**R644. Natural Resources, Oil, Gas and Mining; Carbon Sequestration.**

**R644-2. General Rules.**

**R644-2-1. Scope of Rules.**

(1) Applicability. Title R644 applies to any owner or operator of a proposed or existing CO2 Sequestration facility and associated Class VI wells in Utah. Title R644 does not apply to applications filed with the division proposing to use carbon dioxide for an enhanced oil or gas recovery project, rather such applications will be processed under Rule R649-5.

(2) The division, under the direction of the board, shall administer Title 40, Chapter 11, Geologic Carbon Storage and Title R644 promulgated thereunder for geologic sequestration of carbon dioxide.

(3) Title R644 only applies to geologic sequestration of carbon dioxide in underground reservoirs as defined in Section R644-1-1. The geologic sequestration of carbon dioxide is not permitted in solution-mined salt caverns under these provisions.

(4) Title R644 does not apply to Class I, Class III, or Class V wells. Conversion of these wells to a Class VI well is prohibited. The construction, operation or maintenance of any Class V geologic sequestration well for carbon dioxide injection is prohibited.

(5) An operator of an existing Class II well must obtain a CO2 Sequestration facility permit, and a permit for a Class VI well associated with the CO2 Sequestration facility, prior to injecting carbon dioxide for the primary purpose of long-term storage into a reservoir and must demonstrate that the well is constructed to the division's satisfaction and meets the standards set forth in Rule R644-9. Upon approval of a CO2 Sequestration facility permit and the associated Class VI well permit, an operator's Class II permit will expire.

**R644-2-2. Prohibition of Unauthorized Injection and Injection Depth Waivers.**

(1) Any underground injection of carbon dioxide, except as authorized by a permit or rule, is prohibited after the effective date of these Title R644. Construction or operation of any CO2 Sequestration facility and an associated Class VI well is prohibited until a permit under these Title R644 has been issued.

(2) Any underground injection that violates Title R644 is subject to enforcement action.

(3) Class VI wells cannot be authorized by rule to inject carbon dioxide. Class VI wells must be permitted by the operator with an associated CO2 Sequestration facility permit.

(4) Notwithstanding any other provision in this section, the division will not grant an operator a waiver as to the Class VI well injection depth requirements to inject the carbon dioxide stream below the lowermost formation containing a USDW.

**R644-2-3. Prohibition of Movement of Fluid into Underground Sources of Drinking Water.**

(1) Underground injection of carbon dioxide for geologic storage that causes or allows movement of fluid into an USDW is prohibited, unless the USDW is an exempted aquifer under Section R644-2-4.

(2) No CO2 Sequestration facility operator shall construct, operate, maintain, convert, plug, abandon, or conduct any injection activity in a manner that allows the movement of fluid containing any contaminant into an USDW, if the presence of that contaminant may endanger an USDW or may adversely affect the health of persons. The operator must show that the objectives of this section are fulfilled.

(3) Notwithstanding any other provision of this section, the division or the board may take emergency action upon receipt of information that a contaminant is present in or likely to enter a public water system or USDW may present an imminent and substantial endangerment to the health of persons.

**R644-2-4. Identification of Underground Sources of Drinking Water and Exempted Aquifers.**

(1) The division may identify, by narrative description, illustrations, maps, or other means, and shall protect as a USDW, each aquifer or parts of an aquifer that meet the definition of an USDW, except where there is an applicable aquifer exemption under Subsections (2) and (4), or an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption for the exclusive purpose of Class VI injection for geologic sequestration under Subsection (4). Other than approved aquifer exemption expansions that meet the criteria set forth in Subsection (3), new aquifer exemptions may not be issued for Class VI wells. Even if an aquifer has not been specifically identified by the division, it is a USDW if it meets the definition.

(2) After notice and opportunity for a public hearing the division may identify, by narrative description, illustrations, maps, or other means, and describe in geographic or geometric terms, such as vertical and lateral limits and gradient, which are clear and definite, any aquifer or parts of an aquifer that the division proposes to designate as exempted aquifers if they meet the following criteria:

(a) The aquifer does not currently serve as an USDW; and

(b) The aquifer cannot now and will not in the future serve as an USDW because:

(i) It is mineral, hydrocarbon or geothermal energy producing or can be demonstrated by an operator as part of a permit application for a Class II or Class III operation to contain minerals or hydrocarbons that, considering their quantity and location, are expected to be commercially producible;

(ii) It is situated at a depth or location that makes recovery of water for drinking water purposes economically or technologically impractical;

(iii) It is so contaminated that it would be economically or technologically impractical to render ground water fit for human consumption; or

(iv) It is located over a Class III well mining area subject to subsidence or catastrophic collapse; or

(c) The total dissolved solids content of the groundwater is more than 3,000 and less than 10,000 mg/l and it is not reasonably expected to supply a public water system.

(d) 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.

(e) The areal extent of an aquifer exemption for a Class II enhanced oil recovery or enhanced gas recovery well may be expanded for the exclusive purpose of Class VI injection for geologic sequestration under Subsection (4) if it meets the following criteria:

(i) It does not currently serve as a USDW; and

(ii) The total dissolved solids content of the groundwater is more than 3,000 mg/L and less than 10,000 mg/L; and

(iii) It is not reasonably expected to supply a public water system.

(3) No designation of an exempted aquifer submitted as part of the UIC program shall be final until approved by the USEPA. No designation of an expansion to the areal extent of a Class II enhanced oil recovery or enhanced gas recovery aquifer exemption for the exclusive purpose of Class VI injection for geologic sequestration of carbon shall be final until approved by the USEPA as a substantial revision of the state's UIC program in accordance with 40 CFR 145.32.

(4) Expansion to the Areal Extent of Existing Class II Aquifer Exemptions for a Class VI Well. The operator of a Class II enhanced oil recovery or enhanced gas recovery well may request that the division approve an expansion to the areal extent of an aquifer exemption already in place for a Class II enhanced oil recovery or enhanced gas recovery well for the exclusive purpose of Class VI injection for geologic sequestration. Such requests are treated as a substantial program revision to the division's UIC program and will not be final until approved by USEPA.

(a) The operator of a Class II enhanced oil recovery or enhanced gas recovery well that requests an expansion of the areal extent of an existing aquifer exemption for the exclusive purpose of Class VI injection for geologic sequestration must define, by narrative description, illustrations, maps, or other means and describe in geographic or geometric terms, or both, such as vertical and lateral limits and gradient, that are clear and definite, any aquifer or parts of an aquifer that are requested to be designated as exempted under Subsection (3).

(b) In evaluating a request to expand the areal extent of an aquifer exemption of a Class II enhanced oil recovery or enhanced gas recovery well for Class VI injection, the division must determine that the request meets the criteria for exemptions. In making the determination, the division shall consider:

(i) Current and potential future use of the USDWs to be exempted as drinking water resources;

(ii) The predicted extent of the injected carbon dioxide plume, and any mobilized fluids that may result in degradation of water quality, over the lifetime of the project, as informed by computational modeling performed pursuant to Section R644-8-2, to ensure that the proposed injection operation will not at any time endanger USDWs, including non-exempted portions of the injection formation; and

(iii) Whether the areal extent of the expanded aquifer exemption is of sufficient size to account for any possible revisions to the computational model during reevaluation of the area of review pursuant to Subsection R644-8-3(2).

**R644-2-5. Transitioning from Class II to Class VI.**

(1) An operator seeking to convert an existing Class II well to a Class VI well, for the primary purpose of long-term storage must obtain a CO2 Sequestration facility permit, and a permit for a Class VI well associated with the CO2 Sequestration facility, prior to injecting carbon dioxide. An operator seeking to convert an existing Class II well should consider the criteria specified in Subsection R644-2-5(2) before submitting a CO2 Sequestration facility permit application.

(2) The division shall determine when there is an increased risk to USDWs compared to Class II operations and a Class VI permit is required and must consider the following:

(a) Increase in reservoir pressure within each injection zone;

(b) Increase in carbon dioxide injection rates;

(c) Decrease in reservoir production rates;

(d) Distance between the injection zones and USDWs;

(e) Suitability of the Class II enhanced oil or gas recovery area of review delineation;

(f) Quality of any abandoned well plugs within the area of review;

(g) The operator's plan for recovery of carbon dioxide at the cessation of injection;

(h) The source and properties of injected carbon dioxide; and

(i) Any additional site-specific factors as determined by the division.

**R644-2-6. Additional Requirements.**

(1) Any item submitted for informational purposes, shall bear the division assigned API number of any Class VI carbon dioxide sequestration well associated with the submittal.

(2) Any item submitted comprising geoscientific work, must be prepared, sealed, signed, and dated by a licensed Professional Geoscientist (P.G.) authorized to practice by and in good standing with the Utah Division of Professional Licensing.

(3) Any item submitted comprising the practice of engineering, must be prepared, sealed, signed, and dated by a licensed Professional Engineer (P.E.) authorized to practice by and in good standing with the Utah Division of Professional Licensing.

(4) The division may prescribe additional requirements for a CO2 Sequestration facility and associated Class VI wells to protect USDWs and the health, safety, and welfare of the public.

**R644-2-7. Confidentiality of Information.**

(1) All information received on or with a permit application shall be made available to the public for inspection and copying except where nondisclosure for a confidentiality claim is requested in writing at the time of submittal, pursuant to Section 63G-2-309, and such information is determined by the division to constitute trade secrets or confidential information pursuant to Subsection 63G-2-305(1) or (2) or both. A confidentiality claim request shall include a copy of the permit application, that has redacted the identified confidential information, that will be made available for public inspection and copying.

(2) Any such nondisclosure may not apply to information that is necessary for use by authorized officers or employees of state or federal government in carrying out their responsibilities under these or applicable federal or state law.

(3) If no claim of nondisclosure is made at the time of submission, the director may make the information available to the public without further notice.

(4) Claims of confidentiality for the following information shall be denied:

(a) the name and address of any permit applicant or permittee; and

(b) information that deals with the existence, absence, or level of contaminants in drinking water.

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