ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT WATER DIVISION - WATER SUPPLY PROGRAM ADMINISTRATIVE CODE

CHAPTER 335-7-5 GROUNDWATER SOURCES AND TREATMENT

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335-7-5-.01 Applicability.

This chapter is applicable to all public drinking water systems within the state using or proposing to use a groundwater source for water supply, unless specifically exempted by a part of these regulations.

Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. **Amended:** Filed November 7, 2005; effective December 12, 2005.

335-7-5-.02 Definitions.

The following words and phrases, unless a different meaning is plainly required by the context, shall have the following meaning:

(a) ADEM--the Alabama Department of Environmental Management.

(b) Aquifer--a geologic formation, group of formations, or part of a formation that is capable of yielding a significant amount of groundwater to wells and springs.

(c) Contaminant--matter which renders water unfit to use due to its physical, chemical, biological, or radiological properties.

(d) Contamination--matter present which renders water unfit for use by causing a change in its physical, chemical, biological or radiological properties.

(e) Sinkhole--a funnel shaped depression caused by subterranean drainage.

Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12.
History: May 23, 1977. **Repealed and Replaced:** January 4, 1989; October 31, 1990; effective December 5, 1990. **Repealed and Replaced:** Filed December 21, 1998; effective January 25, 1999. **Amended:** Filed November 7, 2005; effective December 12, 2005.

335-7-5-.03 Site Requirements.

Wells or springs shall be constructed in a location such that the upper most extent of the outer casing or collection basin is above the 100 year flood plain and not subject to contamination or sinkhole subsidence. Along with the permit application, a USGS 7.5 minutes (1-24000 scale) map shall be provided, which identifies the location of the proposed groundwater sources, using the GPS method.

Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. **Amended:** Filed November 28, 1995; effective January 2, 1996. **Amended:** Filed December 21, 1998; effective January 25, 1999. **Amended:** Filed November 7, 2005; effective December 12, 2005.

335-7-5-.04 Well Casing Requirements.

(1) Community and NTNC water supply wells shall be constructed with a protective casing of sufficient size to allow a minimum two-inch annular space between the casing and well hole. This casing shall be of unused steel, which meets requirements from the latest edition of the American Water Works Association Standards or other materials approved by the Department and shall be adaptable to both the stresses of installation and the corrosiveness of water. Joining by either welding or threaded coupling will be accepted. Minimum interior diameter of casing should be two inches larger than the pump bowls. The suction for the pump shall not be placed below or in the screens. Casings for wells in all formations shall extend to the immediate vicinity of the water bearing formation unless specifically approved by the Department. This casing shall be centered and project at least l2 inches above the finished concrete slab around the well. The concrete slab shall have the minimum dimensions of 3 feet by 3 feet.

(2) Non-community water supply well casing materials shall be as indicated above or may be PVC thermoplastic water well casing produced in accordance with ASTM Standard F480-76 and approved for potable water by the NSF.
Author: Joe Alan Power, Edgar K. Hughes, Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12. History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. **Amended:** Filed November 28, 1995; effective January 2, 1996. (Rule was renumbered from .04 to .06). **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .06 to .12.) **Amended:** Filed April 25, 2003; effective May 30, 2003. **Amended:** Filed November 7, 2005; effective December 12, 2005. **Amended:** Filed June 21, 2016; effective August 5, 2016. Ed. Note: Rule 335-7-5-.12 was renumber to .04 and original Rule 335-7-5-.04, Source Water Assessment Program For Groundwater Systems, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history:
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. **Amended:** Filed November 28, 1995; effective January 2, 1996. (Rule was renumbered from .04 to .06). **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .06 to .12.) **Amended:** Filed April 25, 2003; effective May 30, 2003. **Amended:** Filed November 7, 2005; effective December 12, 2005. **Amended:** Filed June 21, 2016; effective August 5, 2016. Ed. Note: Rule 335-7-5-.12 was renumber to .04 and original Rule 335-7-5-.04, Source Water Assessment Program For Groundwater Systems, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached **New Rule:** Filed November 28,

1995; effective January 2, 1996. **Repealed and Replaced:** Filed December 21, 1998; effective January 25, 1999. **Repealed:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.12 was renumber to .04 and original Rule 335-7-5-.04, Source Water Assessment Program For Groundwater Systems, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history: History: **New Rule:** Filed November 28, 1995; effective January 2, 1996. **Repealed and Replaced:** Filed December 21, 1998; effective January 25, 1999. **Repealed:** Filed November 7, 2005; effective December 12, 2005.

335-7-5-.05 Grouting Requirements.

(1) Well casings used in the construction of community and NTNC water supply wells, shall be pressure cement grouted. The grout shall be added at the bottom of the outer casing under pressure and flow in a continuous operation until the annular opening is filled and overflowing. Wells shall be grouted from the immediate vicinity of the uppermost formation to land surface unless otherwise approved by the Department. A sufficient annular space shall be available to provide a minimum of two inches of grout around the entire length of protective casing to protect the water bearing aquifer from surface water contamination and undesirable water in upper formations. Casing to be grouted in the drill hole or annular opening shall be provided with sufficient guides to permit unobstructed flow.

(2) Wells for non-community water systems may be grouted as above or by a tremie pipe method. Grout must be introduced at the bottom of the zone to be grouted, and the material continuously introduced. Minimum annular space shall be three inches. In wells greater than 100 feet the length of grout seal shall not be less than 100 feet as measured from the land surface to the end of the grout zone. Other methods of grouting must be approved by the Department prior to installation.
Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12. History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered from .05 to .07.) (Rule was renumbered from .07 to .13, per certification filed December 21, 1998; effective January 25, 1999, with no changes being made to the rule.) **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. Ed. Note: Rule 335-7-5-.13 was renumbered to .05 and original Rule 335-7-5-.05, SWAA Delineation For Community Water System, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history:

History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered from .05 to .07.) (Rule was renumbered from .07 to .13, per certification filed December 21, 1998; effective January 25, 1999, with no changes being made to the rule.) **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. Ed. Note: Rule 335-7-5-.13 was renumbered to .05 and original Rule 335-7-5-.05, SWAA Delineation For Community Water System, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached **New Rule:** Filed December 21, 1998; effective January 25, 1999. **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed December 24, 2003; effective January 28, 2004. **Repealed:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.13 was renumbered to .05 and original Rule 335-7-5-.05, SWAA Delineation For Community Water System, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history: History: **New Rule:** Filed December 21, 1998; effective January 25, 1999. **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed December 24, 2003; effective January 28, 2004. **Repealed:** Filed November 7, 2005; effective December 12, 2005.

335-7-5-.06 Blasting, Cleaning And Chemical Conditioning.

The Department shall be notified 14 days prior to reconditioning any well by blasting or use of chemical additives. Additives shall be of a type that will not adversely affect the aquifer. Analysis of the water showing it to be free of the additives used shall be available prior to reuse of the well.
Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12. History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered from .06 to .08.) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .08 to .14.) **Amended:** Filed November 7, 2005; effective December 12, 2005. Ed. Note: Rule 335-7-5-.14 was renumbered to .06 and original Rule 335-7-5-.06, SWAA Delineation For Transient Non-Community Water Systems, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history:
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered from .06 to .08.) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .08 to .14.) **Amended:** Filed November 7, 2005; effective December 12, 2005. Ed. Note: Rule 335-7-5-.14 was renumbered to .06 and original Rule 335-7-5-.06, SWAA Delineation For Transient Non-Community Water Systems, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached **New Rule:** Filed

December 21, 1998; effective January 25, 1999. **Repealed:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.14 was renumbered to .06 and original Rule 335-7-5-.06, SWAA Delineation For Transient Non-Community Water Systems, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history: History: **New Rule:** Filed December 21, 1998; effective January 25, 1999. **Repealed:** Filed November 7, 2005; effective December 12, 2005.

335-7-5-.07 Aquifer Test.

An aquifer test of a finished community system production well shall be conducted to determine the aquifer storage coefficient and transmissivity. The test method shall be clearly outlined in the engineering specifications for the project and the test procedure shall be continuous with adequate provisions taken to prevent disruption of the test. The calculated storage coefficient and transmissivity values shall be used to determine the SWAA.

(a) Several days before initiating the aquifer test, the well shall be pumped for several hours to determine the following:

1. the maximum anticipated drawdown,

2. the approximate capacity of the well and

3. if the pump discharge will affect recharge to the well during the anticipated period of the aquifer test.

(b) Steps shall be taken to assure accuracy of the drawdown during the aquifer test.

1. Accurate drawdown readings shall be taken in both the production and observation wells simultaneously. Readings will be taken every 2 minutes for the first hour, every 5 minutes for the next hour, every 10 minutes for the next 2 hours, every 30 minutes for the next 2 hours and then hourly until the end of the test.

2. Drawdown data collected during the period of testing shall be corrected for changes in barometric pressure and tidal oscillations.

3. Recovery water level data shall be determined and recorded simultaneously for both the observation well and production well.

4. The aquifer test shall be conducted for the continuous period required to stabilize the water level at the design capacity.

5. If the aquifer test cannot be conducted according to requirements of this paragraph, a written request shall be submitted to the Department supporting a waiver of this method.

(c) An aquifer test exemption may be granted for wells completed in karst formations under conduit flow conditions and for confined wells with sources of water greater than 600 feet deep. Waivers from the aquifer test can be considered by the Department after receipt of well logs, documented confining layers, proposed construction standards and a waiver request from the applicant.

(d) A public water system with a proposed well exempted from the aquifer test must conduct a capacity test in accordance with 335-7-5-.09.

Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12. History: **New Rule:** Filed November 28, 1995; effective January 2, 1996. **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .09 to .15) **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. Ed. Note: Rule 335-7-5-.15 was renumbered .07 and original Rule 335-7-5-.07, SWAA Delineation For Non-Transient Non-Community Water Systems, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history:
History: New Rule: Filed November 28, 1995; effective January 2, 1996. **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .09 to .15) **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. Ed. Note: Rule 335-7-5-.15 was renumbered .07 and original Rule 335-7-5-.07, SWAA Delineation For Non-Transient Non-Community Water Systems, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached **New Rule:** Filed December 21, 1998; effective January 25, 1999. **Repealed:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.15 was renumbered .07 and original Rule 335-7-5-.07, SWAA Delineation For Non-Transient Non-Community Water Systems, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history: History: **New Rule:** Filed December 21, 1998; effective January 25, 1999. **Repealed:** Filed November 7, 2005; effective December 12, 2005.

335-7-5-.08 Development.

After completion, a well shall be thoroughly developed to remove all sand, cuttings, and drilling fluids from the well and aquifer.

The permanent pumping equipment shall not be used to develop a well.
Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12. History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered from .07 to .10.) (Rule was renumbered from .10 to .16, as per certification filed December 21, 1998; effective January 25, 1999, with no changes being made to the rule.) **Amended:** Filed November 7, 2005; effective December 12, 2005. Ed. Note: Rule 335-7-5-.16 was renumbered .08 and original Rule 335-7-5-.08, Contaminant Inventory Development, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history:
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered from .07 to .10.) (Rule was renumbered from .10 to .16, as per certification filed December 21, 1998; effective January 25, 1999, with no changes being made to the rule.) **Amended:** Filed November 7, 2005; effective December 12, 2005. Ed. Note: Rule 335-7-5-.16 was renumbered .08 and original Rule 335-7-5-.08, Contaminant Inventory Development, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached **New Rule:** Filed December 21, 1998; effective January 25, 1999. **Repealed:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.16 was renumbered .08 and original Rule 335-7-5-.08, Contaminant Inventory Development, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history: History: **New Rule:** Filed December 21, 1998; effective January 25, 1999. **Repealed:** Filed November 7, 2005; effective December 12, 2005.

335-7-5-.09 Capacity Test.

In addition to an aquifer test, all community and NTNC water supply wells shall be tested for yield, drawdown and recovery before being approved for use. The test method shall be clearly outlined in the engineering specifications for the project. The test pumping procedure must be continuous with adequate provisions taken to prevent disruption of the test. The length of the test shall be dependent on the clarity of the water, the amount of sand, or other material produced, and the fluctuation of the water level. During the pumping test, the water level shall not be lowered to the top of the uppermost water bearing formation used. A copy of all available information from the capacity test shall be forwarded to the Department for review.

(a) The capacity test for community system wells shall be conducted as follows:

1. The well shall be pumped at the design capacity until the water level has stabilized (+/- 1.0 foot),

2. After stabilization has occurred, the well shall be pumped for 24 hours with water level readings collected at regular intervals,

3. After the water level in the well has been stabilized at the design capacity for 24 hours, the pumping rate shall be increased to 150% of the design capacity,

4. Once the water level is stabilized the well shall be pumped for six hours with the water level recorded at regular time intervals, and

5. At the end of the six hour period the well pump shall be turned off and the water levels shall be recorded until the pre-test water level is obtained.

(b) If the capacity test cannot be conducted according to 335-7-5-.09(a) a written request shall be submitted to the Department supporting a waiver of this method. If the Department grants a waiver, the capacity test shall be conducted for a period of at least 10 days after the water level has stabilized at the proposed design capacity.

(c) The capacity test for NTNC system wells shall be conducted for the period necessary to stabilize the water level at the design capacity for a minimum of 12 hours.

(d) Department approval shall be obtained prior to any significant increases in capacity to an existing well source. A proposal to significantly increase the capacity of an existing well source shall be accompanied by a satisfactory capacity test at the proposed site, (using procedures a or b above), a set of chemical (regulated and unregulated) and bacteriological analysis, an updated SWAA delineation, contaminant source inventory, susceptibility analysis and an application (with fee) for a permit modification.

Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6. History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990. **Amended:** Filed November 28, 1995; effective January 2, 1996. (Rule was renumbered from .08 to .11.) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .11 to .17.) **Amended:** Filed May 2, 2000; effective June 7, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. **Amended:** Filed December 14, 2010; effective January 18, 2011. Ed. Note: Rule 335-7-5-.17 was renumbered .09 and original Rule 335-7-5-.09, Susceptibility Analysis Of A Groundwater Source, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history:

History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990. **Amended:** Filed November 28, 1995; effective January 2, 1996. (Rule was renumbered from .08 to .11.) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .11 to .17.) **Amended:** Filed May 2, 2000; effective June 7, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. **Amended:** Filed December 14, 2010; effective January 18, 2011. Ed. Note: Rule 335-7-5-.17 was renumbered .09 and original Rule 335-7-5-.09, Susceptibility Analysis Of A Groundwater Source, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached **New Rule:** Filed December 21, 1998; effective January 25, 1999. **Amended:** Filed May 2, 2000; effective June 6, 2000. **Repealed:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.17 was renumbered .09 and original Rule 335-7-5-.09, Susceptibility Analysis Of A Groundwater Source, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history: History: **New Rule:** Filed December 21, 1998; effective January 25, 1999. **Repealed:** Filed November 7, 2005; effective December 12, 2005.

335-7-5-.10 Well Construction Information.

Drill cuttings from community and NTNC water wells shall be obtained at ten foot intervals and all pronounced changes in formations. Cuttings shall be logged on site or bagged and submitted to a geologist for geologic log interpretations. The following shall be submitted to the Department:

(a) An accurate record of the drill hole diameters and depths,

(b) The assembled order of size and length of casings and liners,

(c) Grouting depths,

(d) Well schematic or diagram and a geologic log which describes and identifies depth and thickness of the formations penetrated,

(e) Static and pumping water levels for projected operation, and

(f) Location of blast shots, test wells, or observation wells.

Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12.
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered

from .09 to .12) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .12 to .18) **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.18 was renumbered to .10 and original Rule 335-7-5-.10, Public Awareness, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history: History: **New Rule:** Filed December 21, 1998; effective January 25, 1999. **Repealed:** Filed November 7, 2005; effective December 12, 2005.

335-7-5-.11 Water Level Measurement.

Provisions shall be made for periodic measurement of the static and pumping water levels in all community wells and all NTNC wells constructed after the effective date of this rule.

(a) An airline with depth gauges for periodic measurement of water level shall be constructed of minimum 3/8" diameter material sufficient to prevent rupturing or cracking as a result of age and environmental conditions inside the well; or

(b) A continuous monitoring and recording water level measurement system.

Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6. History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered from.10 to .13.) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .13 to .19.) **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. **Amended:** Filed June 21, 2016; effective August 5, 2016. Ed. Note: Rule 335-7-5-.19 was renumbered .11 and original Rule 335-7-5-.11, Observation Wells, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history: **History:** May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered from.10 to .13.) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .13 to .19.) **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. **Amended:** Filed June 21, 2016; effective August 5, 2016. Ed. Note: Rule 335-7-5-.19 was renumbered .11 and original Rule 335-7-5-.11, Observation Wells, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached **New Rule:** Filed November 28, 1995; effective January 2, 1996. **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .05 to .11). **Amended:** Filed May 2,

2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.19 was renumbered .11 and original Rule 335-7-5-.11, Observation Wells, was repealed as per certification filed November 7, 2005; effective December 12, 2005. See attached history: History: **New Rule:** Filed November 28, 1995; effective January 2, 1996. **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .05 to .11). **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005.

335-7-5-.12 Shallow Wells.

Community and NTNC wells directly influenced by surface water are considered a surface source and must comply with Chapter 335-7-6. Therefore, unless specifically approved by the Department no proposed well shall be accepted as a groundwater source if the water bearing formation is less than 100 feet from the ground surface. The following information is required to evaluate any proposed community well source with a water bearing formation less than 100 feet from the ground surface:

(a) A comprehensive geologic report complying with SWA requirements and demonstrations the proposed well will be protected from surface water influences and contaminants in its recharge area.

Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12.
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. **Amended:** Filed November 28, 1995; effective January 2, 1996. (Rule was renumbered from .11 to .14.) **Amended:** Filed December 21, 1998; effective January 25, 1999. **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.20 was renumbered .12 as per certification filed November 7, 2005; effective December 12, 2005.

335-7-5-.13 Springs.

Springs, quarries, and other groundwater sources open to the atmosphere and under the direct influence of surface water are classified as a surface source requiring complete treatment and filtration. A proposal for use of a spring without complete treatment shall meet the following requirement:

(a) The results of flow, turbidity and temperature data taken twice weekly for a minimum of 12 consecutive months,

(b) Total and fecal coliform (or E. coli) bacteria results from weekly sampling for a minimum of 12 consecutive months,

(c) Data indicating the site is not subject to flooding, and

(d) Analysis results from a certified laboratory for all contaminants identified in the primary and secondary standards and any listed unregulated contaminants.

Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. **Amended:** Filed November 28, 1995; effective January 2, 1996. (Rule was renumbered from .12 to .15.) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .15 to .21.) **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. **Amended:** Filed August 21, 2012; effective September 25, 2012.

Ed. Note: Rule 335-7-5-.21 was renumbered .13 as per certification filed November 7, 2005; effective December 12, 2005.

335-7-5-.14 Abandoned Wells.

Abandoned wells and bore holes shall be filled and sealed to prevent contamination of ground water formations. Where feasible or when required by the Department, wells shall be completely filled with neat cement. Other wells shall be sealed in accordance with the most recent American Water Works Association Standards, except that the sealing material for the top 20 feet of fill must be neat cement and no material that could impart taste, odor, or toxic components to water may be used in the sealing process.

Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered from .13 to .16.) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .16 to .22.) **Amended:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.22 was renumbered .14 as per certification filed November 7, 2005; effective December 12, 2005.

335-7-5-.15 Ground Water Quality.

The quality of water produced from wells and springs must be determined through analysis of samples representative of the sources.

(a) Physical Quality. Water produced from wells or springs to serve a community or NTNC system shall be free of rock or sand particles, silt, mud, or other foreign material. If compliance cannot be judged through visual observation, the following procedures shall be followed:

1. A turbidity test shall be performed according to methods approved by the Department and the results submitted to the Department.

2. A sample of the water shall be subjected to centrifuge or filtering tests. The test method shall be submitted by the project engineer to the Department which shall review and approve the method and apparatus prior to testing. If the design and apparatus are approved, the full capacity of the well upon start-up shall be tested for ten minutes. The maximum acceptable amount of material collected is one part per million.

(b) Bacteriological Quality. Every new, modified or reconditioned groundwater source shall be tested for bacteriological quality. A minimum of three chlorine free water samples collected at various periods during the capacity test shall be analyzed for both total and fecal coliform (or E. coli) bacteria by a laboratory certified by the Department. After the final pumping equipment has been installed and properly disinfected, at least two samples of chlorine free water shall be analyzed by a laboratory certified by the Department for total and fecal coliform bacteria (or E. coli). All results shall be submitted to the Department.

(c) Chemical Quality. After completion of the finished community or NTNC well, representative samples shall be analyzed for all primary and secondary contaminants, including inorganic, radiological and VOCs (regulated and unregulated). These analyses must be performed by a laboratory certified by the Department and a copy of the results shall be submitted to the Department prior to a request for a final inspection. Plans for providing treatment facilities should be provided at this time should any parameter not meet established standards.

Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12.

History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. **Amended:** Filed November 28, 1995; effective January 2, 1996. (Rule was renumbered from .14 to .17.) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .17 to .23.) **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. **Amended:** Filed August 21, 2012; effective September 25, 2012.

Ed. Note: Rule 335-7-5-.23 was renumbered .15 as per certification filed November 7, 2005; effective December 12, 2005.

335-7-5-.16 Treatment Of Groundwater.

Treatment facilities must be constructed by community and NTNC systems to provide water meeting all primary and secondary drinking water standards. Treatment facilities maintaining more than 2500 pounds of chlorine should contact ADEM Air Division to determine responsibilities under the Accidental Release Prevention and Risk Management Program.
Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12.
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered from .15 to .18.) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .18 to .24.) **Amended:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.24 was renumbered .15 as per certification filed November 7, 2005; effective December 12, 2005.

335-7-5-.17 Disinfection Requirements.

Disinfection of the water shall be accomplished using a chemical or treatment technique accepted by the Department. Sufficient contact time to allow proper disinfection to take place must be provided as follows:

(a) A chlorine concentration time (CT) of at least 60 shall be provided when the average monthly turbidity is less than five NTU, and

1. The geologic conditions are such that contamination may occur, or

2. The average total coliform count of the raw water exceeds 20 per 100 milliliters but is less than 100 per

100 milliliters for an average of weekly samples for a minimum of four consecutive months, or

3. The average fecal coliform (or E. coli) count of the raw water exceeds five per 100 milliliters but is less than 20 per 100 milliliters for an average of weekly samples for a minimum of four consecutive months.

4. Should a disinfectant other than chlorine be used, an equivalent CT time will be provided by the Department.

(b) Water systems shall maintain an adequate level of disinfectant residual in the distribution system at all times. This residual shall be determined and recorded daily from an approved sampling site or other representative point in the system. For systems using chlorine as disinfectant, the residual shall be maintained at a level no less than 0.2 mg/L free chlorine. Should the residual at a sampling site fall below 0.2 mg/L and not be restored within four hours, a treatment technique violation has occurred requiring appropriate public notification within 14 days. Should the disinfectant residual not be restored within 24 hours, microbiological samples representative of the effected area shall be collected. Should these samples show system contamination, an acute violation has resulted, requiring appropriate notification.

Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12.
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered from .16 to .19.) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .19 to .25.) **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. **Amended:** Filed August 21, 2012; effective September 25, 2012.

Ed. Note: Rule 335-7-5-.25 was renumbered .17 as per certification filed November 7, 2005; effective December 12, 2005.

335-7-5-.18 Filtration Requirements.

Treatment processes to include filtration are required when raw water quality from a groundwater source exceeds any of the following parameters:

(a) Turbidity - 5.0 NTU

(b) Total Coliform - 100 per 100 milliliter of sample

(c) Fecal Coliform (or E. coli)- 20 per 100 milliliter of sample

(d) Iron - 0.6 milligrams per liter

(e) Manganese - 0.1 milligrams per liter

Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12.
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered from .17 to .20.) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .20 to .26.) **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. **Amended:** Filed August 21, 2012; effective September 25, 2012.

Ed. Note: Rule 335-7-5-.26 was renumbered .18 as per certification filed November 7, 2005; effective December 12, 2005.

335-7-5-.19 Filtration Processes.

Treatment processes, including filtration, are required to reduce contaminant levels to meet existing standards. Coating materials inside the filter shall not impart an undesirable taste, odor or contribute to an increase in the concentration of any regulated contaminants to the water. A minimum of two filter units shall be installed. Provisions shall be made for the control of the filtration and wash rates, for an adequate supply of backwash water and for a separate filter-to-waste system for each filter. Filtration rates shall not exceed 4 gpm/sf, unless approved by the Department.
Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12.
History: **New Rule:** Filed December 21, 1998; effective January 25, 1999. **Amended:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.27 was renumbered .19 as per certification filed November 7, 2005; effective December 12, 2005.

335-7-5-.20 Chemicals Used In Ground Water Treatment.

(1) Chemicals used in groundwater treatment, other than alum, lime, chlorine, potassium permanganate, caustic soda, soda ash, powdered activated carbon, and hydrofluosilicic acid must be approved by the Department prior to use. Systems currently using chemicals other than these and not having prior ADEM concurrence

shall submit required information within six months of the effective date of these regulations. Information regarding company name, telephone number, address and chemicals supplied must be maintained in a file at the plant. All chemical manufacturers supplying chemicals to the treatment plant for the past two years shall be maintained on this list. Water Systems shall determine that the chemical or substance to be added and the proposed application rate meets the ANSI/NSF standard 60. Only products meeting these standards shall be used by supplier of water and certification that such a product meets these standards must be determined through evaluation by a program certified by the American National Standards Institute or Underwriters Laboratory. Water Systems shall provide a list of the type, name, and manufacturer, and certification document requesting departmental approval prior to use of the substance or chemical. Water treatment chemicals containing acrylamide or epichlorohydrin are prohibited from use in water treatment plants unless the system provides annually a written certification to the department that when acrylamide and/or epichlorohydrin are used to treat water, the combination of dose and monomer level does not exceed the following levels: acrylamide - 0.05% dosed at 1ppm or equivalent. Epichlorohydrin - 0.01% dosed at 20 ppm or equivalent. Name of the chemical used and daily average dose rate shall be shown on the monthly operation data report for the plant.

(2) Chemicals shall be stored in containers as received or otherwise their containers shall be labeled to indicate the name of the chemical. Chemicals shall be controlled to prevent contamination with other chemicals and to eliminate any dangerous mixing of chemicals. Acid storage tanks must be vented to the outside atmosphere in a separate vent stack.
Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-1 through 22-24-12.
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. (Rule was renumbered from .18 to .21.) **Amended:** Filed December 21, 1998; effective January 25, 1999. (Rule was renumbered from .21 to .28.) **Amended:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.28 was renumbered .20 as per certification filed November 7, 2005; effective December 12, 2005.

335-7-5-.21 Additional Requirements For Ground Water Under The Influence Of Surface Water.

Systems deemed ground water under the influence of surface water must meet the requirements established in 335-7-6.
Author: William D. McClimans, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.

History: New Rule: Filed April 25, 2003; effective May 30, 2003. **Amended:** Filed November 7, 2005; effective December 12, 2005.

Ed. Note: Rule 335-7-5-.29 was renumbered .21 as per certification filed November 7, 2005; effective December 12, 2005.

335-7-5-.22 Ground Water Rule.

(1) Applicability. This rule applies to all public water systems that use ground water except that it does not apply to public water systems that combine all of their ground water with surface water or with ground water under the direct influence of surface water prior to treatment of surface water or ground water under the influence of surface water. For the purposes of this rule, "ground water system" is defined as any public water system meeting this applicability statement, including consecutive systems receiving finished ground water.

(2) General requirements. Systems subject to this rule must comply with the following requirements:

(a) Sanitary survey information requirements for all ground water systems as described in paragraph (4) of this rule.

(b) Microbial source water monitoring requirements for ground water systems that do not treat all of their ground water to at least 99.99 percent (4-1og) treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal) before or at the first customer as described in paragraph (5) of this rule.

(c) Treatment technique requirements, described in paragraph (6) of this rule, that apply to ground water systems that have fecally contaminated source waters, as determined by source water monitoring conducted under paragraph (5) of this rule, or that have significant deficiencies that are identified by the Department or that are identified by EPA under SDWA Section 1445. A ground water system with fecally contaminated source water or with significant deficiencies subject to the treatment technique requirements of this rule must implement one or more of the following corrective action options: correct all significant deficiencies; provide an alternate source of water; eliminate the source of contamination; or provide treatment that reliably achieves at least 4-1og treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal) before or at the first customer.

(d) Ground water systems that provide at least 4-1og treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal)

before or at the first customer are required to conduct compliance monitoring to demonstrate treatment effectiveness, as described in subparagraph (6)(b) of this rule.

(e) If requested by the Department, ground water systems must provide the Department with any existing information that will enable the Department to perform a hydrogeologic sensitivity assessment. For the purposes of this rule, "hydrogeologic sensitivity assessment" is a determination of whether ground water systems obtain water from hydrogeologically sensitive settings.

(3) Compliance date. Ground water systems must comply, unless otherwise noted, with the requirements of this rule beginning December 1, 2009.

(4) Sanitary surveys for ground water systems.

(a) Ground water systems must provide the Department, at the Department's request, any existing information that will enable the Department to conduct a sanitary survey.

(b) For the purposes of this rule, a "sanitary survey," as conducted by the Department, includes but is not limited to, an onsite review of the water source(s) (identifying sources of contamination by using results of source water assessments or other relevant information where available), facilities, equipment, operation, maintenance, and monitoring compliance of a public water system to evaluate the adequacy of the system, its sources and operations and the distribution of safe drinking water.

(c) The sanitary survey must include an evaluation of the applicable components listed in subparagraphs (c)1. through 8. below:

1. Source,

2. Treatment,

3. Distribution system,

4. Finished water storage,

5. Pumps, pump facilities, and controls,

6. Monitoring, reporting, and data verification,

7. System management and operation, and

8. Operator compliance with Department requirements.

(d) Ground water systems must comply with any changes the Department makes to the site sampling plan required by ADEM Admin. Code 335-7-2-.07. This includes any changes made during a special monitoring evaluation of their plan by the Department during a sanitary survey.

(5) Ground water source microbial monitoring and analytical methods.

(a) Triggered source water monitoring.

1. General requirements. A ground water system must conduct triggered source water monitoring if the conditions identified in subparagraphs (5)(a)1.(i) - (ii) below exist.

(i) The system does not provide at least 4-1og treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal) before or at the first customer for each ground water source; and

(ii) The system is notified that a sample collected under rule 335-7-2-.07 is total coliform-positive and the sample is not invalidated by the Department in implementing rule 335-7-2-.07.

2. Sampling requirements. A ground water system must collect, within 24 hours of notification of the total coliform-positive sample, at least one ground water source sample from each ground water source in use at the time the total coliform-positive sample was collected under rule 335-7-2-.07, except as provided in subparagraph (a)2.(ii) of this paragraph.

(i) The Department may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the ground water source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the Department must specify how much time the system has to collect the sample.

(ii) If approved by the Department, systems with more than one ground water source may meet the requirements of subparagraph (5)(a)2. by sampling a representative ground water source or sources. If directed by the Department, systems must submit for Department approval a triggered source water monitoring plan that identifies one or more ground water sources that are representative of each monitoring site in the system's sample siting plan under rule 335-7-2-.07 that the system intends to use for representative sampling under this paragraph. The

system must list the ground water source(s) that will be used for each site and the conditions in which they will use each site.

3. Additional requirements. If the Department does not require corrective action under subparagraph (6)(a)2. of this rule for a fecal indicator-positive source water sample collected under subparagraph (5)(a)2. of this rule that is not invalidated under subparagraph (5)(d) of this rule, the system must collect five additional source water samples from the same source within 24 hours of being notified of the fecal indicator-positive sample.

4. Consecutive and wholesale systems.

(i) In addition to the other requirements of this paragraph, a consecutive ground water system that has a total coliform-positive sample collected under rule 335-7-2-.07 must notify the wholesale system(s) within 24 hours of being notified of the total coliform-positive sample.

(ii) In addition to the other requirements of this paragraph, a wholesale ground water system must comply with subparagraphs (I) and (II) below.

(I) A wholesale ground water system that receives notice from a consecutive system it serves that a sample collected under rule 335-7-2-.07 is total coliform-positive must, within 24 hours of being notified, collect a sample from its ground water source(s) under subparagraph (5)(a)2. of this rule and analyze it for a fecal indicator under subparagraph (5)(c) of this rule.

(II) If the sample collected under subparagraph (5)(a)2. of this rule is fecal indicator-positive, the wholesale ground water system must notify all consecutive systems served by that ground water source of the fecal indicator source water positive within 24 hours of being notified of the ground water source sample monitoring result and must meet the requirements of subparagraph (5)(a)3. of this rule.

5. Exceptions to the triggered source water monitoring requirements. A ground water system is not required to comply with the source water monitoring requirements of subparagraph (5)(a) of this rule if either of the following conditions exists:

(i) The Department determines, and documents in writing, that the total coliform-positive sample

collected under rule 335-7-2-.07 is caused by a distribution system deficiency; or

(ii) The total coliform-positive sample collected under rule 335-7-2-.07 is collected at a location that meets Department criteria for distribution system conditions that will cause total coliform-positive samples.

(b) Assessment source water monitoring. If directed by the Department, ground water systems must conduct assessment source water monitoring that meets Department-determined requirements for such monitoring. A ground water system conducting assessment source water monitoring may use a triggered source water sample collected under subparagraph (5)(a)2. of this rule to meet the requirements of subparagraph (5)(b) of this rule. Department-determined assessment source water monitoring requirements may include:

1. Collection of a total of 12 ground water source samples that represent each month the system provides ground water to the public,

2. Collection of samples from each well unless the system obtains written Department approval to conduct monitoring at one or more wells within the ground water system that are representative of multiple wells used by that system and that draw water from the same hydrogeologic setting,

3. Collection of a standard sample volume of at least 100 mL for fecal indicator analysis regardless of the fecal indicator or analytical method used,

4. Analysis of all ground water source samples using approved EPA methodology found in 40 CFR 141.402(c)(2) and by a laboratory certified by EPA or the Department for the presence of E. Coli, enterococci, or coliphage.

5. Collection of ground water source samples at a location prior to any treatment of the ground water source unless the Department approves a sampling location after treatment, and

6. Collection of ground water source samples at the well itself unless the system's configuration does not allow for sampling at the well itself and the Department approves an alternate sampling location that is representative of the water quality of that well.

(c) Analytical methods.

1. A ground water system subject to the source water monitoring requirements of paragraph (5) of this rule

must collect a standard sample volume of at least 100 mL for fecal indicator analysis regardless of the fecal indicator or analytical method used.

2. A ground water system must analyze all ground water source samples collected under paragraph (5) of this rule using approved EPA methodology found in 40 CFR 141.402(c)(2) and by a laboratory certified by EPA or the Department for the presence of E. Coli, enterococci, or coliphage.

(d) Invalidation of a fecal indicator-positive ground water source sample.

1. A ground water system may obtain Department invalidation of a fecal indicator-positive ground water source sample collected under subparagraph (5)(a) of this rule only under the conditions specified in subparagraph (5)(d)1.(i) - (ii) of this rule.

(i) The system provides the Department with written notice from the laboratory that improper sample analysis occurred; or

(ii) The Department determines and documents in writing that there is substantial evidence that a fecal indicator-positive ground water source sample is not related to source water quality.

2. If the Department invalidates a fecal indicator-positive ground water source sample, the ground water system must collect another source water sample under subparagraph (5)(a) of this rule within 24 hours of being notified by the Department of its invalidation decision and have it analyzed for the same fecal indicator using the analytical methods in subparagraph (5)(c) of this rule. The Department may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the Department will specify how much time the system has to collect the sample.

(e) Sampling location.

1. Any ground water source sample required under subparagraph (5)(a) of this rule must be collected at a location prior to any treatment of the ground water source unless the Department approves a sampling location after treatment.

2. If the system's configuration does not allow for sampling at the well itself, the system may collect a

sample at a Department-approved location to meet the requirements of subparagraph (5)(a) of this rule if the sample is representative of the water quality of that well.

(f) New sources. If directed by the Department, a ground water system that places a new ground water source into service after November 30, 2009, must conduct assessment source water monitoring under subparagraph (5)(b) of this rule. If directed by the Department, the system must begin monitoring before the ground water source is used to provide water to the public.

(g) Public notification. A ground water system with a ground water source sample collected under subparagraph (5)(a) or (b) of this rule that is fecal indicator-positive and that is not invalidated under subparagraph (5)(d) of this rule, including consecutive systems served by the ground water source, must conduct public notification under 335-7-2-.21(1)(f).

(h) Monitoring violations. Failure to meet the requirements of subparagraphs (5)(a) -

(f) of this rule is a monitoring violation and requires the ground water system to provide public notification under subparagraphs 335-7-2-.21(4)(a) - (d).

(6) Treatment technique requirements for ground water systems.

(a) Ground water systems with significant deficiencies or source water fecal contamination.

1. The treatment technique requirements of this rule must be met by ground water systems when a significant deficiency is identified or when a ground water source sample collected under subparagraph (5)(a)3. of this rule is fecal indicator-positive.

2. If directed by the Department, a ground water system with a ground water source sample collected under subparagraphs (5)(a)2., (5)(a)4., or (5)(b) of this rule that is fecal indicator-positive must comply with the treatment technique requirements of this rule.

3. When a significant deficiency is identified at a public water system that uses both ground water and surface water or ground water under the direct influence of surface water, the system must comply with provisions of this paragraph except in cases where the Department determines that the significant deficiency is in a portion of the distribution system that is served solely by surface water or ground water under the direct influence of surface water.

4. Unless the Department directs the ground water system to implement a specific corrective action, the ground water system must consult with the Department regarding the appropriate corrective action within 30 days of receiving written notice from the Department of a significant deficiency, written notice from a laboratory that a ground water source sample collected under subparagraph (5)(a)3. of this rule was found to be fecal indicator-positive, or direction from the Department that a fecal indicator's positive collected under subparagraphs (5)(a)2., (5)(a)4., or (5)(b) of this rule requires corrective action. For the purposes of this rule, significant deficiencies include, but are not limited to, defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the Department determines to be causing, or have potential for causing, the introduction of contamination into the water delivered to consumers.

5. Within 120 days (or earlier if directed by the Department) of receiving written notification from the Department of a significant deficiency, written notice from a laboratory that a ground water source sample collected under subparagraph (5)(a)3. of this rule was found to be fecal indicator-positive, or direction from the Department that a fecal indicator-positive sample collected under subparagraphs (5)(a)2., (5)(a)4., or (5)(b) of this rule requires corrective action, the ground water system must either:

(i) Have completed corrective action in accordance with applicable Department plan review processes or other Department guidance or direction, if any, including Department-specified interim measures; or

(ii) Be in compliance with a Department-approved corrective action plan and schedule subject to the conditions specified in subparagraphs (6)(a)5.(ii)(I) through (II) below.

(I) Any subsequent modifications to a Department-approved corrective action plan and schedule must also be approved by the Department.

(II) If the Department specifies interim measures for protection of the public health pending Department approval of the corrective action plan and schedule or pending completion of the corrective action plan, the system must comply with these interim measures as well as with any schedule specified by the Department.

6. Corrective action alternatives. Ground water systems that meet the conditions of subparagraph (6)(a)1. or 2. of this rule must implement one or more of the following corrective action alternatives:

(i) Correct all significant deficiencies;

(ii) Provide an alternate source of water;

(iii) Eliminate the source of contamination; or

(iv) Provide treatment that reliably achieves at least 4-1og treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal) before or at the first customer for the ground water source.

7. Special notice to the public of significant deficiencies or source water fecal contamination.

(i) In addition to the applicable public notification requirements of 335-7-2-.21(1)(f), a community ground water system that receives notice from the Department of a significant deficiency or notification of a fecal indicator-positive ground water source sample that is not invalidated by the Department under subparagraph (5)(d) of this rule must inform the public served by the water system under rule 335-7-14-.04(6) of the fecal indicator-positive source sample or of any significant deficiency that has not been corrected. The system must continue to inform the public annually until the significant deficiency is corrected or the fecal contamination in the ground water source is determined by the Department to be corrected under subparagraph (6)(a)5. of this rule.

(ii) In addition to the applicable public notification requirements of 335-7-2-.21(1)(f), a non-community ground water system that receives notice from the Department of a significant deficiency must inform the public served by the water system in a manner approved by the Department of any significant deficiency that has not been corrected within 12 months of being notified by the Department, or earlier if directed by the Department. The system must continue to inform the public annually until the significant deficiency is corrected. The information must include:

(I) The nature of the significant deficiency and the date the significant deficiency was identified by the Department;

(II) The Department-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed; and

(III) For systems with a large proportion of non-English speaking consumers, as determined by the Department, information in the appropriate language(s) regarding the importance of the notice or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

(iii) If directed by the Department, a non-community water system with significant deficiencies that have been corrected must inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction under subparagraph (6)(a)7.(ii) of this rule.

(b) Compliance monitoring.

1. Existing ground water sources. A ground water system that is not required to meet the source water monitoring requirements of this rule for any ground water source because it provides at least 4-1og treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal) before or at the first customer for any ground water source before December 1, 2009, must notify the Department in writing that it provides at least 4-1og treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal) before or at the first customer for the specified ground water source and begin compliance monitoring in accordance with subparagraph (6)(b)3. of this rule by December 1, 2009. Notification to the Department must include engineering, operational, or other information that the Department requests to evaluate the submission. If the system subsequently discontinues 4-1og treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal) before or at the first customer for a ground water source, the system must conduct ground water source monitoring as required under paragraph (5) of this rule.

2. New ground water sources. A ground water system that places a ground water source in service after November 30, 2009, that is not required to meet the source water monitoring requirements of this rule because the system provides at least 4-1og treatment of viruses (using

inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal) before or at the first customer for the ground water source must comply with the requirements of subparagraphs (6)(b)2.(i) - (iii) below.

(i) The system must notify the Department in writing that it provides at least 4-1og treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal) before or at the first customer for the ground water source. Notification to the Department must include engineering, operational, or other information that the Department requests to evaluate the submission.

(ii) The system must conduct compliance monitoring as required under subparagraph (6)(b)3. of this rule within 30 days of placing the source in service.

(iii) The system must conduct ground water source monitoring under paragraph (5) of this rule if the system subsequently discontinues 4-1og treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal) before or at the first customer for the ground water source.

3. Monitoring requirements. A ground water system subject to the requirements of subparagraphs (6)(a), (6)(b)1. or (6)(b)2. of this rule must monitor the effectiveness and reliability of treatment for that ground water source before or at the first customer as follows:

(i) Chemical disinfection.

(I) Ground water systems serving greater than 3,300 people. A ground water system that serves greater than 3,300 people must continuously monitor the residual disinfectant concentration using approved EPA methodology found in 40 CFR 141.74(a)(2) at a location approved by the Department and must record the lowest residual disinfectant concentration each day that water from the ground water source is served to the public. The ground water system must maintain the Department-determined residual disinfectant concentration every day the ground water system serves water from the ground water source to the public. If there is a failure in the continuous monitoring equipment, the ground water system must conduct grab sampling every four hours until the continuous monitoring equipment is returned

to service. The system must resume continuous residual disinfectant monitoring within 14 days.

(II) Ground water systems serving 3,300 or fewer people. A ground water system that serves 3,300 or fewer people must monitor the residual disinfectant concentration using approved EPA methodology found in 40 CFR 141.74(a)(2) at a location approved by the Department and record the residual disinfection concentration each day that water from the ground water source is served to the public. The ground water system must maintain the Department-determined residual disinfectant concentration every day the ground water system serves water from the ground water source to the public. The ground water system must take a daily grab sample during the hour of peak flow or at another time specified by the Department. If any daily grab sample measurement falls below the Department-determined residual disinfectant concentration, the ground water system must take follow-up samples every four hours until the residual disinfectant concentration is restored to the Department-determined level. Alternatively, a ground water system that serves 3,300 or fewer people may monitor continuously and meet the requirements of subparagraph (6)(b)3.(i)(I) of this rule.

(ii) Membrane filtration. A ground water system that uses membrane filtration to meet the requirements of this rule must monitor the membrane filtration process in accordance with all Department-specified monitoring requirements and must operate the membrane filtration in accordance with all Department-specified compliance requirements. A ground water system that uses membrane filtration is in compliance with the requirement to achieve at least 4-log removal of viruses when:

(I) The membrane has an absolute molecular weight cut-off (MWCO), or an alternate parameter that describes the exclusion characteristics of the membrane, that can reliably achieve at least 4-log removal of viruses;

(II) The membrane process is operated in accordance with Department-specified compliance requirements; and

(III) The integrity of the membrane is intact.

(iii) Alternative treatment. A ground water system that uses a Department-approved alternative treatment to meet the requirements of this rule by providing at least 4-1og treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal) before or at the first customer must:

(I) Monitor the alternative treatment in accordance with all Department-specified monitoring requirements; and

(II) Operate the alternative treatment in accordance with all compliance requirements that the Department determines to be necessary to achieve at least 4-1og treatment of viruses.

(c) Discontinuing treatment. A ground water system may discontinue 4-1og treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal) before or at the first customer for a ground water source if the Department determines and documents in writing that 4-1og treatment of viruses is no longer necessary for that ground water source. A system that discontinues 4-1og treatment of viruses is subject to the source water monitoring and analytical methods requirements of paragraph (5) of this rule.

(d) Failure to meet the monitoring requirements of subparagraph (6)(b) of this rule is a monitoring violation and requires the ground water system to provide public notification under subparagraphs 335-7-2-.21(4)(a) - (d).

(7) Treatment technique violations for ground water systems.

(a) A ground water system with a significant deficiency is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the Department) of receiving written notice from the Department of the significant deficiency, the system:

1. Does not complete corrective action in accordance with any applicable Department plan review processes or other Department guidance and direction, including Department specified interim actions and measures, or

2. Is not in compliance with a Department-approved corrective action plan and schedule.

(b) Unless the Department invalidates a fecal indicator-positive ground water source sample under subparagraph (5)(d) of this rule a ground water system is in violation of the treatment technique requirement if, within 120 days (or

earlier if directed by the Department) of meeting the conditions of subparagraph (6)(a)1. or subparagraph (6)(a)2. of this rule the system:

1. Does not complete corrective action in accordance with any applicable Department plan review processes or other Department guidance and direction, including Department-specified interim measures, or

2. Is not in compliance with a Department-approved corrective action plan and schedule.

(c) A ground water system subject to the requirements of subparagraph (6)(b)3. of this rule that fails to maintain at least 4-1og treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-1og virus inactivation and removal) before or at the first customer for a ground water source is in violation of the treatment technique requirement if the failure is not corrected within four hours of determining the system is not maintaining at least 4-1og treatment of viruses before or at the first customer.

(d) Ground water system must give public notification under subparagraphs 335-7-2-.21(1)(a) - (e) for the treatment technique violations specified in subparagraphs (7)(a), (7)(b) and (7)(c) of this rule.

Author: Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: **New Rule:** Filed April 26, 2009; effective May 26, 2009.
Amended: Filed August 21, 2012; effective September 25, 2012.
Amended: Filed June 21, 2016; effective August 5, 2016.

335-7-5-.23 New Groundwater Facilities.

(1) Wells, treatment facilities, pumping stations and tanks permitted as of January 1, 2012 must meet the following requirements:

(a) Have a lockable fence that is of sufficient size and height as to deter entry of unauthorized persons;

(b) Have an enclosure(s) for wells, treatment facilities and pumping stations that is (are) lockable to deter entry of unauthorized personnel and of sufficient size to allow for proper maintenance, and,

(c) Be equipped with auxiliary power capacity capable of operating the essential equipment at each facility or have the

ability to connect a portable generator capable of operating the essential equipment.

(2) If any of the requirements of this rule cannot be met or are being met by an equivalent design, a written request, along with sufficient justification, shall be submitted to the Department for a waiver from all or part of this rule.
Author: Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: **New Rule:** Filed December 14, 2010; effective January 18, 2011.

335-7-5-A **Appendix A.**

APPENDIX A

TABLE 1

ASSESSMENT AREA	Porous: porous flow	Karst: porous flow	Karst: conduit flow	Fractured: porous flow	Fractured: conduit flow
SWAA I	180 day TOT or 400 ft radius*	180 day TOT or 400 ft radius*	1000 ft radius	180 day TOT or 400 ft radius*	1000 ft radius
SWAA II	10 year TOT with hydrogeo-logic flow boundaries	Hydrogeo-logic flow boundaries	Hydrogeo-logic flow boundaries dye tracing	10 year TOT with hydrogeo-logic flow boundaries	Hydrogeologic flow boundaries dye tracing

Table 1: Alabama Source Water Assessment Area delineation criteria and threshold

*Whichever is greater

Author:
Statutory Authority: Code of Ala. 1975, §§
History: **Amended:** Filed April 25, 2003; effective May 30, 2003.