

STATE OF ARKANSAS

ARKANSAS POLLUTION CONTROL AND ECOLOGY

REGULATION NO. 17

Effective May 4, 1989

Arkansas Underground Injection Control Code

1. Title and Purpose

- (A) The following rules and regulations of the Department of Pollution Control and Ecology of the State of Arkansas, adopted pursuant to the provisions of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended; Ark. Stat. Ann. 82-1901 et seq.), shall be known as the ARKANSAS UNDERGROUND INJECTION CONTROL CODE, hereinafter called the UIC.
- (B) It is the purpose of this Code to adopt underground injection control regulations necessary to qualify the State of Arkansas to receive authorization for its Underground Injection Control Program pursuant to the Safe Drinking Water Act of 1974, as amended (PL 93-523 as amended by PL 95-1901 and PL 96-63; 42 USC 300f et seq.). In order to receive such authorization, it is necessary for the Department of Pollution Control and Ecology to have regulations as stringent as the federal program administered by the United States Environmental Protection Agency.

2. Definitions

When used in this Code:

**Abandoned well** means a well the use of which has been permanently discontinued or which is in a state of disrepair such that it cannot be used for its intended purpose or for observation purposes.

**Administrator** means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

**Application** means the EPA standard national forms for applying for a permit, including any additions, revisions or modifications to the forms; or forms approved by EPA for use in approved States, including any approved modifications or revisions. For RCRA, application also includes the information required by the Director under 122.25 (contents of Part B of RCRA application).

**Aquifer** means a geological formation, group of formations, or part of a formation that is capable of yielding a significant

amount of water to a well or spring.

**Area of review** means the area surrounding an "injection well" described according to the criteria set forth in 146.06.

**Casing** means a pipe or tubing of varying diameter and weight, lowered into a borehole during or after drilling in order to support the sides of the hole and thus to prevent the walls from caving, to prevent loss of drilling mud into porous ground, or to prevent water, gas, or other fluid from entering or leaving the hole (amended by 46 FR 43150, August 27, 1981).

**Catastrophic collapse** means the sudden and utter failure of overlying "strata" caused by removal of underlying materials.

**Cementing** means the operation whereby a cement slurry is pumped into a drilled hole and/or forced behind the casing.

**CFR** means Code of Federal Regulations.

**Confining bed** means a body of impermeable or distinctly less permeable material stratigraphically adjacent to one or more aquifers.

**Confining zone** means a geological formation, group of formations, or part of a formation that is capable of limiting fluid movement above and below the injection zone.

**Contaminant** means any physical, chemical, biological, or radiological substance or matter in water.

**Department** means the Arkansas Department of Pollution Control and Ecology.

**Director** means the Director of the Arkansas Department of Pollution Control and Ecology.

**Disposal well** means a well used for the disposal of waste into a subsurface stratum.

**Effective date of a UIC program** means the date that a State UIC program is approved or established by the Administrator.

**EPA** means the United States Environmental Protection Agency.

**Exempted aquifer** means an aquifer or its portion that meets the criteria in the definition of "underground source of drinking water" but which has been exempted according to the procedures of 122.35(b).

**Existing injection well** means "injection well" other than a "new injection well."

**Facility or activity** means any "HWM facility," UIC "injection

well," NPDES "point source," or State 404 dredge and fill activity, or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the RCRA, UIC, NPDES, or 404 programs.

**Fault** means a surface or zone of rock fracture along which there has been displacement.

**Flow rate** means the volume per time unit given to the flow of gases or other fluid substance which emerges from an orifice, pump, turbine, or passes along a conduit or channel.

**Fluid** means material or substance which flows or moves whether in a semisolid, liquid, sludge, gas, or any other form or state.

**Formation** means a body of rock characterized by a degree of lithologic homogeneity which is prevailingly, but not necessarily, tabular and is mappable on the earth's surface or traceable in the subsurface.

**Formation fluid** means "fluid" present in a "formation" under natural conditions as opposed to introduced fluids, such as drilling mud.

**Generator** means any person, by site location, whose act or process produces hazardous waste identified or listed in 40 CFR Part 261.

**Groundwater** means water below the land surface in a zone of saturation.

**Hazardous waste** means a hazardous waste as defined in 40 CFR 261.3.

**Hazardous Waste Management Facility** ("HWM facility") means all contiguous land, and structures, other appurtenances, and improvements on the land used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (for example, one or more landfills, surface impoundments, or combination of them).

**Industrial waste** means any liquid, gaseous or solid waste substance resulting from any process of industry, mining, manufacturing, trade or business or from the development of any natural resources.

**Injection well** means a "well" into which "fluids" are being injected.

**Injection zone** means a geological "formation," group of formations, or part of a formation receiving fluids through a well.

**Lithology** means the description of rocks on the basis of their physical and chemical characteristics.

**Major facility** means any RCRA, UIC, NPDES, or 404 "facility or activity" classified as such by the Regional Administrator, or in the case of "approved State programs," the Regional Administrator in conjunction with the State Director.

**New injection well** (UIC) means an injection well which began injection after a UIC program for the State applicable to the well is approved or prescribed.

**Other wastes** means garbage, municipal refuse, decayed wood, sawdust, shavings, bark, lime, sand, ashes, offal, oil tar chemicals, and all other substances organic or inorganic, not sewage or industrial waste, which may be discharged into the waters of the State. Any wastes and "pollutants" includes sewage, industrial waste, or other wastes.

**Owner or operator** means the owner or operator of any facility or activity subject to regulation under the RCRA, UIC, NPDES, or 404 programs.

**Packer** means a device lowered into a well which can be expanded to produce a fluid-tight seal.

**Permit** means an authorization, license, or equivalent control document issued by EPA or an "approved State" to implement the requirements of Parts 144, 145, 146, and 124. "Permit" includes an area permit (144.33) and an emergency permit (144.34). Permit does not include UIC Authorization by Rule (144.21), or any permit which has not yet been the subject of final agency action, such as a "draft permit."

**Person** means the State agency, any municipality, governmental subdivision of the State or the United States, public or private corporation, individual, partnership, association or other entity.

**Plugging** means the act or process of stopping the flow of water, oil, or gas in "formations" penetrated by a borehole or "well."

**Plugging record** means a systematic listing of permanent or temporary abandonment of water, oil, gas, test, exploration and waste injection wells, and may contain a well log, description of amounts and types of plugging material used, the method employed for plugging, a description of formations which are sealed and a graphic log of the well showing formation location, formation thickness, and location of plugging structures.

**Pollution** means such contamination, or other alteration of the physical, chemical, or biological properties of any waters of the State, or such discharge of any liquid, gaseous or solid substance in any waters of the State as will or is likely to create a nuisance or render such waters harmful or detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life.

**Pressure** means the total load or force per unit area acting on a surface.

**Radioactive waste** means any waste which contains radioactive material in concentrations which exceed those listed in 10 CFR Part 20, Appendix B, Table II, Column 2, or exceed the "Criteria for Identifying and Applying Characteristics of Hazardous Waste and for Listing Hazardous Waste" in 40 CFR Part 261, whichever is applicable.

**RCRA** means the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 (PL 94-580, as amended by PL 95-609, 42 U.S.C. 300(f), et seq.).

**Site** means the land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity.

**Sole or principal source aquifer** means an aquifer which has been designated by the Administrator pursuant to 1424(a) or (e) of the SDWA.

**State Director** means the chief administrative officer of any State or interstate agency operating an approved program, or the delegated representative of the State Director. If responsibility is divided among two or more State or interstate agencies, "State Director" means the chief administrative officer of the State or interstate agency authorized to perform the particular procedure or function to which reference is made.

**Stratum** (plural strata) means a single sedimentary bed or layer, regardless of thickness, that consists of generally the same kind of rock material.

**Subsidence** means the lowering of the natural land surface in response to earth movements; lowering of fluid pressure; removal of underlying supporting material by mining or solution of solids, either artificially or from natural causes; compaction due to wetting (hydrocompaction); oxidation of organic matter in soils; or added load on the land surface.

**Surface casing** means the first string of well casing to be installed in the well.

**Total dissolved solids** (TDS) means the total dissolved (filterable) solids as determined by use of the method specified in 40 CFR Part 136.

**UIC** means the Underground Injection Control program under Part C of the Safe Drinking Water Act, including an "approved program."

**Underground injection** means a "well injection."

**Underground source of drinking water** (USDW, RCRA and UIC) means an aquifer or its portion:

- (1) (i) Which supplies any public water system; or
  - (ii) Which contains a sufficient quantity of groundwater to supply a public water system; and
    - (a) Currently supplies drinking water for human consumption; or
    - (b) Contains fewer than 10,000 mg/l total dissolved solids; and
- (2) Which is not an "exempted aquifer."

**USDW** means "underground source of drinking water."

**Well** means a bored, drilled or driven shaft, or a dug hole whose depth is greater than the largest surface dimension.

**Well injection** means the subsurface emplacement of fluids through a bored, drilled, or driven well; or dug well, where the depth of the dug well is greater than the largest surface dimensions.

**Well plug** means a watertight and gastight seal installed in a borehole or well to prevent movement of fluids.

**Well stimulation** means several processes used to clean the well bore, enlarge channels, and increase pore space in the interval to be injected thus making it possible for wastewater to move more readily into the formation and includes (1) surging, (2) jetting, (3) blasting, (4) acidizing, (5) hydraulic fracturing.

**Well monitoring** means the measurement, by on-site instruments or laboratory methods, of the quality of water in a well.

### 3. Adoption of Federal Regulations

(A) Except where manifestly inconsistent with the provisions of the Safe Drinking Water Act, as amended, or with federal regulations adopted pursuant thereto, or with the provisions of this Code, the Department shall have the responsibilities and the authority in the State of Arkansas as granted to the Administrator of the United States Environmental Protection Agency under the provisions of the following federal regulations. The regulations listed below are hereby adopted and made part of this Code as though set forth herein word for word. These regulations shall apply to all persons and activities subject to regulation under the provisions of the Safe Drinking Water Act and/or the Arkansas Water and Air Pollution Control Act, relating to underground injection control within the State of Arkansas:

40 CFR Part 144; dated April 1, 1983; as amended July 26, 1988; and as amended to the date hereof; and

40 CFR Part 145; dated April 1, 1983; as amended to the date hereof; and

40 CFR Part 124, Subpart A, 45 FR 3345, et seq. May 19, 1980; as amended April 8, 1982; as amended July 26, 1988; and as amended to the date hereof; and

40 CFR Part 146, Subparts A, B, D, E, and F, 45 FR 42500, et seq., June 24, 1980; as amended 46 FR 43161, et seq., August 27, 1981; as amended February 3, 1982; as amended July 26, 1988, including the addition of Subpart G; and as amended to the date hereof.

Whenever the effect of any of the aforecited regulations is modified by a formal action of the United States Environmental Protection Agency, as evidenced by publication in the Federal Register, the effect of such action, upon its effective date, shall be extended in full force and effect as Interim Provisions of this Code and shall be enforceable as such, provided that the effect of said action does not conflict with

the provisions of the Arkansas Water and Air Pollution Control Act. No Interim Provision of this Code shall remain in effect for more than six months, unless the Commission grants an extension after opportunity for public comment as provided in subsection (E) below.

(B) (Reserved for future federal regulation reference.)

(C) (Reserved for future federal regulation reference.)

(D) In all instances wherein the federal regulations of 40 CFR 144, 145, 124, and 146 refer to the Administrator of the United States Environmental Protection Agency, the reference, for purposes of this Code, shall be deemed to mean the Department, unless the context plainly dictates otherwise. Nothing herein contained shall be construed as eliminating any approval required from the EPA Administrator under the SDWA for Department action such as aquifer exemption and alternative testing of mechanical integrity.

(E) The Director, within a reasonable time after the effective date of the Interim Provisions of this Code, shall cause a public notice to be published in a newspaper of statewide circulation stating the existence of such Interim Provisions and giving notice of the public's opportunity to comment on the Interim Provisions. Whenever the Director finds that a public hearing should be held to consider the continued application of Interim Provisions or proposed modifications to such Provisions, a notice of public hearing and formal action of the Commission shall follow in the manner described in subsection (F) below.

(F) Whenever the federal regulations referenced in subsection (A) of this section are amended, modified, revoked, expanded, supplemented, or otherwise change, such revocation, expansion, supplement or other change shall become part of this Code when:

(1) a 30-day notice of public hearing upon the proposed change is published by the Department; and

(2) such amendment, modification, revocation, expansion, supplement or other change is adopted by the Commission after public hearing; where a time exceeding 35 days exists between the promulgation of the federal regulation and the next regularly scheduled Commission meeting, the Director, finding sufficient cause for earlier consideration may request the chairman of the Commission to call a special meeting of the Commission to consider the matter.

Such amendment, modification, revocation,



expansion, supplement or other change shall become effective upon adoption by the Commission unless otherwise set out in the resolution adopting such change.

#### 4. Violations

- (A) No person shall construct, install, alter, modify, or operate any underground injection facility without a permit from the Department or, as to Class II and Class V bromine-related brine disposal wells, from the Arkansas Oil and Gas Commission.
- (B) No person shall construct, install, or operate a Class IV well as defined in Section 5(D) hereof, and no permit for a Class IV well shall be issued by the Department.
- (C) No person shall construct, install, alter, modify or operate any underground injection facility contrary to the terms and conditions of a permit or of any provision of this Code or the Arkansas Water and Air Pollution Control Act, as amended (the Act).
- (D) No person shall violate any other provision of this Code or of the Act.
- (E) Any person who violates any provision of this Code or the Act shall be subject to the penalties as provided in Section 9(a), (b), and (c), Part I, of this Act (82-1909(a), (b), and (c), Ark. Stats. Ann.).

#### 5. Classification of Injection Wells

- (A) Class I.
  - (1) Wells used by generators of hazardous wastes or owners or operators of hazardous waste management facilities to inject hazardous waste beneath the lowermost formation containing, within one-quarter mile of the well bore, an underground source of drinking water.
  - (2) Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within one-quarter mile of the well bore, an underground source of drinking water.

(B) Class II. Wells which inject fluids:

- (1) Which are brought to the surface in connection with conventional oil or natural gas production and may be commingled with wastewaters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection.
- (2) For enhanced recovery of oil and natural gas; and
- (3) For storage of hydrocarbons which are liquid at standard temperature and pressure.

(C) Class III. Wells which inject for extraction of minerals including:

- (1) Mining of sulfur by the Frasch process.
- (2) In situ production of uranium or other metals. This category includes only in situ production from ore bodies which have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class V (146.5 (c)(2) revised by 46 FR 43160, August 27, 1981).
- (3) Solution mining of salts or potash. (New 146.05(c)(3) added and former (3), (4) redesignated as (4), (5) by 46 FR 43160, August 27, 1981)
- (4) In situ combustion of fossil fuel.

[Note -- Fossil fuel includes coal, tar sands, oil shale and any other fossil fuel which can be mined by this process.]

- (5) Recovery of geothermal energy to produce electric power.

[Note -- Class III wells include the recovery of geothermal energy to produce electric power but do not include wells used in heating or aquaculture which fall under Class V.]

(D) Class IV. Wells used by generators of hazardous wastes or of radioactive wastes, by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous wastes or radioactive wastes into or above a formation which, within one-quarter mile of the well bore, contains an underground source of drinking water.

(E) Class V. Injection wells not included in Class I, II, III, or IV.

[Note -- Class V wells include:]

- (1) Air conditioning return flow wells used to return to the supply aquifer the water used for heating or cooling in a heat pump;
- (2) Cesspools or other devices that receive wastes, which have an open bottom and sometimes have perforated sides (the UIC requirements do not apply to single family residential cesspools);
- (3) Cooling water return flow wells used to inject water previously used for cooling;
- (4) Drainage wells used to drain surface fluid, primarily storm runoff, into a subsurface formation;
- (5) Dry wells used for the injection of wastes into a subsurface formation;
- (6) Recharge wells used to replenish the water in an aquifer;
- (7) Salt water intrusion barrier wells used to inject water into a fresh water aquifer to prevent the intrusion of salt water into the fresh water;
- (8) 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 whether what is injected is a radioactive waste or not (146.05(e)(8) amended by 46 FR 43160, August 27, 1981);
- (9) Septic system wells used:
  - (i) to inject the waste or effluent from a multiple dwelling, business establishment, community or regional business establishment septic tank; or
  - (ii) for multiple dwelling, community or regional cesspool. The UIC requirements do not apply to single family residential waste disposal systems.
- (10) Subsidence control wells (not used for the purpose of oil or natural gas production) used to inject fluids into a non-oil or gas producing zone to reduce or eliminate subsidence associated with the overdraft of fresh water;

- (11) Radioactive waste disposal wells other than Class IV (146.05(e)(11) revised by 46 FR 43160, August 27, 1981);
- (12) Injection wells associated with the recovery of geothermal energy for heating, aquaculture and production of electric power;
- (13) Wells used for solution mining of conventional mines such as stopes leaching (146.05(e)(14) and (15) added by 46 FR 43160, August 27, 1981);
- (14) Wells used to inject spent brine into the same formation from which it was withdrawn after extraction of halogens or their salts.
- (15) Injection wells used in experimental technologies.

(F) Well classes currently operating in Arkansas include Class I wells used by owners of industrial facilities to inject hazardous/non-hazardous waste in disposal wells which inject beneath the lowermost formation containing, within one-quarter mile of the well bore, an USDW.

Class II wells which inject fluids which are brought to the surface in connection with conventional oil or natural gas production or for enhanced recovery of oil or natural gas.

Class V wells that are used to inject spent brine into the same formation from which it was withdrawn after extraction of halogens of their salts.

## 6. Severability

If any provision of this Code or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this Code which can be given effect without the invalid provision or application, and to this end provisions of this Code are declared to be severable.

## 7. Effective Date

This Code shall be in full force and effect as of the date of its promulgation.

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Notes: Adopted: March 24, 1989  
Filed with Secretary of State: April 14, 1989  
Effective: May 4, 1989