

# Test Well and Observation Well Guidance and Procedures for Drilling Projects Related to Public Water Supplies

## Iowa Department of Natural Resources - Environmental Services Division

### Synopsis of Guidance

This document outlines the permitting activities required for test drilling, test well construction, and observation well construction as these activities relate to study projects or construction projects associated with current or future public water supply (PWS) projects. Any test drilling, test well construction, or observation well construction that will not be associated with a current or a future PWS project requires the use of private well permitting and private well construction rules as found in Iowa Administrative Code (IAC) Chapter 38 and Chapter 49.

Applicable Iowa Code or IAC provisions: 567 IAC 38, 43 and 49

### Intent

The intent of this document is to provide the guidance for achieving uniform permitting authority, proper test well and observation well construction standards, the establishment and maintenance of protection of the well head for test wells and observation wells, and proper documentation for all exploration and drilling activities that are associated with current and future PWS projects. This document will allow for a transition period for the department, the public water supplies, the engineers, and the contractors involved in PWS projects to apply and follow the guidance. The department will revise and develop new rules, and rescind existing rules that no longer apply for the permitting, construction, and documentation of test holes, test wells, and observation wells used to explore and monitor groundwater related to public water supply projects.

### Background

All test holes, test wells and observation wells are currently permitted through the private water supply well rules found in 567 IAC Chapter 38. This places the responsibility for the proper permitting and documentation of this type of drilling when it is associated with a PWS on county level governmental private well permitting authorities and with IDNR private well program administered through the Water Supply Operations Section (WSO). The department has experienced on-going problems with improper permitting of public wells by the private well authority due to confusion of the public versus private well boundaries relating to nonproduction wells.

This has created additional issues like the lack of uniform construction standards for the well structures left in place within the confines of a potential public water supply well field and the failure to submit full documentation to the DNR Water Supply Engineering Section (WSE) regarding drilling activities that may have a long-term impact to public water supplies. These problems necessitate a change in how the department handles PWS related drilling activities and the overall responsibility and accountability of the water supplies and their agents. In order for IDNR to be properly informed of all drilling activities, all PWS related activity which utilizes groundwater through exploration by test drilling, test holes, test wells, and observation wells, must be documented to WSE so that the department is fully aware of all PWS related drilling activities and these activities meet the standards for the construction of all PWS related well structures.

### Definitions

The following terms are used in the text of this document and are defined as follows:

*“permanent”* means left in place for greater than seven days.

*“temporary”* means left in place seven days or less.

*“test hole”* means a temporary borehole for the purpose of well exploration.

*“test well”* means a temporary well structure which is used to obtain data for aquifer characteristics or water quality.

*“observation well”* means a permanent well structure which is used to obtain data on a periodic or ongoing basis for aquifer characteristics or water quality. All non-production PWS test wells that remain in place longer than 7 days are treated as observation wells.

*“wellhead protection”* means any number of measures that will maintain the integrity and protection of the immediate area of the well, the well structure, and the groundwater. Examples are: the well area free from any sanitary and/or environmental hazards, well construction that is free from defects - *e.g.*, proper well casing height, watertight and secure well cap, bollards or other casing protection devices, or any other engineered and/or constructed protections that ensures that the wellhead area maintains adequate sanitary and environmental protections.

## **Guidance**

There shall be at least one Iowa DNR certified well contractor with the appropriate level of certification on-site during the installation of test holes, test wells, observation wells, production wells, and during any well pump related services.

### **1. Temporary Test Holes**

PWS-related temporary test holes that are installed without casing for the purpose of exploring for groundwater and that are left in place 7 days or less do not require permitting through the use of a private well construction permit or from Iowa DNR Water Supply Engineering (WSE) but they are subject to the following conditions:

- a. Test holes can be left in place for 7 days or less. Department authorization is always required for any temporary test holes left in place longer than 7 days. Note: If something changes during the initial 7 day period that requires that the test hole be left in place for a longer period of time, the PWS must contact DNR WSE for authorization. See item #2 for requirements.
- b. All test holes shall be properly plugged upon abandonment as stated in 567 IAC Chapter 39. The plugging shall be documented on Iowa DNR form 542-1226, “Abandoned Water Well Plugging Record” and maintained by the PWS as part of the required essential records.

### **2. Test Wells**

PWS-related test wells that include the installation of casing and are not left in place longer than 7 days do not need prior department authorization and are treated as Temporary Test Holes. See #1 above for the requirements. PWS-related test wells that are left in place longer than 7 days are treated as observation wells which require department authorization and shall meet the following conditions:

- a. All wells must be constructed in accordance with Part 3 of the Recommended Standards for Water Works - also known as the 10 States Standards.
- b. Require prior authorization and permitting from WSE, and are subject to the following conditions:
  - i. WSE must be contacted prior to day 8 and the PWS must obtain authorization to leave the wells in place.
  - ii. There is no restriction for minimum or maximum diameter for the wells.
  - iii. All wells must maintain wellhead protections that will ensure that the wells do not create a hazard or allow for degradation in the quality of the groundwater.
  - iv. The wells shall be properly plugged upon abandonment as stated in 567 IAC Chapter 39. This shall include submittal of Iowa DNR form 542-1226, “Abandoned Water Well Plugging Record” to the Department.

### **3. Observation Wells**

All PWS observation wells must be permitted through WSE prior to construction and shall meet the following conditions:

- a. All observation wells must be constructed in accordance with Part 3 of the 10 States Standards.
- b. Observation wells do not require a department site survey unless the well will be used as a production well.
- c. All observation wells must maintain wellhead protections that will ensure that the well does not create a hazard or allow for degradation in the quality of the groundwater.
- d. There is no restriction on maximum diameter for observation wells.
- e. Any observation well that is no longer used, no longer needed, or presents a hazard to the groundwater, shall be properly plugged upon abandonment as stated in 567 IAC Chapter 39. This shall include the submittal of Iowa DNR form 542-1226, “Abandoned Water Well Plugging Record” to the Department.

#### 4. Conversion of Test Wells or Observation Wells to PWS Wells

Any test well or observation well that the well owner proposes to use as a PWS well must meet the following requirements before the department will consider a request for the well to be used as a PWS well. In cases where the well owner plans that the test well or observation well will become a PWS well, the normal PWS construction permitting process must be used.

- a. Test wells and observation wells that have been permitted by written authorization by the Iowa DNR WSE shall meet the following conditions:
  - i. Have a site survey performed by the department which ends in department approval of the well location.
  - ii. Provide proof of legal control for at least a 200 foot radius from the center of the well casing.
  - iii. Submit the following documents to WSE for review and approval:
    1. Complete well construction log records
    2. As-built engineering plans for the construction of the existing well
    3. Engineering plans that include:
      - a. The construction or modification proposed to the upper well terminus
      - b. The proposed raw water piping to the point of connection to the PWS treatment or distribution piping.
  - iv. Have a PWS construction permit issued by WSE.
  - v. New well sample results as required by the DNR.
- b. Test wells and observation wells that have not been permitted by written authorization by the Iowa DNR WSE as stated in item number three of this document or were permitted by a county private well permitting authority shall have the following conditions met before the department will consider the request that the be uses as a PWS well:
  - i. Have a site survey performed by the department which ends in department approval of the well location
  - ii. Provide proof of legal control for at least a 200 foot radius from the center of the well casing
  - iii. Submit the following documents to WSE for review and approval:
    1. Complete well construction log records
    2. Engineering plans that include:
      - a. The existing well's construction, including verification that the construction meets the requirements of Part 3 of the 10 States Standards
      - b. The proposed construction or modification of the upper well terminus
      - c. The proposed raw water piping to the point of connection to the PWS treatment or distribution piping
  - iv. Have a PWS construction permit issued by WSE.
  - v. New well sample results as required by the DNR.

A checklist is provided on pages 5 and 6 of this guidance document to help facilitate proper planning, DNR interaction, and documentation for the construction of all PWS related test well and observation well projects.

For additional information, please contact your local IDNR Field Services Office or DNR Water Supply Engineering.

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## Test Well and Observation Well Checklist

**Test Wells** are defined as **temporary** structures used for public water supply data collection. Test wells may be constructed without prior department authorization if the well will not be left in place longer than 7 days. If a test well is to be left in place longer than 7 days, the well must be authorized by the DNR Water Supply Engineering Section (WSES.) The following information is required to be submitted to the DNR WSES as soon as it is known the well will remain longer than 7 days but no later than day 7 after construction.

**Observation Wells** are defined as public water supply related structures that are permanent structures that are constructed with prior department authorization through the DNR WSES. The following information is required to be submitted to the DNR WSES prior to construction.

- ☐ Submit a letter stating the public water supply name, including the PWS ID number, the contact person, and their contact information.
- ☐ Submit a map of the area showing the location of the well(s). The map should include at least the area within 200 feet surrounding the well.
- ☐ Submit general construction information such as diameter of the borehole(s), diameter of casing(s), amount and type of grout, and depth of the well(s).
- ☐ Include in the letter a signed statement verifying that the well(s) are constructed in accordance with Part 3 of the Recommended Standards for Water Works (2007 edition).
- ☐ Include in the letter a signed statement that the public water supply will provide protection for the wellhead(s) so the well(s) do not create a hazard or allow degradation of the groundwater or aquifer.
- ☐ Include in the letter a signed statement that any test or observation well no longer in use or any that presents a hazard to the groundwater will be properly plugged upon abandonment according to 567 IAC Chapter 39 and the well plugging record submitted to the DNR on form 542-1226.
- ☐ Include \$100 permit fee (fee covers projects with a value of \$50,000 or less)

Mail the fee, along with letter, map, and any attachments to:

Iowa DNR - Water Supply Engineering Section  
6200 Park Ave Ste 200  
Des Moines, Iowa 50321

Any test or observation well that the well owner wants to use as a PWS production well must meet additional requirements prior to placing the well in service. Please contact your local DNR Field Services Office or Water Supply Engineering for information regarding these requirements.

Any well constructed with the intent of being used as a PWS well, must be permitted through the normal PWS construction permitting process. Contact Water Supply Engineering for additional information.