

**Department of State  
Division of Publications**

312 Rosa L. Parks Avenue, 8th Floor Snodgrass/TN Tower  
Nashville, TN 37243  
Phone: 615-741-2650  
Email: [publications.information@tn.gov](mailto:publications.information@tn.gov)

**For Department of State Use Only**

Sequence Number: 06-15-15  
Rule ID(s): 5965  
File Date: 6/19/15  
Effective Date: 9/17/15

# Rulemaking Hearing Rule(s) Filing Form

*Rulemaking Hearing Rules are rules filed after and as a result of a rulemaking hearing (Tenn. Code Ann. § 4-5-205).*

*Pursuant to Tenn. Code Ann. § 4-5-229, any new fee or fee increase promulgated by state agency rule shall take effect on July 1, following the expiration of the ninety (90) day period as provided in § 4-5-207. This section shall not apply to rules that implement new fees or fee increases that are promulgated as emergency rules pursuant to § 4-5-208(a) and to subsequent rules that make permanent such emergency rules, as amended during the rulemaking process. In addition, this section shall not apply to state agencies that did not, during the preceding two (2) fiscal years, collect fees in an amount sufficient to pay the cost of operating the board, commission or entity in accordance with § 4-29-121(b).*

<b>Agency/Board/Commission:</b>	Environment and Conservation
<b>Division:</b>	Water Resources
<b>Contact Person:</b>	Anna Rollins
<b>Address:</b>	William R. Snodgrass Tennessee Tower 312 Rosa L. Parks Avenue, 11th Floor Nashville, Tennessee
<b>Zip:</b>	37243
<b>Phone:</b>	615-532-0159
<b>Email:</b>	<a href="mailto:anna.rollins@tn.gov">anna.rollins@tn.gov</a>

**Revision Type (check all that apply):**

- Amendment  
 New  
 Repeal

**Rule(s) Revised (ALL chapters and rules contained in filing must be listed here. If needed, copy and paste additional tables to accommodate multiple chapters. Please enter only ONE Rule Number/Rule Title per row)**

Chapter Number	Chapter Title
0400-45-09	Water Well Licensing Regulations and Well Construction Standards
Rule Number	Rule Title
0400-45-09-.05	Examinations
0400-45-09-.06	Licenses
0400-45-09-.10	Well Construction Standards
0400-45-09-.15	Data and Records Required
0400-45-09-.16	Well Abandonment
0400-45-09-.17	Geothermal Well Construction Standards for Closed Loop Geothermal Boreholes

(Place substance of rules and other info here. Statutory authority must be given for each rule change. For information on formatting rules go to <http://state.tn.us/sos/rules/1360/1360.htm>)

Amendments

Chapter 0400-45-09  
Water Well Licensing Regulations and Well Construction Standards

Paragraph (8) of Rule 0400-45-09-.05 Examinations is amended by deleting it in its entirety and substituting instead the following:

- (8) Interviews of applicants will be conducted in accordance with paragraph (2) of Rule 0400-45-10-.05.

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Subparagraph (i) of paragraph (1) of Rule 0400-45-09-.06 Licenses is amended by deleting it in its entirety and substituting instead the following:

- (i) In order to renew any license or combination of licenses, the licensee shall submit to the Commissioner satisfactory proof of the required credit hours of training approved by the Board of Ground Water Management or Director completed during the previous license year. Five (5) credit hours will be required to renew any license for the license period beginning August 1 through July 31 of the following year. First year license holders not previously licensed for any installer or driller category will not be required to obtain continuing education credits for their first year of renewal. Second and subsequent year license holders will be required to obtain continuing education credits thereafter to renew a license or combination of licenses.

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Subparagraph (d) of paragraph (2) of Rule 0400-45-09-.10 Well Construction Standards is amended by deleting it in its entirety and substituting instead the following:

- (d) New wells shall not be located closer than ten (10) feet from a property line. New wells located from ten (10) feet to twenty-five (25) feet from a property line shall require a minimum of thirty-five (35) feet of casing installed below land surface with impervious material such as cement grout or bentonite chips, tablets or bentonite grout backfilled in the annular space to a depth of thirty-five feet.

TABLE A  
MINIMUM DISTANCES TO SEPARATE WATER WELLS  
FROM POTENTIAL SOURCES OF CONTAMINATION

<u>SOURCES OF CONTAMINATION</u>	<u>MINIMUM DISTANCES</u>
Animal pens or feed lots	100 feet
Leaching Pits; sewage lagoons	200 feet
Pit Privys	75 feet
Sewer lines	50 feet
Sludge and septage disposal sites	100 feet
Septic tanks and drain fields	50 feet
House to septic tank connections, if the line is tight	10 feet
House to sewer line, if the line is tight	10 feet

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Subparagraph (c) of paragraph (2) of Rule 0400-45-09-.15 Data and Records Required is amended by deleting it in its entirety and substituting instead the following:

- (c) The location of the well as denoted by the latitude and longitudinal coordinates of the well in

degrees, minutes and seconds. The accuracy of the coordinates must be to the nearest second of the location;

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Rule 0400-45-09-.16 Well Abandonment is amended by adding paragraph (9) to read as follows:

(9) Well Abandonment-Existing Wells with Obstructions

- (a) Existing wells required to be closed for which no well construction report is on file and/or those that are partially filled or obstructed with soil, rock, construction debris or other materials must be cleaned out inside the well down to a minimum depth of twenty-five (25) feet below land surface to allow for proper sealing of the upper terminus of the well.
  - 1. If the well does not open up and remains filled below twenty-five (25) feet, the well shall be backfilled and sealed from twenty-five (25) feet to land surface with a cement grout or bentonite as defined in subparagraph (2)(c) of this rule.
  - 2. If the well opens up below twenty-five (25) feet while cleaning, the well shall be backfilled from its lowermost open depth to twenty-five (25) feet below land surface with either cement grout, bentonite, clean crushed stone one-half (½) inch diameter or less, well cuttings, puddled clay, sand or a combined mixture of any of these materials. Cement grout or bentonite as defined in subparagraph (2)(c) of this rule shall be used to backfill the well from twenty-five (25) feet to land surface.
- (b) If the grading or elevation changes are expected at the site, native soil or crushed rock can be used to backfill the well from land surface to two (2) feet below land surface.
- (c) The driller will be required to file a well closure report with the Department within sixty (60) days of the completion of the well abandonment.

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Subparagraph (b) of paragraph (2) of Rule 0400-45-09-.17 Geothermal Well Construction Standards for Closed Loop Geothermal Boreholes is amended by deleting it in its entirety and substituting instead the following:

- (b) Water used in the drilling or construction process shall be treated with enough chlorine product to retain a free chlorine residual of at least two (2) parts per million unless the water is obtained on site from a direct connection to a public supply equipped with a proper cross connection protection device.

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Subparagraph (d) of paragraph (3) of Rule 0400-45-09-.17 Geothermal Well Construction Standards for Closed Loop Geothermal Boreholes is amended by deleting it in its entirety and substituting instead the following:

- (d) The driller shall take all steps necessary to maintain safety around the borehole until the closed loop is installed and grouted in the borehole. Each ungrouted borehole or loop shall have a protective cover, or sand bag placed over the open borehole. The closed loop u-bend or dropline pipe shall be placed into the borehole to its proper depth and grouted in place within five (5) days of drilling each borehole unless the u-bend dropline pipe has been installed to its maximum depth with a dedicated tremie pipeline. Each u-bend dropline pipe opening shall be taped or crimped or covered at land surface after installation of the loop. All Closed Loop Geothermal Boreholes shall be grouted in-place within fifteen (15) days of being drilled.

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Paragraph (3) of Rule 0400-45-09-.17 Geothermal Well Construction Standards for Closed Loop Geothermal Boreholes is amended by adding subparagraphs (g) through (j) to read as follows:

- (g) All drilled boreholes must be drilled to a minimum of four (4) inches in diameter or larger to allow for installation of the loop and tremi pipe unless prior approval has been granted by the Department. Well depths shall not exceed five hundred (500) feet unless prior approval has been granted by the Department.
- (h) Geothermal systems consisting of five (5) boreholes or greater shall not be located within well head protection areas unless prior approval has been granted by the Department in writing. The driller must contact the Department to determine if a site is located within a well head protection area designated by the Department. The Director may set any conditions deemed necessary to protect the well head protection area,
- (i) A licensed geothermal driller or loop installer may request a variance from the Director to convert an existing water well into a closed loop geothermal well. A geothermal report is required within sixty (60) days upon completion of conversion if approved by the Department. There is no Notice of Intent or fee required for this conversion. The Director may approve or disapprove any request for conversion and set additional conditions as deemed necessary by the Director to protect the ground water resource.
- (j) A licensed geothermal well driller may request a variance from the Department to convert a geothermal borehole at a geothermal system to a water well. A Notice of Intent fee and specific water well driller report for the converted well is required within sixty (60) days upon completion of conversion if approved by the Department. The Department may approve or disapprove any request for conversion and set additional conditions as deemed necessary by the Department to protect the ground water resource.

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Part 3 of subparagraph (b) of paragraph (4) of Rule 0400-45-09-.17 Geothermal Well Construction Standards for Closed Loop Geothermal Boreholes is amended by deleting it in its entirety and substituting instead the following:

- 3. The location of the system as denoted by latitude and longitudinal coordinates of the center of the system, a diagram of the closed loop geothermal boreholes, and identification of other wells on the property and the location of the septic tank, field lines or sewer lines on the property. The accuracy of the coordinates must be to the nearest second of the location;

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Part 6 of subparagraph (b) of paragraph (4) of Rule 0400-45-09-.17 Geothermal Well Construction Standards for Closed Loop Geothermal Boreholes is amended by deleting it in its entirety and substituting instead the following:

- 6. Reserved;

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

I certify that this is an accurate and complete copy of rulemaking hearing rules, lawfully promulgated and adopted by the Commissioner on 02/26/2015, and is in compliance with the provisions of T.C.A. § 4-5-222.

I further certify the following:

Notice of Rulemaking Hearing filed with the Department of State on: 12/11/14

Rulemaking Hearing(s) Conducted on: (add more dates). 02/09/15



Date: 2-26-15

Signature: [Handwritten Signature]

Name of Officer: Robert J. Martineau, Jr.

Title of Officer: Commissioner

Subscribed and sworn to before me on: 2-26-15

Notary Public Signature: [Handwritten Signature]

My commission expires on: June 21, 2016

All rulemaking hearing rules provided for herein have been examined by the Attorney General and Reporter of the State of Tennessee and are approved as to legality pursuant to the provisions of the Administrative Procedures Act, Tennessee Code Annotated, Title 4, Chapter 5.

[Handwritten Signature]  
Herbert H. Slatery III  
Attorney General and Reporter

April 16, 2015  
Date

**Department of State Use Only**

Filed with the Department of State on: 6/19/15

Effective on: 9/17/15

[Handwritten Signature]  
Tre Hargett  
Secretary of State

RECEIVED  
2015 JUN 19 AM 10:46  
SECRETARY OF STATE  
PUBLICATIONS  
RDA 88

## Public Hearing Comments

One copy of a document containing responses to comments made at the public hearing must accompany the filing pursuant to T.C.A. § 4-5-222. Agencies shall include only their responses to public hearing comments, which can be summarized. No letters of inquiry from parties questioning the rule will be accepted. When no comments are received at the public hearing, the agency need only draft a memorandum stating such and include it with the Rulemaking Hearing Rule filing. Minutes of the meeting will not be accepted. Transcripts are not acceptable.

Comment: In regards to the proposed amendment to subparagraph (1)(b) of Rule 0400-45-09-.06, a commenter was of the opinion that treatment installers should not be allowed to modify pump equipment or pump systems due to warranties and a lack of general knowledge in the operation of the pumping system.

Response: The department agrees and the proposed amendment to subparagraph (1)(b) of Rule 0400-45-09-.06 has been deleted.

Comment: In regards to the proposed amendment to subparagraph (2)(c) of Rule 0400-45-09-.15, a commenter was of the opinion that the rules concerning the location of water wells should not be changed, wells should still be located using the current driller grid map overlay. Even if the county maps are not going to be made anymore, a state inspector should still be able to locate any well using the current system as county roads maps rarely change. If new roads were to be built, the inspector could easily contact the driller for directions to the site. Every well driller is already comfortable with the current procedure for locating wells.

Response: The department understands that the driller grid map is the way that most drillers are comfortable with, but the maps are no longer accurate and will no longer be published by the Tennessee Department of Transportation in a way where the staff can use a standard grid. So, therefore, a new system of locational information gathering is required. Also, in order to serve the drilling community and the citizens of the State, the information provided by the water well professional is entered into a database that will not accept the old driller map grid numbers and requires a latitude and longitude.

### Regulatory Flexibility Addendum

Pursuant to T.C.A. §§ 4-5-401 through 4-5-404, prior to initiating the rule making process as described in T.C.A. § 4-5-202(a)(3) and T.C.A. § 4-5-202(a), all agencies shall conduct a review of whether a proposed rule or rule affects small businesses.

- (1) The type or types of small business and an identification and estimate of the number of small businesses subject to the proposed rule that would bear the cost of, or directly benefit from the proposed rule.

There are approximately 300 water well drilling businesses in Tennessee.

- (2) The projected reporting, recordkeeping, and other administrative costs required for compliance with the proposed rule, including the type of professional skills necessary for preparation of the report or record.

These changes will require the locational data placed on the existing reports to be entered in a different format. In order to comply with the reporting requirements for latitude and longitude the drilling company can supply this information in several ways, the driller could use a Global Positional System (GPS), these are readily available at a reasonable cost (several smart phones have free apps that will show your location), there are several free computer mapping programs that provide the information and the driller can always use a topographical map and determine the location of the well.

- (3) A statement of the probable effect on impacted small businesses and consumers.

These changes will require the locational data placed on the existing reports to be entered in a different format.

- (4) A description of any less burdensome, less intrusive or less costly alternative methods of achieving the purpose and objectives of the proposed rule that may exist, and to what extent the alternative means might be less burdensome to small business.

The current method of using the driller grid maps is no longer accurate and these maps will no longer be published by the Tennessee Department of Transportation in a way where the department or the well drillers can use a standard grid. Therefore, a new system of locational information gathering is required and the information provided by the water well professional is entered into a database that will not accept the old driller map grid numbers and requires a latitude and longitude. The information required by the new method is available to the well drillers at little or no cost.

- (5) A comparison of the proposed rule with any federal or state counterparts.

Not applicable.

- (6) Analysis of the effect of the possible exemption of small businesses from all or any part of the requirements contained in the proposed rule.

All the businesses subject to this rule chapter are small businesses and exempting them would negate the protection of public health and the environment benefits compliance with these regulations provide. The location information is necessary to facilitate proper inspection of wells and to provide useful information to the citizens of Tennessee.

### **Impact on Local Governments**

Pursuant to T.C.A. §§ 4-5-220 and 4-5-228 "any rule proposed to be promulgated shall state in a simple declarative sentence, without additional comments on the merits of the policy of the rules or regulation, whether the rule or regulation may have a projected impact on local governments." (See Public Chapter Number 1070 (<http://state.tn.us/sos/acts/106/pub/pc1070.pdf>) of the 2010 Session of the General Assembly)

The department does not anticipate any impact on local governments from these rules.

**Additional Information Required by Joint Government Operations Committee**

All agencies, upon filing a rule, must also submit the following pursuant to T.C.A. § 4-5-226(i)(1).

- (A) A brief summary of the rule and a description of all relevant changes in previous regulations effectuated by such rule;

The primary intent of this rulemaking is to update the existing water well licensing and well construction standards by incorporating clarification language.

- The duties of the Ground Water Management Board were moved from Rule Chapter 0400-45-09 and placed in Rule 0400-45-10-.05, since the board is the proper rulemaking authority for these requirements.
- Pump and treatment installer licenses were modified for clarification.
- The continuing education requirements were clarified.
- Setback distances from potential contaminant sources were updated to include new sources of potential contamination.
- Well location submittal data was modified due to the Tennessee Department of Transportation's changes in how the local county maps were published.
- Well abandonment standards were modified to allow more flexibility on existing wells where the construction information is unavailable.
- Clarification on the source of water that will be used as drilling fluids.
- Clarification was made on well site safety and borehole protection and construction of boreholes for geothermal wells.

- (B) A citation to and brief description of any federal law or regulation or any state law or regulation mandating promulgation of such rule or establishing guidelines relevant thereto;

These amendments are being adopted under the authority of T.C.A. §§ 69-10-101 et seq.

- (C) Identification of persons, organizations, corporations or governmental entities most directly affected by this rule, and whether those persons, organizations, corporations or governmental entities urge adoption or rejection of this rule;

Tennessee Water Well association and its members are directly affected by this proposed rule and they neither urged adoption or rejection of these amendments, however, three members offered comments for consideration.

- (D) Identification of any opinions of the attorney general and reporter or any judicial ruling that directly relates to the rule;

The department is not aware of any legal opinions or judicial rulings regarding these rules.

- (E) An estimate of the probable increase or decrease in state and local government revenues and expenditures, if any, resulting from the promulgation of this rule, and assumptions and reasoning upon which the estimate is based. An agency shall not state that the fiscal impact is minimal if the fiscal impact is more than two percent (2%) of the agency's annual budget or five hundred thousand dollars (\$500,000), whichever is less;

No fees are proposed within this rule change therefore the estimate is minimal.

- (F) Identification of the appropriate agency representative or representatives, possessing substantial knowledge and understanding of the rule;

Anna Rollins  
Division of Water Resources  
William R. Snodgrass Tennessee Tower  
312 Rosa L. Parks Avenue, 11th Floor  
Nashville, Tennessee 37243  
[anna.rollins@tn.gov](mailto:anna.rollins@tn.gov)

- (G) Identification of the appropriate agency representative or representatives who will explain the rule at a scheduled meeting of the committees;

Jenny Howard  
Deputy General Counsel  
Office of General Counsel

- (H) Office address, telephone number, and email address of the agency representative or representatives who will explain the rule at a scheduled meeting of the committees; and

Office of General Counsel  
Tennessee Department of Environment and Conservation  
William R. Snodgrass Tennessee Tower  
312 Rosa L. Parks Avenue, 2nd Floor  
Nashville, Tennessee 37243  
(615) 532-0131  
[Jenny.Howard@tn.gov](mailto:Jenny.Howard@tn.gov)

- (I) Any additional information relevant to the rule proposed for continuation that the committee requests.

The Department is not aware of any requests.

**Department of State  
Division of Publications**

312 Rosa L. Parks Avenue, 8th Floor Snodgrass/TN Tower  
Nashville, TN 37243  
Phone: 615-741-2650  
Email: [publications.information@tn.gov](mailto:publications.information@tn.gov)

**For Department of State Use Only**

Sequence Number: 06-15-15  
Rule ID(s): 5965  
File Date: 6/19/15  
Effective Date: 9/17/15

## Rulemaking Hearing Rule(s) Filing Form

Rulemaking Hearing Rules are rules filed after and as a result of a rulemaking hearing (Tenn. Code Ann. § 4-5-205).

Pursuant to Tenn. Code Ann. § 4-5-229, any new fee or fee increase promulgated by state agency rule shall take effect on July 1, following the expiration of the ninety (90) day period as provided in § 4-5-207. This section shall not apply to rules that implement new fees or fee increases that are promulgated as emergency rules pursuant to § 4-5-208(a) and to subsequent rules that make permanent such emergency rules, as amended during the rulemaking process. In addition, this section shall not apply to state agencies that did not; during the preceding two (2) fiscal years, collect fees in an amount sufficient to pay the cost of operating the board, commission or entity in accordance with § 4-29-121(b).

<b>Agency/Board/Commission:</b>	Environment and Conservation
<b>Division:</b>	Water Resources
<b>Contact Person:</b>	Anna Rollins
<b>Address:</b>	William R. Snodgrass Tennessee Tower 312 Rosa L. Parks Avenue, 11th Floor Nashville, Tennessee
<b>Zip:</b>	37243
<b>Phone:</b>	615-532-0159
<b>Email:</b>	<a href="mailto:anna.rollins@tn.gov">anna.rollins@tn.gov</a>

**Revision Type (check all that apply):**

- Amendment  
 New  
 Repeal

**Rule(s) Revised (ALL chapters and rules contained in filing must be listed here. If needed, copy and paste additional tables to accommodate multiple chapters. Please enter only ONE Rule Number/Rule Title per row)**

Chapter Number	Chapter Title
0400-45-09	Water Well Licensing Regulations and Well Construction Standards
Rule Number	Rule Title
0400-45-09-.05	Examinations
0400-45-09-.06	Licenses
0400-45-09-.10	Well Construction Standards
0400-45-09-.15	Data and Records Required
0400-45-09-.16	Well Abandonment
0400-45-09-.17	Geothermal Well Construction Standards for Closed Loop Geothermal Boreholes

(Place substance of rules and other info here. Statutory authority must be given for each rule change. For information on formatting rules go to <http://state.tn.us/sos/rules/1360/1360.htm>)

## Amendments

### Chapter 0400-45-09 Water Well Licensing Regulations and Well Construction Standards

Paragraph (8) of Rule 0400-45-09-.05 Examinations is amended by deleting it in its entirety and substituting instead the following:

- (8) Interviews of applicants will be conducted in accordance with paragraph (2) of Rule 0400-45-10-.05. ~~before at least three members of the Board. Questioning by individual Board members to the quality and quantity of the applicant's experience will include, but not be limited to, the following:~~
- (a) ~~Where and when it was obtained;~~
  - (b) ~~Types of equipment used;~~
  - (c) ~~What was the applicant's level of responsibility;~~
  - (d) ~~Familiarity of the applicant with addressing problems such as:~~
    - 1. ~~Construction techniques used in each type well drilled for each license applied for.~~
    - 2. ~~Operation of drilling equipment used in drilling wells or boreholes.~~
    - 3. ~~Installation techniques and principles of operation for pumps and or water treatment devices.~~
  - (e) ~~Knowledge of State well construction standards; and~~
  - (f) ~~Responsibilities of licensees to the well owner and the Department.~~

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Subparagraph (i) of paragraph (1) of Rule 0400-45-09-.06 Licenses is amended by deleting it in its entirety and substituting instead the following:

- (i) In order to renew any license or combination of licenses, the licensee shall submit to the Commissioner satisfactory proof of the required credit hours of training approved by the Board of Ground Water Management or Director completed during the previous license year. ~~Three (3)~~ Five (5) credit hours will be required to renew any license for the license period beginning August 1, 2004 and ending through July 31, 2005. ~~Five (5) credit hours will be required for all applicants who wish to renew a license or combination of licenses for all license years after July 31, 2005 of the following year.~~ First year license holders not previously licensed for any installer or driller category will not be required to obtain continuing education credits for their first year of renewal. Second and subsequent year license holders will be required to obtain continuing education credits thereafter to renew a license or combination of licenses.

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Subparagraph (d) of paragraph (2) of Rule 0400-45-09-.10 Well Construction Standards is amended by deleting it in its entirety and substituting instead the following:

- (d) New wells shall not be located closer than ten (10) feet from a property line. New wells located from ten (10) feet to twenty-five (25) feet from a property line shall require a minimum of thirty-five (35) feet of casing installed below land surface with impervious material such as cement grout or bentonite chips, tablets or bentonite grout backfilled in the annular space to a depth of thirty-five feet.

TABLE A  
MINIMUM DISTANCES TO SEPARATE WATER WELLS  
FROM POTENTIAL SOURCES OF CONTAMINATION

<u>SOURCES OF CONTAMINATION</u>	<u>MINIMUM DISTANCES</u>
Animal pens or feed lots	100 feet
Leaching Pits; sewage lagoons	200 feet
Pit Privys	75 feet
Sewer lines	50 feet
Sludge and septage disposal sites	100 feet
Septic tanks and drain fields	50 feet
House to septic tank connections, if the line is tight	10 feet
House to sewer line, if the line is tight	10 feet

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Subparagraph (c) of paragraph (2) of Rule 0400-45-09-.15 Data and Records Required is amended by deleting it in its entirety and substituting instead the following:

- (c) The location of the well as denoted by ~~driller map number coordinate or~~ the latitude and longitude longitudinal coordinates of the well in degrees, minutes and seconds. The accuracy of the coordinates must be to the nearest second of the location;

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Rule 0400-45-09-.16 Well Abandonment is amended by adding paragraph (9) to read as follows:

(9) Well Abandonment-Existing Wells with Obstructions

- (a) Existing wells required to be closed for which no well construction report is on file and/or those that are partially filled or obstructed with soil, rock, construction debris or other materials must be cleaned out inside the well down to a minimum depth of twenty-five (25) feet below land surface to allow for proper sealing of the upper terminus of the well.
1. If the well does not open up and remains filled below twenty-five (25) feet, the well shall be backfilled and sealed from twenty-five (25) feet to land surface with a cement grout or bentonite as defined in subparagraph (2)(c) of this rule.
  2. If the well opens up below twenty-five (25) feet while cleaning, the well shall be backfilled from its lowermost open depth to twenty-five (25) feet below land surface with either cement grout, bentonite, clean crushed stone one-half (½) inch diameter or less, well cuttings, puddled clay, sand or a combined mixture of any of these materials. Cement grout or bentonite as defined in subparagraph (2)(c) of this rule shall be used to backfill the well from twenty-five (25) feet to land surface.
- (b) If the grading or elevation changes are expected at the site, native soil or crushed rock can be used to backfill the well from land surface to two (2) feet below land surface.
- (c) The driller will be required to file a well closure report with the Department within sixty (60) days of the completion of the well abandonment.

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Subparagraph (b) of paragraph (2) of Rule 0400-45-09-.17 Geothermal Well Construction Standards for Closed Loop Geothermal Boreholes is amended by deleting it in its entirety and substituting instead the following:

- (b) All ~~water~~ Water used in the drilling or construction process shall be treated with enough chlorine

product to retain a free chlorine residual of at least two (2) parts per million unless the water is obtained on site from a direct connection to a public supply equipped with a proper cross connection protection device.

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Subparagraph (d) of paragraph (3) of Rule 0400-45-09-.17 Geothermal Well Construction Standards for Closed Loop Geothermal Boreholes is amended by deleting it in its entirety and substituting instead the following:

- (d) The driller shall take all steps necessary to maintain safety around the borehole until the closed loop is installed and grouted in the borehole. Each ungrouted borehole or loop shall have a protective cover, or sand bag placed over the open borehole. The closed loop u-bend or dropline pipe shall be placed into the borehole to its proper depth and grouted in place within three (3) five (5) days of drilling each borehole unless the u-bend dropline pipe has been installed to its maximum depth with a dedicated tremie pipeline. Each u-bend dropline pipe opening shall be taped or crimped or covered at land surface after installation of the loop. All Closed Loop Geothermal Boreholes shall be grouted in-place within fifteen (15) days of being drilled.

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Paragraph (3) of Rule 0400-45-09-.17 Geothermal Well Construction Standards for Closed Loop Geothermal Boreholes is amended by adding subparagraphs (g) through (j) to read as follows:

- (g) All drilled boreholes must be drilled to a minimum of four (4) inches in diameter or larger to allow for installation of the loop and tremi pipe unless prior approval has been granted by the Department. Well depths shall not exceed five hundred (500) feet unless prior approval has been granted by the Department.
- (h) Geothermal systems consisting of five (5) boreholes or greater shall not be located within well head protection areas unless prior approval has been granted by the Department in writing. The driller must contact the Department to determine if a site is located within a well head protection area designated by the Department. The Director may set any conditions deemed necessary to protect the well head protection area.
- (i) A licensed geothermal driller or loop installer may request a variance from the Director to convert an existing water well into a closed loop geothermal well. A geothermal report is required within sixty (60) days upon completion of conversion if approved by the Department. There is no Notice of Intent or fee required for this conversion. The Director may approve or disapprove any request for conversion and set additional conditions as deemed necessary by the Director to protect the ground water resource.
- (j) A licensed geothermal well driller may request a variance from the Department to convert a geothermal borehole at a geothermal system to a water well. A Notice of Intent fee and specific water well driller report for the converted well is required within sixty (60) days upon completion of conversion if approved by the Department. The Department may approve or disapprove any request for conversion and set additional conditions as deemed necessary by the Department to protect the ground water resource.

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Part 3 of subparagraph (b) of paragraph (4) of Rule 0400-45-09-.17 Geothermal Well Construction Standards for Closed Loop Geothermal Boreholes is amended by deleting it in its entirety and substituting instead the following:

3. The location of the system as denoted by ~~driller map number coordinate~~ or latitude and longitude longitudinal coordinates of the center of the system, and a diagram of the closed loop geothermal boreholes, showing each location and identification of other wells on the property and the location of the septic tanks tank, field lines or sewers sewer lines on the property. The accuracy of the coordinates must be to the nearest second of the location;

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

Part 6 of subparagraph (b) of paragraph (4) of Rule 0400-45-09-.17 Geothermal Well Construction Standards for Closed Loop Geothermal Boreholes is amended by deleting it in its entirety and substituting instead the following:

6. ~~Reserved Closed loop geothermal borings and underground lines associated with heat transfer to geothermal boreholes are required to have detectable underground tape placed above the boring or heat transfer lines within eighteen inches of land surface to denote the subsurface location of the installations;~~

Authority: T.C.A. §§ 69-10-101 et seq. and 4-5-201 et seq.

I certify that this is an accurate and complete copy of rulemaking hearing rules, lawfully promulgated and adopted by the Commissioner on 02/26/2015, and is in compliance with the provisions of T.C.A. § 4-5-222.

I further certify the following:

Notice of Rulemaking Hearing filed with the Department of State on: 12/11/14

Rulemaking Hearing(s) Conducted on: (add more dates). 02/09/15

Date: February 26, 2015

Signature: \_\_\_\_\_

Name of Officer: Robert J. Martineau, Jr.

Title of Officer: Commissioner

Subscribed and sworn to before me on: \_\_\_\_\_

Notary Public Signature: \_\_\_\_\_

My commission expires on: \_\_\_\_\_

---

All rulemaking hearing rules provided for herein have been examined by the Attorney General and Reporter of the State of Tennessee and are approved as to legality pursuant to the provisions of the Administrative Procedures Act, Tennessee Code Annotated, Title 4, Chapter 5.

\_\_\_\_\_  
Herbert H. Slatery III  
Attorney General and Reporter

\_\_\_\_\_  
Date

**Department of State Use Only**

Filed with the Department of State on: \_\_\_\_\_

Effective on: \_\_\_\_\_

\_\_\_\_\_  
Tre Hargett  
Secretary of State

## Public Hearing Comments

One copy of a document containing responses to comments made at the public hearing must accompany the filing pursuant to T.C.A. § 4-5-222. Agencies shall include only their responses to public hearing comments, which can be summarized. No letters of inquiry from parties questioning the rule will be accepted. When no comments are received at the public hearing, the agency need only draft a memorandum stating such and include it with the Rulemaking Hearing Rule filing. Minutes of the meeting will not be accepted. Transcripts are not acceptable.

Comment: In regards to the proposed amendment to subparagraph (1)(b) of Rule 0400-45-09-.06, a commenter was of the opinion that treatment installers should not be allowed to modify pump equipment or pump systems due to warranties and a lack of general knowledge in the operation of the pumping system.

Response: The department agrees and the proposed amendment to subparagraph (1)(b) of Rule 0400-45-09-.06 has been deleted.

Comment: In regards to the proposed amendment to subparagraph (2)(c) of Rule 0400-45-09-.15, a commenter was of the opinion that the rules concerning the location of water wells should not be changed, wells should still be located using the current driller grid map overlay. Even if the county maps are not going to be made anymore, a state inspector should still be able to locate any well using the current system as county roads maps rarely change. If new roads were to be built, the inspector could easily contact the driller for directions to the site. Every well driller is already comfortable with the current procedure for locating wells.

Response: The department understands that the driller grid map is the way that most drillers are comfortable with, but the maps are no longer accurate and will no longer be published by the Tennessee Department of Transportation in a way where the staff can use a standard grid. So, therefore, a new system of locational information gathering is required. Also, in order to serve the drilling community and the citizens of the State, the information provided by the water well professional is entered into a database that will not accept the old driller map grid numbers and requires a latitude and longitude.

### Regulatory Flexibility Addendum

Pursuant to T.C.A. §§ 4-5-401 through 4-5-404, prior to initiating the rule making process as described in T.C.A. § 4-5-202(a)(3) and T.C.A. § 4-5-202(a), all agencies shall conduct a review of whether a proposed rule or rule affects small businesses.

- (1) The type or types of small business and an identification and estimate of the number of small businesses subject to the proposed rule that would bear the cost of, or directly benefit from the proposed rule.

There are approximately 300 water well drilling businesses in Tennessee.

- (2) The projected reporting, recordkeeping, and other administrative costs required for compliance with the proposed rule, including the type of professional skills necessary for preparation of the report or record.

These changes will require the locational data placed on the existing reports to be entered in a different format. In order to comply with the reporting requirements for latitude and longitude the drilling company can supply this information in several ways, the driller could use a Global Positional System (GPS), these are readily available at a reasonable cost (several smart phones have free apps that will show your location), there are several free computer mapping programs that provide the information and the driller can always use a topographical map and determine the location of the well.

- (3) A statement of the probable effect on impacted small businesses and consumers.

These changes will require the locational data placed on the existing reports to be entered in a different format.

- (4) A description of any less burdensome, less intrusive or less costly alternative methods of achieving the purpose and objectives of the proposed rule that may exist, and to what extent the alternative means might be less burdensome to small business.

The current method of using the driller grid maps is no longer accurate and these maps will no longer be published by the Tennessee Department of Transportation in a way where the department or the well drillers can use a standard grid. Therefore, a new system of locational information gathering is required and the information provided by the water well professional is entered into a database that will not accept the old driller map grid numbers and requires a latitude and longitude. The information required by the new method is available to the well drillers at little or no cost.

- (5) A comparison of the proposed rule with any federal or state counterparts.

Not applicable.

- (6) Analysis of the effect of the possible exemption of small businesses from all or any part of the requirements contained in the proposed rule.

All the businesses subject to this rule chapter are small businesses and exempting them would negate the protection of public health and the environment benefits compliance with these regulations provide. The location information is necessary to facilitate proper inspection of wells and to provide useful information to the citizens of Tennessee.

## **Impact on Local Governments**

Pursuant to T.C.A. §§ 4-5-220 and 4-5-228 "any rule proposed to be promulgated shall state in a simple declarative sentence, without additional comments on the merits of the policy of the rules or regulation, whether the rule or regulation may have a projected impact on local governments." (See Public Chapter Number 1070 (<http://state.tn.us/sos/acts/106/pub/pc1070.pdf>) of the 2010 Session of the General Assembly)

The department does not anticipate any impact on local governments from these rules.

## Additional Information Required by Joint Government Operations Committee

All agencies, upon filing a rule, must also submit the following pursuant to T.C.A. § 4-5-226(i)(1).

- (A) A brief summary of the rule and a description of all relevant changes in previous regulations effectuated by such rule;

The primary intent of this rulemaking is to update the existing water well licensing and well construction standards by incorporating clarification language.

- The duties of the Ground Water Management Board were moved from Rule Chapter 0400-45-09 and placed in Rule 0400-45-10-.05, since the board is the proper rulemaking authority for these requirements.
- Pump and treatment installer licenses were modified for clarification.
- The continuing education requirements were clarified.
- Setback distances from potential contaminant sources were updated to include new sources of potential contamination.
- Well location submittal data was modified due to the Tennessee Department of Transportation's changes in how the local county maps were published.
- Well abandonment standards were modified to allow more flexibility on existing wells where the construction information is unavailable.
- Clarification on the source of water that will be used as drilling fluids.
- Clarification was made on well site safety and borehole protection and construction of boreholes for geothermal wells.

- (B) A citation to and brief description of any federal law or regulation or any state law or regulation mandating promulgation of such rule or establishing guidelines relevant thereto;

These amendments are being adopted under the authority of T.C.A. §§ 69-10-101 et seq.

- (C) Identification of persons, organizations, corporations or governmental entities most directly affected by this rule, and whether those persons, organizations, corporations or governmental entities urge adoption or rejection of this rule;

Tennessee Water Well association and its members are directly affected by this proposed rule and they neither urged adoption or rejection of these amendments, however, three members offered comments for consideration.

- (D) Identification of any opinions of the attorney general and reporter or any judicial ruling that directly relates to the rule;

The department is not aware of any legal opinions or judicial rulings regarding these rules.

- (E) An estimate of the probable increase or decrease in state and local government revenues and expenditures, if any, resulting from the promulgation of this rule, and assumptions and reasoning upon which the estimate is based. An agency shall not state that the fiscal impact is minimal if the fiscal impact is more than two percent (2%) of the agency's annual budget or five hundred thousand dollars (\$500,000), whichever is less;

No fees are proposed within this rule change therefore the estimate is minimal.

- (F) Identification of the appropriate agency representative or representatives, possessing substantial knowledge and understanding of the rule;

Anna Rollins  
Division of Water Resources  
William R. Snodgrass Tennessee Tower  
312 Rosa L. Parks Avenue, 11th Floor  
Nashville, Tennessee 37243  
[anna.rollins@tn.gov](mailto:anna.rollins@tn.gov)

- (G) Identification of the appropriate agency representative or representatives who will explain the rule at a scheduled meeting of the committees;

Jenny Howard  
Deputy General Counsel  
Office of General Counsel

- (H) Office address, telephone number, and email address of the agency representative or representatives who will explain the rule at a scheduled meeting of the committees; and

Office of General Counsel  
Tennessee Department of Environment and Conservation  
William R. Snodgrass Tennessee Tower  
312 Rosa L. Parks Avenue, 2nd Floor  
Nashville, Tennessee 37243  
(615) 532-0131  
[Jenny.Howard@tn.gov](mailto:Jenny.Howard@tn.gov)

- (I) Any additional information relevant to the rule proposed for continuation that the committee requests.

The Department is not aware of any requests.