

**R649. Natural Resources; Oil, Gas and Mining; Oil and Gas.**

**R649-5. Underground Injection Control of Recovery Operations and Class II Injection Wells.**

**R649-5-1. Requirements for Injection of Fluids Into Reservoirs.**

1. Operations to increase ultimate recovery, such as cycling of gas, the maintenance of pressure, the introduction of gas, water or other substances into a reservoir for the purpose of secondary or other enhanced recovery or for storage and the injection of water into any formation for the purpose of water disposal shall be permitted only by order of the board after notice and hearing.

2. A petition for authority for the injection of gas, liquefied petroleum gas, air, water, or any other medium into any formation for any reason, including but not necessarily limited to the establishment of or the expansion of waterflood projects, enhanced recovery projects, and pressure maintenance projects shall contain:

2.1. The name and address of the operator of the project.

2.2. A plat showing the area involved and identifying all wells, including all proposed injection wells, in the project area and within one-half mile radius of the project area.

2.3. A full description of the particular operation for which approval is requested.

2.4. A description of the pools from which the identified wells are producing or have produced.

2.5. The names, description and depth of the pool or pools to be affected.

2.6. A copy of a log of a representative well completed in the pool.

2.7. A statement as to the type of fluid to be used for injection, its source and the estimated amounts to be injected daily.

2.8. A list of all operators or owners and surface owners within a one-half mile radius of the proposed project.

2.9. An affidavit certifying that said operators or owners and surface owners within a one-half mile radius have been provided a copy of the petition for injection.

2.10. Any additional information the board may determine is necessary to adequately review the petition.

3. Applications as required by R649-5-2 for injection wells that are located within the project area, may be submitted for board consideration and approval with the request for authorization of the recovery project.

4. Established recovery projects may be expanded and additional wells placed on injection only upon authority from the board after notice and hearing or by administrative approval.

5. If the proposed injection interval can be classified as an USDW, approval of the project is subject to the requirements of R649-5-4.

**R649-5-2. Requirements for Class II Injection Wells Including Water Disposal, Storage and Enhanced Recovery Wells.**

1. Injection wells shall be completed, equipped, operated, and maintained in a manner that will prevent pollution and damage

to any USDW, or other resources and will confine injected fluids to the interval approved.

2. The application for an injection well shall include a properly completed UIC Form 1 and the following:

2.1. A plat showing the location of the injection well, all abandoned or active wells within a one-half mile radius of the proposed well, and the surface owner and the operator of any lands or producing leases, respectively, within a one-half mile radius of the proposed injection well.

2.2. Copies of electrical or radioactive logs, including gamma ray logs, for the proposed well run prior to the installation of casing and indicating resistivity, spontaneous potential, caliper, and porosity.

2.3. A copy of a cement bond or comparable log run for the proposed injection well after casing was set and cemented.

2.4. Copies of logs already on file with the division should be referenced, but need not be refiled.

2.5. A description of the casing or proposed casing program of the injection well and of the proposed method for testing the casing before use of the well.

2.6. A statement as to the type of fluid to be used for injection, its source and estimated amounts to be injected daily.

2.7. Standard laboratory analyses of:

2.7.1. The fluid to be injected,

2.7.2. The fluid in the formation into which the fluid is being injected, and

2.7.3. The compatibility of the fluids.

2.8. The proposed average and maximum injection pressures.

2.9. Evidence and data to support a finding that the proposed injection well will not initiate fractures through the overlying strata or a confining interval that could enable the injected fluid or formation fluid to enter any fresh water strata.

2.10. Appropriate geological data on the injection interval with confining beds clearly labeled,

2.10.1. Nearby Underground Sources of Drinking Water, including the geologic formation name,

2.10.2. Lithologic descriptions, thicknesses, depths, water quality, and lateral extent;

2.10.3. Information relative to geologic structure near the proposed well that may effect the conveyance and/or storage of the injected fluids.

2.11. A review of the mechanical condition of each well within a one-half mile radius of the proposed injection well to assure that no conduit exists that could enable fluids to migrate up or down the wellbore and enter improper intervals.

2.12. An affidavit certifying that a copy of the application has been provided to all operators, owners, and surface owners within a one-half mile radius of the proposed injection well.

2.13. Any other additional information that the board or division may determine is necessary to adequately review the application.

3. Applications for injection wells that are within a recovery project area will be considered for approval:

3.1. Pursuant to R649-5-1-3.

3.2. Subsequent to board approval of a recovery project pursuant to R649-5-1-1.

4. Approval of an injection well is subject to the requirements of R649-5-4, if the proposed injection interval can be classified as an USDW.

5. In addition to the requirements of this section, the provisions of R649-3-1, R649-3-4, R649-3-24, R649-3-32, and R649-8-1 and R649-10 shall apply to all Class II injection wells.

**R649-5-3. Noticing and Approval of Injection Wells.**

1. Applications for injection wells submitted pursuant to R649-5-1-3 shall be noticed in conformance with the procedural rules of the board as part of the hearing for the recovery project. Any person desiring to object to approval of such an application for an injection well shall file the objection in conformance with the procedural rules of the board.

2. The receipt of a complete and technically adequate application, other than an application submitted pursuant to R649-5-3-1, shall be considered as a request for agency action by the Division and shall be published in a daily newspaper of general circulation in the city and county of Salt Lake and in a newspaper of general circulation in the county where the proposed well is located. A copy of the notice of agency action shall also be sent to all parties including government agencies. The notice of agency action shall contain at least the following information:

2.1. The applicant's name, business address, and telephone number.

2.2. The location of the proposed well.

2.3. A description of proposed operation.

3. If no written objection to the application for administrative approval of an injection well is received by the division within 15 days after publication of the notice of agency action, or an aquifer exemption is not required in accordance with R649-5-4, and a board hearing is not otherwise required, the application may be considered and approved administratively.

4. If a written objection to an application for administrative approval of an injection well is received by the division within 15 days after publication of the notice of application, or if a hearing is required by these rules or deemed advisable by the director, the application shall be set for notice and hearing by the board.

5. The director shall have the authority to grant an exception to the hearing requirements of R649-5-1.1 for conversion to injection of additional wells that constitute a modification or expansion of an authorized project provided that any such well is necessary to develop or maintain thorough and efficient recovery operations for any authorized project and provided that no objection is received pursuant to R649-5-3-3.

6. The director shall have authority to grant an exception to the hearing requirements of R649-5-1-1 for water disposal wells provided disposal is into a formation or interval that is not currently nor anticipated to be an underground source of drinking water and provided that no objection is received pursuant to R649-5-3-3.

#### **R649-5-4. Aquifer Exemption.**

1. The board may, after notice and hearing and subject to the EPA approval, authorize the exemption of certain aquifers from classification as an USDW based upon the following findings:

1.1. The aquifer does not currently serve as a source of drinking water.

1.2. The aquifer cannot now and will not in the future serve as a source of drinking water for any of the following reasons:

1.2.1. The aquifer is mineral, hydrocarbon or geothermal energy producing, or it can be demonstrated by the applicant as part of a permit application for a Class II well operation, to contain minerals or hydrocarbons that, considering their quantity and location, are expected to be commercially producible.

1.2.2. The aquifer is situated at a depth or location that makes recovery of water for drinking water purposes economically or technologically impractical.

1.2.3. The aquifer is contaminated to the extent that it would be economically or technologically impractical to render water from the aquifer fit for human consumption.

1.2.4. The aquifer is located above a Class III well mining area subject to subsidence or catastrophic collapse.

1.3. The total dissolved solids content of the water from the aquifer is more than 3,000 and less than 10,000 mg/l, and the aquifer is not reasonably expected to be used as a source of fresh or potable water.

2. Interested parties desiring to have an aquifer exempted from classification as a USDW, shall submit to the division an application that includes sufficient data to justify the proposal.

The division shall consider the application and if appropriate, will advise the applicant to submit a request to the board for an aquifer exemption.

#### **R649-5-5. Testing and Monitoring of Injection Wells.**

1. Before operating a new injection well, the casing shall be tested to a pressure not less than the maximum authorized injection pressure, or to a pressure of 300 psi, whichever is greater.

2. Before operating an existing well newly converted to an injection well, the casing outside the tubing shall be tested to a pressure not less than the maximum authorized injection pressure, or to a pressure of 1,000 psi, whichever is lesser, provided that each well shall be tested to a minimum pressure of 300 psi.

3. In order to demonstrate continuing mechanical integrity after commencement of injection operations, all injection wells shall be pressure tested or monitored as follows:

3.1. Pressure Test. The casing-tubing annulus above the packer shall be pressure tested not less than once each five years to a pressure equal to the maximum authorized injection pressure or to a pressure of 1,000 psi, whichever is lesser, provided that no test pressure shall be less than 300 psi. A report documenting the test results shall be submitted to the division.

3.2. Monitoring. If approved by the director, and in lieu of the pressure testing requirement, the operator may monitor the

pressure of the casing-tubing annulus monthly during actual injection operations and report the results to the division.

3.3. Other test procedures or devices such as tracer surveys, temperature logs or noise logs may be required by the division on a case-by-case basis.

3.4. The operator shall sample and analyze the fluids injected in each disposal well or enhanced recovery project at sufficiently frequent time intervals to yield data representative of fluid characteristics, and no less frequently than every year.

3.5. The operator shall submit a copy of the fluid analysis to the division with the Annual Fluid Injection Report, UIC Form 4.

**R649-5-6. Duration of Approval for Injection Wells.**

1. Approvals or orders authorizing injection wells shall be valid for the life of the well, unless revoked by the board for just cause, after notice and hearing.

2. An approval may be administratively amended if:

2.1. There is a substantial change of conditions in the injection well operation.

2.2. There are substantial changes to the information originally furnished.

2.3. Information as to the permitted operation indicates that an USDW is no longer being protected.

**R649-5-7. Unit or Cooperative Development or Operation.**

Any person desiring to obtain the benefits of Section 40-6-7(1) insofar as the same relates to any method of unit or cooperative development or operation of a field or pool or a part of either, shall file a Request for Agency Action and a copy of such agreement with the board for approval after notice and hearing.

**KEY: oil and gas law**

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