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

**R644-1 Carbon Sequestration Definitions.**

**R644-1-1. Definitions.**

The following definitions apply to all rules in Title R644. Terms not defined in this section for Class VI wells have the meaning given by Section 40-6-2.

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

"Activity" means any activity that is subject to Title R644.

"API" means the American Petroleum Institute.

"Application" means the filing of a Division of Oil, Gas and Mining form for a permit associated with the underground injection and storage of carbon dioxide, including any additions, revisions, or modifications to the forms.

"Application for Permit to Drill, Deepen or Plug Back" or "APD" means the Form 3 submission required under Section R649-8-4 with the division.

"Aquifer" means a geologic 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 region surrounding the geologic sequestration project where USDWs may be endangered by the injection activity. The area of review is delineated using computational modeling that accounts for the physical and chemical properties of each phase of the injected carbon dioxide stream and displaced fluids, and is based on available site characterization, monitoring, and operational data as set forth in Section R644-8-2.

"ASTM" means the American Society for Testing and Materials

"Board" means the Utah Board of Oil, Gas and Mining.

"Carbon Dioxide" means naturally occurring, geologically sourced, or anthropogenically sourced carbon dioxide including its derivatives and any mixtures, combinations, and phases, whether liquid or gaseous, stripped, segregated, or divided from any other fluid stream thereof.

"Carbon Dioxide Plume" means the extent underground, in three dimensions, of an injected carbon dioxide stream.

"Carbon Dioxide Stream" means the carbon dioxide that has been captured from an emission source, such as a power plant, plus incidental associated substances derived from the source materials and the capture process, and any substances added to the stream to enable or improve the injection process. This meaning does not apply to any carbon dioxide stream meeting the definition of a hazardous waste under Title 40, Code of Federal Regulations (40 CFR), Part 261.

"Casing" means a metallic or nonmetallic tubing or pipe of varying diameter and weight, lowered into a borehole during or after drilling to support the sides of the hole and thus 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.

"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 or forced behind the casing.

"Class VI Geophysical Test Well" means any hole drilled for the sole purpose of obtaining geological and geophysical information, including reservoir monitoring, of a Class VI project. Any Class VI geophysical test well intended to subsequently be permitted as a Class VI well or used for Class VI reservoir monitoring shall be constructed in accordance with the general drilling rules under Rule R644-9.

"Class VI Well" means a well not experimental in nature that is used for geologic sequestration of carbon dioxide beneath the lowermost formation containing a USDW; or wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to Subsections R644-2-4(2) and (4).

"Confining Zone" means a geological formation, a group of formations, or part of a formation stratigraphically overlying an injection zone and that acts as a barrier to fluid movement above an injection zone.

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

"Corrective Action" means the use of division-approved methods to ensure that wells within the Area of Review do not serve as conduits for the movement of fluids into USDWs.

"CO2 Sequestration Facility" means the reservoir, Class VI wells, monitoring wells, underground equipment, surface facilities and equipment used, or proposed to be used, in a geologic sequestration project and storage operation.

"Director" means the executive and administrative head of the division.

"Division" means the Utah Division of Oil, Gas and Mining Underground Injection Control Program.

"Draft Permit" means a document prepared under Section R644-6-1 indicating the division's decision to issue or deny, modify, revoke and reissue, terminate, or reissue a permit. A notice of intent to terminate a permit and a notice of intent to deny a permit as discussed in Section R644-6-1 and Subsection R644-7-5(2) are types of draft permits. A denial of request for modification, revocation and reissuance, or termination, as discussed in Subsection R644-7-2(4), is not a draft permit.

"Drilling Mud" means a circulating fluid usually called mud, that is introduced in a drill hole to lubricate the action of the rotary bit, remove the drilling cuttings, and control formation pressures.

"Effective Date" means the date that the Utah Division of Oil, Gas and Mining is approved by the United States Environmental Protection Agency.

"Exempted Aquifer" means an aquifer or its portion that meets the criteria of the definition of USDWs, but has been exempted according to the procedures set forth in Subsections R644-2-4(2) and (4).

"Experimental Technology" means a technology that has not been proven feasible under the conditions in which it is being tested.

"Fault" means a fracture or zone of fractures along which there has been displacement.

"Flow Rate" means the volume per time unit given to the flow of gasses or other fluid substance that emerges from an orifice, pump, or turbine or passes along a conduit or channel.

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

"Formation" means a body of consolidated or unconsolidated 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 muds.

"Geologic Sequestration" means the long-term containment of a gaseous, liquid, or supercritical carbon dioxide stream in subsurface geologic formations. This term does not apply to carbon dioxide capture or transport.

"Geologic Sequestration Project" means an injection well or wells used to emplace a carbon dioxide stream beneath the lowermost formation containing a USDW; or a well or wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to Subsections R644-2-4(2) and (4). It includes the subsurface three-dimensional extent of the carbon dioxide plume, the associated area of elevated pressure and displaced fluids, as well as the surface area above that delineated region.

"Groundwater" means water in a zone of saturation below the ground surface.

"Hazardous Waste" means a hazardous waste as defined by the Utah Division of Waste Management and Radiation Control in Section R315-261-3.

"H.B. 244" means House Bill 244 of the 2022 Utah General Legislative Session.

"Indian Lands" means "Indian Country" as defined in 18 U.S.C. 1151. That section defines Indian Country as:

(a) All lands within the limits of any Indian reservation under the jurisdiction of the United States government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation;

(b) All dependent Indian communities within the borders of the United States whether within the original or subsequent acquired territory thereof, and whether within or without the limits of a State; and

(c) All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

"Injection Well" means a well into which fluids are being injected other than fluids associated with active drilling operations.

"Injection Zone" means a geological formation, a group of formations, or part of a formation receiving fluids through a well. For Class VI projects, it must also be of sufficient areal extent, thickness, porosity, and permeability to receive carbon dioxide through a well associated with a geologic sequestration project.

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

"NPDES" means the National Pollutant Discharge Elimination System.

"Operator" means the person recognized as being responsible to the Division of Oil, Gas and Mining for the well, site, facility, or activity subject to regulatory authority under Title R644. The operator can, but need not be, the owner of the well, site, facility, or activity.

"Owner" means the person who owns any well, site, facility, or activity subject to regulation under Title R644. The owner can, but need not be, the operator of the well, site, facility, or activity.

"Packer" means a device lowered into a well to produce a fluid-tight seal.

"Permit" means an authorization, license, or equivalent control document issued by the division to implement the requirements Title R644. Permit does not include draft permits.

"Person" means an individual, group of individuals, partnership, corporation, association, political subdivision or its units, public or private organization or entity of any character, or another agency.

"Plugging" means the act or process of stopping the flow of water, oil, or gas into or out of a formation through a borehole or well penetrating that formation.

"Post-closure" means that period after the board has issued a certificate of project completion.

"Post-Injection Site Care" means the appropriate monitoring and other actions, including corrective action, needed following cessation of geologic sequestration injection to ensure that USDWs are not endangered, as required under Rule R644-17.

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

"Pressure Front" means the zone of elevated pressure that is created by the injection of carbon dioxide into the subsurface. For the purposes of this rule, the pressure front of a carbon dioxide plume refers to a zone where there is a pressure differential sufficient to cause the movement of injected fluids or formation fluids into a USDW.

"Project" means a group of wells in a single operation.

"Project completion" means the point in time, as determined by the division, when the certificate of project completion is issued and the storage operator is released from any regulatory requirements associated with the CO2 Sequestration facility.

"RCRA" means the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 (P.L. 94-580 as amended by P.L. 95-609,42 U.S.C. 6901 et seq.).

"Reservoir" means a portion of any underground geologic stratum, formation, or aquifer, including oil and gas reservoirs, or other saline formations, and coal and coalbed methane seams, capable of being made suitable for injection or storage of fluids.

"Schedule of Compliance" means a schedule or remedial measures included in a permit, including an enforceable sequence of interim requirements, for example, actions, operations, or milestone events, leading to compliance with Title R644.

"SIC" means the 4-digit Standard Industrial Classification code that represents the economic activity of a company.

"Site" means the land or water area where any CO2 Sequestration facility or activity is physically located or conducted, including adjacent land used in connection with the CO2 Sequestration facility or activity.

"Site Closure" means the point or time, as determined by the division, when the owner or operator of a geologic sequestration site is released from post-injection site care responsibilities under Rule R644-17.

"State" means the state of Utah.

"Stratum" 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 oxidation of organic matter in soils, or added load on the land surface.

"Subsurface Fluid Distribution System" means an assemblage of perforated pipes, drain tiles, or other similar mechanisms intended to distribute fluids below the surface of the ground.

"Surface Casing" means the first string of casing to be installed in the well, excluding conductor casing.

"Third Party" means a party who is not within the corporate structure of the owner or operator.

"Total Dissolved Solids" means the total filterable residue as determined by use of the method specified in 40 C.F.R. Part 136 Table 1B.

"Transmissive Fault or Fracture" means a fault or fracture that has sufficient permeability and vertical extent to allow fluids to move between formations.

"Underground Injection" means the subsurface emplacement of fluids through an injection well.

"Underground Source of Drinking Water (USDW)" means an aquifer or its portion which supplies any public water system, or which contains a sufficient quantity of groundwater to supply a public water system, and currently supplies drinking water for human consumption, or contains fewer than 10,000 mg/L total dissolved solids, and is not an exempted aquifer.

"USEPA" means the United States Environmental Protection Agency.

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

"Well Injection" means the subsurface emplacement of fluids through an injection well.

"Well Plug" means a fluid-tight seal installed in a borehole or well to prevent movement of fluids.

"Well Stimulation" means the process used to clean the well bore, enlarge channels, and increase pore space in the interval to be injected, thus making it possible for fluids to move more readily into the formation, and includes surging, jetting, blasting, acidizing, or hydraulic fracturing.

"Workover" refers to any maintenance activity performed on a well that involves ceasing injection.

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