

TRANSMITTAL SHEET FOR
NOTICE OF INTENDED ACTION

Control 335 Department or Agency Environmental Management
Rule No. 335-6-8-19
Rule Title: Class VI Well Logging, Sampling, and Testing Requirements Prior to Injection Well Operation

X New Amend Repeal Adopt by Reference

Would the absence of the proposed rule significantly harm or endanger the public health, welfare, or safety? YES

Is there a reasonable relationship between the state's police power and the protection of the public health, safety, or welfare? YES

Is there another, less restrictive method of regulation available that could adequately protect the public? NO

Does the proposed rule have the effect of directly or indirectly increasing the costs of any goods or services involved and, if so, to what degree? NO

Is the increase in cost, if any, more harmful to the public than the harm that might result from the absence of the proposed rule? N/A

Are all facets of the rulemaking process designed solely for the purpose of, and so they have, as their primary effect, the protection of the public? YES

Does the proposed rule have an economic impact? NO

If the proposed rule has an economic impact, the proposed rule is required to be accompanied by a fiscal note prepared in accordance with subsection (f) of section 41-22-23, Code of Alabama 1975.

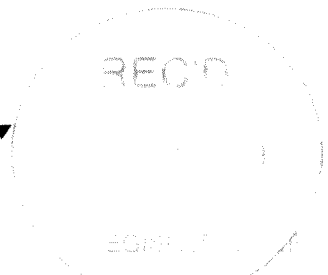
Certification of Authorized Official

I certify that the attached proposed rule has been proposed in full compliance with the requirements of Chapter 22, Title 41, Code of Alabama 1975, and that it conforms to all applicable filing requirements of the Administrative Procedure Division of the Legislative Reference Service.

Signature of certifying officer Marilyn Elliott

Date May 20, 2011

Date Filed



APA-2
11/96

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION**

NOTICE OF INTENDED ACTION

AGENCY NAME:

Alabama Department of Environmental Management

Rule NO.	Title
335-6-8-.01	Purpose
335-6-8-.02	Definitions
335-6-8-.05	Prohibited Actions
335-6-8-.07	Permit Issuance Procedures
335-6-8-.08	Public Notice Requirements
335-6-8-.10	Class V Well Permit Application Requirements
335-6-8-.12	Class V Well Permit Requirements
335-6-8-.13	Class VI Well Applicability and General Requirements
335-6-8-.14	Class VI Well Permit Application and Application Review Requirements
335-6-8-.15	Class VI Well Minimum Criteria for Siting
335-6-8-.16	Class VI Well Area of Review and Area of Review Corrective Action
335-6-8-.17	Class VI Well Financial Responsibility Requirements
335-6-8-.18	Class VI Well Construction Requirements
335-6-8-.19	Class VI Well Logging, Sampling and Testing Requirements Prior to Injection Well Operation
335-6-8-.20	Class VI Well Operating Requirements
335-6-8-.21	Class VI Well Mechanical Integrity Requirements
335-6-8-.22	Class VI Well Testing and Monitoring Requirements
335-6-8-.23	Class VI Well Reporting Requirements
335-6-8-.24	Class VI Well Plugging Requirements
335-6-8-.25	Class VI Well Post-Injection Site Care and Site Closure Requirements
335-6-8-.26	Class VI Well Emergency and Remedial Response Requirements
335-6-8-.27	Class VI Well Permit Requirements
335-6-8-.28	Technical Submittals and Other Reports to the Department
335-6-8-.29	Coordination with EPA
335-6-8-.30	Confidentiality

INTENDED ACTION: Revise Division 6 of the ADEM Administrative Code with the addition or amendment of Rules 335-6-8-.01 (Purpose), 335-6-8-.02 (Definitions), 335-6-8-.05 (Prohibited Actions), 335-6-8-.07 (Permit Issuance Procedures), 335-6-8-.08

(Public Notice), 335-6-8-.10 (Class V Well Permit Application Requirements), 335-6-8-.12 (Permit Issuance Procedures), 335-6-8-.13 (Class VI Well Applicability and General Requirements), 335-6-8-.14 (Class VI Well Permit Application and Application Review Requirements), 335-6-8-.15 (Class VI Well Minimum Criteria for Siting), 335-6-8-.16 (Area of Review and Area of Review Corrective Action), 335-6-8-.17 (Class VI Well Financial Responsibility Requirements), 335-6-8-.18 (Class VI Well Construction Requirements), 335-6-8-.19 (Class VI Well Logging, Sampling and Testing Requirements Prior to Injection Well Operation), 335-6-8-.20 (Class VI Well Operating Requirements), 335-6-8-.21 (Class VI Well Mechanical Integrity Requirements), 335-6-8-.22 (Class VI Well Testing and Monitoring Requirements), 335-6-8-.23 (Class VI Well Reporting Requirements), 335-6-8-.24 (Class VI Well Plugging Plan), 335-6-8-.25 (Post-Injection Site Care and Site Closure Requirements), 335-6-8-.26 (Class VI Well Emergency and Remedial Response Requirements), 335-6-8-.27 (Class VI Well Permit Requirements), 335-6-8-.28 (Technical Submittals and Other Reports to the Department), 335-6-8-.29 (Coordination with EPA), and 335-6-8-.30 (Confidentiality).

SUBSTANCE OF PROPOSED ACTION:


Revisions to the Division 6 Code are being proposed to include requirements for Class VI injection wells, for geologic sequestration of carbon dioxide. The proposed additions and amendments are consistent with the federal regulations for Class VI wells published in the Federal Register on December 10, 2010.

TIME, PLACE, MANNER OF PRESENTING VIEWS:

Comments may be submitted in writing or orally at a public hearing to be held 1:00 p.m., July 11, 2011, in the ADEM Hearing Room, 1400 Coliseum Blvd., Montgomery, Alabama 36110.

FINAL DATE FOR COMMENT AND COMPLETION OF NOTICE: July 11, 2011

CONTACT PERSON AT AGENCY: Sonja Massey (334) 271-7832



Lance R. LeFleur
Director

335-6-8-.19 Class VI Well Logging, Sampling and Testing Requirements Prior to Injection Well Operation.

- (1) During the drilling and construction of a Class VI injection well
- , the owner or operator must run appropriate logs, surveys and tests to determine or verify the depth, thickness, porosity, permeability, and lithology of, and the salinity of any formation fluids in all relevant geologic formations to ensure conformance with the injection well construction requirements under 335-6-8-.18 and to establish accurate baseline data against which future measurements may be compared. The owner or operator must submit to the Department a descriptive report prepared by a knowledgeable log analyst that includes an interpretation of the results of such logs and tests. At a minimum, such logs and tests must include:
- (a) Deviation checks during drilling on all holes constructed by drilling a pilot hole which is enlarged by reaming or another method. Such checks must be at sufficiently frequent intervals to determine the location of the borehole and to ensure that vertical avenues for fluid movement in the form of diverging holes are not created during drilling; and
- (b) Before and upon installation of the surface casing:
1. Resistivity, spontaneous potential, and caliper logs before the casing is installed; and
 2. A cement bond and variable density log to evaluate cement quality radially, and a temperature log after the casing is set and cemented.
- (c) Before and upon installation of the long string casing:
1. Resistivity, spontaneous potential, porosity, caliper, gamma ray, fracture finder logs, and any other logs the Department requires for the given geology before the casing is installed; and
 2. A cement bond and variable density log, and a temperature log after the casing is set and cemented.
- (d) A series of tests designed to demonstrate the internal and external mechanical integrity of injection wells, which may include:
1. A pressure test with liquid or gas;
 2. A tracer survey such as oxygen-activation logging;
 3. A temperature or noise log;
 4. A casing inspection log, and
- (e) Any alternative methods that provide equivalent or better information and that are required by and/or approved of by the Department.

(2) The owner or operator must take whole cores or sidewall cores of the injection zone and confining system and formation fluid samples from the injection zone(s), and must submit to the Department a detailed report prepared by a log analyst that includes: Well log analyses (including well logs), core analyses, and formation fluid sample information. The Department may accept information on cores from nearby wells if the owner or operator can demonstrate that core retrieval is not possible and that such cores are representative of conditions at the well. The Department may require the owner or operator to core other formations in the borehole.

(3) The owner or operator must record the fluid temperature, pH, conductivity, reservoir pressure, and static fluid level of the injection zone(s).

(4) At a minimum, the owner or operator must determine or calculate the following information concerning the injection and confining zone(s):

(a) Fracture pressure;

(b) Other physical and chemical characteristics of the injection and confining zone(s); and

(c) Physical and chemical characteristics of the formation fluids in the injection zone(s).

(5) Upon completion, but prior to operation, the owner or operator must conduct the following tests to verify hydrogeologic characteristics of the injection zone(s):

(a) A pressure fall-off test; and,

(b) A pump test; or

(c) Injectivity tests.

(6) The owner or operator must provide the Department with the opportunity to witness all logging and testing conducted pursuant to requirements of this chapter for Class VI wells. The owner or operator must submit a schedule of such activities to the Department 30 days prior to conducting the first test and submit any changes to the schedule 30 days prior to the next scheduled test.

Author: Sonja Massey.

Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: XXXXXX, 2011.