township scale, through the Township Testing Program. The MDA has identified townships throughout the state that are vulnerable to groundwater contamination and have significant row crop production. The MDA plans to offer nitrate testing to more than 70,000 private well owners in over 300 townships by 2019.

Each selected township is offered testing in two steps, the “initial” sampling and the “follow-up” sampling. In the initial sampling, all township homeowners using private wells are sent a nitrate test kit. If nitrate is detected in their initial sample, the homeowner is offered a follow-up nitrate test, pesticide test and well site visit. Trained MDA staff visit willing homeowners to resample the well and then conduct a site assessment. The assessment helps to identify possible non-fertilizer sources of nitrate and to see the condition of the well. A well with construction problems may be more susceptible to contamination.

The MDA and the East Otter Tail Soil and Water Conservation District worked together to select townships and implement the nitrate testing project. The following 32 townships were selected: **Amor, Aurdal, Bluffton, Butler, Clitherall, Compton, Corliss, Dora, Eagle Lake, Eastern, Edna, Effington, Elmo, Everts, Gorman, Hobart, Inman, Leaf Lake, Leaf Mountain, Maine, Newton, Nidaros, Oak Valley, Otter Tail, Otto, Parkers Prairie, Perham, Pine Lake, Rush Lake, Scambler, Tordenskjold, and Woodside.** The initial sampling in Otter Tail County started in 2015 and follow-up sampling was completed in 2017.

Results

Two datasets are used to evaluate nitrate. The initial well dataset contains 4,533 wells; the final dataset contains 4,366 wells. Wells that had nitrate-nitrogen results over 5 mg/L were removed from the initial dataset if a non-fertilizer source or well problem was identified, to form the final well dataset. A total of 167 wells (4%) were removed. The results from the initial and final well datasets are summarized in the table below.

In the final analysis Parkers Prairie Township had more than 10% of the wells at or over the Health Risk Limit of 10 mg/L of nitrate-nitrogen (map below). The percent of wells at or over the Health Risk Limit in each township ranged from 0.0 to 13.5 percent. The Otter Tail County Final Report will be available on the MDA website: www.mda.state.mn.us/townshiptesting.

Next steps

The MDA uses the final well dataset to determine if additional action is needed, as described in the Minnesota Nitrogen Fertilizer Management Plan (NFMP). The MDA uses the assessment process and prioritization guidelines in the NFMP to determine next steps. Find more information about the NFMP on the MDA website at www.mda.state.mn.us/nfmp.

Otter Tail County Final Highlights

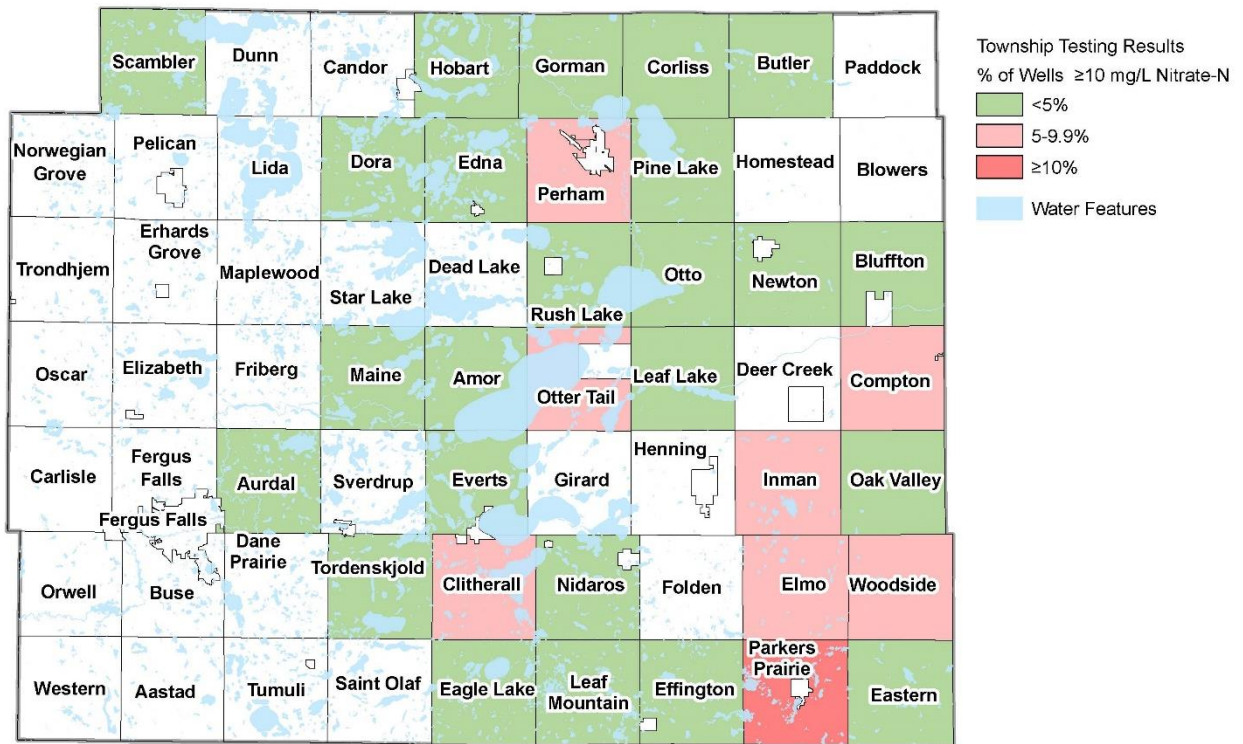
- Number of townships with 10% or more of wells at or over the HRL : **1**
- **167 (4%)** wells were removed from initial dataset.

Table: Otter Tail County Private Well Nitrate Results, 2015-2017.

Township	Initial Well Dataset		Final Well Dataset	
	Total Wells*	Percent of Wells ≥10 mg/L Nitrate-Nitrogen	Total Wells	Percent of Wells ≥10 mg/L Nitrate-Nitrogen
Amor	211	4.3%	203	2.0%
Aurdal	205	0.5%	204	0.0%
Bluffton	40	5.0%	36	2.8%
Butler	23	4.3%	21	0.0%
Clitherall	192	9.9%	182	7.7%
Compton	85	15.3%	74	8.1%
Corliss	123	4.1%	118	1.7%
Dora	294	3.1%	288	2.1%
Eagle Lake	130	3.8%	126	1.6%
Eastern	38	5.3%	36	2.8%
Edna	313	0.3%	309	0.0%
Effington	34	0.0%	34	0.0%
Elmo	44	13.6%	36	5.6%
Everts	360	0.3%	357	0.0%
Gorman	113	11.5%	102	4.9%
Hobart	228	1.3%	226	1.3%
Inman	36	5.6%	33	6.1%
Leaf Lake	140	2.9%	134	2.2%
Leaf Mountain	63	0.0%	62	0.0%
Maine	201	4.5%	182	1.1%
Newton	100	1.0%	97	1.0%
Nidaros	128	2.3%	126	1.6%
Oak Valley	42	14.3%	34	2.9%
Otter Tail	250	7.6%	242	5.8%
Otto	121	5.0%	114	1.8%
Parkers Prairie	56	17.9%	52	13.5%
Perham	152	11.8%	144	9.0%
Pine Lake	192	2.1%	187	1.1%
Rush Lake	267	2.6%	263	1.1%
Scambler	178	0.6%	175	0.0%
Tordenskjold	139	0.0%	138	0.0%
Woodside	35	14.3%	31	6.5%
Total	4,533	4.1%	4,366	2.3%

*All well types were included.

Figure: Otter Tail County Final Well Dataset Map, 2017.



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