

ODNR Well Construction Logs & Well Sealing Reports

FSOP 1.8 (September 14, 2015)

Ohio EPA Division of Environmental Response and Revitalization

1.0 Scope and Applicability

- 1.1 This FSOP is applicable to DERR personnel who install or decommission monitoring wells, piezometers and borings used for ground water characterization. The Ohio Department of Natural Resources (ODNR), Division of Soil and Water Resources requires that a well construction log be filed by anyone who constructs a well, and that a well sealing report be filed by anyone that seals a well.
- 1.2 Well construction logs ("well log and drilling report" forms) for each well must be completed and filed with the ODNR within 30 days after the installation of the well in accordance with Ohio Revised Code (ORC) 1521.05(B). ODNR well logs must be filed for all permanent or temporary monitoring wells and piezometers. Additionally, well logs must be filed for any boring used to collect a ground water sample or characterize an aquifer or saturated zone.
- 1.3 Well casing materials do not have to be installed in the borehole to meet the definition of a well (e.g., a boring used for the collection of a grab ground water sample from the open borehole is considered a well for purposes of filing a well construction log). Well construction logs, however, do not have to be filed for soil borings used solely to characterize soil or obtain soil samples or soil borings less than six feet deep. Refer to the ODNR, Division of Soil and Water Resources Fact Sheet 93-23, *When Does a Well Log Need to be Filed?* (attached).
- 1.4 Well sealing reports must be completed and filed with the ODNR within 30 days after the completion of the sealing of the well in accordance with ORC 1521.05(C). Well sealing reports must be filed for any well or boring that require a well construction log be filed. Refer to the ODNR, Division of Soil and Water Resources Fact Sheet 92-5, *State of Ohio Water Well Sealing Regulations* (attached).

2.0 Definitions

Sealing means to remove a well from service by pulling the pump and associated piping/wiring (if installed) and filling the well with a low-permeability grouting material, typically sodium bentonite granules, chips or slurry. The sealing method used depends on the well construction and the local geologic/hydrogeologic conditions. The well screen (if present) and casing may be removed. **Decommissioning** is sometimes used as a synonym for sealing. Refer to the State of Ohio Technical Guidance for Sealing Unused Wells by the State Coordinating Committee on Ground Water (1996) for additional information.

3.0 Health and Safety Considerations

Not applicable

4.0 Procedure Cautions

Ohio EPA is registered with ODNR to file Well Construction Logs and Well Sealing Reports electronically. Ohio EPA's username and password can be obtained from SIFU. (Please do not create additional ODNR accounts under Ohio EPA's name.)

5.0 Personnel Qualifications

Not Applicable

6.0 Equipment and Supplies

6.1 Ohio EPA field boring log (example attached)

6.2 ODNR Well Log and Drilling Report form (example attached, the official electronic version must be filed on-line)

6.3 ODNR Water Well Sealing Report form (example attached, the official electronic version must be filed on-line)

7.0 Procedure

7.1 Prior to the start of field activities, the DERR site coordinator will work with the SIFU supervisor and staff to determine who is responsible for completing and filing ODNR Well Construction Logs and Well Sealing Reports.

7.2 Ohio EPA is registered with ODNR to file Well Construction Logs and Well Sealing Reports electronically. Ohio EPA's username and password can be obtained from SIFU. (Please do not create additional ODNR accounts under Ohio EPA's name.)

7.3 ODNR Well Construction Log Filing Procedures

7.3.1 Using the example Ohio EPA field boring log, attached (or an equivalent form), document the boring and monitoring well installation. Refer to FSOP 2.1.5, Soil Description, Classification and Logging.

7.3.2 Within 30 days of completing the monitoring well or boring, file an electronic well log and drilling report form (example attached) with the ODNR using Ohio EPA's ID and password at the following website: http://apps.ohiodnr.gov/water/maptechs/submitlogs/driller_login.asp

7.3.3 If an electronic copy cannot be filed, the hardcopy version of the form may be used to file the well log.

7.3.4 Print out a copy of the completed ODNR well log and drilling report form for inclusion in the Ohio EPA project file.

7.4 ODNR Well Sealing Report Filing Procedures

- 7.4.1 Follow the procedures provided in FSOP 1.9, Boring and Monitoring Well Decommissioning. Document the relevant information on the ODNR well sealing report form (attached) or in a field log sheet or field book.
- 7.4.2 Within 30 days of completion of well sealing, file an electronic well sealing report form (example attached) with the ODNR using Ohio EPA's ID and password at the following website:
http://apps.ohiodnr.gov/water/maptechs/submitlogs/driller_login.asp
- 7.4.3 If an electronic copy cannot be filed the sealing report may be filed using the hardcopy version of the form.
- 7.4.4 Retain a copy of the completed well sealing report form for inclusion in the Ohio EPA project file.

8.0 Data and Records Management

Refer to FSOP 1.3, Field Documentation.

9.0 Quality Assurance and Quality Control

Not applicable

10.0 Attachments

ODNR, Division of Soil and Water Resources Fact Sheet 93-23, *When Does a Well Log Need to be Filed?*

ODNR, Division of Soil and Water Resources Fact Sheet 92-5, *State of Ohio Water Well Sealing Regulations*

Ohio EPA Field Boring Log Form (example provided)

ODNR Well Log and Drilling Report Form

ODNR Water Well Sealing Report Form

11.0 References

FSOP 1.3, Field Documentation

FSOP 1.9, Boring and Monitoring Well Decommissioning

FSOP 2.1.5, Soil Description, Classification and Logging

Ohio Revised Code (ORC) 1521.05(B) and 1521.05(C)
State of Ohio Technical Guidance for Sealing Unused Wells (State Coordinating Committee on Ground Water, 1996)



Ohio Department of Natural Resources

Division of Soil and Water Resources

Fact Sheet

Fact Sheet 93–23

When Does a Well Log Need to be Filed?

The filing of well logs was originally required by the Ohio Water Resources commission in 1945. Upon establishment of the Ohio Department of Natural Resources (ODNR) in 1949, the Division of Water was given the charge of collecting and maintaining well logs for the state of Ohio. The Ohio Revised Code (ORC) Section 1521.05 (B) states that “Any person that constructs a well shall keep a careful and accurate log of the construction of the well.” This section provides a definition of a well, a description of the information that must be provided, where the forms must be sent, specifies a time frame for filing the well logs, and identifies the penalties for non-compliance.

What constitutes a well?

ORC Section 1521.01 (B) defines a well as; “any excavation regardless of design or method of construction, created for any of the following purposes:

- (1) Removing ground water from or recharging water into an aquifer, excluding subsurface drainage systems installed to enhance agricultural crop production or urban or suburban landscape management or to control seepage in dams, dikes and levees;
- (2) Determining the quantity, quality, level, or movement of ground water in or the stratigraphy of an aquifer, excluding borings for instrumentation in dams, dikes, levees, or highway embankments;
- (3) Removing or exchanging heat from ground water, excluding horizontal trenches that are installed for water source heat pump systems.”

Water Supply, Recharge, and Dewatering Wells

Definition (1) includes all private and public water supply wells, any well which is used to recharge an aquifer, and any well used to dewater an aquifer. Wells used for irrigation, livestock watering, general farm use, fire protection, industrial applications, power generation, or for cooling water supply fall under this definition, and a well log must be submitted. This definition excludes wells installed to control seepage in dams, dikes, and levees because these wells are usually installed in areas

that have been disturbed during construction and thus would not be indicative of natural conditions. Also excluded are shallow (less than 5-foot deep) structures that are used to increase soil moisture in agricultural or landscape settings.

Monitoring Wells

Definition (2) pertains to monitoring wells, piezometers, and test borings. A well log needs to be filed for every well in which any characteristic of an aquifer is being monitored. This includes the quantity, quality, level or movement of ground water in an aquifer. Also included under definition (2) are borings used to characterize the aquifer(s) in an area. Test borings or wells drilled for environmental site assessments related to real estate transactions fall under this definition and a well log must be filed. Well casing DOES NOT have to be installed. Soil borings (less than 6 feet deep) and slope stability borings do not have to be logged and submitted to the Division of Soil and Water Resources.

Basically, any time casing is installed, or a boring is planned to determine the presence of an aquifer, a well log must be submitted on the form prescribed by the Division (i.e. either the on-line form or the standard four-part paper well log form provided to all contractors and consultants). ORC 1521.01 defines an aquifer as “a consolidated or unconsolidated geologic formation or series of formations that are hydraulically interconnected and that have the ability to receive, store, or transmit water.” Other governmental agencies have slightly different definitions of an aquifer. Therefore, if another agency requires the monitoring of a certain geologic horizon, then a well log needs to be filed for that well. Most importantly, the consulting company and the drilling contractor need to completely fill out and submit a well log for each well. Information must be provided by both parties to complete all sections of the well log as required by ORC section 1521.05(B).

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Ground Water or Ground Source Heat Pump Wells

Definition (3) pertains to ground water heat exchange wells and borings. This definition includes both open and closed loop vertical systems. Wells used for withdrawal or injection of ground water require a well log to be submitted for each well. Vertical closed loop systems exchange heat from ground water and are thus covered under the definition of a well. For small closed loop systems (less than 20 borings), one well record is required. For all other systems, five well records are required; one at each corner of the grid and one for the center-most boring. Horizontally trenched closed loop systems are excluded under this section of the Revised Code.

For a quick reference of different types of excavations, and whether a well log needs to be filed with the Division of Soil and Water Resources, see the table below.

Information Required on a Well Log

The Ohio Revised code requires that the well log forms be filled out completely and must include items identified in ORC Section 1521.05 (A). These items include a description of the formations encountered, the depth(s) at which water was encountered, the static water level of the completed well, a copy of the record of all pumping tests and analyses, construction details of the well, and the type of pumping equipment installed, if applicable. By default, any information identified on the well log, and collected by the drilling contractor and/or the on-site geologist, must be provided on the well log. By signing the well log, the contractor and/or the consultant certify the accuracy of and authenticity of the information recorded and filed.

Penalties for Not Filing

Well logs are required to be filed with the Division of Soil and Water Resources within 30 days of completion of the well. The penalty for not filing a well log is described in ORC 1521.99.

The Division of Soil and Water Resources maintains over 800,000 well log and drilling report forms for the entire state. Well logs provide information on subsurface geology, ground water levels, well yields, and individual well construction. This data represents the most comprehensive and detailed source of ground water data for the state and is accessed daily for a multitude of applications including the development of geologic maps, ground water resource maps and investigations, conflict resolution, ground water contamination investigations, and programs related to other state, local and federal agencies.

The Division is committed to working cooperatively with both the drilling and consulting industries to promote the filing of well logs, and the collection and recording of accurate data on the well log forms.

For additional information, please contact:

Ohio Department of Natural Resources
Division of Soil and Water Resources
Ground Water Mapping & Technical Services Program
2045 Morse Road B-2
Columbus, Ohio 43229-6693
Voice: (614) 265-6740 Fax: (614) 265-6767
E-mail: water@dnr.state.oh.us
Website: <http://www.ohiodnr.gov/soilandwater/>

Does a well log need to be filed?

Yes	No
Private water supply well	Recharge well that increases soil moisture only
Public water supply well	Soil boring
Irrigation well	Well installed to control seepage in dams, dikes, and levees
Dewatering well	Boring to determine slope stability
Heat exchange well	Soil vapor well
Livestock well	Industrial/municipal injection well (Class I)
Test well	Brine injection well (Class II)
Monitor well	Solution mining well (Class III)
Boring to characterize the aquifer	Mineral exploration boring
Remediation/extraction/collector well	
Drainage well	
Aquifer recharge wells	
Alteration of an existing well	
Cooling water well	
Fire protection well	
Industrial use well	





Ohio Department of Natural Resources

Division of Soil and Water Resources

Fact Sheet

Fact Sheet 92-5

State of Ohio Water Well Sealing Regulations

Current regulations for private (Ohio Administrative Code (OAC) 3701-28-17) and public water supply wells (OAC 3745-9-10) require that boreholes not converted into wells, and wells not being used to obtain water or provide information on quantity or quality be sealed.

The authority for enforcement for public water supplies is the Ohio Environmental Protection Agency (EPA) Division of Drinking and Ground Water. The Ohio Department of Health and the local health departments have authority for enforcement for private wells.

Sealing of an abandoned well must be documented per the Ohio Revised Code (ORC) Section 1521.05 (C). A well sealing report must be submitted to the Ohio Department of Natural Resources (ODNR) Division of Soil and Water Resources. A well sealing form can be requested from ODNR by calling 614-265-6740. For private wells, the local health department should be contacted when an abandoned well is going to be sealed.

Selected portions of the Ohio Department of Health's Private Water System Rules Chapter 3701-28

3701-28-01. Definitions

(PP) "Grout" means the materials set forth in or approved under paragraph (F), (G) and (H) of rule 3701-28-09 of the Administrative Code.

(WWW) "Seal" means to close or properly abandon a well, cistern or hauled water storage tank or to close a portion of a well or the annular space of a well.

3701-28-17 Procedures for the sealing of private water systems

(A) Upon completion of testing, a test hole shall either be permanently sealed or converted into a well...

(B) All private water systems that are not providing the primary source of water shall either be sealed in accordance with this rule or maintained in strict compliance with all applicable requirements of this chapter.

(C) All dry holes that are not being used as a private water system shall be sealed in accordance with the provisions of this rule or may be converted to a geothermal system and meet the requirements of paragraph (A) of this rule.

(D) When a replacement private water system or a public water system is installed, the well that is not providing the primary source of water shall be sealed pursuant to the provisions of this rule within thirty days, unless the following conditions can be met:

(1) The well owner demonstrates... that the well will not cause or contribute to contamination of the ground water supply, present a safety hazard or present a public health nuisance;

(2) The well is and will be maintained in compliance with this chapter...

(3) When the well is no longer the primary source of water due to connection to a public water supply, demonstration of the backflow prevention requirements of rule 3745-95 of the Administrative Code is required.

(E) Except as provided in paragraph (G) of this rule, the owner of property on which a permanently out of service well is located shall be responsible for the sealing of the well...

(H) Sealing materials approved for use in rule 3701-28-09 of the Administrative Code shall be used to seal private water systems, test wells, and dry holes.

Selected portions of the Ohio Environmental Protection Agency's Water Well Standards, Ohio Administrative Code 3745-9

3745-9-01. Definitions

(Y) "Grout" means a slurry of cement, bentonite, clay or other impervious material that is used to seal a well, test hole, dry hole, or annular space. Grout specifications for sealing are in rule 3745-9-07 of the Administrative Code.

3745-9-03 Monitoring well.

(A) If not otherwise regulated by the director, or another Ohio agency, board, or commission, then the "Ohio EPA Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring," or other standards adopted by the director, shall be used as a guide for monitoring well construction and sealing to prevent the contamination of ground water.

(B) A monitoring well that is damaged or deteriorated shall be either repaired to a state consistent with construction requirements of paragraph (A) of this rule, or sealed in accordance with paragraph (A) of this rule.

(C) A monitoring well that is no longer being used shall be sealed in accordance with paragraph (A) of this rule.

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3745-9-10 Abandoned well sealing.

(A) An abandoned well shall be sealed in accordance with this rule and rule 3745-9-07 of the Administrative Code.

(1) The State of Ohio Technical Guidance For Sealing Unused Wells (1996) shall be used as a guide.

(2) Plan approval is not required in accordance with Chapter 3745-91 of the Administrative Code to seal an abandoned well, test hole, or dry hole. A public water system may apply to the director for a variance from this rule in accordance with paragraph (E) of rule 3745-9-02 of the Administrative Code.

(B) A test hole shall either be permanently sealed or converted into a well upon completion of testing.

(C) An abandoned well shall be sealed in accordance with these requirements...

(D) A copy of the well sealing report that is required by section 1521.05 of the Revised Code shall be submitted to the district office within thirty days of sealing a public water system well. The abandoned well location shall be clearly noted on a site map with reference to highways, streets, corporate boundaries, and local physical landmarks.

Selected portions of the Ohio Department of Natural Resources' water well sealing requirements, Ohio Revised Code 1521.05

1521.05 Well construction logs - well sealing reports.

(C) Any person that seals a well shall keep a careful and accurate report of the sealing of the well. The sealing report shall show all of the following:

- (1) The name of the owner of the well, the address of the location where the well was constructed, and either the state plane coordinates or the latitude and longitude of the well;
- (2) The depth of the well, the size and length of its casing, and the static water level of the well;
- (3) The sealing procedures, including the volume and type of sealing material or materials and the method and depth of placement of each material;
- (4) The date on which the sealing was performed;
- (5) The signature of the individual who sealed the well and filed the sealing report;
- (6) Any other information required by the chief.

The sealing report shall be filed with the division within thirty days after the completion of the sealing of the well on forms prescribed and prepared by the division.

For more information please contact:

Ohio Department of Natural Resources
Division of Soil and Water Resources
Ground Water Mapping & Technical Services Program
2045 Morse Road B-2
Columbus, Ohio 43229-6693
Voice: (614) 265-6740 Fax: (614) 265-6767
E-mail: water@dnr.state.oh.us
Website: <http://www.ohiodnr.gov/soilandwater/>



FIELD USE ONLY
WELL SEALING REPORT
DO NOT FILE. NOT AN OFFICIAL RECORD.

DNR 7810.12e-f

Page ___ of ___ for this record.

Job Number: _____

Notes: _____

LOCATION

County _____ Township _____ Section No. _____ Lot No. _____

Owner _____

Address of Well Location _____

City _____ Zip Code _____

Well Location Description (120 Characters) _____

Location of Well in either: $\left\{ \begin{array}{l} \text{State Plane } N \square \\ \text{OR } S \square \\ \text{Latitude/Longitude } \end{array} \right. X \left[\begin{array}{|c|c|c|c|c|c|c|c|c|c|} \hline \square \\ \hline \end{array} \right] +/- \text{ } ______ \text{ ft. } Y \left[\begin{array}{|c|c|c|c|c|c|c|c|c|c|} \hline \square \\ \hline \end{array} \right] +/- \text{ } ______ \text{ ft. } \\ \text{Latitude } ______ \text{ Longitude } ______ \end{array} \right\}$

Elevation of Well $\left[\begin{array}{|c|c|c|c|} \hline \square \\ \square \\ \square \\ \square \\ \hline \end{array} \right] +/- \text{ } ______ \text{ ft. } \text{ Datum Plane: } \square \text{ NAD27 } \square \text{ NAD83}$

Source of Coordinates: GPS Survey Other _____

Source of Elevation: GPS Survey Other _____

WELL IDENTIFICATION ODNR Well Log Number _____ Project Well ID _____

MEASURED CONSTRUCTION DETAILS

Date of measurements _____

Depth of Well _____ ft. Static Water Level _____ ft.

Borehole Depth _____ ft. Borehole Diameter _____ in.

Casing Diameter _____ in. Casing Length _____ ft. Casing Type _____

SEALING PROCEDURE

Placement:	Sealing Material	Volume/Weight Used Units Required	Placement Method
From _____ ft. To _____ ft.	_____	_____	_____
From _____ ft. To _____ ft.	_____	_____	_____
From _____ ft. To _____ ft.	_____	_____	_____
From _____ ft. To _____ ft.	_____	_____	_____

Condition of Casing _____ Was Casing Removed? Yes or No (check one)

If casing **Not Removed**, was it Perforated? Yes or No (check one) Perforations: From _____ ft. To _____ ft.

Date Sealing Performed _____

Comments/Reason for Sealing _____

CONTRACTOR

Name _____ ODH Registration # _____

Address _____

City/State/Zip _____