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**TITLE 252. DEPARTMENT OF ENVIRONMENTAL QUALITY
CHAPTER 652. UNDERGROUND INJECTION CONTROL**

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SUBCHAPTER 1. GENERAL PROVISIONS

Section

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252:652-1-1. Purpose

The rules in this Chapter implement 27A O.S. § 2-6-701.

252:652-1-2. Applicability

Any person who owns or operates or proposes to own or operate any underground injection well facility, except those wells subject to the jurisdiction of the Oklahoma Corporation Commission, shall be subject to the rules in this Chapter. The terms "operating or proposing to operate" shall include proposed drilling and construction of new injection wells and conversions of existing injection wells.

252:652-1-3. Incorporation by reference

(a) **Code of Federal Regulations.** When reference is made to Title 40 of the Code of Federal Regulations, it shall mean Procedures for Decision-Making and (unless otherwise specified) the Underground Injection Control Regulations, April 1, 1983, as amended through July 1, 2000, including amendments to 40 CFR published in 64 Federal Register 68546 through 68573, inclusive, which became effective April 5, 2000, dealing with underground injection control for Class V injection wells.

(b) **40 CFR incorporation.** Title 40 CFR Parts 124 (Subpart A), 144, 145, 146, 147, 148 are incorporated in their entirety as they apply to the Underground Injection Control Program.

(c) **Synonymous terms.** For purposes of interfacing with 40 CFR Parts 124 (Subpart A) or 144-148, the following terms apply:

(1) Administrator, Regional Administrator, and Director are synonymous with Executive Director.

(2) State is synonymous with the Department of Environmental Quality (DEQ).

(3) Public hearing is synonymous with public meeting.

(d) **Citations incorporated by reference.** When a provision of the Code of Federal Regulations is incorporated by reference, all citations contained therein are also incorporated by reference.

(e) **Inconsistencies or duplications.** If there are inconsistencies or duplications in the requirements of those provisions incorporated by reference and the rules in this Chapter, the federal provisions shall prevail, except where the rules in this Chapter are more stringent. However, the rules in this Chapter shall not relieve any person from complying with the minimum requirements found in this Chapter and Title 40 of the Code of Federal Regulations.

252:652-1-4. Zoning

This Chapter shall not abrogate in any way the zoning authority of any duly constituted zoning agency with respect to the siting of any facility.

252:652-1-5. Hazardous waste

The surface facilities of any Class I hazardous waste injection well shall be subject to the permitting, operating and fee regulations of OAC 252:200, Hazardous Waste Management.

252:652-1-6. Fees

(a) Class I injection well facilities.

(1) Permit application - \$2,000.

(2) Permit renewal - \$500.

(3) Facility monitoring - \$250 per year.

(b) **Class III injection well facilities.**

(1) Permit application - \$2000

(2) Permit renewal - \$500

(3) Facility monitoring - \$250 per year

(c) **Class V injection well facilities.** [See 40 CFR 146.5(e)]

(1) Permit application

(A) Wells used for the injection of wastes into a subsurface formation - \$2,000

(B) Others listed herein - \$600

(i) Cooling water return flow wells used to inject water previously used for cooling, excluding air conditioning return flow wells used to return to the supply aquifer the water used for heating or cooling in a heat pump;

(ii) Sand backfill and other backfill wells used to inject a mixture of water and sand, mill tailings or other solids into mined out portions of subsurface mines;

(iii) Wells used for solution mining of conventional mines such as stopes leaching;

(iv) Injection wells used in experimental technologies; and

(v) Injection wells used for in situ recovery of lignite, coal, tar sands and oil shale.

(2) Permit renewal for facilities listed in (1)(A) and (1)(B) of this subsection - \$100

(3) Facility monitoring - \$250 per year (waste disposal wells only)

SUBCHAPTER 3. EXCLUSIONARY SITING CRITERIA FOR CLASS I WELLS

Section

252:652-3-1. Siting criteria

252:652-3-1. Siting criteria

The following rules shall apply to owners and operators of all Class I wells:

(1) **Groundwater resources and recharge areas.**

Except as otherwise provided by Title 27A O.S. § 2-7-111, no permit for a proposed new site shall be granted for a Class I injection well facility to be located over or through an unconsolidated alluvial aquifer or terrace deposit aquifer, or over or through a bedrock aquifer. Site-specific hydrological and geological information which demonstrates that the proposed location does not lie in a prohibited area may be provided by an applicant. The DEQ may require site-specific hydrological and geological information for a facility proposed to be located outside a designated principal groundwater aquifer or recharge area where there is reason to believe the proposed location may be unsuitable due to localized groundwater conditions. Sources used to determine if a site is unpermissible are the "Map of Aquifers and Recharge Areas in Oklahoma", compiled by Kenneth S. Johnson, Oklahoma Geological Survey (1991), and the Oklahoma Water Resources Board rules codified at OAC 785:45 Appendices A through D, inclusively, or any successor map(s) to these sources.

(2) **Water wells.** No permit shall be granted for a new Class I injection well facility proposed to be located within 1320 feet (one-quarter statute mile) of any public

or private water supply well. Provided, however, that existing or proposed private water supply wells located on the applicant's property may be exempt from this paragraph at the applicant's discretion. Where proximity of a Class I facility to water supply well(s) is in doubt, a survey shall be conducted by an Oklahoma licensed land surveyor to determine actual distances.

(3) **Flood plain.** No new Class I injection well facility shall be permitted in the 100 year flood plain unless the 100 year flood plain is subsequently redefined to not include the land area proposed for the new disposal area.

(4) **Surface water.** Except as provided by OAC 252:605, no permit shall be granted for a new Class I injection well facility proposed to be located within the established conservation pool elevation of any reservoir which supplies water for a public water supply.

SUBCHAPTER 5. APPLICATION CONTENT REQUIREMENTS

Section

- 252:652-5-1. Class I injection well facilities
- 252:652-5-2. Class III injection well facilities
- 252:652-5-3. Class V injection well facilities

252:652-5-1. Class I injection well facilities

The following shall be included in an application for a permit for any Class I injection well facility:

(1) **Map.** Public records which verify the information regarding all producing wells, water wells and dry holes submitted on the map required by 40 CFR 146.14(a)(2) or 146.70(a)(2). See also 40 CFR 144.55 and 40 CFR 146.7;

(2) **Tabulation of wells in the area of review.** Tabulation of wells as described by 40 CFR 146.70(a)(3). See also 40 CFR 144.55 and 146.7;

(3) **Injection and confining zone description.** A narrative geologic, hydrologic, and engineering report on the proposed injection and confining zone, including:

(A) Isopach and structural maps of the injection and confining zone as described by 40 CFR 146.14(a)(5) & (6) and 146.70(a)(6) & (7);

(B) A discussion of known or potential fluid flow directions and fluid distributions within the injection zone(s) as described by 40 CFR 146.14(a)(8) and 146.70(a)(9); and

(C) Information on the confining zone as described by 40 CFR 146.70(a)(9) to include chemical properties (organic carbon content), physical properties (specifically, horizontal & vertical permeability, porosity, saturated pore volume), radiological properties (radiological logs) and any additional parameters as determined necessary by the applicant;

(4) **Drawings.** Scale drawings of all proposed pre-treating and/or auxiliary surface equipment, including any backup, fail safe, or standby systems to be utilized in case of well failure, as described by 40 CFR 146.14(a)(11) & (12) and 146.70(a)(12) & (13);

(5) **Plugging and abandonment plan.** Any well to be permanently abandoned shall be immediately plugged in a manner to permanently prevent the migration of any disposed substances out of the disposal zone, as well as the migration of oil, gas, or salt water into or out of any productive formations by means of the well bore.

(A) Plugging shall be by a series of continuous cement plugs from the total depth of the well to ground level.

(B) The top of any plugged well shall clearly show the well permit number and date of plugging by permanent marking on a steel plate welded to the surface casing.

(C) The operator shall submit for DEQ approval updated plans for the proper disassembly, decontamination and restoration of the site at least one hundred-eighty (180) days prior to cessation of operations. The plans shall include the following:

(i) Methods for reconditioning, recycling, or disposal of all contaminated materials, residual liquids, sludges, soils, and ancillary equipment such as pumps, piping, tubing, and tanks;

(ii) Plans for restoration of the site, including provisions for proper cover to prevent excessive runoff and erosion; and

(iii) Narrative description of methods for proper closure of all permitted nonhazardous impoundments.

(D) The approved plugging and abandonment plan shall be implemented and completed within six (6) months, unless otherwise specified by the DEQ.

(E) The operator shall notify the DEQ of the exact time when plugging operations will take place.

(F) Within thirty (30) days after a well has been plugged, the owner or operator shall file a plugging record with the DEQ.

(6) **Cost estimate.** A cost estimate for plugging and abandonment, as described by 40 CFR 144.62; and

(7) **Financial assurance.** Financial assurance for all Class I waste injection wells as required by 40 CFR 144 Subpart F.

252:652-5-2. Class III injection well facilities

The plugging and abandonment plan to be included in an application for a permit for any Class III injection well facility shall be the same as required above in OAC 252:652-5-1(a)(5)(B) through (F) inclusive.

252:652-5-3. Class V injection well facilities

The applicant shall perform groundwater monitoring, provide an analysis of injected fluids and a description of the geologic strata through and into which injection is taking place, and provide any additional information which the applicant determines is necessary to comply with 40 CFR 144.12.

SUBCHAPTER 7. CONSTRUCTION REQUIREMENTS

Section

- 252:652-7-1. Class I injection well facilities
- 252:652-7-2. Class III injection well facilities
- 252:652-7-3. Class V injection well facilities
[RESERVED]

252:652-7-1. Class I injection well facilities

The following shall apply to owners and operators of all Class I injection well facilities:

(1) **Annulus pressure and fluid.** To maintain annulus pressure, a pressure tank shall be installed and equipped with the following:

(A) Sensors or measuring devices to enable monitoring of the fluid level in the tank;

(B) Clearly displayed design pressure and test pressure ratings; and

(C) Bursting discs and/or relief valves vented to the atmosphere, as appropriate.

(2) **Monitoring taps.** Injection and annulus pressure monitoring taps shall be provided for the use of the DEQ. The taps shall be connected near the locations on the well of the facility pressure monitor recorders. The taps shall be a one fourth (1/4) inch diameter National Pipe Thread female pipe fitting, valved and capped to prevent fluid loss when not in use. The taps shall be located to allow simultaneous pressure monitoring by facility pressure recorders and DEQ pressure gauges.

(3) **Surface casing.** The surface casing shall extend from the surface down to fifty feet or more below the lowest underground source of drinking water.

(4) **Ambient monitoring.** At least one monitoring well shall be installed and maintained by the owner. The DEQ may require additional wells to adequately monitor groundwater quality and level around the site. Specifications for the location, construction and maintenance of monitoring and/or observation wells must be approved by the DEQ prior to installation.

(A) Well(s) shall monitor the lowest underground source of drinking water beneath the site.

(B) Well(s) shall be located so that one or more wells are placed hydraulically down gradient from the site.

(2) **Annulus pressure.**

(A) For nonhazardous facilities, the annulus fluid shall be maintained at a minimum positive pressure of 10 pounds per square inch gauge at the well head.

(B) For hazardous facilities, the annulus fluid shall be maintained at a pressure in accordance with 40 CFR 146.67(c).

(3) **Groundwater tests.** Groundwater from monitoring wells shall be analyzed for parameters specified in the permit at least once each month. The analyses and water levels shall be submitted as part of the quarterly report.

(4) **Semi-annual pressure test.** To satisfy 40 CFR 146.8(b)(2), the operator shall shut the well in semi-annually and pressurize the annulus for two (2) hours. Test pressure shall be at a minimum of 300 pounds per square inch or 125 % of the highest operating annulus pressure, whichever is greater, unless otherwise specified by the DEQ. Pressure loss or gain exceeding - 5 % or + 10 % respectively, from initial test pressure, will require additional tests and/or immediate repairs to ensure the mechanical integrity of the well.

(5) **Solids or sludges tests.** Any solid materials or sludges produced by or resulting from pre-treatment, filtering, or storage of fluids to be injected shall be tested to determine if they are hazardous wastes. Records of the disposition of the solids/sludges shall be kept on-site.

252:652-7-2. Class III injection well facilities

The surface casing of all Class III injection well facilities shall extend from the surface down to fifty feet or more below the lowest underground source of drinking water.

252:652-7-3. Class V injection well facilities [RESERVED]

252:652-9-2. Class III injection well facilities [REVOKED]

252:652-9-3. Class V injection well facilities [REVOKED]

SUBCHAPTER 9. ADDITIONAL OPERATING REQUIREMENTS

Section

- 252:652-9-1. Class I injection well facilities
- 252:652-9-2. Class III injection well facilities [REVOKED]
- 252:652-9-3. Class V injection well facilities [REVOKED]

252:652-9-1. Class I injection well facilities

The following shall apply to owners and operators of all Class I injection well facilities:

(1) **Maximum injection pressure.** The permitted maximum injection pressure that can be applied at the well head may be adjusted to account for pressure loss due to friction in piping or tubing.

(A) **Overburden pressure gradient established.** The maximum total pressure gradient (applied injection pressure plus fluid pressure) shall not exceed sixty-five percent (65%) of the established overburden pressure gradient, expressed in pounds per square inch per foot (psi/ft) of depth from ground surface to the top of the disposal zone.

(B) **Overburden pressure gradient not established.** If the effective overburden pressure gradient is not established, the maximum total pressure gradient shall not exceed 0.65 psi/ft of depth from ground surface to the top of the disposal zone.