## 100 Series - Definitions

**ABANDONED WELL** means a Well whose use 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.

**AREA OF REVIEW** means that area surrounding an injection well or injection well pattern in which the pressure change in the injection zone is great enough to make possible the migration of fluids out of the injection zone and into an underground source of drinking water. For Class VI UIC Wells, the Area of Review is delineated using computational modeling that accounts for the physical and chemical properties of all phases of the injected Carbon Dioxide Stream and displaced Fluids, and is based on available site characterization, monitoring, and operational data as set forth in Rule 1414.

**AVOID ADVERSE IMPACTS** means to differentially select alternative locations, practices, or methods for Energy and Carbon Management Operations ~~Oil and Gas Operations~~ based on site-specific circumstances, so that those operations will not cause quantifiable direct, indirect, or cumulative adverse impacts to the potentially affected resource(s). Avoidance may include a no action alternative.

**CARBON DIOXIDE ("$CO_2$")** means naturally occurring, geologically sourced, or anthropogenically sourced Carbon Dioxide including its derivatives and all mixtures, combinations, and phases, whether liquid, gaseous, supercritical, or solid, and whether stripped, segregated, or divided from any other Fluid stream thereof.

**CARBON DIOXIDE FLOWLINE** means a segment of pipe transferring Injection Carbon Dioxide related to a Geologic Storage Facility. Carbon Dioxide Flowline does not include pipelines regulated by the Pipeline and Hazardous Materials Safety Administration of the United States Department of Transportation or the Public Utilities Commission.

**CARBON DIOXIDE PLUME** means the extent underground, in three dimensions, of an injected Carbon Dioxide Stream.

**CARBON DIOXIDE STREAM** means Carbon Dioxide, 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. Carbon Dioxide Stream does not include any Carbon Dioxide Stream that meets the definition of a hazardous waste under 40 CFR part 261.

**CASING** means a pipe or tubing of appropriate material, of varying diameter and weight, lowered into a borehole during or after drilling in order 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.

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

**CLASS VI UIC WELL** - Wells that are not experimental in nature that are used for Geologic Storage of Carbon Dioxide beneath the lowermost Formation containing a USDW; or, wells used for Geologic Storage of Carbon Dioxide that have been granted a waiver of the injection depth requirements pursuant to Rule 1426; or, wells used for Geologic Storage 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 Rule 1402.

**CLASS VI CORRECTIVE ACTION** means the use of Director-approved methods to ensure that Wells within the Area of Review do not serve as conduits for the movement of Fluids into Underground Sources of Drinking Water (USDW).

**COMMISSION** means the Energy and Carbon Management ~~Oil and Gas Conservation~~ Commission of the State of Colorado

**CONFINING ZONE** means a geologic Formation, group of Formations, or part of a Formation stratigraphically overlying and underlying the Injection Zone(s) that acts as a barrier to Fluid movement. For Class VI UIC Wells operating under an injection depth waiver, Confining Zone means a geologic Formation, group of Formations, or part of a Formation stratigraphically overlying and underlying the Injection Zone(s).

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

**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 pursuant to Rule 802 or Rule 1402.

**EXPERIMENTAL TECHNOLOGY** means a technology which has not been proven feasible under the conditions in which it is being tested.

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

**FINANCIAL ASSURANCE** means a Surety Bond, Cash Bond, Letter of Credit, sinking fund, Third-Party Trust Fund, escrow account, lien on property, security interest, or other instrument or method accepted by the Commission to ensure an Operator is able to perform its obligations under the Act and the Commission's Rules pursuant to Rule 1415.

**FLUID** means any material or substance which flows or moves whether in a semisolid, liquid, sludge, gas, supercritical, 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.

**GEOLOGIC STORAGE** means the injection and underground storage of Carbon Dioxide in a Geologic Storage Resource pursuant to a valid UIC Class VI permit.

**GEOLOGIC STORAGE FACILITY** means that specific part of the Geologic Storage Resource which is utilized for Geologic Storage, together with the Well and all surface equipment and disturbances associated with the Geologic Storage Operations at the Geologic Storage Location. Geologic Storage Facility does not include pipelines regulated by the Pipeline and Hazardous Materials Safety Administration of the United States Department of Transportation or the Colorado Public Utilities Commission.

**GEOLOGIC STORAGE LOCATION** means a definable area where a geologic storage operator uses or intends to use the land surface in order to operate a Geologic Storage Facility.

**GEOLOGIC STORAGE MONITORING WELL** means a hole drilled for the purpose of obtaining testing and monitoring data pursuant to Rule 1420.

**GEOLOGIC STORAGE OPERATIONS** means activities performed for the purpose of engaging in Geologic Storage in the state, including:

a. The following activities related to the operation of a Geologic Storage Facility:

(1) Drilling test bores and monitoring wells;

(2) Siting;

(3) Installing and operating Carbon Dioxide Flowlines;

(4) Drilling;

(5) Deepening;

(6) Recompleting;

(7) Reworking; and

(8) Abandoning

b. Injecting Injection Carbon Dioxide for the purpose of Geologic Storage;

c. Any constructing, site preparing, or reclaiming activities associated with the activities described in subsection (a) or (b); and

d. Any other activities determined by the Commission to be necessary to protect and minimize adverse impacts associated with Geologic Storage to public health, safety, welfare, the environment, and wildlife resources.

**GEOLOGIC STORAGE OPERATOR** means any person who exercises the right to control the conduct of Geologic Storage Operations.

**GEOLOGIC STORAGE RESOURCE** means Pore Space necessary for Geologic Storage.

**GEOLOGIC STORAGE SCIENCE WELL** means a hole drilled for the purpose of obtaining subsurface information to assess the suitability of a site for Geologic Storage.

**GEOLOGIC STORAGE UNIT** means a unit of one or more Geologic Storage Resources or parts of a Geologic Storage Resource established by the Commission pursuant to C.R.S. 34-60-141.

**GEOLOGIC STORAGE UNIT AREA** means any Geologic Storage Resource, or part of a Geologic Storage Resource, included in a Geologic Storage Unit.

**GEOLOGIC STORAGE UNIT ORDER** means an order that provides for the Formation of a Geologic Storage Unit that is entered by the Commission pursuant to Rule 1427.

**GEOLOGIC STORAGE UNIT PLAN** means a plan for geologic storage operations of the Geologic Storage Unit approved by the Commission pursuant to Rule 1427.

**INJECTION CARBON DIOXIDE** means Carbon Dioxide, including its derivatives and all mixtures, combinations, and phases, whether liquid, gaseous, supercritical, or solid, and whether stripped, segregated, or divided from any other Fluid stream, including all incidental associated substances derived from the source materials.

**INJECTION WELL** means a Well subject to Part C of the Safe Drinking Water Act, 42 U.S.C. 300f et seq., into which Fluids are being injected.

**INJECTION ZONE** means a geological Formation, group of Formations, or part of a Formation that is of sufficient areal extent, thickness, porosity, and permeability to receive Carbon Dioxide through a Well or Wells associated with Geologic Storage Operations or receiving Fluids through a Class II or Class VI UIC Well.

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

**MINIMIZE ADVERSE IMPACTS** means, as provided by § 34-60-106(2.5), C.R.S., providing necessary and reasonable protections to reduce the extent, severity, significance, or duration of Unavoidable direct, indirect, and cumulative Adverse Impacts to public health, safety, welfare, the environment, or Wildlife Resources from Oil and Gas Operations, Geologic Storage Operations, or Deep Geothermal Operations.

**MITIGATE ADVERSE IMPACTS** means, with respect to Wildlife Resources, measures that compensate for Unavoidable direct, indirect, and cumulative Adverse Impacts and loss of such resources from Oil and Gas Operations, Geologic Storage Operations, or Deep Geothermal Operations, including, as appropriate, habitat replacement, on- or off-site habitat enhancement, habitat banking, or financial payment in lieu of habitat replacement or enhancement to compensate for the loss of habitat and ensure that wildlife populations are protected.

**PACKER** means a downhole sealing device set within casing that can isolate and contain fluids and pressures within a tubing string.

**PERMIT** means an authorization issued by the Commission to conduct Energy and Carbon Management Operations. Permit does not include any application which has not yet been the subject of final approval by the Commission or the Director, as applicable.

**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.

**PORE SPACE** means a cavity or void, whether natural or artificially created, in a subsurface Stratum.

**POST-INJECTION SITE CARE** means appropriate monitoring and other actions (including Class VI Corrective Action) needed following cessation of injection to ensure that USDWs are not endangered, as required pursuant to Rule 1423.

**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 subpart, 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.

**SEQUESTRATION ESTATE** means a portion of a Geologic Storage Resource.

**SITE CLOSURE** means the point/time, as determined by the Director pursuant to Rule 1423, at which the Geologic Storage Operator of a Geologic Storage Facility is released from Post-Injection Site Care responsibilities.

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

**SURFACE CASING** means casing that extends from the ground surface to below the base of the lowermost USDW.

**SURFACE OWNER** will mean any person owning all or part of the surface of land upon which oil and gas operations are conducted or upon which surface disturbance associated with Geologic Storage Operations occurs, as shown by the tax records of the county in which the tract of land is situated, or any person with such rights under a recorded contract to purchase.

**SURFACE USE AGREEMENT** will mean any agreement in the nature of a contract or other form of document binding on the Operator, including any lease, damage agreement, waiver, local government approval or permit, or other form of agreement, which governs the operator's activities on the surface in relation to locating a Well, Multi-Well Site, Production Facility, pipeline or any other Oil and Gas Facility or Geologic Storage Facility ~~that supports oil and gas development~~ located on the Surface Owner's property.

**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 a Well pursuant to Part C of the Safe Drinking Water Act, 42 U.S.C. 300f et seq.

**UNDERGROUND SOURCE OF DRINKING WATER ("USDW")** means a UIC Aquifer or its portion:

a. Which supplies any Public Water System;
b. Which contains a sufficient quantity of Groundwater to supply a Public Water System; and
   (1) Currently supplies drinking water for human consumption; or
   (2) Contains fewer than 10,000 mg/l total dissolved solids;
c. Which is not an exempted Aquifer.

**WELL** means an oil or gas Well, a hole drilled for the purpose of producing oil or gas (including nonhydrocarbon gases such as Carbon Dioxide and helium), a Class II UIC Well, a Class VI UIC Well, a Geologic Storage Science Well, a Geologic Storage Monitoring Well, a Stratigraphic Well, a Gas Storage Well, or a Well used for the purpose of monitoring or observing a reservoir.

**WELL PLUG** means a watertight and gastight seal installed in a borehole or Well to prevent movement of Fluids.

## 500 Series - Rules of Practice and Procedure to Amend

### 502. VARIANCES

d. No variance to the Commission's 800 Series or 1400 Series Rules will be granted without consultation with the EPA.

### 503. APPLICATIONS FOR A HEARING BEFORE THE COMMISSION

**a. Commission's Own Motion.** The Commission may, on its own motion, initiate proceedings upon any question relating to Energy and Carbon Management ~~Oil and Gas~~ Operations in the State of Colorado, or to the administration of the Act or Geothermal Act, by notice of hearing or by issuance of an Emergency Order without notice of hearing. Such Emergency Order will be effective upon issuance and will remain effective for a period not to exceed 15 days. Notice of an Emergency Order will be given as soon as practicable after issuance.

…

**g. Commission Application Types.** The following applications may be filed with the Commission for adjudication:

…

**(13) Class VI Development Plan.** A Class VI Development Plan application will satisfy the requirements set forth in Rules 1405 and 1406. Only an Owner or Operator within the proposed Class VI Development Plan may file a Class VI Development Plan.

**(14) Geologic Storage Units.** A unitization application filed pursuant to § 34-60-141, C.R.S. Applications for Geologic Storage Units will satisfy the information requirements set forth in Rules 505 and 1427.

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### 504. NOTICE FOR HEARING

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**b. Notice for Specific Applications**

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**(12) Applications For Class Vi Development Plans.** Class VI Development Plan applications are subject to the notice requirements of Rule 1406.

**(13) Applications For Geologic Storage Units.** For purposes of applications for Geologic Storage Units made pursuant to § 34-60-141, C.R.S., the application and notice will be served on those persons who own any interest in the Geologic Storage Resources, whether leased or unleased, underlying the tract or tracts to be to be unitized.

## 600 Series - Rules of Safety and Facility Operations

### 616. REQUIREMENTS FOR WELLS DRILLED THROUGH OR ADJACENT TO A GEOLOGIC STORAGE FACILITY

a. **Applicability.** An Energy and Carbon Management Operator that proposes to drill a Well within ½ mile of the Area of Review of a Geologic Storage Facility will comply with this Rule 616.

(1) The Director may impose the requirements of this Rule 616, on a site-specific basis, for Wells drilled more than ½ mile from the Area of Review of a Geologic Storage Facility if the Director determines such requirements are necessary and reasonable to protect public health, safety, welfare, the environment, and wildlife resources.

b. Prior to approval of an Oil and Gas Development Plan, a Class VI Development Plan, or a Form 2 for a Well not subject to an Oil and Gas Development Plan or Class VI Development Plan, an Energy and Carbon Management Operator proposing to drill a Well within ½ mile of the Area of Review of a Geologic Storage Facility will:

(1) Demonstrate to the satisfaction of the Commission or Director, as applicable, that the proposed Energy and Carbon Management Operations will not cause adverse impacts to the integrity of a Geologic Storage Facility;

(2) Commit to drilling and operational requirements determined by the Commission or Director, as applicable, to be necessary and reasonable to avoid adverse impacts to the Geologic Storage Facility and USDWs, including:

A. When drilling through the Injection Zone, or when drilling through the Confining Zone within ½ mile of the Area of Review, the Energy and Carbon Management Operator will use appropriate Pressure and drilling Fluid compatible with the Carbon Dioxide Stream and Formation Fluids;

B. The Energy and Carbon Management Operator will follow Well construction standards sufficient to avoid adverse impacts to public health, safety, welfare, the environment, and wildlife resources, including adverse impacts to the integrity of the Geologic Storage Facility, including the use of materials compatible with the Carbon Dioxide Stream and Formation Fluids;

C. The Energy and Carbon Management Operator will conduct drilling and completions in a manner that does not create a conduit for fluid migration out of the Geologic Storage Facility;

D. The Energy and Carbon Management Operator will maintain the Well in a manner that protects the stratum or formation at all times from Carbon Dioxide migration;

E. The Energy and Carbon Management Operator will follow Well closure requirements sufficient to avoid adverse impacts to public health, safety, welfare, the environment, and wildlife resources, including adverse impacts to the integrity of the Geologic Storage Facility.

i. When the Well is Plugged and Abandoned, the Energy and Carbon Management Operator will ensure that the plugging eliminates the wellbore as a conduit for flow of Carbon Dioxide out of the Injection Zone.

(3) Provide notice to the Geologic Storage Operator of the Geologic Storage Facility.

A. For operations subject to an Oil and Gas Development Plan, the Operator will Notify the Geologic Storage Operator of the proposed operations pursuant to Rules 301.g (proposed pre-application consultation rule in CI RM), 303.d.(2), and 303.e.

B. For operations subject to a Class VI Development Plan, the Energy and Carbon Management Operator will Notify the Geologic Storage Operator of the proposed operations pursuant to Rule 1406.a.

C. For operations not subject to an Oil and Gas Development Plan or Class VI Development Plan, the Energy and Carbon Management Operator will Notify the Geologic Storage Operator of the proposed operations in writing no less than 30 days prior to submitting an application for a Form 2.

(4) Upon request of the Geologic Storage Operator, engage in a Formal Consultation Process with the Geologic Storage Operator and the Director.

c. If a Geologic Storage Operator becomes aware of a new Well within the Area of Review, the Geologic Storage Operator will update the Area of Review and Class VI Corrective Action Plan pursuant to Rule 1414.

## 1400 Series - Class VI UIC

### 1401. APPLICABILITY [EPA Rule 40 CFR § 146.81]

a. The Commission's 1400 Series Rules apply to Geologic Storage Operations.

b. The Commission's 1400 Series Rules also apply to Owners or Operators of Geologic Storage Science Wells, Geologic Storage Monitoring Wells or Class I, Class II, or Class V experimental Carbon Dioxide injection projects who seek to apply for a Class VI UIC permit for their Well or Wells. Owners or Operators seeking to convert existing Geologic Storage Science Wells, Geologic Storage Monitoring Wells, Class I, Class II, or Class V experimental wells to Class VI UIC wells will demonstrate to the Director that the wells were engineered and constructed pursuant to Rule 1416.a and ensure protection of USDWs, in lieu of requirements at Rule 1416.b and Rule 1417.a. A converted well will still meet all other requirements under the Commission's 1400 Series Rules.

### 1402. IDENTIFICATION OF UNDERGROUND SOURCES OF DRINKING WATER AND EXEMPTED AQUIFERS [EPA Rule 40 CFR § 144.7, modified]

a. The Commission or the Director may identify (by narrative description, illustrations, maps, or other means) and will protect as Underground Sources of Drinking Water, all aquifers and parts of aquifers which meet the Commission's 100 Series definition of Underground Source of Drinking Water, except to the extent there is an applicable aquifer exemption under Rule 1402.b 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 pursuant to Rule 1402.c. Other than EPA approved aquifer exemption expansions pursuant to Rule 1402.c, new aquifer exemptions will not be issued for Class VI Injection Wells. Even if an aquifer has not been specifically identified by the Director, it is an Underground Source of Drinking Water if it meets the definition in the Commission's 100 Series Rules.

b. The Commission or the Director may identify (by narrative description, illustrations, maps, or other means) and describe in geographic and/or geometric terms (such as vertical and lateral limits and gradient) which are clear and definite, all aquifers or parts thereof which the Director proposes to designate as Exempted Aquifers pursuant to Rule 1402.d.

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(1) No designation of an Exempted Aquifer submitted as part of a UIC program will be final until approved by the EPA Administrator as part of a UIC program. 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 will be final until approved by the EPA Administrator as a revision to the applicable Federal UIC program under 40 C.F.R. part 147 or as a substantial revision of an approved State UIC program in accordance with 40 C.F.R. § 145.32.

c. **Expansion to the areal extent of existing Class II aquifer exemptions for Class VI UIC Wells.** Operators of Class II UIC Wells may request that the Director approve an expansion to the areal extent of an aquifer exemption already in place for a Class II UIC Well for the exclusive purpose of Class VI injection for geologic sequestration. Such requests will be treated as a revision to the applicable Federal UIC program under 40 C.F.R. part 147 or as a substantial revision of an approved State UIC program in accordance with 40 C.F.R. § 145.32.

(1) The Operator of a Class II UIC Well that requests an expansion of the areal extent of an existing aquifer exemption for the exclusive purpose of Class VI injection for Geologic Storage will define (by narrative description, illustrations, maps, or other means) and describe in geographic and/or geometric terms (such as vertical and lateral limits and gradient) that are clear and definite, all aquifers or parts thereof that are requested to be designated as exempted pursuant to Rule 1402.d.

(2) In evaluating a request to expand the areal extent of an aquifer exemption of a Class II UIC Well for the purpose of Class VI injection, the Director will determine whether the request meets the criteria for exemptions in Rule 1402.c & d. In making the determination, the Director will consider:

A. Current and potential future use of the USDWs to be exempted as drinking water resources;

B. 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 Geologic Storage project, as informed by computational modeling performed pursuant to Rule 1414.c.(1), in order to ensure that the proposed injection operation will not at any time endanger USDWs including non-exempted portions of the injection Formation;

C. 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 Rule 1414.e; and

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D. Any information submitted to support a waiver request made by the Geologic Storage Operator pursuant to Rule 1425, if appropriate.

(3) 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 pursuant to Rule 1402.d if it meets the requirements of Rule 802.a & b.

d. **Criteria for Exempted Aquifers.** The Commission or the Director may designate an aquifer or a portion thereof which meets the criteria for an Underground Source of Drinking Water as an Exempted Aquifer if it meets all requirements of Rule 802.

## 1403. REQUIREMENTS FOR GEOLOGIC STORAGE SCIENCE WELLS AND GEOLOGIC STORAGE MONITORING WELLS [NEW ECMC RULE]

a. **Procedure.** A Geologic Storage Operator seeking to drill a Geologic Storage Science Well or Geologic Storage Monitoring Well will follow the below-described process.

(1) **Pre-application Consultation.** The Geologic Storage Operator will attend a pre-application consultation with the Director and any Relevant and Proximate Local Governments to discuss the siting, scope, and timing of proposed operations. CDPHE, DWR, and/or CPW may also be invited to attend based on the specifics of the proposed Well and Location.

(2) **Notice to Relevant and Proximate Local Governments.** The Geologic Storage Operator will notify any Relevant and Proximate Local Governments that it plans to submit a Geologic Storage Science Well application or Geologic Storage Monitoring Well application no less than 30 days prior to submitting the Form 2A and modified Form 2B. The notice will comply with the procedural and substantive requirements of Rule 301.g [proposed rule in CI rulemaking].

(3) **Notice of Completeness and Public Comment.** When the Director determines that the application for a Geologic Storage Science Well or Geologic Storage Monitoring Well is complete, the Director will post the application and supporting materials to the Commission's website. The website posting will provide:

A. The mechanism for the public to provide comments.

B. The date by which public comments must be received to be considered, which is:

i. 45 days from the date the permit application for a Geologic Storage Science Well or Geologic Storage Monitoring Well is posted if the permit application for a Geologic Storage Science Well or Geologic Storage Monitoring Well is within ½ mile of a Residential Building Unit, High

Occupancy Building Unit, or School Facility or within a Disproportionately Impacted Community; and

ii. 30 days from the date the permit application for a Geologic Storage Science Well or Geologic Storage Monitoring Well was posted for all other permit applications for a Geologic Storage Science Well or Geologic Storage Monitoring Well.

(4) **Consideration and Approval or Denial.** Upon closure of the public comment period, the Director will review all public comments prior to approval or denial of the Form 2A.

A. If appropriate, the Director may administratively issue a conditional approval of the Form 2A.

B. The Director will inform the Commission when they issue a conditional approval of a Form 2A.

C. The Director's conditional approval will become final 10 days after the Director issues a conditional approval, unless the Commission stays the conditional approval on its own motion.

D. If the Director determines that there are unique circumstances that warrant the Form 2A going before the Commission for a special hearing, the Director will issue a Director's Recommendation pursuant to Rule 306 and will work with the applicant to schedule the hearing as soon as possible.

**b. Permit Applications for Geologic Storage Science Wells and Geologic Storage Monitoring Wells.**

(1) The Geologic Storage Operator will submit a Form 2A for the proposed surface location pursuant to Rule 304, except that applicants may omit the following listed provisions from the permit application:

A. 304.b.(2) - Alternative Location Analysis;

B. 304.b.(6) - Flowline descriptions;

C. 304.b.(7).D - Preliminary Process Flow Diagrams;

D. 304.b.(7).G - Related Location and Flowline Map;

E. 304.c.(7) - Operations Safety Management Program;

F. 304.c.(12) - Gas Capture Plan;

G. 304.c.(13) - Fluid Leak Detection Plan; and

H. 304.c.(19) - Cumulative Impacts Plan.

(2) The Geologic Storage Operator's Form 2A will also include:

A. A general description of the timing, duration, and types of tests that may be run in the wellbore for stratigraphic, monitoring, and other scientific purposes; and

B. A general description of the reason for the Geologic Storage Science Well or Geologic Storage Monitoring Well and its potential future use.

(3) The Geologic Storage Operator will submit a modified Form 2B for the proposed operations. The modified Form 2B will include estimates of impacts resulting from location and access road construction, well drilling, hydraulic fracturing or stimulation of the well, and any testing or scientific data gathering to be conducted.

(4) The Geologic Storage Operator will submit a Form 2 that complies with Rule 308 after the Director's Completeness determination has been documented for the Form 2A and modified Form 2B, unless the Relevant Local Government's process requires the approval of the Form 2A prior to submission.

**c. Geologic Storage Monitoring Wells that are also Water Wells.**

(1) A Geologic Storage Operator will provide to the Director any relevant data acquired from a Geologic Storage Monitoring Well, including those wells permitted or authorized by DWR.

(2) Prior to drilling a Geologic Storage Monitoring Well that may also be a well regulated by DWR pursuant to § 37-91-102(16), C.R.S. (2024), the Operator will obtain a permit or authorization from the Commission or DWR, as determined during pre-application consultation conducted pursuant to Rule 1403.a.(1).

d. **Conversion to a Class VI UIC Well.** Any Geologic Storage Science Well or Geologic Storage Monitoring Well that a Geologic Storage Operator ultimately intends to convert to a Class VI UIC Well will comply with the permitting process pursuant to the Commission's 1400 Series Rules at the time of future permitting.

## 1404. GENERAL REQUIREMENTS FOR CLASS VI DEVELOPMENT PLAN APPLICATION APPROVAL AND FILING FEES FOR GEOLOGIC STORAGE OPERATIONS [COMBINATION OF EPA 40 CFR § 144.11, 144.16, 144.35 AND NEW ECMC RULE]

**a. Permit Required - Prohibitions.**

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(1) All Geologic Storage Operations require written approval of the Commission, or Director where applicable.

A. A Geologic Storage Operator will submit an application to the Commission pursuant to the Commission's 1400 Series Rules a reasonable time before construction is planned to begin.

B. Any Underground Injection, except into a Well authorized by rule or except as authorized by permit issued under the UIC program, is prohibited. The construction of any Well required to have a permit is prohibited until the Commission has issued the permit.

**(2) Prohibitions**. No person will:

A. Discharge into, construct, operate, or modify any Class VI UIC Well unless permitted pursuant to the Commission's 1400 Series Rules;

B. Discharge or inject to any zone except the authorized Injection Zone as described in the permit;

C. Conduct any injection activity in a manner that results in a violation of any permit condition or that conflicts with any representations made in a permit application;

D. Construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of Fluid containing any Contaminant into Underground Sources of Drinking Water, if the presence of that Contaminant may cause a violation of any primary drinking water regulation contained in 40 C.F.R. § 141, Subparts E, F, and G, or may otherwise adversely affect human health, safety, or the environment. Only the version of 40 C.F.R. § 141, Subparts E, F, and G in effect as of [EFFECTIVE DATE] applies to this Rule; later amendments do not apply. 40 C.F.R. § 141 is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203, and at the U.S. Environmental Protection Agency, Region 8, 1595 Wynkoop St, Denver, CO 80202, and is available online at https://www.epa.gov/sites/default/files/2015-11/documents/howepargulates_cfr-2003-title40-vol20-part141_0.pdf.

i. If any water quality monitoring of an Underground Source of Drinking Water indicates the movement of any contaminant into the Underground Source of Drinking Water, except as authorized under 40 C.F.R. § 146 (2024), the Director will prescribe such additional requirements for construction, Class VI Corrective Action, operation, monitoring, or

reporting (including closure of the Injection Well) as are necessary to prevent such movement. These additional requirements will be imposed by modifying the permit pursuant to Rule 1413.d, or the permit may be terminated pursuant to Rule 1413.f if cause exists, or appropriate enforcement action may be taken if the permit has been violated.

ii. Notwithstanding any other provision of this Rule 1404, the Director may take emergency action upon receipt of information that a Contaminant which is present in or likely to enter a public water system or Underground Source of Drinking Water may present an imminent and substantial endangerment to the health of persons.

E. Construct, operate or maintain any non-experimental Class V geologic sequestration well.

b. **Waiver of Requirement by Commission.**

(1) When injection does not occur into, through, or above an Underground Source of Drinking Water, the Commission may authorize a Well or Class VI Development Plan with less stringent requirements for Area of Review, construction, mechanical integrity, operation, monitoring, and reporting than required in Rules 1414, 1416, 1418, 1419, 1420, and 1421 to the extent that the reduction in requirements will not result in an increased risk of movement of fluids into an Underground Source of Drinking Water.

(2) When injection occurs through or above an Underground Source of Drinking Water, but the radius of endangering influence when computed under 40 C.F.R. § 146.6(a) (2024) is smaller or equal to the radius of the Well, the Commission may authorize a Well or Class VI Development Plan with less stringent requirements for operation, monitoring, and reporting than required Rules 1418, 1420, and 1421 to the extent that the reduction in requirements will not result in an increased risk of movement of fluids into an Underground Source of Drinking Water.

(3) When reducing requirements under Rule 1404.b.(1) or (2), the Director shall prepare a fact sheet pursuant to Rule 1405.d.(7) explaining the reasons for the action.

c. **Approval.** The Commission may approve, following notice and a Commission hearing, an application for a Class VI Development Plan that:

(1) Complies with all requirements of the Commission's Rules and the Act;

(2) Complies with the Relevant Local Government's siting disposition, if any, of the proposed Location;

(3) Avoids, minimizes, and mitigates adverse impacts to public health, safety, welfare, the environment, and wildlife resources, including Cumulative Impacts; and

(4) The proposed Geologic Storage Operations will not have negative net Cumulative Impacts on any Disproportionately Impacted Community.

d. **Conditions of Approval.** The Commission may add any conditions to the approval of a Class VI Development Plan that it determines are necessary and reasonable to ensure compliance with the requirements of Rule 1404.c.

e. **Denial.**

(1) The Commission will deny any application for a Class VI Development Plan that does not meet the requirements of Rule 1404.c.

(2) The Commission will identify in the record the basis for the denial.

f. **Stay**. If the Commission determines that additional information or analysis is necessary for it to make a decision to approve or deny a Class VI Development Plan application, it may stay consideration of the application.

g. The Director or Commission may request any information necessary and reasonable to make a final determination of approval or denial on any permit application before the Commission. In such information requests, the Director or Commission will provide the reason(s) for the request and a reasonable timeframe for the applicant to provide the information.

**h. Effect of a Permit**

(1) Compliance with a permit during its term constitutes compliance with Part C of the Safe Drinking Water Act, 42 U.S.C. 300f et seq. However, a permit may be modified, revoked and reissued, or terminated during its term for cause pursuant to Rule 1413. For purposes of enforcement, a Geologic Storage Operator will also comply with the Act and the Commission's Rules.

(2) The issuance of a permit does not convey any property rights of any sort, or any exclusive privilege.

(3) The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.

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## 1405. PROCEDURAL REQUIREMENTS FOR CLASS VI DEVELOPMENT PLAN APPLICATIONS [NEW ECMC RULE + EPA RULE 40 CFR 124.8]

a. **Pre-Application Meeting and Consultation.** Prior to submitting a Class VI Development Plan application, a Geologic Storage Operator will conduct pre-application consultation(s) pursuant to Rule 301.g [proposed rule in the Cumulative Impacts Rulemaking]. The Geologic Storage Operator will provide invitations to participate in the pre-application meeting to all consulting entities listed in Rule 1406.c.

b. **Components of a Class VI Development Plan Application.** Prior to commencing operation of a Class VI UIC Well, a Geologic Storage Operator will have an approved Class VI Development Plan. The Director will not begin the processing of a permit until the applicant has fully complied with the application requirements for that permit. A Geologic Storage Operator will submit to the Commission the following:

(1) An application with the Hearings Unit for a hearing on the proposed Class VI Development Plan, pursuant to Rule 503.g.(13). If the Class VI Development Plan includes a Geologic Storage Unit, the Class VI Development Plan will include an application for and request for hearing on the proposed Geologic Storage Unit(s) pursuant to Rules 1427 & 503.g.(14);

(2) Form 50A, Class VI UIC Location Permit Application [equivalent to Form 2A];

(3) Form 2, Application for Permit to Drill;

(4) Form 50B, Class VI Cumulative Impacts Evaluation [equivalent to Form 2B];

(5) Form 50C, Class VI Development Plan Certification [equivalent to Form 2C];

(6) Form 31, Injection Facility Permit Application; and

**(7)** **Information Requirements and Plans.** All Class VI Development Plans will include the following information and plans:

A. **Local Government Siting Information.** The Geologic Storage Operator will submit to the director certification that:

i. The Relevant Local Government does not regulate the siting of Geologic Storage Locations;

ii. The Relevant Local Government regulates the siting of Geologic Storage Locations, and has approved the siting of the proposed Geologic Storage Location; or

iii. The Relevant Local Government regulates the siting of Geologic Storage Locations, and has denied the siting of the proposed Geologic Storage Location.

B. Alternative Location Analysis and Cumulative Impacts Analysis conducted pursuant to Rule 315 [proposed rule in Cumulative Impacts rulemaking];

C. All permit information required pursuant to Rule 1407;

D. A Seismicity Evaluation pursuant to Rule 1420.l;

E. Information pursuant to Rule 304.b.(3)–(15) and Plans pursuant to Rule 304.c.(1)–(7), (9)–(11), (13)–(18).

i. The Director may exempt the Geologic Storage Operator from submitting any of the information or plans required by Rule 1405.b.(6).D pursuant to Rule 304.e.

ii. The Director may accept substantially equivalent information or plans developed through a Local Government land use process or federal environmental analysis in lieu of any of the information or plans required by Rule 1405.b.(6).D pursuant to Rule 304.f.

(8) Any other relevant information that the Director determines is necessary and reasonable to determine whether the proposed operation meets the Commission's Rules and protects and minimizes adverse impacts to public health, safety, welfare, the environment, and wildlife resources. The Director will provide the Geologic Storage Operator with the reason for the request in writing.

c. **Signatories and Certification.**

(1) All applications for a Class VI Development Plan and related permits will be signed as follows:

A. For a corporation: by a responsible corporate officer. For the purpose of this Rule 1405.c.(1).A, a responsible corporate officer means;

i. A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or

ii. The manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars),

if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

B. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

C. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this Rule 1405.c.(1).C, a principal executive officer of a Federal agency includes:

i. The chief executive officer of the agency, or

ii. A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

(2) **Reports.** All reports required by permits, other information requested by the Commission or the Director, and all permit applications submitted for Class VI UIC Wells pursuant to the Commission's 1400 Series Rules will be signed by a person described in Rule 1405.c.(1), or by a duly authorized representative of that person. A person is a duly authorized representative only if:

A. The authorization is made in writing by a person described in Rule 1405.a.(1);

B. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

C. The written authorization is submitted to the Director.

(3) **Changes to authorization.** If an authorization pursuant to Rule 1405.c.(2) is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Rule 1405.c.(2) will be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

(4) **Certification.** Any person signing a document pursuant to Rule 1405.c.(1) & (2) will make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel

properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

d. **Completeness Determination.** After the Geologic Storage Operator certifies on a Form 50C, Class VI Development Plan Certification, that all required components of the Class VI Development Plan application have been submitted, the Director will review the application materials to determine if they are complete.

(1) Prior to issuing a completeness determination, the Director will:

A. Conduct a full technical review of the application to determine whether the application complies with the Act and the Commission's Rules;

B. Conduct consultations will all entities listed in Rule 1406.c; and

C. Confer with the Applicant regarding input received during such consultations and any resulting changes to the application.

(2) To be deemed complete, the Application must:

A. Include all components required by Rule 1405.b;

B. Contain all information necessary for the Director to issue the Director's Findings pursuant to Rule 1405.g; and

C. Address any issues raised by the Director or any consulting parties pursuant to Rule 1406.c.

(3) If the proposed Class VI Development Plan Application is complete, the Director will approve the Form 50C, Class VI Development Plan Certification, and issue a completeness determination to the Geologic Storage Operator via electronic mail. A completeness determination does not constitute approval or denial of a Class VI Development Plan, nor does it convey any rights to conduct any surface-disturbing activities.

(4) If the Director determines that an application is incomplete, the Director will notify the Geologic Storage Operator in writing of any such inadequacies. The Geologic Storage Operator will have 90 days from the date that it was contacted to correct or provide requested information, otherwise the Director will deny the Form 2C-VI, and all components of the application will be considered withdrawn.

(5) At any time, before or after the Director makes a completeness determination, the Director or the Commission may request any relevant information necessary and reasonable to make a final determination of approval or denial on a Class VI Development Plan. The Geologic Storage Operator will provide any requested information before the Commission makes a final decision to approve or deny the Class VI Development Plan.

(6) The Director will submit the completeness determination and fact sheet to the Hearings Unit, where they will be part of the record before the Commission on the Class VI Development Plan application.

(7) **Fact Sheet.** When the Director makes a completeness determination, the Director will prepare and post to the Commission's website a fact sheet that briefly sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in reviewing the application. The Director will send this fact sheet to the applicant and, on request, to any other person.

A. The fact sheet will include, when applicable:

i. A brief description of the type of facility or activity which is the subject of the application;

ii. The type and quantity of wastes, Fluids, or pollutants which are proposed to be or are being treated, stored, disposed of, injected, emitted, or discharged.

iii. A brief summary of the basis for the proposed permit conditions including references to applicable statutory or regulatory provisions;

iv. Reasons why any requested variances or alternatives to required standards do or do not appear justified;

v. A description of the procedures for reaching a final decision on the application including:

aa. The beginning and ending dates of the comment period pursuant to Rule 1406.b and mechanism for providing comments;

bb. Procedures for submitting public comment at the hearing on the Class VI Development Plan and the nature of that hearing; and

cc. Any other procedures by which the public may participate in the final decision.

vi. Name and telephone number of a person to contact for additional information.

e. **Revisions to a Class VI Development Plan.**

(1) At any time prior to the Director making a completeness determination, the Operator may request changes to its Class VI Development Plan application or provide additional or different information by contacting the Director.

(2) After the Director makes a completeness determination, the Operator may only make material changes to its Class VI Development Plan application with the Director's approval, which may require re-noticing the application pursuant to Rules 1406.a and 503.g.(13), preparation of an updated Fact Sheet pursuant to Rule 1405.d.(7), and reopening the public review and consultation period pursuant to Rule 1406.b.

f. **Confidentiality**. If the Operator designates any portion of its Class VI Development Plan application as "confidential" pursuant to Rule 223, then the Director will post only the redacted version when the application is posted.

g. **Director's Findings**

(1) **When the Director May Issue Findings.** The Director will not issue findings to the Commission about any Class VI Development Plan until:

A. The Director has fully reviewed the Class VI Development Plan and all supporting application materials and has obtained all information necessary to evaluate the proposed operation and its potential impacts on public health, safety, welfare, the environment, and wildlife resources, including Cumulative Impacts;

B. The public comment period has ended, and the Director has considered all substantive public comments received, including comments from the Relevant Local Government(s) or Proximate Local Government(s);

C. All consultations required by Rule 1406.c have been completed; and

D. The Director determines that the Operator has provided an adequate demonstration of financial responsibility as required by the Rule 1415 for both the proposed Class VI Development Plan and all existing facilities owned by the Operator.

(2) **Director's Findings.** The Director's Findings will address:

A. Whether the proposed Geologic Storage Operations comply with the technical requirements of the Commission's 1400 Series Rules;

B. Whether the proposed surface location(s) comply with the siting requirements of Rule 1411;

C. The extent to which the proposal avoids, minimizes, or mitigates Cumulative Impacts pursuant to Rule 1410; and

D. Any other information that, in the Director's opinion, would aid the Commission in making a determination on the application.

(3) **Conditions of Approval.**

A. The Director may recommend that the Commission add conditions to any approval that are necessary and reasonable to protect and minimize adverse impacts to public health, safety, welfare, the environment, and wildlife resources, including Cumulative Impacts.

B. For any proposed Class VI Development Plan that includes proposed surface locations that have already been approved by the federal agency or agencies, the Director will consider environmental analyses and federal stipulations and conditions of approval before recommending any additional conditions of approval.

## 1406. NOTICE, CONSULTATION, AND PUBLIC PARTICIPATION FOR Class VI Development Plan APPLICATIONS [NEW ECMC RULE]

**a. Notice.**

(1) **Who Receives Notice.** The Geologic Storage Operator will provide the notices of an application for a Class VI Development Plan described in Rule 1406.a.(2) to:

A. Surface Owners and the owners and tenants of Residential Building Units and High Occupancy Building Units within ½ mile of the Working Pad Surface of the proposed Class VI Well(s);

B. Mineral owners and Sequestration Estate owners with recorded ownership interests within the Area of Review;

C. The Relevant Local Government(s) in which the surface location(s) of the proposed Class VI Well(s) are located and any Local Government with land use authority within ½ mile of the Working Pad Surface for the proposed Class VI wells or overlying the Area of Review;

D. The U.S. Environmental Protection Agency;

E. The Water Quality Control Division of CDPHE;

F. The Colorado Division of Water Resources;

G. The U.S. Bureau of Land Management, if any federal entity is a mineral owner or Sequestration Estate owner within the Area of Review;

H. The Southern Ute Indian Tribe (for applications involving Geologic Storage Resources within the exterior boundary of the Tribe's reservation that are subject to the Commission's jurisdiction pursuant to Rule 201.d.(2));

I. The State Land Board, if the State Land Board is a mineral or Sequestration Estate owner within the Area of Review;

J. All Schools, Child Care Centers, and School Governing Bodies located within ½ mile of the Working Pad Surface of the proposed Class VI UIC Well(s);

K. Police, fire departments, emergency service agencies, and first responder agencies responsible for ensuring public safety in all areas within ½ mile of the Area of Review;

L. The administrator of any Public Water System that operates:

i. A Surface Water Supply Area as defined by Rule 411.a.(1).B that is located within ½ mile of the proposed Area of Review;

ii. A groundwater under the direct influence of surface water ("GUDI") Public Water System supply well within ½ mile of the proposed Area of Review; or

iii. A Public Water System supply well completed in a Type III Aquifer within ½ mile of the proposed Area of Review.

M. All consulting entities listed in Rule 1406.c (ECMC Consultations).

N. Any other agency which the Director knows has issued or is required to issue a permit for the same facility or activity, pursuant to:

i. Resource Conservation and Recovery Act, 42 U.S.C. § 6901 et seq.;

ii. The Underground Injection Control Program of the Safe Drinking Water Act, 42 U.S.C. 300f et seq.;

iii. National Pollution Discharge Elimination System (NPDES), 33 U.S.C. § 1342;

iv. Section 404 of the Clean Water Act, 33 U.S.C. § 1344; and

v. Sludge Management Program, 33 U.S.C. 1251 et seq.; and

O. The Advisory Council on Historic Preservation and the State Historic Preservation Officers for any State or Tribe within the Area of Review;

(2) **Timing and Content of Notices.** A Geologic Storage Operator will provide the following notices of a Class VI Development Plan application.

A. **Pre-application notice.** A Geologic Storage Operator will notify the parties listed in Rule 304.g.(2) [pre-application consultation rule from Cumulative Impacts rulemaking] that it plans to submit a Class VI Development Plan no less than 30 days prior to submitting a Class VI Development Plan application. The notice will include:

i. The Geologic Storage Operator's contact information, including its electronic mail address, phone number, and physical address(es) to which the public may direct questions and comments;

ii. The contact information for the Relevant Local Government;

iii. The Commission's website, address, and main telephone number;

iv. An executive summary of the proposal, including:

aa. The anticipated date that each phase of operations will commence (by quarter and year);

bb. How many Wells and Locations are proposed;

cc. A description of each operational phase of development and what to expect during each phase; and

dd. Proposed haul routes and traffic volume associated with each phase of operations;

v. A map showing the location of the proposed Geologic Storage Facility;

vi. The Commission's information sheet about the procedural steps involved with the Director's and Commission's review of Class VI Development Plans; and

vii. The Commission's information sheet about the Commission's public comment process and the relevant deadlines.

B. **Notice of application submission.** A Geologic Storage Operator will notify the parties listed in Rule 1406.a.(1) within 7 days of submitting the Class VI Development Plan application. In addition to the items listed in Rule 1406.a.(2).A, the notice will include the Commission's information sheet about the completeness review process.

C. **Notice of completeness.** The Geologic Storage Operator will provide notice of the Director's completeness determination to the parties listed in Rule

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1406.a.(1) within 7 days. In addition to the items listed in Rule 1406.a.(2).B, the notice will include:

i. The Commission's information sheet about how the public may view the Class VI Development Plan application on the Commission's website and view the status of the application;

ii. Information on how the public may learn more details about and ask questions about the Class VI Development Plan prior to the closure of the public comment period;

iii. The Fact Sheet prepared pursuant to Rule 1405.d.(7); and

iv. Any other information that the Director identifies in the completeness determination as necessary to protect and minimize adverse impacts to public health, safety, welfare, the environment, and wildlife resources.

D. **Notice of Director's Findings.** Upon completing their Director's Findings on a Class VI Development Plan, the Director will post the written basis for the Director's Findings on the Commission's website and file their Findings with the Hearings Unit. The Operator will notify the parties listed in Rule 1406.a.(1) and any person or entity that has provided a comment pursuant to Rule 1406.b in a manner determined by the Director. In addition to the items listed in Rule 1406.a.(2).C, the notice will include:

i. The Director's Findings;

ii. If a hearing has been scheduled, the time and date of the hearing on the Class VI Development Plan. If a hearing has not yet been scheduled, information on how the public may access the Commission's hearing schedule; and

iii. Information on how the public may make written or oral public comments at the Commission hearing on the application.

**E.** **Notice of Hearing.** The Operator will provide notice of the Commission hearing on the application pursuant to Rule 504. Such notice will include, at a minimum:

i. Reference to the date of previous public notices relating to the permit;

ii. Date, time, and place of the hearing; and

iii. A brief description of the nature and purpose of the hearing, including the applicable rules and procedures.

(3) **Procedure for Providing Notice.** Notices required pursuant to Rule 1406.a.(2).A, B, and C will be delivered by one of the following mechanisms:

A. Hand delivery, with confirmation of receipt;

B. Certified mail, return-receipt requested;

C. Electronic mail, with electronic receipt confirmation; or

D. By other delivery service with receipt confirmation.

(4) The Operator will provide all written information required by this Rule 1406.a in all languages spoken by 5% or more of the population in all census block groups within ½ mile of each proposed surface location within the Class VI Development Plan.

**b. Public Review and Comment**

(1) When the Director makes a completeness determination by approving a Form 50C, Class VI Development Plan Certification, the Class VI Development Plan application components and supporting materials, including the fact sheet prepared pursuant to Rule 1405.d.(7), will be posted to the Commission's website. The website posting will provide:

A. The date by which public comments will be received to be considered, which is:

i. 60 days from the date the Class VI Development Plan was posted if the application includes any proposed surface facilities within, or within ½ mile of, a Disproportionately Impacted Community;

ii. 45 days from the date the Class VI Development Plan was posted if the application includes any proposed surface facilities within ½ mile of a Residential Building Unit, High Occupancy Building Unit, or School Facility; and

iii. 30 days from the date the Class VI Development Plan was posted for all other applications; and

B. The mechanism(s) for the public to provide comments.

(2) The Director will post public comments on the Commission's website.

(3) The Director may extend or reopen the comment period for up to an additional 30 days if the Director determines an extension or reopening is reasonable in order to obtain public input.

(4) At the close of the public comment period, the Operator will provide a summary of all public comments received and the Operator's response to the comments, including any changes made to the application in response to input.

(5) If a Geologic Storage Operator makes changes to the application based on input received from the public, the Director will determine whether the changes are significant. If the changes are significant, the Director may require additional notice of the revised application and/or reopen public comment to obtain further input on the revised application.

(6) In addition to the public comment period in Rule 1406.b.(1).A, the Commission will allow any person to submit public comments for consideration at the hearing on the application in a form and manner determined by the Commission.

(7) At the time that any final permit decision is issued, the Director will issue a response to comments. This response will:

A. Specify which provisions, if any, of the Class VI Development Plan application have been changed in the final permit decision, and the reasons for the change; and

B. Briefly describe and respond to all substantive comments on the Class VI Development Plan raised during the public comment period, or during any hearing; and

C. Be made available to the public.

(8) A video or audio recording or written transcript of the hearing on the Class VI Development Plan will be made available to the public.

c. **ECMC Consultations.** In addition to the pre-application consultation described in Rule 1405.a, the Director will seek consultation with the following entities after the Class VI Development Plan application has been submitted and prior to issuing the Director's Findings:

(1) The Relevant Local Government(s);

(2) All Proximate Local Governments;

(3) All Local Governments whose boundaries include land overlying the Geologic Storage Facility;

(4) Any State or Indian tribe with lands located within the Area of Review;

(5) CDPHE;

(6) CPW;

(7) U.S. Fish and Wildlife Service, if a Location is proposed within federally listed habitats/species;

(8) Public Water System Administrators, if notice is required pursuant to Rule 1406.a.(1);

(9) Colorado State Land Board, if a proposed surface location is located on State Land Board-managed land or if there are State Land Board-managed Geologic Storage Resources or minerals within the Area of Review;

(10) The Bureau of Land Management and/or U.S. Forest Service, if the Class VI Development Plan proposes to use federally managed surface or Geologic Storage Resources;

(11) Any resident (including owners, agents, or tenants) of a Residential Building Unit or High Occupancy Building Unit if a proposed Location's Working Pad Surface is within ½ mile of that Unit; and

(12) A Community Liaison, if any Residential Building Unit or High Occupancy Building Unit within ½ mile of a proposed Oil and Gas Location's Working Pad Surface is within a Disproportionately Impacted Community.

## 1407. REQUIRED CLASS VI PERMIT INFORMATION [EPA RULE 40 CFR § 146.82]

a. This Rule 1407 sets forth the information which will be considered by the Commission in determining whether to approve or deny a Class VI Development Plan. For converted Class I, Class II, or Class V experimental wells, certain maps, cross-sections, tabulations of wells within the Area of Review and other data may be included in the application by reference provided they are current, readily available to the Commission, and sufficiently identified to be retrieved.

b. Prior to the issuance of a permit for the construction of a new Class VI UIC Well or the conversion of an existing Class I, Class II, or Class V well to a Class VI UIC Well, the Geologic Storage Operator will submit, and the Commission will consider, the following:

(1) Information required pursuant to Rule 1407.f;

(2) A map showing the Injection Well for which a permit is sought and the applicable Area of Review consistent with Rule 1414. Within the Area of Review, the map will show the number or name, and location of all Injection Wells, producing Wells, Abandoned Wells, plugged Wells or dry holes, deep stratigraphic boreholes, State- or EPA-approved subsurface cleanup sites, surface bodies of water, springs, mines (surface and subsurface), quarries,

water wells, other pertinent surface features including structures intended for human occupancy, State, Tribal, and Territory boundaries, and roads. The map should also show Faults, if known or suspected. Only information of public record is required to be included on this map;

(3) Information on the geologic structure and hydrogeologic properties of the proposed Geologic Storage Facility and overlying Formations, including:

A. Maps and cross sections of the Area of Review;

B. The location, orientation, and properties of known or suspected Faults and fractures that may transect the Confining Zone(s) in the Area of Review and a determination that they would not interfere with containment;

C. Data on the depth, areal extent, thickness, mineralogy, porosity, permeability, and capillary Pressure of the Injection and Confining Zone(s); including geology/facies changes based on field data which may include geologic cores, outcrop data, seismic surveys, well logs, and names and lithologic descriptions;

D. Geomechanical information on fractures, stress, ductility, rock strength, and in situ Fluid Pressures within the Confining Zone(s);

E. Information on the seismic history including the presence and depth of seismic sources and a determination that the seismicity would not interfere with containment; and

F. Geologic and topographic maps and cross sections illustrating regional geology, hydrogeology, and the geologic structure of the local area.

(4) A tabulation of all Wells within the Area of Review which penetrate the Injection or Confining Zone(s). Such data will include a description of each Well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Commission may require;

(5) Maps and stratigraphic cross sections indicating the general vertical and lateral limits of all USDWs, water wells and springs within the Area of Review, their positions relative to the Injection Zone(s), and the direction of water movement, where known;

(6) Baseline geochemical data on subsurface Formations, including all USDWs in the Area of Review;

(7) Proposed operating data for the proposed Geologic Storage Facility:

A. Average and maximum daily rate and volume and/or mass and total anticipated volume and/or mass of the Carbon Dioxide Stream;

B. Average and maximum injection Pressure;

C. The source(s) of the Carbon Dioxide Stream; and

D. An analysis of the chemical and physical characteristics of the Carbon Dioxide Stream.

(8) Proposed pre-operational Formation testing program to obtain an analysis of the chemical and physical characteristics of the Injection Zone(s) and Confining Zone(s) and that meets the requirements of Rule 1417;

(9) Proposed well stimulation program, a description of stimulation Fluids to be used and a determination that well stimulation will not interfere with containment;

(10) Proposed procedure to outline steps necessary to conduct injection operation;

(11) Schematics or other appropriate drawings of the surface and subsurface construction details of the Well;

(12) Injection Well construction procedures that meet the requirements of Rule 1416;

(13) Proposed Area of Review and Class VI Corrective Action plan that meets the requirements of Rule 1414;

(14) A demonstration, satisfactory to the Commission, that the applicant has met the financial responsibility requirements of Rule 1415;

(15) Proposed testing and monitoring plan pursuant to Rule 1420;

(16) Proposed Injection Well Plugging plan pursuant to Rule 1422.b;

(17) Proposed Post-Injection Site Care and Site Closure plan pursuant to Rule 1423.a;

(18) At the Commission's discretion, a demonstration of an alternative Post-Injection Site Care timeframe pursuant to Rule 1423.c;

(19) Proposed Emergency and Remedial Response Plan pursuant to Rule 1424.a;

(20) A list of contacts, submitted to the Commission, for those States, Tribes, and Territories identified to be within the Area of Review of the Geologic Storage Facility based on information provided in Rule 1407.b.(2); and

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(21) Any other information requested by the Commission.

c. The Director will notify, in writing, any States, Tribes, Territories, or Local Governments within the Area of Review of the proposed Geologic Storage Facility based on information provided in Rule 1407.b.(2) & (20) of the permit application and pursuant to Rule 1406.a.

d. Prior to granting approval for the operation of a Class VI UIC Well, the Director will consider the following information:

(1) The final Area of Review based on modeling, using data obtained during logging and testing of the well and the Formation pursuant to Rule 1407.d.(2), (3), (4), (6), (7) & (10);

(2) Any relevant updates, based on data obtained during logging and testing of the well and the Formation pursuant to Rule 1407.d.(3), (4), (6), (7), and (10) of this section, to the information on the geologic structure and hydrogeologic properties of the proposed storage site and overlying Formations, submitted pursuant to Rule 1407.b.(3);

(3) Information on the compatibility of the Carbon Dioxide Stream with Fluids in the Injection Zone(s) and minerals in both the Injection and the Confining Zone(s), based on the results of the Formation testing program, and with the materials used to construct the Well;

(4) The results of the Formation testing program pursuant to Rule 1407.b.(8);

(5) Final Injection Well construction procedures pursuant to Rule 1416;

(6) The status of Class VI Corrective Action on Wells in the Area of Review;

(7) All available logging and testing program data on the Well pursuant to Rule 1417;

(8) A demonstration of mechanical integrity pursuant to Rule 1419;

(9) Any updates to the proposed Area of Review and Class VI Corrective Action plan, testing and monitoring plan, Injection Well Plugging plan, Post-Injection Site Care and Site Closure plan, or the Emergency and Remedial Response Plan submitted pursuant to Rule 1407.b, which are necessary to address new information collected during logging and testing of the Well and the Formation as required Rule 1407, and any updates to the alternative Post-Injection Site Care timeframe demonstration submitted pursuant to Rule 1407.b, which are necessary to address new information collected during the logging and testing of the Well and the Formation as required Rule 1407; and

(10) Any other information requested by the Director or Commission.

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e. Geologic Storage Operators seeking a waiver of the requirement to inject below the lowermost USDW will also refer to Rule 1425 and submit a supplemental report pursuant to Rule 1425.a. The supplemental report is not part of the permit application.

f. A complete application for a Class VI UIC Permit will also include:

(1) The activities conducted by the applicant which require it to obtain permits pursuant to 42 U.S.C. § 6901 et seq., 42 U.S.C. 1421 et seq., 33 U.S.C. § 1342, or 42 U.S.C. 7470 et seq.

(2) Name, mailing address, and location of the Geologic Storage Facility for which the application is submitted.

(3) Up to four SIC codes which best reflect the principal products or services provided by the Geologic Storage Facility.

(4) The operator's name, address, telephone number, ownership status, and status as Federal, State, private, public, or other entity.

(5) Whether the Geologic Storage Facility is located on Indian lands.

(6) A listing of all permits or construction approvals received or applied for under any of the following programs:

A. Hazardous Waste Management program under RCRA, 42 U.S.C. § 6901 et seq.;

B. UIC program of the Safe Drinking Water Act, 42 U.S.C. 300f et seq.;

C. NPDES program under the Clean Water Act, 33 U.S.C. § 1342;

D. Prevention of Significant Deterioration (PSD) program under the Clean Air Act, 42 U.S.C. 7470 et seq.;

E. Nonattainment program under the Clean Air Act, 42 U.S.C. 7501 et seq.;

F. National Emission Standards for Hazardous Pollutants (NESHAPS) preconstruction approval under the Clean Air Act, 42 U.S.C. 7412;

G. Dredge and fill permits under section 404 of the Clean Water Act, 33 U.S.C. § 1344; or

H. Other relevant environmental permits, including State permits.

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## 1408. CONDITIONS APPLICABLE TO ALL PERMITS [EPA RULE 40 CFR 144.51]

The following conditions apply to all permits for Class VI UIC Wells. All conditions applicable to all permits will be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to this Rule 1408 will be given in the permit.

a. **Duty to comply.** The Geologic Storage Operator will comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Safe Drinking Water Act, 42 U.S.C. 300f et seq., and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application; except that the permittee need not comply with the provisions of this permit to the extent and for the duration such noncompliance is authorized in an emergency permit pursuant to 40 C.F.R. § 144.34.

b. **Duty to reapply.** If the Geologic Storage Operator wishes to continue an activity regulated by this permit after the expiration date of this permit, the Geologic Storage Operator will apply for and obtain a new permit.

c. **Need to halt or reduce activity not a defense.** It will not be a defense for a Geologic Storage Operator in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

d. **Duty to mitigate.** The Geologic Storage Operator will take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

e. **Proper operation and maintenance.** The Geologic Storage Operator will at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Geologic Storage Operator to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

f. **Permit actions.** This permit may be modified, revoked and reissued, or terminated for cause pursuant to Rule 1413. The filing of a request by the Geologic Storage Operator for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

g. **Property rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.

h. **Duty to provide information.** The Geologic Storage Operator will furnish to the Commission or the Director, within a time specified, any information which the Commission or the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Geologic Storage Operator will also furnish to the Commission or the Director, upon request, copies of records required to be kept by this permit.

i. **Inspection and entry.** The Geologic Storage Operator will allow the Director, or an authorized representative, to:

(1) Enter upon the Geologic Storage Operator premises where a regulated facility or activity is located or conducted, or where records will be kept under the conditions of this permit;

(2) Have access to and copy, at reasonable times, any records that will be kept under the conditions of this permit;

(3) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(4) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Safe Drinking Water Act, 42 U.S.C. § 300f et seq., any substances or parameters at any location.

**j. Monitoring and records.**

(1) Samples and measurements taken for the purpose of monitoring will be representative of the monitored activity.

(2) The Geologic Storage Operator will retain records of all monitoring information, including the following:

A. Calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 5 years from the date of the sample, measurement, report, or application. This period may be extended by request of the Director at any time; and

B. The nature and composition of all injected Fluids until 5 years after the completion of any plugging and abandonment procedures specified under Rules 1409.b and 1422. The Director may require the Geologic Storage Operator to deliver the records to the Director at the conclusion of the retention period. Records of monitoring information will include:

i. The date, exact place, and time of sampling or measurements;

ii. The individual(s) who performed the sampling or measurements;

iii. The date(s) analyses were performed;

iv. The individual(s) who performed the analyses;

v. The analytical techniques or methods used; and

vi. The results of such analyses.

(3) Geologic Storage Operators will retain records as specified in the Commission's 1400 Series Rules, including Rule 1414.g, Rule 1421.f, Rule 1422.d, Rule 1423.f, and Rule 1423.h.

k. **Reporting requirements.**

(1) **Planned changes.** The Geologic Storage Operator will give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility.

(2) **Anticipated noncompliance.** The Geologic Storage Operator will give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(3) **Transfers.** This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary pursuant to Rule 1413.e.

(4) **Monitoring reports.** Monitoring results will be reported at the intervals specified elsewhere in this permit and the Commission's 1400 Series Rules.

(5) **Compliance schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit will be submitted no later than 30 days following each schedule date.

(6) **Twenty-four hour reporting.** The permittee will report any noncompliance which may endanger public health, safety, welfare, the environment, or wildlife resources, including:

A. Any monitoring or other information which indicates that any Contaminant may cause an endangerment to a USDW; or

B. Any noncompliance with a permit condition or malfunction of the injection system which may cause Fluid migration into or between USDWs.

C. The Geologic Storage Operator will provide information orally within 24 hours from the time the Geologic Storage Operator becomes aware of the circumstances. The Geologic Storage Operator will also provide a written submission within 5 days of the time the Geologic Storage Operator becomes aware of the circumstances. The written submission will contain a description of the noncompliance and its cause, the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(7) **Other noncompliance.** The Geologic Storage Operator will report all instances of noncompliance not reported pursuant to Rule 1408.k.(4)-(6) at the time monitoring reports are submitted. The reports will contain the information listed in Rule 1408.k.(6).

(8) **Other information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director or the Commission, it will promptly submit such facts or information.

l. **Requirements prior to commencing injection.** A new Class VI UIC Well may not commence injection until construction is complete, and:

(1) The Geologic Storage Operator has submitted notice of completion of construction to the Director; and

(2) The Director has inspected or otherwise reviewed the new Injection Well and finds it is in compliance with the conditions of the permit; or

(3) The Geologic Storage Operator has not received notice from the Director of his or her intent to inspect or otherwise review the new Injection Well within 13 days of the date of the notice pursuant to Rule 1408.l.(1), in which case prior inspection or review is waived and the permittee may commence injection. The Director will include in his notice a reasonable time period in which he will inspect the well.

m. The Geologic Storage Operator will notify the Director at such times as the permit requires before conversion or abandonment of the Well.

n. A Class VI permit will include conditions which meet the requirements of Rule 1422. Where the plan meets the requirements of Rule 1422, the Director will incorporate it into the permit as a permit condition. For purposes of this paragraph, temporary or intermittent cessation of injection operations is not abandonment.

**o. Duty to establish and maintain mechanical integrity.**

(1) The Geologic Storage Operator will establish mechanical integrity prior to commencing injection or on a schedule determined by the Director. Thereafter the Geologic Storage Operator will maintain mechanical integrity pursuant to Rule 1419. When the Director determines that a Class VI UIC Well lacks mechanical integrity pursuant to Rule 1419, they will give written notice of their determination to the Geologic Storage Operator. Unless the Director requires immediate cessation, the Geologic Storage Operator will cease injection into the Class VI UIC Well within 48 hours of receipt of the Director's determination. The Director may allow plugging of the well pursuant to Rules 1422 or require the Geologic Storage Operator to perform such additional construction, operation, monitoring, reporting, and Class VI Corrective Action as is necessary to prevent the movement of Fluid into or between USDWs caused by the lack of mechanical integrity. The Geologic Storage Operator may resume injection upon written notification from the Director that the Geologic Storage Operator has demonstrated mechanical integrity pursuant to Rule 1419.

p. **Recording and reporting of monitoring results.** All permits will specify:

(1) Requirements concerning the proper use, maintenance, and installation, when appropriate, of monitoring equipment or methods (including biological monitoring methods when appropriate);

(2) Required monitoring including type, intervals, and frequency sufficient to yield data which are representative of the monitored activity including when appropriate, continuous monitoring; and

(3) Applicable reporting requirements based upon the impact of the regulated activity and as specified in part 146. Reporting will be no less frequent than specified in the above regulations.

## 1409. ESTABLISHING PERMIT CONDITIONS [EPA RULE 40 CFR 144.52, 144.53]

a. In addition to conditions required in all permits pursuant to Rule 1408, the Commission or the Director will establish conditions in permits as required on a case-by-case basis, to provide for and assure compliance with all applicable requirements of the Act and the Commission’s Rules.

(1) An applicable requirement is a State statutory or regulatory requirement which takes effect prior to final administrative disposition of the permit. An applicable requirement is also any requirement which takes effect prior to the modification or revocation and reissuance of a permit, to the extent allowed pursuant to Rule 1413.

(2) New or reissued permits, and to the extent allowed pursuant to Rule 1413 modified or revoked and reissued permits, will incorporate each of the applicable requirements referenced in this Rule 1409.

b. **Plugging and Abandonment.** After a cessation of operations of two years the Geologic Storage Operator will plug and abandon the well in accordance with the plan submitted pursuant to Rule 1422 unless the Geologic Storage Operator:

(1) Provides notice to the Director; and

(2) Describes actions or procedures, satisfactory to the Director, that the Geologic Storage Operator will take to ensure that the well will not endanger USDWs during the period of temporary abandonment. These actions and procedures will include compliance with the technical requirements applicable to active injection wells unless waived by the Director.

**c. Mechanical Integrity.** A permit for any Class VI UIC Well which lacks mechanical integrity will include a condition prohibiting injection operations until the permittee shows to the satisfaction of the Director pursuant to Rule 1419 that the well has mechanical integrity.

**d. Schedule of Compliance.** A Class IV UIC permit may, when appropriate, specify a schedule of compliance leading to compliance with the Act and the Commission's 1400 Series Rules.

(1) **Time for compliance.** Any schedules of compliance will require compliance as soon as possible, and in no case later than 3 years after the effective date of the permit.

(2) **Interim dates.** Except as provided in Rule 1409.d.(2).B, if a permit establishes a schedule of compliance which exceeds 1 year from the date of permit issuance, the schedule will set forth interim requirements and the dates for their achievement.

A. The time between interim dates will not exceed 1 year.

B. If the time necessary for completion of any interim requirement is more than 1 year and is not readily divisible into stages for completion, the permit will specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.

(3) **Reporting.** The permit will be written to require that if Rule 1409.d.(2) is applicable, progress reports be submitted no later than 30 days following each interim date and the final date of compliance.

e. **Additional conditions.** The Commission or the Director will impose on a case-by-case basis such additional conditions as are necessary to prevent the migration of fluids into underground sources of drinking water.

f. **Incorporation.** All permit conditions will be incorporated either expressly or by reference. If incorporated by reference, a specific citation to the applicable regulations or requirements will be given in the permit.

## 1410. CUMULATIVE IMPACTS AND DISPROPORTIONATELY IMPACTED COMMUNITIES [NEW ECMC RULE]

a. Prior to issuing a permit for a Class VI Well, the Commission will review an Operator's Alternative Location Analysis and Cumulative Impacts Analysis prepared pursuant to Rule 315 [note that this refers to proposed rule 315 in the Cumulative Impacts and Enhanced Systems and Practices Rulemaking, and may need to change based on the outcome of that rulemaking] to determine whether the Class VI Development Plan adequately evaluates and addresses Cumulative Impacts. In making this determination, the Commission will consider factors including:

(1) Any efforts taken by the Geologic Storage Operator to avoid or minimize adverse Cumulative Impacts, including on any Disproportionately Impacted Communities;

(2) Any actions taken by the Geologic Storage Operator to mitigate adverse Cumulative Impacts that could not be avoided or minimized;

(3) Any adverse Cumulative Impacts, including on a Disproportionately Impacted Community, that would result from approval of the Class VI Development Plan;

(4) Any beneficial Cumulative Impacts, particularly to Disproportionately Impacted Communities, that would result from approval of the Class VI Development Plan;

(5) The Operator's actual and planned engagement with nearby residents and businesses about the planned Geologic Storage Operations;

(6) Any public comments or other input provided by members of the public and the Operator's response to such comments;

(7) Whether an alternative location is available that would better avoid or minimize adverse Cumulative Impacts, including to Disproportionately Impacted Communities;

(8) The Relevant Local Government's consideration or disposition of a land use permit for the location;

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(9) Results of consultations conducted pursuant to Rule 1406.c; and

(10) The Geologic Storage Operator's record of compliance with the Act and Commission Rules.

**b. No Net Negative Cumulative Impacts on a Disproportionately Impacted Community.**

**(1)** The Commission order approving or denying an application for a Class VI Development Plan with a Geologic Storage Location within ½ mile of a Residential Building Unit, High Occupancy Building Unit, or School Facility within a Disproportionately Impacted Community will include a plain language summary of the Commission's determination regarding the net Cumulative Impacts of the Class VI Development Plan on any Disproportionately Impacted Communities.

**(2)** The Commission will deny any application for a Class VI Well that would have negative net Cumulative Impacts on a Disproportionately Impacted Community.

c. Upon approval of a Class VI Development Plan, the Commission will provide a plain language summary of how any negative Cumulative Impacts are avoided, minimized, or mitigated.

**d. Community Outreach**. For any Class VI Development Plan with a Geologic Storage Location proposed within ½ mile of a Residential Building Unit, High Occupancy Building Unit, or School Facility, or within a Disproportionately Impacted Community, the Geologic Storage Operator will submit a Community Outreach Plan pursuant to Rule 304.c.(19). In addition to satisfying the requirements of Rule 304.c.(19), the Geologic Storage Operator will:

(1) Provide a summary of the Class VI Development Plan (including the number of Wells, description of other equipment associated with the Location, and proposed construction timeline), to all residents within ½ mile of the Location.

(2) Hold at least one public meeting in close proximity to the proposed Location. If the Location is within ½ mile of a Disproportionately Impacted Community, the Community Liaison will attend. The Geologic Storage Operator will endeavor to schedule such public meeting(s) at times and locations convenient for community residents and will provide child care and interpretation services at such a public meeting(s) upon request;

(3) Conduct community outreach regarding the Testing and Monitoring Plan required by Rule 1420 and the Emergency and Remedial Response Plan required by Rule 1425 and provide a forum for the public to provide input on such plans; and

(4) Submit to the Director all public comments related to the proposal's effects, if any, on Disproportionately Impacted Communities and a summary of all measures taken by the Geologic Storage Operator in response to such comments. The Director will review this submission prior to issuing the Director's Findings pursuant to Rule 1405.g.

## 1411. MINIMUM CRITERIA FOR SITING [EPA RULE 40 CFR 146.83 + ECMC Rule]

a. A Geologic Storage Operator will demonstrate to the satisfaction of the Commission that the Well will be sited in areas with a suitable geologic system. The Geologic Storage Operator will demonstrate that the geologic system comprises:

(1) An Injection Zone(s) of sufficient areal extent, thickness, porosity, and permeability to receive the total anticipated volume of the Carbon Dioxide Stream. Injection Zones will not be permitted within 300 feet in a vertical dimension from the top of any Precambrian basement formation; and

(2) Confining Zone(s) free of Transmissive Faults or fractures and of sufficient areal extent and integrity to contain the injected Carbon Dioxide Stream and displaced Formation Fluids and allow injection at proposed maximum Pressures and volumes without initiating or propagating fractures in the Confining Zone(s).

b. The Director may require Geologic Storage Operators to identify and characterize additional zones that will impede vertical Fluid movement, are free of Faults and fractures that may interfere with containment, allow for Pressure dissipation, and provide additional opportunities for monitoring, mitigation, and remediation.

c. A Class VI Well will not be located within 2,000 feet of a Residential Building Unit, High Occupancy Building Unit, School Facility, or commercial building.

## 1412. PERMIT REVIEW AND EXPIRATION [EPA RULE 40 CFR 144.36]

a. Permits for Class VI UIC Wells will be issued for the operating life of the Geologic Storage Facility and extend through the Post-Injection Site Care period pursuant to Rule 1423.

b. The Director will review each issued Class VI UIC Well permit at least once every 5 years to determine whether it should be modified, revoked and reissued, terminated or a minor modification made pursuant to Rule 1413.

c. The Director may issue any permit for a duration that is less than the full allowable term under this Rule 1412.

## 1413. MODIFICATION, REVOCATION, REISSUANCE, TERMINATION, AND TRANSFER OF PERMITS [EPA RULE 40 CFR 145.11, 40 CFR 124.5(a), 144.39, 144.40 ]

a. **Permits Subject to Review by Commission.** Permits may be modified, revoked and reissued, or terminated at the request of any interested person (including the permittee) or upon the Director's or Commission's initiative. All requests to modify, revoke, reissue, or terminate a permit will be in writing and will contain facts or reasons supporting the request. The Commission or the Director may modify, revoke and reissue, or terminate permits only for the reasons specified in this Rule 1413.

b. When the Commission or the Director receives any information (for example, inspects the Geologic Storage Facility, receives information submitted by the permittee as required in the permit pursuant to Rule 1408, receives a request for modification or revocation and reissuance pursuant to Rule 1413, or conducts a review of the permit file) the Commission or the Director may determine whether or not one or more of the causes listed in Rule 1413.d for modification or revocation and reissuance or both exist. If cause exists, the Commission or the Director may modify or revoke and reissue the permit accordingly, subject to the limitations of Rule 1413.d, and may require an updated application if necessary.

(1) When a permit is modified, only the conditions subject to modification are reopened.

(2) If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term.

(3) If cause does not exist under this Rule 1413, the Director will not modify or revoke and reissue the permit.

(4) If a permit modification satisfies the criteria in Rule 1413.c the permit may be modified without posting the proposed modified permit for public review. Otherwise, the Geologic Storage Operator will submit an application for the modified or revoked and reissued permit, and all procedures in Rules 1405.d–g and 1406.a.(1), 1406.a.(2).C–E, 1406.b, and 1406.c will be followed.

c. **Minor Modifications.** Upon the consent of the permittee, the Director may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section, without following the procedures of Rules 1405 and 1406. Minor modifications may only:

(1) Correct typographical errors;

(2) Require more frequent monitoring or reporting by the permittee;

(3) Change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement; or

(4) Allow for a change in ownership or operational control of a facility where the Director determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Director.

(5) Change quantities or types of Fluids injected which are within the capacity of the facility as permitted and, in the judgment of the Director, would not interfere with the operation of the facility or its ability to meet conditions described in the permit and would not change its classification.

(6) Change construction requirements approved by the Director pursuant to Rule 1416, provided that any such alteration will comply with the requirements of the Commission's 1400 Series Rules.

(7) Amend a plugging and abandonment plan which has been updated pursuant to Rule 1409.b.

(8) Amend a Class VI UIC Well testing and monitoring plan, plugging plan, Post-Injection Site Care and Site Closure plan, or Emergency and Remedial Response Plan where the modifications merely clarify or correct the plan, as determined by the Director.

d. **Modification or Revocation and Reissue.** The Commission or the Director may modify, or revoke and reissue, a permit only under the conditions listed in this Rule 1413.d. Suitability of the facility location will not be considered at the time of permit modification or revocation and reissuance unless new information or standards indicate that a threat to human health or the environment exists which was unknown at the time of permit issuance.

(1) **Alterations.** There are material and substantial alterations or additions to the permitted Geologic Storage Facility or Operations which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.

(2) **Information.** The Director has received information that was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of issuance.

(3) **New regulations.** The standards or regulations on which the permit was based have been changed by promulgation of new or amended standards or regulations or by judicial decision after the permit was issued.

(4) **Compliance schedules.** The Director determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or materials shortage or other events over which the permittee has little or no control and for which there is no reasonably available remedy.

(5) Whenever the Director determines that permit changes are necessary based on:

A. Area of Review reevaluations pursuant to Rule 1414;

B. Any amendments to the testing and monitoring plan pursuant to Rule 1420.j;

C. Any amendments to the Injection Well Plugging plan pursuant to Rule 1422.c;

D. Any amendments to the Post-Injection Site Care and Site Closure plan pursuant to Rule 1423.a.(3);

E. Any amendments to the Emergency and Remedial Response Plan pursuant to Rule 1424.d; or

F. A review of monitoring and/or testing results conducted in accordance with permit requirements.

(6) Cause exists for termination pursuant to Rule 1413.f, and the Director determines that modification or revocation and reissuance is appropriate.

(7) The Director has received notification pursuant to Rule 1413.c.(4) of a proposed transfer of the permit.

(8) A determination that the waste being injected is a hazardous waste as defined in 40 C.F.R § 261.3 either because the definition has been revised, or because a previous determination has been changed.

e. **Transfer of Permits.** A permit may be transferred by the permittee to a new Geologic Storage Operator only if the permit has been modified or revoked and reissued pursuant to Rule 1413.d, or a minor modification made pursuant to Rule 1413.c, to identify the new permittee and incorporate such other requirements as may be necessary under the Safe Drinking Water Act, the Act, and the Commission's Rules.

f. **Termination.** The Director may terminate a permit during its term, or deny a permit renewal application for the following causes:

(1) Noncompliance by the permittee with any condition of the permit;

(2) The permittee's failure in the application or during the permit issuance process to disclose fully all relevant facts, or the permittee's misrepresentation of any relevant facts at any time; or

(3) A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination.

g. **Procedure**

(1) If the Director tentatively decides to modify or revoke and reissue a permit, they will make public pursuant to Rule 1405.d the complete application for a modified or revoked and reissued permit incorporating the proposed changes.

A. The Director may request additional information and, in the case of a modified permit, may require the submission of an updated application.

B. In the case of revoked and reissued permits, the Director will require the submission of a new application.

C. Minor modifications pursuant to Rule 1413.c are not subject to the requirements of this Rule 1413.g.(2).

(2) In a permit modification pursuant to Rule 1413, only those conditions to be modified will be reopened when a new permit application is prepared. All other aspects of the existing permit will remain in effect for the duration of the unmodified permit. When a permit is revoked and reissued pursuant to Rule 1413, the entire permit is reopened just as if the permit had expired and was being reissued. During any revocation and reissuance proceeding the permittee will comply with all conditions of the existing permit until a new final permit is reissued.

(3) If the Director tentatively decides to terminate a permit, they will issue a notice of intent to terminate. A notice of intent to terminate follows the same procedures as an application prepared pursuant to Rules 1405.

A. The Director will follow the notice, public comment, and consultation procedures in Rules 1405 and 1406 prior to terminating a permit.

## 1414. AREA OF REVIEW AND CLASS VI CORRECTIVE ACTION. [EPA RULE 40 CFR § 146.84]

a. The Area of Review is the region surrounding the Geologic Storage Facility 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 all phases of the injected Carbon Dioxide Stream and is based on available site characterization, monitoring, and operational data.

b. A Geologic Storage Operator will prepare, maintain, and comply with a plan to delineate the Area of Review for a proposed Geologic Storage Facility, periodically reevaluate the delineation, and perform Class VI Corrective Action that meets the requirements of this Rule 1414 and is acceptable to the Director. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. As a part of the permit application for approval by the Commission, the Geologic Storage Operator will submit an Area of Review and Class VI Corrective Action Plan that includes the following information:

(1) The method for delineating the Area of Review that meets the requirements of Rule 1414.c, including the model to be used, assumptions that will be made, and the site characterization data on which the model will be based;

(2) A description of:

A. The minimum fixed frequency, not to exceed five years, at which the Geologic Storage Operator proposes to reevaluate the Area of Review;

B. The monitoring and operational conditions that would warrant a reevaluation of the Area of Review prior to the next scheduled reevaluation as determined by the minimum fixed frequency established in Rule 1414.b.(2).A;

C. How monitoring and operational data (e.g., injection rate and Pressure) will be used to inform an Area of Review reevaluation; and

D. How Class VI Corrective Action will be conducted to meet the requirements of Rule 1414.d, including what Class VI Corrective Action will be performed prior to injection and what, if any, portions of the Area of Review will have Class VI Corrective Action addressed on a phased basis and how the phasing will be determined; how Class VI Corrective Action will be adjusted if there are changes in the Area of Review; and how site access will be guaranteed for future Class VI Corrective Action.

c. Geologic Storage Operators will perform the following actions to delineate the Area of Review and identify all wells that require Class VI Corrective Action:

(1) Predict, using existing site characterization, monitoring and operational data, and computational modeling, the projected lateral and vertical migration of the Carbon Dioxide Plume and Formation Fluids in the subsurface from the commencement of injection activities until the plume movement ceases, until

Pressure differentials sufficient to cause the movement of injected Fluids or Formation Fluids into a USDW are no longer present, or until the end of a fixed time period as determined by the Director. The model must:

A. Be based on detailed geologic data collected to characterize the Injection Zone(s), Confining Zone(s) and any additional zones; and anticipated operating data, including injection Pressures, rates, and total volumes over the proposed life of the Geologic Storage Operations;

B. Take into account any geologic heterogeneities, other discontinuities, data quality, and their possible impact on model predictions; and

C. Consider potential migration through Faults, fractures, and artificial penetrations.

(2) Using methods approved by the Director, identify all penetrations, including active and abandoned Wells and underground mines, in the Area of Review that may penetrate the Confining Zone(s). Provide a description of each Well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Director may require; and

(3) Determine which abandoned Wells in the Area of Review have been plugged in a manner that prevents the movement of Carbon Dioxide or other Fluids that may endanger USDWs, including use of materials compatible with the Carbon Dioxide Stream.

d. Geologic Storage Operators will perform Class VI Corrective Action on all Wells in the Area of Review that are determined by the Director to need Class VI Corrective Action, using methods designed to prevent the movement of Fluid into or between USDWs, including use of materials compatible with the Carbon Dioxide Stream, where appropriate.

e. At the minimum fixed frequency, not to exceed five years, as specified in the Area of Review and Class VI Corrective Action Plan, or when monitoring and operational conditions warrant, Geologic Storage Operators will:

(1) Reevaluate the Area of Review in the same manner specified in Rule 1414.c.(1);

(2) Identify all Wells in the reevaluated Area of Review that require Class VI Corrective Action in the same manner specified in Rule 1414.c;

(3) Perform Class VI Corrective Action on Wells requiring Class VI Corrective Action in the reevaluated Area of Review in the same manner specified in Rule 1414.d; and

(4) Submit an amended Area of Review and Class VI Corrective Action Plan or demonstrate to the Director through monitoring data and modeling results that no amendment to the Area of Review and Class VI Corrective Action Plan is needed. Any amendments to the Area of Review and Class VI Corrective Action Plan will be approved by the Director, will be incorporated into the permit, and are subject to the permit modification requirements Rule 1413, as appropriate.

f. The Emergency and Remedial Response Plan pursuant to Rule 1424 and the demonstration of financial responsibility pursuant to Rule 1415 will account for the Area of Review delineated as specified in Rule 1414.c.(1) or the most recently evaluated Area of Review delineated under Rule 1414.e, regardless of whether or not Class VI Corrective Action in the Area of Review is phased.

g. All modeling inputs and data used to support Area of Review reevaluations under Rule 1414.e will be retained for 10 years.

## 1415. FINANCIAL RESPONSIBILITY. [EPA RULE 40 CFR § 146.85]

a. The Geologic Storage Operator will demonstrate and maintain financial responsibility as determined by the Director or the Commission that meets the following conditions:

(1) The financial responsibility instrument(s) used will be from the following list of qualifying instruments:

A. Irrevocable Trust Funds with government-backed securities;

B. Surety Bonds;

C. Public Liability Insurance Policy;

D. Cash;

E. Escrow Account; or

F. Any other instrument(s) satisfactory to the Director.

(2) The qualifying instrument(s) will be sufficient to cover the cost of:

A. Class VI Corrective Action pursuant to Rule 1414;

B. Injection Well Plugging pursuant to Rule 1422;

C. Post injection site care and Site Closure pursuant to Rule 1423; and

D. Emergency and remedial response pursuant to Rule 1424.

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(3) The financial responsibility instrument(s) will be sufficient to address endangerment of Underground Sources of Drinking Water.

(4) The qualifying financial responsibility instrument(s) will comprise protective conditions of coverage.

A. Protective conditions of coverage will include at a minimum cancellation, renewal, and continuation provisions, specifications on when the provider becomes liable following a notice of cancellation if there is a failure to renew with a new qualifying financial instrument, and requirements for the provider to meet a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.

i. **Cancellation.** For purposes of this part, a Geologic Storage Operator will provide that their financial mechanism may not cancel, terminate, or fail to renew except for failure to pay such financial instrument. If there is a failure to pay the financial instrument, the financial institution may elect to cancel, terminate, or fail to renew the instrument by sending notice by certified mail to the Geologic Storage Operator and the Director. The cancellation will not be final for 120 days after receipt of cancellation notice by the Director. The Geologic Storage Operator will provide an alternate financial responsibility demonstration within 60 days of notice of cancellation, and if an alternate financial responsibility demonstration is not acceptable (or possible), any funds from the instrument being canceled will be released within 60 days of notification by the Director.

ii. **Renewal.** For purposes of this part, Geologic Storage Operators will renew all financial instruments, if an instrument expires, for the entire term of the Geologic Storage Operations. The instrument may be automatically renewed as long as the Geologic Storage Operator has the option of renewal at the face amount of the expiring instrument. The automatic renewal of the instrument must, at a minimum, provide the holder with the option of renewal at the face amount of the expiring financial instrument.

iii. Cancellation, termination, or failure to renew may not occur and the financial instrument will remain in full force and effect in the event that on or before the date of expiration:

aa. The Director deems the facility abandoned;

bb. The permit is terminated or revoked or a new permit is denied;

cc. Closure is ordered by the Director or a U.S. district court or other court of competent jurisdiction;

dd. The Geologic Storage Operator is named as debtor in a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code; or

ee. The amount due is paid.

(5) The qualifying financial responsibility instrument(s) will be approved by the Director.

A. The Director will consider and approve the financial responsibility demonstration for all the phases of the Geologic Storage Operations prior to issuing a Class VI UIC Well permit.

B. The Geologic Storage Operator will provide any updated information related to their financial responsibility instrument(s) on an annual basis and if there are any changes, the Director will evaluate, within a reasonable time, the financial responsibility demonstration to confirm that the instrument(s) used remain adequate for use. The Geologic Storage Operator will maintain financial responsibility requirements regardless of the status of the Director's review of the financial responsibility demonstration.

C. The Director may deny the use of a financial instrument if they determine that it is not sufficient to meet the requirements of this section.

(6) The Geologic Storage Operator may demonstrate financial responsibility by using one or multiple qualifying financial instruments for specific phases of the Geologic Storage Operations.

A. In the event that the Geologic Storage Operator combines more than one instrument for a specific Geologic Storage Operations phase (e.g., Well Plugging), such combination will be limited to instruments that are not based on financial strength or performance (i.e., performance bond), for example trust funds, surety bonds guaranteeing payment into a trust fund, escrow account, and insurance. In this case, it is the combination of mechanisms, rather than the single mechanism, which will provide financial responsibility for an amount at least equal to the current cost estimate.

B. When using a third-party instrument to demonstrate financial responsibility, the Geologic Storage Operator will provide proof that the third-party providers either have passed financial strength requirements based on credit ratings; or have met a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.

C. A Geologic Storage Operator may deposit money to an escrow account to cover financial responsibility requirements; this account will segregate funds sufficient to cover estimated costs for Geologic Storage financial responsibility from other accounts and uses.

D. A Geologic Storage Operator may obtain an insurance policy to cover the estimated costs of Geologic Storage Operations requiring financial responsibility. This insurance policy will be obtained from a third party provider.

b. The requirement to maintain adequate financial responsibility and resources is directly enforceable regardless of whether the requirement is a condition of the permit.

(1) The Geologic Storage Operator will maintain financial responsibility and resources until:

A. The Director receives and approves the completed Post-Injection Site Care and Site Closure plan; and

B. The Director approves Site Closure.

(2) The Geologic Storage Operator may be released from a financial instrument in the following circumstances:

A. The Geologic Storage Operator has completed the phase of the Geologic Storage project for which the financial instrument was required and has fulfilled all its financial obligations as determined by the Director, including obtaining financial responsibility for the next phase of the Geologic Storage Operations, if required; or

B. The Geologic Storage Operator has submitted a replacement financial instrument and received written approval from the Director accepting the new financial instrument and releasing the Geologic Storage Operator from the previous financial instrument.

(3) If the Commission determines, following notice and a hearing, that a Geologic Storage Operator made a material misrepresentation or omission that caused the Director to approve Site Closure and release the Geologic Storage Operator's financial responsibility, the Commission may require the Geologic Storage Operator to demonstrate and maintain financial responsibility pursuant to Rule 1415.a.

c. The Geologic Storage Operator will have a detailed written estimate, in current dollars, of the cost of performing Class VI Corrective Action on Wells in the Area of

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Review, plugging the Class VI UIC Well(s), Post-Injection Site Care and Site Closure, and emergency and remedial response.

(1) The cost estimate will be performed for each phase separately and will be based on the costs to the Commission of hiring a third party to perform the required activities. A third party is a party who is not within the corporate structure of the Geologic Storage Operator.

(2) During the active life of the Geologic Storage Facility, the Geologic Storage Operator will adjust the cost estimate for inflation within 60 days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with Rule 1415.a and provide this adjustment to the Director. The Geologic Storage Operator will also provide to the Director written updates of adjustments to the cost estimate within 60 days of any amendments to the Area of Review and Class VI Corrective Action plan pursuant to Rule 1414, the Injection Well Plugging plan pursuant to Rule 1422, the Post-Injection Site Care and Site Closure plan pursuant to Rule 1423, and the Emergency and Remedial Response Plan pursuant to Rule 1424.

(3) The Director will approve any decrease or increase to the initial cost estimate. During the active life of the Geologic Storage Operations, the Geologic Storage Operator will revise the cost estimate no later than 60 days after the Director has approved the request to modify the Area of Review and Class VI Corrective Action plan pursuant to Rule 1414, the Injection Well Plugging plan pursuant to Rule 1422, the Post-Injection Site Care and Site Closure plan pursuant to Rule 1423, and the emergency and remedial response plan pursuant to Rule 1424, if the change in the plan increases the cost. If the change to the plans decreases the cost, any withdrawal of funds will be approved by the Director. Any decrease to the value of the financial assurance instrument will first be approved by the Director. The revised cost estimate will be adjusted for inflation as specified pursuant to Rule 1415.c.(2).

(4) Whenever the current cost estimate increases to an amount greater than the face amount of a financial instrument currently in use, the Geologic Storage Operator, within 60 days after the increase, will either cause the face amount to be increased to an amount at least equal to the current cost estimate and submit evidence of such increase to the Director, or obtain other financial responsibility instruments to cover the increase. Whenever the current cost estimate decreases, the face amount of the financial assurance instrument may be reduced to the amount of the current cost estimate only after the Geologic Storage Operator has received written approval from the Director.

d. The Geologic Storage Operator will notify the Director by certified mail of adverse financial conditions such as bankruptcy that may affect the Geologic Storage

Operator's ability to carry out Injection Well Plugging and Post-Injection Site Care and Site Closure.

(1) In the event that the Geologic Storage Operator or the third-party provider of a financial responsibility instrument is going through a bankruptcy, the Geologic Storage Operator will notify the Director by certified mail of the commencement of a voluntary or involuntary bankruptcy proceeding under 11 U.S.C. 101 et seq., naming the Geologic Storage Operator as debtor, within 10 days after commencement of the proceeding.

(2) A guarantor of a corporate guarantee will make such a notification to the Director if they are named as debtor, as required under the terms of the corporate guarantee.

(3) A Geologic Storage Operator who fulfills the requirements of Rule 1415.a by obtaining a trust fund, surety bond, letter of credit, escrow account, or insurance policy will be deemed to be without the required financial assurance in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee of the institution issuing the trust fund, surety bond, letter of credit, escrow account, or insurance policy. The Geologic Storage Operator will establish other financial assurance within 60 days after such an event.

e. The Geologic Storage Operator will provide an adjustment of the cost estimate to the Director within 60 days of notification by the Director, if the Director determines during the annual evaluation of the qualifying financial responsibility instrument(s) that the most recent demonstration is no longer adequate to cover the cost of Class VI Corrective Action pursuant to Rule 1414, Injection Well Plugging pursuant to Rule 1422, Post-Injection Site Care and Site Closure pursuant to Rule 1423, and emergency and remedial response pursuant to Rule 1424.

f. The Director will approve the use and length of pay-in-periods for trust funds or escrow accounts.

## 1416. INJECTION WELL CONSTRUCTION REQUIREMENTS. [EPA RULE 40 CFR § 146.86]

a. **General.** The Geologic Storage Operator will ensure that all Class VI UIC Wells are constructed and completed to:

(1) Prevent the movement of Fluids into or between USDWs or into any unauthorized zones;

(2) Permit the use of appropriate testing devices and workover tools; and

(3) Permit continuous monitoring of the annulus space between the injection tubing and long string Casing.

b. **Casing and Cementing of Class VI UIC Wells.**

(1) Casing and cement or other materials used in the construction of each Class VI UIC Well will have sufficient structural strength and be designed for the life of the Geologic Storage Operations.

(2) All Well materials will be compatible with Fluids with which the materials may be expected to come into contact and will meet or exceed the following standards:

A. American Petroleum Institute ("API") Specification 10A, Casing and Materials for Well Cementing, Twenty-fifth Edition, March 2019, Addendum 1 November 2019. Only the Twenty-fifth Edition of API's Specification 10A applies to this Rule; later amendments do not apply.

B. API Recommended Practice ("RP") 10B-2, Recommended Practice for Testing Well Cements, Second Edition, April 2013, Reaffirmed April 2019. Only the Second Edition of API's RP 10B-2 applies to this Rule; later amendments do not apply.

C. API RP 5C1, Recommended Practice for Care and Use of Casing and Tubing, Eighteenth Edition, May 1999, Reaffirmed July 2020. Only the Eighteenth Edition of API's RP 5C1 applies to this Rule; later amendments do not apply.

D. API Specification 5CT, Casing and Tubing, Eleventh Edition, December 2023, Errata 1, May 2024. Only the Eleventh Edition of API's Specification 5CT applies to this Rule; later amendments do not apply.

E. All materials incorporated by reference in this Rule are available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, CO 80203. In addition, these materials are available from API, 1220 L Street, NW, Washington, DC 20005-4070, https://www.api.org/.

(3) The Casing and Cementing program will be designed to prevent the movement of Fluids into or between USDWs. In order to allow the Director to determine and specify Casing and Cementing requirements, the Geologic Storage Operator will provide the following information:

A. Depth to the Injection Zone(s);

B. Injection Pressure, external Pressure, internal Pressure, and axial loading;

C. Hole size;

D. Size and grade of all Casing strings (wall thickness, external diameter, nominal weight, length, joint specification, and construction material);

E. Corrosiveness of the Carbon Dioxide Stream and Formation Fluids;

F. Down-hole temperatures;

G. Lithology of Injection and Confining Zone(s);

H. Type or grade of cement and cement additives; and

I. Quantity, chemical composition, and temperature of the Carbon Dioxide Stream.

(4) Surface Casing will extend through the base of the lowermost USDW and be cemented to the surface through the use of a single or multiple strings of Casing and cement to prevent the movement of Fluids into or between USDWs.

(5) At least one long string Casing, using a sufficient number of centralizers, will extend to the Injection Zone and will be cemented by circulating cement to the surface in one or more stages.

(6) Circulation of cement may be accomplished by staging. The Director may approve an alternative method of Cementing in cases where the cement cannot be recirculated to the surface, provided the Geologic Storage Operator can demonstrate by using logs that the cement does not allow Fluid movement behind the well bore.

(7) Cement and cement additives will be compatible with the Carbon Dioxide Stream and Formation Fluids and of sufficient quality and quantity to maintain integrity over the design life of the Geologic Storage Facility. The integrity and location of the cement will be verified using technology capable of evaluating cement quality radially and identifying the location of channels to ensure that USDWs are not endangered.

c. **Tubing and Packer.**

(1) Tubing and Packer materials used in the construction of each Class VI UIC Well will be compatible with Fluids with which the materials may be expected to come into contact and will meet or exceed the following standards:

A. API Specification 11D1, Packers and Bridge Plugs, Fourth Edition, March 2021. Only the Fourth Edition of API's Specification 11D1 applies to this Rule; later amendments do not apply.

B. API RP 10D-2, Centralized Placement and Stop-collar Testing, Second Edition, August 2023. Only the Second Edition of API's RP 10D-2 applies to this Rule; later amendments do not apply.

C. API RP 14B, Design, Installation, Operation, Test, and Redress of Subsurface Safety Valve Systems, Sixth Edition, September 2015. Only the Sixth Edition of API's RP 14B applies to this Rule; later amendments do not apply.

D. API RP 5C1, Recommended Practice for Care and Use of Casing and Tubing, Eighteenth Edition, May 1999, Reaffirmed July 2020. Only the Eighteenth Edition of API's RP 5C1 applies to this Rule; later amendments do not apply.

E. API Specification 5CT, Casing and Tubing, Eleventh Edition, December 2023, Errata 1, May 2024. Only the Eleventh Edition of API's Specification 5CT applies to this Rule; later amendments do not apply.

F. All materials incorporated by reference in this Rule are available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, CO 80203. In addition, these materials are available from API, 1220 L Street, NW, Washington, DC 20005-4070, https://www.api.org/.

(2) All Geologic Storage Operators will inject Fluids through tubing with a Packer set at a depth opposite a cemented interval at the location approved by the Director.

(3) In order for the Director to determine and specify requirements for tubing and Packer, the Geologic Storage Operator will submit the following information:

A. Depth of setting;

B. Characteristics of the Carbon Dioxide Stream (chemical content, corrosiveness, temperature, and density) and Formation Fluids;

C. Maximum proposed injection Pressure;

D. Maximum proposed annular Pressure;

E. Proposed injection rate (intermittent or continuous) and volume and/or mass of the Carbon Dioxide Stream;

F. Size of tubing and Casing; and

G. Tubing tensile, burst, and collapse strengths.

d. **Additional Requirements.** The Geologic Storage Operator will comply with EPA's Requirements for All Wells, 40 C.F.R. § 147.305. Only the version of 40 C.F.R. §

147.305 in effect as of [EFFECTIVE DATE] applies to this Rule; later amendments do not apply. 40 C.F.R. § 147.305 is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203, and at the U.S. Environmental Protection Agency, Region 8, 1595 Wynkoop St, Denver, CO 80202, and is available online at https://www.govinfo.gov/app/details/CFR-2010-title40-vol22/CFR-2010-title40-vol22-sec147-305.

## 1417. LOGGING, SAMPLING, AND TESTING PRIOR TO INJECTION WELL OPERATION. [EPA RULE 40 CFR § 146.87]

a. During the drilling and construction of a Class VI UIC Well, the Geologic Storage Operator will run appropriate logs, surveys and tests to determine or verify the depth, thickness, porosity, permeability, and Lithology of, and the salinity of any Formation Fluids in all relevant geologic Formations to ensure conformance with the Injection Well construction requirements pursuant to Rule 1416 and to establish accurate baseline data against which future measurements may be compared. The Geologic Storage Operator will submit to the Director a descriptive report prepared by a knowledgeable log analyst that includes an interpretation of the results of such logs and tests. At a minimum, such logs and tests will include:

(1) Deviation checks during drilling on all holes constructed by drilling a pilot hole which is enlarged by reaming or another method. Such checks will be at sufficiently frequent intervals to determine the location of the borehole and to ensure that vertical avenues for Fluid movement in the form of diverging holes are not created during drilling; and

(2) Before and upon installation of the Surface Casing:

A. Resistivity, spontaneous potential, and caliper logs before the Casing is installed; and

B. A cement bond and variable density log to evaluate cement quality radially, and a temperature log after the Casing is set and cemented.

(3) Before and upon installation of the long string Casing:

A. Resistivity, spontaneous potential, porosity, caliper, gamma ray, fracture finder logs, and any other logs the Director requires for the given geology before the Casing is installed; and

B. A cement bond log, capable of generating a variable density display, and a temperature log after the Casing is set and cemented.

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(4) A series of tests designed to demonstrate the internal and external mechanical integrity of Injection Wells, which may include:

A. A Pressure test with liquid or gas;

B. A tracer survey such as oxygen-activation logging;

C. A temperature or noise log;

D. A Casing inspection log; and

(5) Any alternative methods that provide equivalent or better information and that are required by and/or approved of by the Director.

b. The Geologic Storage Operator will take whole cores or sidewall cores of the Injection Zone and confining system and Formation Fluid samples from the Injection Zone(s), and will submit to the Director a detailed report prepared by a log analyst that includes: Well log analyses (including well logs), core analyses, and Formation Fluid sample information. The Director may accept information on cores from nearby Wells if the Geologic Storage Operator can demonstrate that core retrieval is not possible and that such cores are representative of conditions at the Well. The Director may require the Geologic Storage Operator to core other Formations in the borehole.

c. The Geologic Storage Operator will record the Fluid temperature, pH, conductivity, reservoir Pressure, and static Fluid level of the Injection Zone(s).

d. At a minimum, the Geologic Storage Operator will determine or calculate the following information concerning the Injection and Confining Zone(s):

(1) Fracture Pressure;

(2) Other physical and chemical characteristics of the Injection and Confining Zone(s); and

(3) Physical and chemical characteristics of the Formation Fluids in the Injection Zone(s).

e. Upon completion, but prior to operation, the Geologic Storage Operator will conduct the following tests to verify hydrogeologic characteristics of the Injection Zone(s):

(1) A pressure fall-off test; and,

(2) A pump test; or

(3) Injectivity tests.

f. The Geologic Storage Operator will provide the Director with the opportunity to witness all logging and testing by this subpart. The Geologic Storage Operator will submit a schedule of such activities to the Director 30 days prior to conducting the first test and submit any changes to the schedule 30 days prior to the next scheduled test.

## 1418. INJECTION WELL OPERATING REQUIREMENTS. [EPA RULE 40 CFR § 146.88]

a. Except during well Stimulation, the Geologic Storage Operator will ensure that injection Pressure does not exceed 90 percent of the fracture Pressure of the Injection Zone(s) so as to ensure that the injection does not initiate new fractures or propagate existing fractures in the Injection Zone(s). In no case may injection Pressure initiate fractures in the Confining Zone(s) or cause the movement of injection or Formation Fluids that endangers a USDW. Pursuant to Rule 1407.b.(9), all well Stimulation programs will be approved by the Director as part of the permit application and incorporated into the permit.

b. Injection between the outermost Casing protecting USDWs and the well bore is prohibited.

c. The Geologic Storage Operator will fill the annulus between the tubing and the long string Casing with a non-corrosive Fluid approved by the Director. The Geologic Storage Operator will maintain on the annulus a Pressure that exceeds the operating injection Pressure, unless the Director determines that such requirement might harm the integrity of the well or endanger USDWs.

d. Other than during periods of well workover (maintenance) approved by the Director in which the sealed tubing-casing annulus is disassembled for maintenance or corrective procedures, the Geologic Storage Operator will maintain mechanical integrity of the Injection Well at all times.

e. The Geologic Storage Operator will install and use:

(1) Continuous recording devices to monitor:

A. The injection Pressure;

B. The rate, volume and/or mass, and temperature of the Carbon Dioxide Stream; and

C. The Pressure on the annulus between the tubing and the long string Casing and annulus Fluid volume; and

(2) Alarms and automatic surface shut-off systems or, at the discretion of the Director, down-hole shut-off systems (e.g., automatic shut-off, check valves)

for onshore wells or, other mechanical devices that provide equivalent protection; and

(3) Alarms and automatic down-hole shut-off systems for wells located offshore but within State territorial waters, designed to alert the Geologic Storage Operator and shut-in the well when operating parameters such as annulus Pressure, injection rate, or other parameters diverge beyond permitted ranges and/or gradients specified in the permit.

f. If a shutdown (i.e., down-hole or at the surface) is triggered or a loss of mechanical integrity is discovered, the Geologic Storage Operator will immediately investigate and identify as expeditiously as possible the cause of the shutdown. If, upon such investigation, the well appears to be lacking mechanical integrity, or if monitoring required under paragraph (e) of this section otherwise indicates that the well may be lacking mechanical integrity, the Geologic Storage Operator will:

(1) Immediately cease injection;

(2) Take all steps reasonably necessary to determine whether there may have been a release of the injected Carbon Dioxide Stream or Formation Fluids into any unauthorized zone;

(3) Notify the Director within 24 hours;

(4) Restore and demonstrate mechanical integrity to the satisfaction of the Director prior to resuming injection; and

(5) Notify the Director when injection can be expected to resume.

g. Prior to commencement of operations, the Operator will obtain any necessary air permit(s) from the Colorado Department of Public Health and Environment.

## 1419. MECHANICAL INTEGRITY. [EPA RULE 40 CFR § 146.89]

a. A Class VI well has mechanical integrity if:

(1) There is no significant leak in the Casing, tubing, or Packer; and

(2) There is no significant Fluid movement into a USDW through channels adjacent to the Injection Well bore.

b. A Geologic Storage Operator will conduct at least one of the following mechanical integrity tests on all Class VI wells to determine whether significant leaks are present in the casing, tubing, or mechanical isolation device:

(1) Isolation of the tubing-casing Annulus with a packer set at 100 feet or less above the highest open Injection Zone perforation, unless an alternate isolation

distance is approved in writing by the Director. The pressure test will be with liquid or gas at a pressure of not less than 300 psi or the average injection pressure, whichever is greater, and not more than the maximum permitted injection pressure;

(2) The monitoring and reporting to the Director, on a monthly basis for 60 consecutive months, of the average casing-tubing Annulus pressure, following an initial pressure test; or

(3) Any equivalent test or combination of tests approved by the Director.

c. To evaluate the absence of significant leaks pursuant to Rule 1419.a.(1), the Geologic Storage Operator must, following an initial annulus Pressure test, continuously monitor injection Pressure, rate, and injected volumes; Pressure on the annulus between tubing and long-string Casing; and annulus Fluid volume as specified in Rule 1418.e.

d. At least once per year, the Geologic Storage Operator will use one of the following methods to determine the absence of significant Fluid movement pursuant to Rule 1419.a.(2):

(1) An approved tracer survey; or

(2) A temperature or noise log

e. If required by the Director, at a frequency specified in the testing and monitoring plan pursuant to Rule 1420, the Geologic Storage Operator will run a Casing inspection log to determine the presence or absence of corrosion in the long-string Casing.

f. The Director may require any other test to evaluate mechanical integrity pursuant to Rule 1419.a. Also, the Director may allow the use of a test to demonstrate mechanical integrity other than those listed above with the written approval of the EPA Administrator. To obtain approval for a new mechanical integrity test, the Director will submit a written request to the EPA Administrator setting forth the proposed test and all technical data supporting its use. The EPA Administrator may approve the request if they determine that it will reliably demonstrate the mechanical integrity of wells for which its use is proposed. Any alternate method approved by the EPA Administrator will be published in the Federal Register and may be used in all States in accordance with applicable State law unless its use is restricted at the time of approval by the EPA Administrator.

g. In conducting and evaluating the tests enumerated in this section or others to be allowed by the Director, the Geologic Storage Operator and the Director will apply methods and standards generally accepted in the industry. When the Geologic Storage Operator reports the results of mechanical integrity tests to the Director,

they will include a description of the test(s) and the method(s) used. In making their evaluation, the Director will review monitoring and other test data submitted since the previous evaluation.

h. The Director may require additional or alternative tests if the results presented by the Geologic Storage Operator pursuant to Rule 1419.a-d are not satisfactory to the Director to demonstrate that there is no significant leak in the Casing, tubing, or Packer, or to demonstrate that there is no significant movement of Fluid into a USDW resulting from the injection activity pursuant to Rule 1419.a.

i. Geologic Storage Operators will comply with Rule 418 for reporting results of mechanical integrity tests.

## 1420. TESTING AND MONITORING REQUIREMENTS. [EPA RULE 40 CFR § 146.90]

The Geologic Storage Operator will prepare, maintain, and comply with a testing and monitoring plan to verify that the Geologic Storage Operations are operating as permitted and are not endangering USDWs. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. The testing and monitoring plan will be submitted with the permit application, for Commission approval, and will include a description of how the Geologic Storage Operator will meet the requirements of this Rule 1420, including accessing sites for all necessary monitoring and testing during the life of the project. Testing and monitoring associated with Geologic Storage Operations must, at a minimum, include:

a. Analysis of the Carbon Dioxide Stream with sufficient frequency to yield data representative of its chemical and physical characteristics. In no case will the Geologic Storage Operator analyze the Carbon Dioxide Stream less often than once every five years;

b. Installation and use, except during well workovers as defined in Rule 1418.d, of continuous recording devices to monitor injection Pressure, rate, and volume; the Pressure on the annulus between the tubing and the long string Casing; and the annulus Fluid volume added;

c. Corrosion monitoring of the well materials for loss of mass, thickness, cracking, pitting, and other signs of corrosion, which will be performed on a quarterly basis to ensure that the well components meet the minimum standards for material strength and performance set forth in Rule 1416.b, by:

(1) Analyzing coupons of the well construction materials placed in contact with the Carbon Dioxide Stream; or

(2) Routing the Carbon Dioxide Stream through a loop constructed with the material used in the well and inspecting the materials in the loop; or

(3) Using an alternative method approved by the Director;

d. Periodic monitoring of the ground water quality and geochemical changes above the Confining Zone(s) that may be a result of Carbon Dioxide movement through the Confining Zone(s) or additional identified zones including:

(1) The location and number of monitoring wells based on specific information about the Geologic Storage Operations, including injection rate and volume, geology, the presence of artificial penetrations, and other factors; and

(2) The monitoring frequency and spatial distribution of monitoring wells based on baseline geochemical data that has been collected under Rule 1407.b.(6) and on any modeling results in the Area of Review evaluation required by Rule 1414.c.

e. A demonstration of external mechanical integrity pursuant to Rule 1419.d at least once per year until the Injection Well is plugged; and, if required by the Director, a Casing inspection log pursuant to requirements at Rule 1419.e at a frequency established in the testing and monitoring plan;

f. A Pressure fall-off test at least once every five years unless more frequent testing is required by the Director based on site-specific information;

g. Testing and monitoring to track the extent of the Carbon Dioxide Plume and the presence or absence of elevated Pressure (e.g., the Pressure Front) by using:

(1) Direct methods in the Injection Zone(s); and,

(2) Indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole Carbon Dioxide detection tools), unless the Director determines, based on site-specific geology, that such methods are not appropriate;

h. The Director may require surface air monitoring and/or soil gas monitoring to detect movement of Carbon Dioxide that could endanger a USDW.

(1) Design of Class VI surface air and/or soil gas monitoring will be based on potential risks to USDWs within the Area of Review;

(2) The monitoring frequency and spatial distribution of surface air monitoring and/or soil gas monitoring will be decided using baseline data, and the monitoring plan will describe how the proposed monitoring will yield useful information on the Area of Review delineation and/or compliance with standards pursuant to Rule 1404.a.(2);

(3) If a Geologic Storage Operator demonstrates that monitoring employed under 40 C.F.R. §§ 98.440 to 98.449 (Clean Air Act, 42 U.S.C. 7401 et seq.)

accomplishes the goals of Rule 1420.h.(1) & (2), and meets the requirements pursuant to Rule 1421.c.(5), a Director that requires surface air/soil gas monitoring will approve the use of monitoring employed under 40 C.F.R. §§ 98.440 to 98.449. Compliance with 40 C.F.R. §§ 98.440 to 98.449 pursuant to this provision is considered a condition of the Class VI permit. Only the version of 40 C.F.R.§§ 98.440 to 98.449 in effect as of [EFFECTIVE DATE] applies to this Rule; later amendments do not apply. 40 C.F.R. §§ 98.440 to 98.449 is available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203, and at the U.S. Environmental Protection Agency, Region 8, 1595 Wynkoop St, Denver, CO 80202, and is available online at https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98/subpart-RR;

i. Any additional monitoring, as required by the Director, necessary to support, upgrade, and improve computational modeling of the Area of Review evaluation required under Rule 1414.c and to determine compliance with standards pursuant to Rule 1404.a.(2);

j. The Geologic Storage Operator will periodically review the testing and monitoring plan to incorporate monitoring data collected under this Rule 1420, operational data collected under Rule 1418, and the most recent Area of Review reevaluation performed under Rule 1414.e. In no case will the Geologic Storage Operator review the testing and monitoring plan less often than once every five years. Based on this review, the Geologic Storage Operator will submit an amended testing and monitoring plan or demonstrate to the Director that no amendment to the testing and monitoring plan is needed. Any amendments to the testing and monitoring plan will be approved by the Director, will be incorporated into the permit, and are subject to the permit modification requirements at Rule 1413, as appropriate. Amended plans or demonstrations will be submitted to the Director as follows:

(1) Within one year of an Area of Review re-evaluation;

(2) Following any significant changes to the facility, such as addition of monitoring wells or newly permitted Injection Wells within the Area of Review, on a schedule determined by the Director; or

(3) When required by the Director.

k. A quality assurance and surveillance plan for all testing and monitoring requirements.

l. **Seismicity Evaluation and Monitoring System.**

(1) **Seismicity Evaluation.** An application for a Class VI Development Plan will include a seismicity evaluation with the following information:

A. A geological and geophysical evaluation of known transmissive or sealing faults or shear zones within 12 miles of the Area of Review of the proposed Class IV UIC Well and the potential for induced seismicity during injection operations;

B. An exhibit of the historical seismic activity within 12 miles of the Area of Review of the proposed Class VI UIC Well;

C. An exhibit showing the potential for seismic activity within 12 miles of the Area of Review of the proposed Class VI UIC Well; and

D. A wellbore diagram of the Injection Zone depicting the Well's bottomhole location relative to the Precambrian basement.

(2) **Conditions of Approval.** Prior to approving a Class VI Development Plan, the Commission will require any conditions of approval necessary and reasonable to avoid, minimize, and mitigate the risk that the Geologic Storage Operations may reasonably be anticipated to induce seismic activity of magnitude 2.5 or greater.

(3) **Seismicity Monitoring System Requirements.** The Commission may require the Geologic Storage Operator to deploy and maintain a seismicity monitoring system in order to determine the presence or absence, magnitude, and the hypocenter location of seismic activity within the vicinity of the Geologic Storage Facility. Where the Commission requires the Geologic Storage Operator to deploy and maintain a seismicity monitoring system, that system will:

A. Utilize seismometer(s) installed at location(s) approved by the Director;

B. Enable consideration of whether the risk of triggering an earthquake of magnitude 2.5 or greater is significantly increased by injection;

C. Be designed with surface arrays and/or downhole arrays as required to meet minimum magnitude of completeness of 0.7, or an alternative site-appropriate minimum magnitude approved by the Director, and to appropriately calibrate event magnitudes and hypocenter locations; and

D. Be calibrated with check-shots, sonic logs, or other local velocity information, preferably at depth.

(4) If, based on project-specific risk analysis, the Commission determines that seismic monitoring does not need to be permanent for a particular project, the

Commission may permit local seismicity monitoring to be discontinued, deferring instead to state and/or national arrays for long-term monitoring.

(5) The Geologic Storage Operator will analyze seismicity and other relevant data to determine whether the risk of triggering an earthquake of magnitude 2.5 or greater is significantly increased by injection. If such an increase is determined, the Geologic Storage Operator will:

A. Notify the Director within 48 hours; and

B. Take actions, in consultation with the Director, to avoid, minimize, and mitigate the risk of induced seismicity.

(6) For Geologic Storage Operations that are subject to Rule 1420.l.(3), the Operator will provide seismic monitoring data to the Director upon request. The Director may require the Geologic Storage Operator to implement a traffic light protocol for seismicity associated with injection activities based on the data provided.

## 1421. REPORTING REQUIREMENTS. [EPA RULE 40 CFR § 146.91]

The Geologic Storage Operator must, at a minimum, provide, as specified Rule 1421.e, the following reports to the Director, for each permitted Class VI UIC Well:

a. **Form 7CS, Geologic Storage Operator's Monthly Report of Operations.** Geologic Storage Operators will report all existing Class VI UIC Wells that are not Plugged and Abandoned on the Form 7CS, Geologic Storage Operator's Monthly Report of Operations within 45 days after the end of each month.

(1) Geologic Storage Operators will report a Class VI UIC Well every month from the month that it is spud until it has been Plugged and Abandoned and reported for one month as abandoned. In addition to their injecting and Plugged and Abandoned Wells, Geologic Storage Operators will identify and list all drilling, Shut-In Wells, Suspended Operations, Temporarily Abandoned Wells, and Waiting on Completion Wells on their Form 7CS reports.

(2) Geologic Storage Operators will report each injection formation in a Class VI UIC Well every month from the time that injection begins until it has been abandoned and reported for one month as abandoned.

(3) Geologic Storage Operators will report within 45 days of the end of each month:

A. Monthly average, maximum, and minimum values for injection Pressure, flow rate and volume, and annular Pressure;

B. The monthly volume and/or mass of the Carbon Dioxide Stream injected over the reporting period and the volume injected cumulatively over the life of the project;

C. Monthly annulus Fluid volume added

b. Semi-annual reports containing:

(1) Any changes to the physical, chemical, and other relevant characteristics of the Carbon Dioxide Stream from the proposed operating data;

(2) A description of any event that exceeds operating parameters for annulus Pressure or injection Pressure specified in the permit;

(3) A description of any event which triggers a shut-off device required pursuant to Rule 1418.e and the response taken;

(4) The results of monitoring prescribed pursuant to Rule 1420.

c. Report, within 30 days, the results of:

(1) Periodic tests of mechanical integrity pursuant to Rule 418;

(2) Any well workover; and

(3) Any other test of the Injection Well conducted by the Geologic Storage Operator if required by the Director.

d. Report, within 24 hours:

(1) Any evidence that the injected Carbon Dioxide Stream or associated Pressure Front may cause an endangerment to a USDW;

(2) Any noncompliance with a permit condition, or malfunction of the injection system, which may cause Fluid migration into or between USDWs;

(3) Any triggering of a shut-off system (i.e., down-hole or at the surface);

(4) Any failure to maintain mechanical integrity; or

(5) Pursuant to Rule 1420.h for surface air/soil gas monitoring or other monitoring technologies, if required by the Director, any release of Carbon Dioxide to the atmosphere or biosphere.

e. Geologic Storage Operators will notify the Director in writing 30 days in advance of:

(1) Any planned Well workover;

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(2) Any planned well Stimulation activities, other than well Stimulation for Formation testing conducted pursuant to Rule 1407; and

(3) Any other planned test of the Injection Well conducted by the permittee.

f. In addition to the Director, Geologic Storage Operators will submit all required reports, submittals, and notifications pursuant to the Commission's 1400 Series Rules to EPA in an electronic format approved by EPA.

g. Records will be retained by the Geologic Storage Operator as follows:

(1) All data collected under Rule 1407 for Class VI permit applications will be retained throughout the life of the Geologic Storage Operations and for 10 years following Site Closure.

(2) Data on the nature and composition of all injected Fluids collected pursuant to Rule 1420.a will be retained until 10 years after Site Closure. The Director may require the Geologic Storage Operator to deliver the records to the Director at the conclusion of the retention period.

(3) Monitoring data collected pursuant to Rule 1420.b-i will be retained for 10 years after it is collected.

(4) Well Plugging reports, Post-Injection Site Care data, including, if appropriate, data and information used to develop the demonstration of the alternative Post-Injection Site Care timeframe, and the Site Closure report collected pursuant to requirements at Rule 1423.f and 1423.h will be retained for 10 years following Site Closure.

(5) The Director has authority to require the Geologic Storage Operator to retain any records required in this subpart for longer than 10 years after Site Closure and to require the Geologic Storage Operator to provide such records to the Director.

## 1422. INJECTION WELL PLUGGING. [EPA RULE 40 CFR § 146.92]

a. Prior to the Well plugging, the Geologic Storage Operator will flush each Class VI UIC Well with a buffer Fluid, determine bottomhole reservoir Pressure, and perform a final external mechanical integrity test.

b. **Well plugging plan.** The Geologic Storage Operator of a Class VI UIC Well will prepare, maintain, and comply with a well plugging plan that is acceptable to the Commission. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. The Well plugging plan will be submitted as part of the permit application and will include the following information:

(1) Appropriate tests or measures for determining bottomhole reservoir Pressure;

(2) Appropriate testing methods to ensure external mechanical integrity pursuant to Rule 1419;

(3) The type and number of plugs to be used;

(4) The placement of each plug, including the elevation of the top and bottom of each plug;

(5) The type, grade, and quantity of material to be used in plugging. The material will be compatible with the Carbon Dioxide Stream; and

(6) The method of placement of the plugs.

c. **Notice of intent to plug.** The Geologic Storage Operator will file a Form 6 notifying the Director pursuant to Rule 1421, at least 60 days before plugging of a Well. At this time, if any changes have been made to the original Well plugging plan, the Geologic Storage Operator will also provide the revised Well plugging plan. The Director may allow for a shorter notice period. Any amendments to the Well plugging plan will be approved by the Director, will be incorporated into the permit, and are subject to the permit modification requirements of Rule 1413, as appropriate.

d. **Plugging report.** Within 60 days after plugging, the Geologic Storage Operator will submit, pursuant to Rule 1421, via a Form 6-Subsequent, a plugging report to the Director. The report will be certified as accurate by the Geologic Storage Operator and by the person who performed the plugging operation (if other than the Geologic Storage Operator). The Geologic Storage Operator will retain the Well Plugging report for 10 years following Site Closure.

e. In addition to the plugging requirements described in Rule 1422.a–d, Geologic Storage Operators will also comply with Rules 434.b.(1)-(2) and (3).A–B and D for temporary abandonment.

## 1423. POST-INJECTION SITE CARE AND SITE CLOSURE. [EPA Rule 40 CFR § 146.93]

a. The Geologic Storage Operator will prepare, maintain, and comply with a plan for Post-Injection Site Care and Site Closure that meets the requirements of Rule 1423.b and is acceptable to the Commission. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit.

(1) The Geologic Storage Operator will submit the Post-Injection Site Care and Site Closure plan as a part of the permit application to be approved by the Commission.

(2) The Post-Injection Site Care and Site Closure plan will include the following information:

A. The Pressure differential between pre-injection and predicted post-injection Pressures in the Injection Zone(s);

B. The predicted position of the Carbon Dioxide Plume and associated Pressure Front at Site Closure as demonstrated in the Area of Review evaluation pursuant to Rule 1414.c.(1);

C. A description of post-injection monitoring location, methods, and proposed frequency;

D. A proposed schedule for submitting Post-Injection Site Care monitoring results to the Director pursuant to Rule 1421; and

E. The duration of the Post-Injection Site Care timeframe and, if approved by the Director, the demonstration of the alternative Post-Injection Site Care timeframe that ensures non-endangerment of USDWs.

(3) Upon cessation of injection, the Geologic Storage Operator will either submit an amended Post-Injection Site Care and Site Closure plan or demonstrate to the Director through monitoring data and modeling results that no amendment to the plan is needed. Any amendments to the Post-Injection Site Care and Site Closure plan will be approved by the Director, be incorporated into the permit, and are subject to the permit modification requirements of Rule 1413, as appropriate.

(4) At any time during the life of the Geologic Storage project, the Geologic Storage Operator may modify and resubmit the Post-Injection Site Care and Site Closure plan for the Director's approval within 30 days of such change.

b. The Geologic Storage Operator will monitor the site following the cessation of injection to show the position of the Carbon Dioxide Plume and Pressure Front and demonstrate that USDWs are not being endangered.

(1) Following the cessation of injection, the Geologic Storage Operator will continue to conduct monitoring as specified in the Director-approved Post-Injection Site Care and Site Closure plan for at least 50 years or for the duration of the alternative timeframe approved by the Commission pursuant to Rule 1423.c, unless they make a demonstration under Rule 1423.b.(2). The monitoring will continue until the Geologic Storage Operations no longer pose an endangerment to USDWs and the demonstration pursuant to Rule 1423.b.(2) is submitted and approved by the Director.

(2) If the Geologic Storage Operator can demonstrate to the satisfaction of the Director before 50 years or prior to the end of the approved alternative timeframe based on monitoring and other site-specific data, that the Geologic Storage Operations no longer pose an endangerment to public health, safety, welfare, the environment, including USDWs, or wildlife resources the Director may approve an amendment to the Post-Injection Site Care and Site Closure plan to reduce the frequency of monitoring or may authorize Site Closure before the end of the 50-year period or prior to the end of the approved alternative timeframe, where the Director has substantial evidence that the Geologic Storage project no longer poses a risk of endangerment to public health, safety, welfare, the environment, including USDWs, or wildlife resources.

(3) Prior to authorization for Site Closure, the Geologic Storage Operator will submit to the Director for review and approval a demonstration, based on monitoring and other site-specific data, that no additional monitoring is needed to ensure that the Geologic Storage project does not pose an endangerment to USDWs.

(4) If the demonstration in Rule 1423.b.(3) cannot be made (i.e., additional monitoring is needed to ensure that the Geologic Storage Operations do not pose an endangerment to USDWs) at the end of the 50-year period or at the end of the approved alternative timeframe, or if the Director does not approve the demonstration, the Geologic Storage Operator will submit to the Director a plan to continue Post-Injection Site Care until a demonstration can be made and approved by the Director.

(5) Prior to approval of Site Closure, the Geologic Storage Operator will reclaim all remaining Geologic Storage Facilities at the Geologic Storage Location pursuant to Rule 1434, unless otherwise approved by the Director.

c. **Demonstration of alternative Post-Injection Site Care timeframe.** At the Commission's discretion, the Commission may approve, in consultation with EPA, an alternative Post-Injection Site Care timeframe other than the 50-year default, if a Geologic Storage Operator can demonstrate during the permitting process that an alternative Post-Injection Site Care timeframe is appropriate and ensures non-endangerment of USDWs. The demonstration will be based on significant, site-specific data and information including all data and information collected pursuant to Rules 1407 and 1411, and will contain substantial evidence that the Geologic Storage project will no longer pose a risk of endangerment to public health, safety, welfare, the environment, including USDWs, or wildlife resources at the end of the alternative Post-Injection Site Care timeframe.

(1) A demonstration of an alternative Post-Injection Site Care timeframe will include consideration and documentation of:

A. The results of computational modeling performed pursuant to delineation of the Area of Review under Rule 1414;

B. The predicted timeframe for Pressure decline within the Injection Zone, and any other zones, such that Formation Fluids may not be forced into any USDWs; and/or the timeframe for Pressure decline to pre-injection Pressures;

C. The predicted rate of Carbon Dioxide Plume migration within the Injection Zone, and the predicted timeframe for the cessation of migration;

D. A description of the site-specific processes that will result in Carbon Dioxide trapping including immobilization by capillary trapping, dissolution, and mineralization at the site;

E. The predicted rate of Carbon Dioxide trapping in the immobile capillary phase, dissolved phase, and/or mineral phase;

F. The results of laboratory analyses, research studies, and/or field or site-specific studies to verify the information required in Rule 1423.c.(1).D & E;

G. A characterization of the Confining Zone(s) including a demonstration that it is free of transmissive Faults, fractures, and micro-fractures and of appropriate thickness, permeability, and integrity to impede Fluid (e.g., Carbon Dioxide, Formation Fluids) movement;

H. The presence of potential conduits for Fluid movement including planned Injection Wells and project monitoring wells associated with the proposed Geologic Storage project or any other projects in proximity to the predicted/modeled, final extent of the Carbon Dioxide Plume and area of elevated Pressure;

I. A description of the well construction and an assessment of the quality of plugs of all Abandoned Wells within the Area of Review;

J. The distance between the Injection Zone and the nearest USDWs above and/or below the Injection Zone; and

K. Any additional site-specific factors required by the Commission.

(2) Information submitted to support the demonstration pursuant to Rule 1423.c.(1) will meet the following criteria:

A. All analyses and tests performed to support the demonstration will be accurate, reproducible, and performed in accordance with the established quality assurance standards;

B. Estimation techniques will be appropriate and EPA-certified test protocols will be used where available;

C. Predictive models will be appropriate and tailored to the site conditions, composition of the Carbon Dioxide Stream and injection and site conditions over the life of the Geologic Storage project;

D. Predictive models will be calibrated using existing information (e.g., at Class I, Class II, or Class V Experimental Technology well sites) where sufficient data are available;

E. Reasonably conservative values and modeling assumptions will be used and disclosed to the Commission whenever values are estimated on the basis of known, historical information instead of site-specific measurements;

F. An analysis will be performed to identify and assess aspects of the alternative Post-Injection Site Care timeframe demonstration that contribute significantly to uncertainty. The Geologic Storage Operator will conduct sensitivity analyses to determine the effect that significant uncertainty may contribute to the modeling demonstration.

G. An approved quality assurance and quality control plan will address all aspects of the demonstration; and,

H. Any additional criteria required by the Commission.

d. **Notice of intent for Site Closure.** The Geologic Storage Operator will notify the Director in writing at least 120 days before Site Closure. At this time, if any changes have been made to the original Post-Injection Site Care and Site Closure plan, the Geologic Storage Operator will also provide the revised plan. The Director may allow for a shorter notice period.

e. After the Director has authorized Site Closure, the Geologic Storage Operator will plug all monitoring wells in a manner which will not allow movement of injection or Formation Fluids that endangers a USDW.

f. The Geologic Storage Operator will submit a Site Closure report to the Director within 90 days of Site Closure, which will thereafter be retained at a location designated by the Director for 10 years. The report will include:

(1) Documentation of appropriate injection and monitoring Well plugging as specified in Rule 1422 and Rule 1423.e. The Geologic Storage Operator will

provide a copy of a survey plat which has been submitted to the local zoning authority designated by the Director. The plat will indicate the location of the Injection Well relative to permanently surveyed benchmarks. The Geologic Storage Operator will also submit a copy of the plat to the Regional Administrator of the appropriate EPA Regional Office;

(2) Documentation of appropriate notification and information to such State, local and Tribal authorities that have authority over drilling activities to enable such State, local, and Tribal authorities to impose appropriate conditions on subsequent drilling activities that may penetrate the Injection and Confining Zone(s); and

(3) Records reflecting the nature, composition, and volume of the Carbon Dioxide Stream.

g. Each Geologic Storage Operator will record a notation on the deed to the facility property or any other document that is normally examined during title search that will in perpetuity provide any potential purchaser of the property the following information:

(1) The fact that land has been used to sequester Carbon Dioxide;

(2) The name of the State agency, local authority, and/or Tribe with which the survey plat was filed, as well as the address of the EPA Regional Office to which it was submitted; and

(3) The volume of Fluid injected, the Injection Zone or zones into which it was injected, and the period over which injection occurred.

h. The Geologic Storage Operator will retain for 10 years following Site Closure, records collected during the post- injection site care period. The Geologic Storage Operator will deliver the records to the Director at the conclusion of the retention period, and the records will thereafter be retained at a location designated by the Director for that purpose.

i. If a Geologic Storage Operator makes a material misrepresentation or omission that causes the Director to approve site closure pursuant to this Rule 1423, the Commission may reimpose any regulatory requirements pursuant to the Commission's Rules, including the financial responsibility requirements of Rule 1415.

## 1424. EMERGENCY AND REMEDIAL RESPONSE. [EPA RULE 40 CFR § 146.94]

a. As part of the permit application, the Geologic Storage Operator will provide the Commission with an Emergency and Remedial Response Plan that describes actions

the Geologic Storage Operator will take to address movement of the injection or Formation Fluids that may cause an endangerment to a USDW or adverse impacts to public health, safety, welfare, the environment, or wildlife resources during construction, operation, and Post-Injection Site Care periods. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit.

b. If the Geologic Storage Operator obtains evidence that the injected Carbon Dioxide Stream and associated Pressure Front may cause an endangerment to a USDW or adverse impacts to public health, safety, welfare, the environment, or wildlife resources, the Geologic Storage Operator must:

(1) Immediately cease injection;

(2) Take all steps reasonably necessary to identify and characterize any release;

(3) Notify the Director within 24 hours; and

(4) Implement the Emergency and Remedial Response Plan approved by the Commission.

c. The Director may allow the operator to resume injection prior to remediation if the Geologic Storage Operator demonstrates that the injection operation will not endanger USDWs or cause adverse impacts to public health, safety, welfare, the environment, or wildlife resources.

d. The Geologic Storage Operator will periodically review the Emergency and Remedial Response Plan developed pursuant to Rule 1424.a. In no case will the Geologic Storage Operator review the Emergency and Remedial Response Plan less often than once every five years. Based on this review, the Geologic Storage Operator will submit an amended Emergency and Remedial Response Plan or demonstrate to the Director that no amendment to the Emergency and Remedial Response Plan is needed. Any amendments to the Emergency and Remedial Response Plan will be approved by the Director, will be incorporated into the permit, and are subject to the permit modification requirements at Rule 1413, as appropriate. Amended plans or demonstrations will be submitted to the Director as follows:

(1) Within one year of an Area of Review re-evaluation;

(2) Following any significant changes to the facility, such as addition of injection or monitoring wells, on a schedule determined by the Director; or

(3) When required by the Director.

## 1425. CLASS VI INJECTION DEPTH WAIVER REQUIREMENTS. [EPA Rule 40 CFR § 146.95]

This section sets forth information which an Geologic Storage Operator seeking a waiver of the Class VI injection depth requirements will submit to the Director or Commission; information the Director or Commission will consider in consultation with all affected Public Water System Supervision Directors; the procedure for Director or Commission-Regional EPA Administrator communication and waiver issuance; and the additional requirements that apply to Geologic Storage Operators of Class VI UIC Wells granted a waiver of the injection depth requirements.

a. In seeking a waiver of the requirement to inject below the lowermost USDW, the Geologic Storage Operator will submit a supplemental report concurrent with permit application. The supplemental report will include the following,

(1) A demonstration that the Injection Zone(s) is/are laterally continuous, is not a USDW, and is not hydraulically connected to USDWs; does not outcrop; has adequate injectivity, volume, and sufficient porosity to safely contain the injected Carbon Dioxide and Formation Fluids; and has appropriate geochemistry.

(2) A demonstration that the Injection Zone(s) is/are bounded by laterally continuous, impermeable confining units above and below the Injection Zone(s) adequate to prevent Fluid movement and Pressure buildup outside of the Injection Zone(s); and that the confining unit(s) is/are free of transmissive Faults and fractures. The report will further characterize the regional fracture properties and contain a demonstration that such fractures will not interfere with injection, serve as conduits, or endanger USDWs.

(3) A demonstration, using computational modeling, that USDWs above and below the Injection Zone will not be endangered as a result of Fluid movement. This modeling should be conducted in conjunction with the Area of Review determination, as described in Rule 1414, and is subject to requirements pursuant to Rule 1414.c, and periodic reevaluation, pursuant to Rule 1414.e.

(4) A demonstration that well design and construction, in conjunction with the waiver, will ensure isolation of the injectate in lieu of requirements at Rule 1416.a.(1) and will meet well construction requirements in Rule 1425.f.

(5) A description of how the monitoring and testing and any additional plans will be tailored to the Geologic Storage project to ensure protection of USDWs above and below the Injection Zone(s), if a waiver is granted.

(6) Information on the location of all the public water supplies affected, reasonably likely to be affected, or served by USDWs in the Area of Review.

(7) Any other information requested by the Director to inform the Regional EPA Administrator's decision to issue a waiver.

b. To inform the Regional EPA Administrator's decision on whether to grant a waiver of the injection depth requirements at 40 C.F.R.§§ 144.6 (2024), 146.5(f) (2024), and Rule 1416.a.(1), the Director will submit, to the Regional EPA Administrator, documentation of the following:

(1) An evaluation of the following information as it relates to siting, construction, and operation of a Geologic Storage project with a waiver:

A. The integrity of the upper and lower confining units;

B. The suitability of the Injection Zone(s) (e.g., lateral continuity; lack of transmissive Faults and fractures; knowledge of current or planned artificial penetrations into the Injection Zone(s) or Formations below the Injection Zone);

C. The potential capacity of the geologic Formation(s) to sequester Carbon Dioxide, accounting for the availability of alternative injection sites;

D. All other site characterization data, the proposed Emergency and Remedial Response Plan, and a demonstration of financial responsibility;

E. Community needs, demands, and supply from drinking water resources;

F. Planned needs, potential and/or future use of USDWs and non-USDW aquifers in the area;

G. Planned or permitted water, hydrocarbon, or mineral resource exploitation potential of the proposed injection Formation(s) and other Formations both above and below the Injection Zone to determine if there are any plans to drill through the Formation to access resources in or beneath the proposed Injection Zone(s)/Formation(s);

H. The proposed plan for securing alternative resources or treating USDW Formation waters in the event of contamination related to the Class VI injection activity; and,

I. Any other applicable considerations or information requested by the Director.

(2) Consultation with the Public Water System Supervision Directors of all States and Tribes having jurisdiction over lands within the Area of Review of a Well for which a waiver is sought.

(3) Any written waiver-related information submitted by the Public Water System Supervision Director(s) to the Director or Commission.

c. Pursuant to Rule 1406.a and concurrent with the Class VI permit application notice process, the Director or Commission will give public notice that a waiver application has been submitted. The notice will clearly state:

(1) The depth of the proposed Injection Zone(s);

(2) The location of the Injection Well(s);

(3) The name and depth of all USDWs within the Area of Review;

(4) A map of the Area of Review;

(5) The names of any public water supplies affected, reasonably likely to be affected, or served by USDWs in the Area of Review; and,

(6) The results of consultation with Public Water System Supervision Directors pursuant to Rule 1425.b.(2).

d. Following public notice, the Director or Commission will provide all information received through the waiver application process to the Regional EPA Administrator. Based on the information provided, the Regional EPA Administrator will provide written concurrence or non-concurrence regarding waiver issuance.

(1) If the Regional EPA Administrator determines that additional information is required to support a decision, the Director or Commission will provide the information. At their discretion, the Regional EPA Administrator may require that public notice of the new information be initiated.

(2) In no case will the Director or Commission issue a waiver without receipt of written concurrence from the Regional EPA Administrator.

e. If a waiver is issued, within 30 days of waiver issuance, EPA will post the following information on the Office of Water's website:

(1) The depth of the proposed Injection Zone(s);

(2) The location of the Injection Well(s);

(3) The name and depth of all USDWs within the Area of Review;

(4) A map of the Area of Review;

(5) The names of any public water supplies affected, reasonably likely to be affected, or served by USDWs in the Area of Review; and

(6) The date of waiver issuance.

f. Upon receipt of a waiver of the requirement to inject below the lowermost USDW for Geologic Storage, the Geologic Storage Operator of the Class VI well will comply with:

(1) All requirements at Rules 1414, 1415, 1417, 1418, 1419, 1421, 1422, and 1424;

(2) All requirements of Rule 1416 with the following modified requirements:

A. The Geologic Storage Operator will ensure that Class VI wells with a waiver are constructed and completed to prevent movement of Fluids into any unauthorized zones including USDWs, in lieu of requirements at Rule 1416.a.(1).

B. The Casing and Cementing program will be designed to prevent the movement of Fluids into any unauthorized zones including USDWs in lieu of requirements at Rule 1416.b.(1).

C. The fully cemented Surface Casing, or combination of fully-cemented surface casing and stage cement for other casing string(s) will extend through the base of the nearest USDW directly above the Injection Zone and be cemented to the surface; or, at the Director or Commission discretion, another Formation above the Injection Zone and below the nearest USDW above the Injection Zone.

(3) All requirements of Rule 1420 with the following modified requirements:

A. The Geologic Storage Operator will monitor the groundwater quality, geochemical changes, and Pressure in the first USDWs immediately above and below the Injection Zone(s); and in any other Formations at the discretion of the Director.

B. Testing and monitoring to track the extent of the Carbon Dioxide Plume and the presence or absence of elevated Pressure (e.g., the Pressure Front) by using direct methods to monitor for Pressure changes in the Injection Zone(s); and, indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole Carbon Dioxide detection tools), unless the Director or Commission determines, based on site-specific geology, that such methods are not appropriate.

(4) All requirements of Rule 1423 with the following, modified Post-Injection Site Care monitoring requirements:

A. The Geologic Storage Operator will monitor the groundwater quality, geochemical changes and Pressure in the first USDWs immediately above

and below the Injection Zone; and in any other Formations at the discretion of the Director.

B. Testing and monitoring to track the extent of the Carbon Dioxide Plume and the presence or absence of elevated Pressure (e.g., the Pressure Front) by using direct methods in the Injection Zone(s); and indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/ or down-hole Carbon Dioxide detection tools), unless the Director or Commission determines based on site- specific geology, that such methods are not appropriate;

(5) Any additional requirements required by the Director or Commission designed to ensure protection of USDWs above and below the Injection Zone(s).

## 1426. TRANSITIONING FROM CLASS II TO CLASS VI [EPA RULE 40 C.F.R. § 144.19]

a. Operators that are injecting Carbon Dioxide pursuant to a Class II UIC permit for the primary purpose of long-term storage into an oil and gas reservoir will apply for and obtain a Class VI geologic sequestration permit when there is an increased risk to USDWs compared to Class II operations.

b. The Director will determine when there is an increased risk to USDWs compared to Class II operations and a Class VI permit is required. In order to make this determination the Director will consider the following:

(1) Increase in reservoir Pressure within the Injection Zone(s);

(2) Increase in Carbon Dioxide injection rates;

(3) Decrease in reservoir production rates;

(4) Distance between the Injection Zone(s) and USDWs;

(5) Suitability of the Class II Area of Review delineation;

(6) Quality of Abandoned Well Plugs within the Area of Review;

(7) The Operator’s plan for recovery of Carbon Dioxide at the cessation of injection;

(8) The source and properties of injected Carbon Dioxide; and

(9) Any additional site-specific factors as determined by the Director.

## 1427. GEOLOGIC STORAGE UNITS [NEW ECMC RULE]

a. Upon the application of any interested person, the Commission will hold a hearing to consider the need for a Geologic Storage Unit.

b. The application will include a proposed Geologic Storage Unit Plan, which will include;

(1) A description of the Geologic Storage Unit Area;

(2) A description of the operations that will be conducted in the Geologic Storage Unit Area;

(3) A determination of the percentage of each Geologic Storage Resource allocated to each separately owned tract within the Geologic Storage Unit Area;

(4) A description of the method by which each owner of a Sequestration Estate included in the Geologic Storage Unit Area will be allocated equitable compensation related to the use of the Sequestration Estate;

(5) A description of the manner in which the Geologic Storage Unit Area will be supervised and managed and, if applicable, how costs related to operations of the Geologic Storage Unit will be allocated and paid;

(6) The time when operations of the Geologic Storage Unit will commence and the manner in which, and the circumstances under which, operations of the Geologic Storage Unit will terminate; and

c. The Geologic Storage Unit Area will include, at a minimum, the Area of Review associated with the Geologic Storage Operations, and will be based on site characterization, modeling, and monitoring conducted pursuant to Rule 1414.c.(1) & e.

(1) If a Geologic Storage Operator's reevaluation of the Area of Review pursuant to Rule 1414.e results in a material change to the Area of Review, within six months from the reevaluation of the Area of Review the Geologic Storage Operator will file an application with the Commission for a hearing pursuant to Rule 503.g.(14) to amend the Unit Order to expand or reduce the Unit Area, as appropriate.

d. The Commission will enter an order providing for the formation of a Geologic Storage Unit if the Commission finds that the Geologic Storage Unit is reasonably necessary to effectuate a Geologic Storage project. A Geologic Storage Unit Order is effective only if the Geologic Storage Unit Plan has been approved in writing by those persons that collectively own at least 75% of the Geologic Storage Resources included in the Geologic Storage Unit Area.

e. A Geologic Storage Unit Order must:

(1) Include terms and conditions that are just and reasonable; and

(2) Approve a Geologic Storage Unit Plan, which will include any additional provisions that Commission finds to be necessary and reasonable for conducting operations of the Geologic Storage Unit and for the protection of correlative rights.

f. A Geologic Storage Unit order may be amended by an order made by the Commission in the same manner and subject to the same conditions as the original Geologic Storage Unit Order.

g. Any owner of a Sequestration Estate included in the Geologic Storage Unit Area that is not included in the Geologic Storage Unit Order may petition the Commission for inclusion in the Geologic Storage Unit Order.

h. A Geologic Storage Unit order is not effective until the Geologic Storage Operator has been issued a Class VI UIC Well permit from the Commission.

## 1428. GENERAL PROVISIONS.

a. Geologic Storage Operators are subject to the provisions of Rules 201–204, 205.a–c.(1), 205.c.(4), 206.a, 206.b.(1)–(2), 206.b.(5)–(6), 206.c–f, 207, 208, 209.a–b, 210–213, 216, and, 221–223.

b. **Gas Compressor Stations.** Geologic Storage Operators who utilize gas compressor stations will comply with Rule 220.a.(1), (2), and (4), 220.b, and 220.c.

c. The provisions of Rule 215 apply to Local Governments in the context of Geologic Storage Operations.

## 1429. OPERATIONS AND REPORTING.

a. **Use of Form 4, Sundry Notices, and Form 42, Field Operations Notice.** Geologic Storage Operators will comply with Rules 404 and 405.

b. **Location Construction.** Geologic Storage Operators will comply with Rules 406 and 407.

c. **General Drilling Rules.** Geologic Storage Operators will comply with Rule 408.a–p., and 408.r–aa.

d. **Directional Drilling.** Geologic Storage Operators will comply with Rule 410.

e. **Public Water System Protection and Surface Owner Notice.** Geologic Storage Operators will comply with Rules 411 and 412.

f. **Operator's Monthly Report of Operations.** Geologic Storage Operators will comply with Rule 413.

(1) When complying with Rule 413.b., Geologic Storage Operators will also report any fluids injected or produced during Geologic Storage Operations.

g. **Drilling Completion Report and Completed Interval Report.** Geologic Storage Operators will comply with Rules 414 and 416.

h. **Mechanical Integrity Tests.** Geologic Storage Operators will comply with Rules 417.b–g.

i. **Bradenhead Testing, Monitoring, and Reporting.** Geologic Storage Operators will comply with Rules 419 and 420.

j. **Statewide Floodplain Requirements.** Geologic Storage Operators will comply with Rule 421.

k. **Local Government Welfare Protection Standards.** Geologic Storage Operators will comply with Rule 422.

l. **Noise, Lighting, Visual Impact, Odor, and Dust.** Geologic Storage Operators will comply with Rules 423–427.

m. **Well Control.** Geologic Storage Operators will comply with Rule 428.

n. **Measurement and reporting of Produced, Reused, Recycled, and Injected Water.** Geologic Storage Operators will comply with Rule 431 when reporting Fluids.

o. **Seismic Operations and Hydraulic Fracturing Chemical Additives.** Geologic Storage Operators will comply with Rules 436 and 437.

## 1430. RULES OF PRACTICE AND PROCEDURE.

a. Geologic Storage Operators are subject to the Rules of Practice and Procedure found at Rules 501–505 and 507–530.

## 1431. SAFETY AND FACILITY OPERATIONS

a. **General Safety Requirements.** Geologic Storage Operators will comply with Rules 601 and 602.

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b. **Operational and Safety Requirements.** Geologic Storage Operators will comply with Rule 603.a–d. and Rule 603.g–o.

(1) As to Rule 603.o., Geologic Storage Operators will design, construct, and maintain secondary containment devices as necessary during drilling and completion operations. Where secondary containment devices are not necessary during injection operations, Geologic Storage Operators will remove such secondary containment devices from the Geologic Storage Location.

c. **Signage Requirements for Geologic Storage Locations.** Geologic Storage Operators will comply with Rules 605.a–d. and 605.g–h.

d. **Equipment, Weeds, Waste, and Trash Requirements.** Geologic Storage Operators will comply with Rules 606 and 607.

e. **Geologic Storage Facility Safety and Operations.** Geologic Storage Operators will comply with Rule 608.c–g.

f. **Inspections.** Geologic Storage Operators will comply with Rules 609.a. and 609.d.

g. **Hydrogen Sulfide Gas.** Geologic Storage Operators will comply with Rule 612.

h. **Groundwater Baseline Sampling.** Geologic Storage Operators will comply with Rule 615. Geologic Storage Operators will conduct and report Groundwater baseline sampling and reporting for Geologic Storage Monitoring Wells.

i. **Other Safety and Facility Operations Requirements.** Geologic Storage Operators will comply with Rules 610, 611, and 613.

## 1432. ENVIRONMENTAL IMPACT PREVENTION

a. **General Standards.** Geologic Storage Operators will comply with Rule 901.

b. **Pollution**. Geologic Storage Operators will comply with Rule 902.

c. **Venting or Flaring Natural Gas.** Venting and Flaring is prohibited for Geologic Storage Operations, except that Geologic Storage Operators will comply with Rule 903.c.(3).C when Flaring is necessary to ensure safety or during an Upset Condition.

d. **Evaluating Cumulative Impacts.** Geologic Storage Operators will comply with Rule 904.

e. **Management of Waste.** Wastes associated with Geologic Storage Operations do not qualify as E&P Waste and cannot be managed pursuant to Rule 905. When managing wastes associated with Geologic Storage Operations, Geologic Storage Operators will comply with Rule 906.

f. **Pits.** Geologic Storage Operators will not utilize pits in association with Geologic Storage Operators

g. **Spill and Releases.** With the exception of Grade 1 Gas Leaks and $CO_2$ leaks associated with Geologic Storage Operations, Spills and Releases associated with Geologic Storage Operators do not constitute Spills and Releases of E&P Waste. Geologic Storage Operators will report and manage Spills and Releases associated with Geologic Storage Operations in accordance with applicable CDPHE rules.

## 1433. GAS LEAKS ASSOCIATED WITH GEOLOGIC STORAGE OPERATIONS

a. **Gas Leaks.** This Rule 1433 applies to any gas leak associated with Geologic Storage Operations including, but not limited to, Grade 1 Gas Leaks and $CO_2$ gas leaks.

(1) **Reporting Gas Leaks.** Geologic Storage Operators will report all Grade 1 Gas Leaks and $CO_2$ leaks associated with Geologic Storage Operations in accordance with Rules 912.b.(1).D, I, and J, and Rules 912.b.(2)–(5).

A. In response to the Form 19 – Supplemental required by Rule 912.b.(4), the Director will attach conditions for closure specifying conditions which the Geologic Storage Operator will meet before the remediation will be considered complete pursuant to Rule 1433.i.

(2) **Continued Reporting of Gas Leaks.** No later than 90 days after a Geologic Storage Operator discovers a Grade 1 Gas leak or $CO_2$ leak associated with Geologic Storage Operations, the Operator will submit, and obtain the Director's approval of:

A. A Form 19 – Supplemental requesting closure.

B. A Form 27. The Remediation will continue under the Form 27, which will include the conditions of closure described in the Form 19 – Supplemental pursuant to Rule 1433.a.(2).i.

C. On the Form 27 submitted pursuant to Rule 1433.a.(2).B, the Operator will provide information about general liability insurance pursuant to Rule 705.

b. **External Notifications and Reporting.** For Grade 1 Gas Leaks or $CO_2$ leaks associated with Geologic Storage Operations, Geologic Storage Operators will comply with Rules 912.b.(7)–(11).

c. **Gas Leak Prevention.** As to Grade 1 Gas Leaks or $CO_2$ leaks associated with Geologic Storage Operations, Geologic Storage Operators will comply with Rules 912.d.

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d. **Changes of Operator.** Within 60 days of the Director's approval of a transfer of operatorship pursuant to Rule 1413.e, the Buying Operator will submit a supplemental Form 19 designating the responsible Operator for each open Grade 1 Gas Leak or $CO_2$ leak associated with Geologic Storage Operations.

e. **Site Investigation and Remediation Requirements.**

(1) Geologic Storage Operators will comply with Rule 913.a. for Grade 1 Gas Leaks or $CO_2$ leaks associated with Geologic Storage Operations.

(2) **Site Investigation and Remediation Workplan.** Geologic Storage Operators will comply with Rule 913.b.(1) for Grade 1 Gas Leaks or $CO_2$ leaks associated with Geologic Storage Operations.

(3) **Sampling and Analysis.** Geologic Storage Operators will conduct sampling and analysis of soil and Groundwater pursuant to the remediation conditions set pursuant to Rule 1433.a.(1).A to determine the horizontal and vertical extent of any contamination in excess of the cleanup concentrations in the remediation conditions set pursuant to Rule 1433.a.(1).A or in WQCC Regulation 41 numeric and narrative Groundwater quality standards and classifications, as incorporated by reference in Rule 901.b.

A. Sampling and analyses will be required to profile the contamination, delineate extent of contamination, and confirm compliance with applicable standards upon completion of Remediation.

B. Laboratory method detection limits must be less than or equal to the remediation conditions set pursuant to Rule 1433.a.(1).A or WQCC Regulation 41 standards, as incorporated by reference in Rule 901.b.

C. Composite sample results may be submitted for preliminary analysis and contamination profiling. Discrete sample results will be required for confirmation sampling.

(4) **Management of Investigation-Derived Waste.** Investigation-Derived Waste will be managed pursuant to Rule 906.

(5) **Remediation.**

A. Remediation will be performed in a manner that reduces or removes contamination that exceeds the cleanup concentrations in the remediation conditions set pursuant to Rule 1433.a.(1).A or in WQCC Regulation 41 numeric and narrative Groundwater quality standards and classifications, as incorporated by reference in Rule 901.b, and that protects and minimizes adverse impacts to public health, safety, welfare, the environment, and wildlife resources.

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B. When conducting Remediation activities, Geologic Storage Operators will comply with Rules 913.b.(5).B.i–v.

C. Groundwater that does not meet the cleanup concentrations in the remediation conditions set pursuant to Rule 1433.a.(1).A or WQCC Regulation 41 numeric and narrative Groundwater quality standards and classifications, as incorporated by reference in Rule 901.b, will be remediated pursuant to a Form 27.

(6) **Surface Reclamation.** If the Director approves the closure of a Remediation project, the Operator will reclaim the site(s) pursuant to the Commission's 1000 Series Rules.

f. **Implementation and Reporting Schedules.** As to Grade 1 Gas Leaks and $CO_2$ leaks associated with Geologic Storage Operations, Geologic Storage Operators will comply with Rules 913.d and e.

g. **Discovery of a Spill or Release During Closure.** As to Grade 1 Gas Leaks and $CO_2$ leaks associated with Geologic Storage Operations, Geologic Storage Operators will comply with Rule 913.f.

h. **Changes of Operator.** Within 60 days of the Director's approval of a Form 9 – Subsequent pursuant to Rule 1413.e, the Buying Operator will submit a supplemental Form 27 designating the responsible Operator for all open Remediation projects.

i. **Closure.**

(1) Remediation will be considered complete when the Geologic Storage Operator has demonstrated compliance with:

A. The cleanup concentrations in the remediation conditions set pursuant to Rule 1433.a.(1).A;

B. WQCC Regulation 41 numeric and narrative Groundwater quality standards and classifications, as incorporated by reference in Rule 901.b, if applicable; and

C. Any condition of approval of a Form 27.

(2) An Operator may request a variance pursuant to Rule 502 to comply with an alternative standard in lieu of one or more of the standards in Rules 1433.i.(1).A. In addition to applying for a variance, the Geologic Storage Operator will also submit a Form 27 demonstrating that their alternative clean-up process protects and minimizes adverse impacts to public health, safety, welfare, the environment, and wildlife resources.

(3) For contaminated groundwater where periodic monitoring has been required, closure may not occur until after 4 consecutive quarters of sampling and analysis demonstrating compliance with the remediation conditions set pursuant to Rule 1433.a.(1).A and WQCC Regulation 41 numeric and narrative Groundwater quality standards and classifications, as incorporated by reference in Rule 901.b, if applicable.

(4) **Notification of Completion.** Within 30 days after conclusion of site Remediation activities:

A. Operators conducting Remediation operations pursuant to an approved Form 27 will submit to the Director a Supplemental Form 27 containing documentation sufficient to demonstrate compliance with the Commission's Rules.

B. Operators will coordinate with the Director through a Form 4 regarding additional surface Reclamation required by the Commission's 1000 Series Rules, if applicable.

j. **Release of Financial Assurance.** The demonstration of financial responsibility required by Rule 1415 may be held by the Director until the required Remediation of soil and/or Groundwater impacts is completed in accordance with the approved workplan, or until cleanup goals are met.

k. **Criteria to Establish Points of Compliance for $CO_2$ Leaks into an Aquifer.** Geologic Storage Operators will comply with Rule 914 for $CO_2$ leaks into an Aquifer.

## 1434. RECLAMATION

a. Geologic Storage Operators will comply with Rule 1001 through 1004, except that Wastes associated with Geologic Storage Operations do not qualify as E&P Waste and Geologic Storage Operators will manage such wastes according to Rule 906.

b. Interim reclamation timelines specified in Rule 1003 begin upon the Geologic Storage Operator obtaining approval of an Authorization to Inject.

## 1435. CARBON DIOXIDE FLOWLINES

a. **Carbon Dioxide Flowline Registration Requirements.** As to Carbon Dioxide Flowlines, Geologic Storage Operators will comply with Rule 1101.a, 1101.b, and 1101.d. Domestic taps for Carbon Dioxide Flowlines are not authorized under these Rules.

b. **Carbon Dioxide Flowline Requirements.**

(1) **Materials.** Carbon Dioxide Flowlines must be made of steel of the carbon, low alloy-high strength, or alloy type that is able to withstand the internal pressures and external loads and pressures anticipated for the pipeline system. Geologic Storage Operators who propose to use non-steel pipe must request a variance and present technical evidence supporting such a request pursuant to Rule 502.

(2) **Applicable Technical Standards.** As to Carbon Dioxide Flowlines, Geologic Storage Operators will comply with the technical standards established in ASME B31.4, ASME PCC-2-2018, and ASME Process Piping 31.3.

A. **Where Materials May Be Found.** Pursuant to § 24-4-103(12.5), C.R.S., the Commission incorporates by reference into these 1400 Series Rules the following codes, standards, guidelines, and rules of other federal agencies, state agencies, and nationally recognized organizations and associations.

i. **Where Materials May Be Found.**

aa. Copies of all materials incorporated by reference are available for public inspection during normal business hours from the Public Room Administrator at the office of the Commission, 1120 Lincoln Street, Suite 801, Denver, Colorado 80203.

bb. Copies of all materials incorporated by reference are also available at the office or website of the agency or organization that issued the code, standard, guideline, or rule, as specified below.

cc. Copies of any materials that are not available to the public on the internet for no cost may be examined at any state publications depository library.

B. **Current Version.** Only the version of the code, standard, guideline, or rule in effect as of July 10, 2024, and no later amendments or editions of the code, standard, guideline, or rule are incorporated by reference, unless otherwise specified below.

C. **Materials Incorporated.**

i. American Society of Mechanical Engineers ("ASME"), Pipeline Transportation Systems for Liquids and Slurries, B31.4 (herein "ASME B31.4"). Only the version of ASME B31.4 in effect as of July 10, 2024 applies; later amendments do not apply. ASME B31.4 may be examined at the office of the American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990, and is available online at https://www.asme.org;

ii. American Society of Mechanical Engineers ("ASME"), Repair of Pressure Equipment and Piping, PCC 2-2018 (herein "ASME PCC-2-2018"). Only the version of ASME PCC-2-2018 in effect as of July 10, 2024 applies; later amendments do not apply. ASME PCC-2-2018 may be examined at the office of the American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990, and is available online at https://www.asme.org; and

iii. American Society of Mechanical Engineers ("ASME"), Process Piping, B31.3 (herein "ASME B31.3"). Only the version of ASME PCC-2-2018 in effect as of July 10, 2024 applies; later amendments do not apply. ASME PCC-2-2018 may be examined at the office of the American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990, and is available online at https://www.asme.org.

(3) **Carbon Dioxide Flowline Design.** As to Carbon Dioxide Flowlines, Geologic Storage Operators will comply with Rule 1102.c. In addition to the requirements in Rule 1102.c, Geologic Storage Operators will design Carbon Dioxide Flowlines to mitigate the effects of fracture propagation.

(4) **Installation, Cover, Management & Reclamation, Marking, and Inspection of Carbon Dioxide Flowlines.** As to Carbon Dioxide Flowlines, Geologic Storage Operators will comply with Rules 1102.d through 1102.h.

(5) **Maintenance of Carbon Dioxide Flowlines.** As to Carbon Dioxide Flowlines, Geologic Storage Operators will comply with Rule 1102.i.

(6) **Repair of Carbon Dioxide Flowlines.** As to Carbon Dioxide Flowlines, Geologic Storage Operators will comply with Rule 1102.j.

(7) **Operating Requirements for Carbon Dioxide Flowlines.** As to Carbon Dioxide Flowlines, Geologic Storage Operators will comply with Rule 1102.k.

(8) **Corrosion Control.** As to Carbon Dioxide Flowlines, Geologic Storage Operators will comply with Rule 1102.l.

(9) **Record Keeping, One-Call Participation, and Requirements for Shut-In or Out-of-Service Off-Location for Inspection for Carbon Dioxide Flowlines.** As to Carbon Dioxide Flowlines, Geologic Storage Operators will comply with Rule 1102.m–o.

c. **Carbon Dioxide Flowline Valves.** As to Carbon Dioxide Flowlines, Geologic Storage Operators will comply with Rule 1103.

(1) Each valve must be marked on the body or the nameplate, with at least the following:

A. Manufacturer's name or trademark.

B. Class designation or the maximum working pressure to which the valve may be subjected.

C. Body material designation (the end connection material, if more than one type is used).

D. Nominal valve size.

d. **Carbon Dioxide Flowline Integrity Management.** As to Carbon Dioxide Flowlines, Geologic Storage Operators will comply with Rule 1104.

e. **Abandonment of Carbon Dioxide Flowlines.** As to Carbon Dioxide Flowlines, Geologic Storage Operators will comply with Rule 1105.

## 1436. PROTECTION OF WILDLIFE RESOURCES

Geologic Storage Operators will comply with Rules 1201 through 1203.

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