

WDWDD-SDSMT Report Card for Iron

Private Well Tests

Number of wells	262
Number of tests	273
Earliest test date	5/5/2013
Latest test date	11/03/2015
Lowest value detected	**
Highest value detected (mg/L)	70.2
Number of wells above 0.3 mg/L	81
Percent wells above 0.3 mg/L	31%

Public Well Records

Number of wells	70
Number of recorded tests	534
Earliest test date	4/12/1967
Latest test date	7/9/2007
Lowest value detected	**
Highest value detected (mg/L)	93
Number of wells above 0.3 mg/L	15
Percent wells above 0.3 mg/L	23%
** Below detection limit of 0.015 mg/L	

Dissolved iron can occur in well water because of natural weathering of certain minerals in rocks. Dissolved iron in well water can cause rust-colored stains on plumbing fixtures and clothing. The recommended maximum contaminant level for iron in public water supplies is 0.3 mg/L; this is an EPA recommended guideline rather than an enforced standard.

We sampled 262 private wells between 2013 and 2015, and compiled published data from 70 public wells to evaluate the presence of iron in well water in western Pennington County, SD. In some cases the wells were tested multiple times; we took the highest test in each case. We found that 31% of private wells and 23% of public wells had tests that exceeded recommended limit of 0.3 mg/L. The maximum value detected was 93 mg/L, more than 300 times the recommended limit.

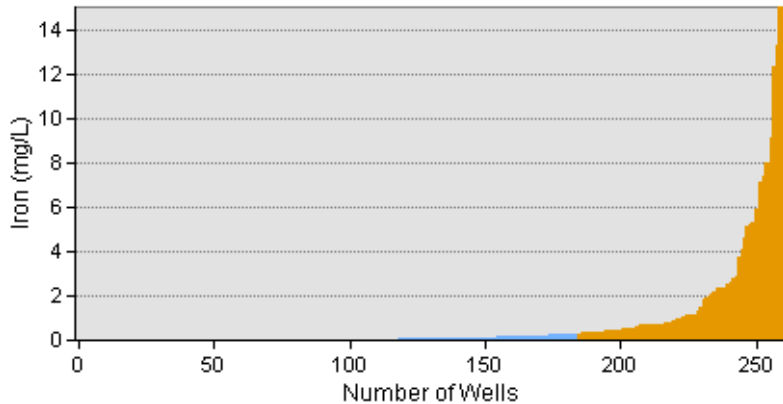
In the graphs, the (tiny) blue bars represent dissolved iron values below the EPA standard of 0.3 mg/L; the orange bars represent values above the standard. The graphs show that many iron values are much higher than

the recommended limit; a few are extremely high and two extend beyond the top of the graph.

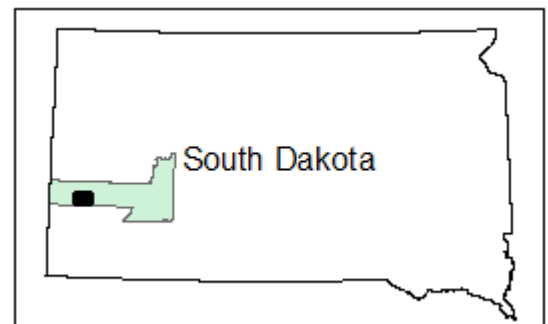
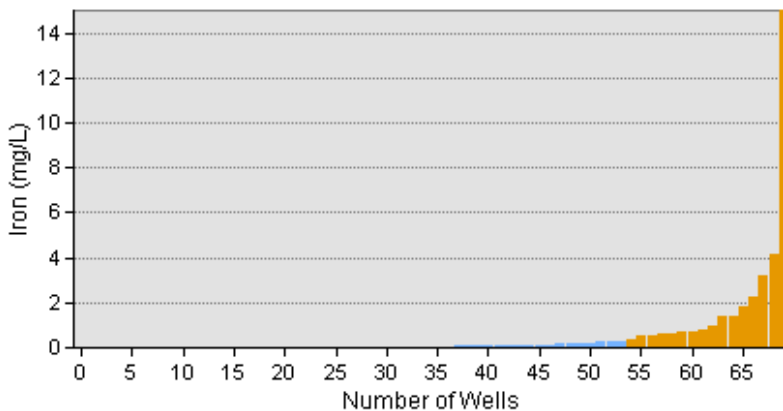
Well water can be treated to reduce the nuisances associated with high iron content. Public water supplies are regulated by law. Although the tests are performed prior to treatment, water from public wells should be within recommended limits for iron.

Private wells are not regulated by law and homeowners are not required to meet drinking water standards set by the EPA. However, homeowners are encouraged to test their water to ensure that it is healthy to drink and to protect their families.

Iron - Private Wells



Iron - Public Wells



To protect the privacy of homeowners who participated in the study, we do not plot individual well test locations on maps shown to the public. Instead, we selected the private and public wells with iron values greater than or equal to 50% of the recommended limit and created a density map showing areas with more frequent iron problems. These regions are considered to represent a higher *risk* of iron issues. **It is important to understand that subsurface conditions can change rapidly from place to place, and not all wells in the shaded areas will have iron problems.** The only way to know whether a particular well has elevated iron levels is to test it. Homeowners in the shaded areas are especially encouraged to test their well water to ensure that it is healthy.

Problems with iron show a strong association with historic mining districts in the Black Hills, which is also where home sites tend to cluster. For interactive maps showing these associations, click [here](#).

