20 AAC 25.402 is amended to read:

20 AAC 25.402. Enhanced recovery operations. (a) **An enhanced** [ENHANCED] recovery **operation** [OPERATIONS] involving the introduction of **an** extraneous **form** [FORMS] of energy into a pool by injection **is** [ARE] prohibited, except as ordered by the commission under this section. In response to an application for injection filed by an operator, and upon the commission's determination that the requirements of this section and 20 AAC 25.412 are met, the commission will issue an order authorizing the injection of **fluid** [FLUIDS] that **functions** [FUNCTION] primarily to enhance recovery of oil and gas and **is** [THAT ARE] appropriate for enhanced recovery **through a Class II well**. Except as provided in (i) of this section, an order authorizing injection for an enhanced recovery project remains valid unless revoked by the commission.

(b) The operator has the burden of demonstrating that the proposed operation will not allow the movement of fluid into **a source** [SOURCES] of freshwater. **A Class II well for enhanced oil recovery or enhanced gas recovery** [INJECTION WELLS] must be cased, the casing cemented, and the **well** [WELLS] operated in a manner that will isolate the injection zone and protect oil, gas, and freshwater. If **a well** [WELLS], including **a** freshwater **well**, **or** [WELLS and] other **boring** [borings, are] located within a one-quarter mile radius of **a Class II** [AN] injection well, **is** [ARE] a possible means for **fluid** [FLUIDS] to move into sources of freshwater and [ARE] under the control of

(1) the operator, the operator shall ensure that the **well or boring is** [wells are] properly repaired, plugged, or otherwise modified to prevent the movement of **fluid** [FLUIDS] into sources of freshwater; or

(2) a person other than the operator, the commission will not issue an order under (a) of this section until the operator presents evidence to the commission's satisfaction that the person who controls the **well or boring** [WELLS] has properly repaired, plugged, or otherwise modified the **well or boring** [WELLS] to prevent the movement of **fluid** [FLUIDS] into sources of freshwater.

(c) An application for injection must include

(1) a plat showing the location of each proposed **Class II** [INJECTION] well, abandoned or other unused well, production well, dry hole, and other well within one-quarter mile of each proposed **Class II** [INJECTION] well;

(2) a list of all operators and surface owners within a one-quarter mile radius of each proposed injection well;

(3) an affidavit showing that the operators and surface owners within a one-quarter mile radius have been provided a copy of the application for injection;

(4) a full description of the particular operation for which approval is requested;

(5) the names, descriptions, and depths of the pools to be affected;

(6) the name, description, depth, and thickness of the formation into which **fluid is** [FLUIDS ARE] to be injected, and appropriate geological data on the injection zone and confining zone, including lithologic descriptions and geologic names;

(7) logs of the injection wells if not already on file with the commission;

(8) a description of the proposed method for demonstrating mechanical integrity of the casing and tubing under 20 AAC 25.412 and for demonstrating that no **fluid** [FLUIDS] will move behind casing beyond the approved injection zone, and a description of

(A) the casing of **an existing Class II well** [THE INJECTION WELLS IF

THE WELLS ARE EXISTING]; or

(B) the proposed casing program **of a new Class II well** [, IF THE INJECTION WELLS ARE NEW];

(9) a statement of the type of fluid to be injected, the fluid's composition, the fluid's source, the estimated maximum amounts to be injected daily, and the fluid's compatibility with the injection zone;

(10) the estimated average and maximum injection pressure;

(11) evidence to support a commission finding that each proposed **Class II** [INJECTION] well will not initiate or propagate fractures through the confining zones that might enable the injection fluid or formation fluid to enter freshwater strata;

(12) a standard laboratory water analysis, or the results of another method acceptable to the commission, to determine the quality of the water within the formation into which fluid injection is proposed;

(13) a reference to any applicable freshwater exemption issued under 20 AAC 25.440;

(14) the expected incremental increase in ultimate hydrocarbon recovery; and

(15) a report on the mechanical condition of each well that has penetrated the injection zone within a one-quarter mile radius of a proposed injection well.

(d) The commission will publish notice of the enhanced recovery application and provide the opportunity for a hearing in accordance with 20 AAC 25.540.

(e) The mechanical integrity of **a Class II** [AN INJECTION] well must be demonstrated under 20 AAC 25.412 before injection is begun and after a well workover affecting mechanical integrity is conducted. To confirm continued mechanical integrity, the operator shall monitor the

injection pressure and rate and the pressure in the casing-tubing annulus during actual injection. The monitored data **shall** [MUST] be reported monthly on the Monthly Injection Report (Form 10-406).

(f) If an injection rate, operating pressure observation, or pressure test indicates pressure communication or leakage in any casing, tubing, or packer, the operator shall notify the commission by the next working day and shall implement corrective action or increased surveillance as the commission requires to ensure protection of freshwater.

(g) The commission will require additional mechanical integrity tests, if the commission considers them prudent for conservation purposes or protection of freshwater.

(h) The commission may approve a modification to an existing or pending injection operation under 20 AAC 25.507, if the **operator** [APPLICANT] proves to the commission, **on** [UPON] application containing sufficient detail for the commission to evaluate the proposed modification, that the modification will not allow the movement of **fluid** [FLUIDS] into sources of freshwater.

(i) If **an** injection **operation is** [OPERATIONS ARE] not begun within 24 months after the date of the order authorizing enhanced recovery, that order expires unless a letter of application for extension is approved by the commission. (Eff. 4/2/86, Register 97; am 11/7/99, Register 152; am ____/____/_____, Register _____)

Authority: AS 31.05.030

20 AAC 25 is amended by adding a new section to read:

20 AAC 25.435. Identification of underground sources of drinking water. The commission may identify, by narrative description, illustration, maps, or other means, and shall

protect as an underground source of drinking water, all aquifers and parts of aquifers which meet the definition of underground sources of drinking water under 20 AAC 25.990, except to the extent there is an applicable freshwater aquifer exemption under 20 AAC 25.440, 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 carbon storage under 20 AAC 25.442. Other than an approved aquifer exemption expansion that meets the criteria under 20 AAC 25.442(d), new aquifer exemptions will not be issued for a Class VI well; a Class VI well has the meaning in 20 AAC 25.1900. Even if an aquifer has not been specifically identified by the commission, it is an "underground source of drinking water" if it meets the definition of "underground source of drinking water" in 20 AAC 25.990. (Eff. ____/____/_____, Register _____)

Authority: AS 31.05.030 AS 41.06.150 AS 41.06.185

20 AAC 25 is amended by adding a new section to read:

20 AAC 25.442. Expansion to the areal extent of existing Class II aquifer exemptions for Class VI wells. (a) An owner or operator of Class II enhanced oil recovery or enhanced gas recovery well under 20. AAC 25.402 may request that the commission approve an expansion to the areal extent of an aquifer exemption already in place for a Class II enhanced oil or enhanced gas recovery well under 20 AAC 25.440 for the exclusive purpose of Class VI well injection for carbon storage under 20 AAC 25.1000 - 20 AAC 25.1900. A request under this section will be treated as a substantial revision to an approved state underground injection control program under 40 C.F.R. 145.32, and will not be final until approved by the United States Environmental Protection Agency.

(b) The owner or operator of a Class II enhanced oil recovery or enhanced gas recovery well that requests an expansion of the areal extent of an existing aquifer exemption for the exclusive purpose of Class VI injection for carbon storage shall define by narrative description, illustrations, maps, or other means, and describe in geographic or geometric terms such as vertical and lateral limits and gradients that are clear and definite, each aquifer or part thereof that the operator requests be designated as exempted using the criteria in (d) of this section.

(c) In evaluating a request to expand the areal extent of an existing aquifer exemption of a Class II enhanced oil recovery or enhanced gas recovery well for the purpose of Class VI injection, the commission will determine whether the request meets the criteria for exemption in this section. In making the determination, the commission will consider, in addition to the criteria in (d) of this section,

(1) current and potential future use of the underground sources of drinking water to be exempted as a drinking water resource;

(2) 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 storage facility, as informed by computational modeling performed pursuant to 20 AAC 25.1070(c)(1) in order to ensure that the proposed injection operation will not at any time endanger underground sources of drinking water including non-exempted portions of the injection formation;

(3) 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, under 20 AAC 25.1070(e); and

(4) any information submitted to support a waiver request made by the storage operator under 20 AAC 25.1270, if appropriate.

(d) The areal extent of an aquifer exemption for a Class II enhanced oil recovery or enhanced gas recovery may be expanded for the exclusive purpose of Class VI injection for carbon storage under (c) of this section if it meets the following criteria:

(1) it does not currently serve as a source of drinking water; and

(2) the total dissolved solids content of the ground water is more than 3,000 mg/l and less than 10,000 mg/l; and

(3) it is not reasonably expected to supply a public water system.

(Eff. ____/____/_____, Register _____)

Authority: AS 31.05.030 AS 41.06.150 AS 41.06.185
AS 41.06.105

20 AAC 25 is amended by adding a new section to read:

20 AAC 25.444. Transitioning from a Class II well to a Class VI well. (a) An owner or operator that is injecting carbon dioxide shall apply for and obtain a storage facility permit under 20 AAC 25.1000 - 20 AAC 25.1900 when the primary purpose of injection is long-term carbon storage or there is an increased risk to underground sources of drinking water when compared to Class II operations. In determining whether there is a primary purpose of long-term carbon storage or an increased risk to underground sources of drinking water, the owner or operator shall consider the factors in (b) of this section.

(b) In addition to (a) of this section, the commission shall determine when the primary purpose of injection is long-term carbon storage or there is an increased risk to underground sources of drinking water compared to Class II operations, and a storage facility permit is required. In order to make this determination, the commission must consider the following:

(1) increase in reservoir pressure within the injection zone;

(2) increase in carbon dioxide injection rates;

(3) decrease in reservoir production rates;

(4) distance between the injection zone and underground sources of drinking water;

(5) suitability of the Class II area of review delineation;

(6) quality of abandoned well plugs within the area of review;

(7) the owner's or operator's plan for recovery of the carbon dioxide at the cessation of injection;

(8) the source and properties of the injected carbon dioxide;

(9) any additional site-specific factors determined by the commission.

(Eff. ____/____/_____, Register _____)

Authority: AS 31.05.030 AS 41.06.150 AS 41.06.185

20 AAC 25.505 is amended to read:

20 AAC 25.505. Scope of regulations. (a) **20 AAC 25.005 - 20 AAC 25.990** [THIS CHAPTER] generally consists of statewide regulations which apply to all wells, pools, fields, and oil and gas properties, unless the commission [, IN ITS DISCRETION,] issues an order in conformance with 20 AAC 25.540.

(b) An order issued in conformance with 20 AAC 25.540 prevails over **20 AAC 25.005 - 20 AAC 25.990** [THIS CHAPTER] except for those regulations which govern underground injection and the protection of freshwater. (Eff. 4/13/80, Register 74; am 4/2/86, Register 97; am ____/____/_____, Register _____)

Authority: AS 31.05.030 AS 31.05.100 **AS 41.06.120**

AS 31.05.060 **AS 41.06.110**

20 AAC 25.535(a) is amended to read:

20 AAC 25.535. Enforcement. (a) If the commission, as the result of an investigation or otherwise, considers that a person may have violated or failed to comply with a provision of AS 31.05, **AS 41.06.105 - 41.06.210**, this chapter, or a commission order, permit, or other approval, the commission will, in its discretion, take enforcement action under this section against the person.

20 AAC 25.535(e) is amended to read:

(e) If a person concurs in a proposed action under (c) of this section, or after an informal review or a hearing under (c) or (d) of this section, and if the commission finds that a person has violated or failed to comply with a provision of AS 31.05 **or AS 41.06.105 - 41.06.210**, this chapter, or a commission order, permit, or other approval, the commission **may** [WILL, IN ITS DISCRETION,] order one or more of the following, as it determines to be applicable:

(1) corrective action or remedial work;

(2) revocation or suspension of a permit or other approval;

(3) payment under the bond required by 20 AAC 25.025 **or 20 AAC 25.1200**;

(4) imposition of penalties under AS 31.05.150 **or AS 41.06.180**.

20 AAC 25.535(h) is amended to read:

(h) If an apparent violation or noncompliance described in a notification under (b)(1) of

this section relates to the underground disposal of **an** oil field **waste** [wastes] or the underground storage of **a** liquid **hydrocarbon** [HYDROCARBONS] requiring commission authorization under 20 AAC 25.252 or relates to the injection of **fluid** [FLUIDS] requiring commission authorization under 20 AAC 25.402 or 20 AAC 25.460, **or relates to carbon storage under 20 AAC 25.1000 - 20 AAC 25.1900,** a person with an interest that is or may be adversely affected may intervene in proceedings under this section. (Eff. 11/7/99, Register 152; am ____/____/_____, Reg. _____)

Authority: AS 31.05.030 AS 31.05.60 AS 31.06.110
AS 31.05.040 AS 31.05.095 AS 31.06.180
AS 31.05.050 AS 31.05.150

20 AAC 25.556 is amended to add a new subsection to read:

(e) An order under 20 AAC 25.1040 establishing a preapplication fee will not have an expiration date unless explicitly ordered by the commission. (Eff. 11/7/99, Register 152; am 2/10/2018, Register 225; am____/____/_____, Register _____)

Authority: AS 31.05.011 AS 31.05.040 **AS 41.06.120**
AS 31.05.030

The introductory language to 20 AAC 25.990 is amended to read:

20 AAC 25.990. Definitions. In 20 AAC 25.005 - 20 AAC 25.990, [IN THIS CHAPTER,] unless the context requires otherwise,

(((20 AAC 25.990(1) - (78) remain unchanged)))

20 AAC 25.990 is amended by adding new paragraphs to read:

(79) "aquifer" means a geologic formation or group of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring;

(80) "Class II well" has the meaning given in 20 AAC 25.252;

(81) "exempted aquifer" means an aquifer or its portion that meets the criteria in the definition of "underground source of drinking water" but which has been exempted according to the procedures in 20 AAC 25.440;

(82) "ground water" means water below the land surface in a zone of saturation;

(83) "underground source of drinking water" or "USDW" means an aquifer or its portion

(A) that supplies any public water system, or

(B) which contains a sufficient amount of ground water to supply a public water system; and

(i) currently supplies drinking water for human consumption; or

(ii) contains fewer than 10,000 milligrams per liter total dissolved solids; and

(C) is not an exempted aquifer under 20 AAC 25.440. (Eff. 11/7/99, Register 152; am 1/5/2006, Register 177; am 9/30/2010, Register 195; am 11/3/2013, Register 208; am 1/7/2015, Register 213; am 7/28/2022, Register 243; am____/____/_____, Register _____)

Authority: AS 31.05.030 [AS 41.06.035]**AS 41.06.040** [AS 41.06.040] **AS 41.06.110**

AS 41.06.035

20 AAC 25 is amended by adding new sections to read:

Article

1. Drilling (20 AAC 25.005 - 20 AAC 25.080)

2. Abandonment and Plugging (20 AAC 25.105 - 20 AAC 25.172)

3. Production Practices (20 AAC 25.200 - 20 AAC 25.290)

4. Reports (20 AAC 25.300 - 20 AAC 310)

5. Enhanced Recovery (20 AAC 25.402 - 20 AAC 25.460)

6. General Provisions (20 AAC 25.505 - 20 AAC 25.630)

7. Geothermal Resources (20 AAC 25.705 - 20 AAC 740)

8. Definitions (20 AAC 25.990)

9. Carbon Storage (20 AAC 25.1000 - 20 AAC 25.1900)

Article 9. Carbon Storage

Section

1000. Authority of commission; scope of regulations

1010. Prohibition of movement of fluid into underground sources of drinking water; emergency actions

1020. Prohibition on operation without a permit; prohibition of non-experimental Class V wells; non-applicability to hazardous waste; prohibition on area permits

1025. Conversion to carbon storage

1030. Storage facility permit required for carbon storage; format; signatures

1040. Preapplication meeting; time to apply for storage facility permit; determination of application fee

20 AAC 25.1000. Authority of commission; scope of regulations. 20 AAC 25.1000 – 20 AAC 25.1900 implement AS 41.06.105 - 41.06.210, the Carbon Capture, Utilization, and Storage Act as it relates to Class VI wells. Unless otherwise specified in regulation, carbon storage through a Class VI well in a storage facility is governed by 20 AAC 25.1000 - 20 AAC 25.1900; "carbon storage" and "storage facility" have the meaning given in AS 41.06.210; "Class VI well" has the meaning given in 20 AAC 25.1900. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.110 AS 41.06.120 AS 41.06.210

20 AAC 25.1010. Prohibition of movement of fluid into underground sources of drinking water; emergency actions. (a) No owner or operator shall construct, operate,

maintain, convert, plug, abandon, or conduct any injection activity in a manner that allows the movement of fluid containing a contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulations under 40 C.F.R. part 142, or may otherwise adversely affect the health of persons. A storage operator bears the burden of showing the requirements of this subsection are met.

(b) If any water quality monitoring of underground sources of drinking water indicates the movement of any contaminant into an underground source of drinking water, except as authorized under 40 C.F.R. Part 146, the commission will impose additional requirements for construction, corrective action, operation, monitoring, or reporting, including closure of the injection well, as the commission determines is necessary to prevent such movement.

(c) Notwithstanding any other provision of 20 AAC 25.1000 - 20 AAC 25.1900, the commission 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 sources of drinking water may present an imminent and substantial endangerment to the health of persons. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.110 AS 41.06.150

20 AAC 25.1020. Prohibition on operation without a permit; prohibition of non-experimental Class V wells; non-applicability to hazardous waste; prohibition on area permits. (a) A person shall obtain a storage facility permit from the commission under 20 AAC 25.1080 to construct, own, or operate a storage facility. The commission will not authorize a Class VI well by rule to inject carbon dioxide.

(b) Any underground injection of carbon dioxide for carbon storage through a Class VI

well in a storage facility, except as authorized by a storage facility permit issued by the commission, is prohibited. The construction of a well required to have a storage facility permit under 20 AAC 25.1170 is prohibited before the permit is issued.

(c) 20 AAC 25.1000 - 20 AAC 25.1900 do not apply to the injection of a carbon dioxide stream that is a hazardous waste as defined in 40 C.F.R. Part 146.3, Subpart A (definitions), revised as of September 29, 2025, and adopted by reference.

(d) The construction, operation, or maintenance of any non-experimental Class V geologic sequestration well is prohibited; a Class V well has the meaning given in 40 C.F.R. 144.6(e), Subpart A (classification of wells), as amended effective January 10, 2011, and adopted by reference.

(e) If applicable, any authorization by rule for an existing Class II enhanced recovery or hydrocarbon storage well shall expire upon the effective date of a Class VI permit issued under 20 AAC 25.1080, or a well plug and abandonment plan approved by the commission under 20 AAC 25., or upon well conversion.

(f) The commission may not issue an area injection order for a Class VI well. (Eff. ____/____/_____, Register _____)

Authority: AS 31.05.030 AS 41.06.110 AS 41.06.120

20 AAC 25.1025. Conversion to carbon storage. An owner or operator seeking to convert existing Class I, Class II, or Class V experimental wells or any other well authorized by 20 AAC 25.005 to Class VI carbon storage wells must demonstrate to the commission that the wells were engineered and constructed to meet the requirements at 20 AAC 25.1210(a) and ensure protection of underground sources of drinking water, in lieu of requirements at 20 AAC

25.1210(b) and 20 AAC 25.1220(a)(1) - (5). A converted well must still meet all other requirements under 20 AAC 25.1000 - 20 AAC 25.1900. For the purpose of this section, "Class I" well has the meaning given in 40 C.F.R. 144.6, Subpart A (classification of wells), revised January 10, 2011, and adopted by reference, and "Class II" has the meaning given in 20 AAC 25.252. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.110 AS 41.06.150 AS 41.06.185
AS 41.06.120

20 AAC 25.1030. Storage facility permit; format; signatures. (a) The storage operator of a proposed storage facility shall apply to the commission for a storage facility permit in a format required by the commission.

(b) The owner of the proposed storage facility must submit the application for a permit; except that when a facility is owned by a person, but operated by another, it is the operator's duty to apply for a storage facility permit.

(c) The commission will only begin processing an application for a storage facility permit when the storage operator has fully complied with the application requirements for a permit.

(d) The commission shall approve the format for a storage facility permit application and associated Class VI permit and injection authorizations for injection under 20 AAC 25.1180. A permit application format approved by the commission must require the signature requirements of 40 C.F.R Part 144.32(a) and (d), the reporting requirements of 40 C.F.R. 144.32(b), and the changes to authorization requirements of 40 C.F.R. 144.32(c) (signatories to permit applications and reports), Subpart D (authorization by permit), revised as of January 10, 2011, and adopted by reference, except that items pertaining to Class II wells are not adopted by reference.

(e) All reports required from a storage operator for a storage facility permit, or other information requested by the commission regarding a storage facility permit application, shall be signed by a person described in 40 C.F.R. 144.32(a), as adopted by reference in this section, or an authorized representative of that person; an authorized representative means a person that qualifies under 40 C.F.R. 144.32(b).

(f) If an authorization under (d) or a signature on a report under (e) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the storage facility, a new authorization that satisfies the signature requirements of this section shall be submitted to the commission before, or concurrent with, any report, information, or application required to be signed by an authorized representative.

(g) Any person signing a document under (d) or (e) of this section shall 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. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.110 AS 41.06.120 AS 41.06.130

20 AAC 25.1040. Preapplication meeting; time to apply for storage facility permit; determination of application fee. (a) A storage operator seeking a permit for a storage facility shall request a preapplication meeting under AS 41.06.120. The commission may schedule more than one meeting between the proposed applicant and commission staff. A storage operator may request that documents and other materials used in a preapplication meeting be kept confidential under 20 AAC 25.1600.

(b) A storage operator shall apply to the commission a reasonable time before storage facility construction is expected to begin or in compliance with a date determined by the commission based on pre-application contact with the storage operator.

(c) In a preapplication meeting, the commission staff and storage operator shall consider the prospective application, including the application fee under AS 41.06.120(c)(3), potential costs for application review identified in AS 41.06.120(c)(4), determination of storage reservoir capacity under AS 41.06.195, and determination of cost estimates for each phase of the proposed project under 20 AAC 25.1200, and may seek estimates of the cost of professional services required to prepare for and review the permit application. After the preapplication meeting, the commission will prepare a phased application fee and schedule that sets out the fees the commission determines under the criteria of AS 41.06.120(c)(3). This phased application fee will be finalized in cooperation with the storage operator, and the commission may issue an order under 20 AAC 25.556 that sets the phased application fee amount and schedule. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.160 AS 41.06.195
AS 41.06.135 AS 41.06.175

20 AAC 25.1050. Storage facility permit application; general requirements. To apply for a storage facility permit, a storage operator shall

(1) pay the nonrefundable application fee as determined by order of the commission, and the phased application fee as determined under 20 AAC 25.1040, including the costs of application review and processing under AS 41.06.120;

(2) execute financial assurances as required by the commission to incur costs covered by AS 41.06.120;

(3) submit the information required under 20 AAC 25.1080;

(4) make the demonstration of minimum criteria for siting required by 20 AAC 25.1060;

(5) identify and comply with the area of review requirements of 20 AAC 25.1070;

(6) if applicable, submit information regarding approval for an expansion of the areal extent of an existing aquifer exemption under 20 AAC 25.442;

(7) show evidence of authorization from the surface and subsurface owner to store carbon dioxide in a reservoir;

(8) if applicable, identify any commission order under AS 41.06.140 on amalgamating property interests;

(9) if applicable, identify a carbon storage lease issued by the Department of Natural Resources under AS 38.05.715;

(10) comply with other requirements of 20 AAC 25.1000 - 20 AAC 25.1900.

(Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.135 AS 41.06.160

AS 41.06.130 AS 41.06.140

20 AAC 25.1060. Minimum criteria for siting. (a) A storage operator shall demonstrate to the satisfaction of the commission that a Class VI well will be sited in areas with a suitable geologic system. The storage operator shall demonstrate that the geologic system comprises

(1) an injection zone of sufficient areal extent, thickness, porosity, and permeability to receive the total anticipated volume of the carbon dioxide stream;

(2) a confining zone free of transmissive faults or fractures and of sufficient areal extent and integrity to contain the injected carbon dioxide stream and displaced formation fluid and allow injection at proposed maximum pressures and volumes without initiating or propagating fractures in the confining zone.

(b) The commission may require that the storage operator 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. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.110 AS 41.06.120 AS 41.06.135 AS 41.06.150

20 AAC 25.1070. Area of review; corrective action. (a) The area of review is delineated using computational modeling that accounts for the physical and chemical properties of all phases of the injected carbon storage stream and is based on available site characterization, monitoring, and operational data.

(b) The storage operator shall prepare, maintain, and comply with a plan to delineate the area of review for a proposed storage facility, periodically reevaluate the delineation, and perform corrective action that meets the requirements of this section 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 storage facility permit. As a part of the permit application, the storage operator shall submit an area of review and corrective action plan that includes the following information:

(1) the method for delineating the area of review that meets the requirements of paragraph (c) of this section, 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 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 (b)(2)(A) of this section.

(C) how monitoring and operational data, including the injection rate and pressure, will be used to inform an area of review reevaluation; and

(D) how corrective action will be conducted to meet the requirements of paragraph (d) of this section, including what corrective action will be performed prior to injection and what, if any, portions of the area of review will have corrective action addressed on a phased basis and how the phasing will be determined; how corrective action will be adjusted if there are changes in the area of review; and how site access will be guaranteed for future corrective action.

(c) The storage operator shall perform the following actions to delineate the area of review and identify all wells that require 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 fluid in the subsurface from the commencement of injection activities until the plume movement ceases, until pressure differentials sufficient to cause the movement of injected fluid or formation fluid into a underground sources of drinking water are no longer present, or until the end of a fixed time period as determined by the commission; the model must:

(A) be based on detailed geologic data collected to characterize the injection zone, confining zone, and any additional zones; and anticipated operational data, including injection pressures, rates, and total volumes over the proposed life of the storage facility;

(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 commission, identify all penetrations, including active and abandoned wells and underground mines, in the area of review that may penetrate the confining zone; provide a description of each well's type, construction, date drilled, location, depth, record of plugging or completion, and any additional information the commission 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 fluid that may endanger underground sources of drinking water, including use of materials compatible with the carbon dioxide stream.

(d) The storage operator shall perform corrective action on all wells in the area of review that are determined to need corrective action, using methods designed to prevent the movement of fluid into or between underground sources of drinking water, 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 corrective action plan, or when monitoring and operational conditions warrant, the storage operator shall:

(1) reevaluate the area of review in the same manner specified in (c)(1) of this section;

(2) identify all wells in the reevaluated area of review that require corrective action in the same manner specified in (c) of this section;

(3) perform corrective action on wells requiring corrective action in the reevaluated area of review in the same manner specified in (d) of this section; and

(4) submit an amended area of review and corrective action plan or demonstrate to the commission through monitoring data and modeling results that no amendment to the area of review and corrective action plan is needed; any amendments to the area of review and corrective action plan must be approved by the commission, must be incorporated into the permit, and are subject to the permit modification requirements at 20 AAC 25.1410 or 20 AAC 25.1430, as appropriate.

(f) The emergency and remedial response plan as required by 20 AAC 25.1260 and the demonstration of financial responsibility as required by 20 AAC 25.1200 must account for the area of review identified in (c)(1) of this section or the most recently evaluated area of review delineated under (e) of this section, regardless of whether or not corrective action in the area of

review is phased.

(g) All modeling inputs and data used to support area of review reevaluations under (e) of this section shall be retained by the record holder and provided to the commission upon request for not less than 10 years. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.135 AS 41.06.150

20 AAC 25.1080. Storage facility permit; required Class VI well permit information. (a) Prior to the issuance of a storage facility permit authorizing the construction of a new Class VI well, or the conversion on an existing Class I, Class II, or Class V well to a Class VI well, the storage operator shall submit, and the commission shall consider the following:

(1) the information required by 40 C.F.R. 144.31 (e) (1) - (6) (application for a permit; authorization by permit), Subpart D (authorization by permit), revised as of January 10, 2011, and adopted by reference;

(2) a map showing the Class VI well for which a permit is sought and the applicable area of review consistent with 20 AAC 25.1070; within the area of review, the map must 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 United States Environmental Protection Agency-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; additionally, the map must 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 storage site 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 or fractures that may transect the confining zone in the area of review and a determination of non-interference with containment;

(C) data on the depth, areal extent, thickness, mineralogy, porosity, permeability, and capillary pressure of the injection and confining zone, including geology or 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;

(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;

(F) geologic and topographic maps and cross sections that illustrate 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; the data must include a description of each well type, construction, date drilled, location, depth, record of plugging or completion, and any additional information required by the commission;

(5) maps and stratigraphic cross sections indicating the general vertical and lateral limits of all underground sources of drinking water, water wells, and springs within the area of

review, their positions relative to the injection zone, and, where known, the direction of water movement;

(6) baseline geochemical data on subsurface formations, including all underground sources of drinking water in the area of review;

(7) proposed operating data for the proposed carbon storage site, including

(A) the average and maximum daily rate and volume or mass and total anticipated volume or mass of the carbon dioxide stream;

(B) the average and maximum injection pressure;

(C) the source of the carbon dioxide stream; and

(D) an analysis of the chemical and physical characteristics of the carbon dioxide stream;

(8) the proposed pre-operational formation testing program to obtain an analysis of the chemical and physical characteristics of the injection zone and confining zone that meets the requirements of 20 AAC 25.1220;

(9) the proposed stimulation program, a description of stimulation fluid to be used and a determination that stimulation will not interfere with containment;

(10) the 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) the Class VI well construction procedures that meet the requirements of 20 AAC 25.1210;

(13) the proposed area of review and corrective action plan that meets the

requirements under 20 AAC 25.1070;

(14) a demonstration, satisfactory to the commission, that the storage operator meets the financial responsibility requirements under 20 AAC 25.1200;

(15) the proposed testing and monitoring plan required by 20 AAC 25.1250;

(16) the proposed Class VI well plugging plan required by 20 AAC 25.1300;

(17) the proposed post-injection site care and site closure plan required by 20 AAC 25.1310;

(18) at the commission's discretion, a demonstration of an alternative post-injection site care timeframe required by 20 AAC 25.1310(h);

(19) a proposed emergency and remedial response plan required by 20 AAC 25.1260;

(20) a list of contact information to the commission that identifies any state, tribe or territory within the area of review of the proposed storage facility based on the information provided by the map required in (a)(2) of this section;

(21) any other information required by the commission.

(b) The commission will notify in writing any state, tribe, or territory within the area of review of the proposed storage facility based on the information provided by the applicant in (a)(2) and (a)(20) of this section and pursuant to the requirements of 40 C.F.R. 145.23 (f)(13), effective January 10, 2011, and adopted by reference.

(c) Before granting approval for the operation of Class VI well the commission will consider the following information:

(1) the final area of review based on modeling, using data obtained during logging and test of the proposed Class VI well, and the formation as required by (c)(2) - (4), (6), (7), and

(10) of this section.

(2) any relevant updates based on data obtained during logging and testing of the well and the formation required by (c)(3), (4), (6), (7), and (10) of this section, to the information on geologic structure and hydrogeologic properties of the proposed storage site and overlying foundation submitted to satisfy the requirements of (a)(3) of this section;

(3) information on the compatibility of the carbon dioxide stream with fluid in the injection zone and minerals in both the injection and confining zone, 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 required by (a)(8) of this section;

(5) the final Class VI well construction procedures that meet the requirements of 20 AAC 25.1210;

(6) the status of corrective action on wells in the area of review under 20 AAC 25.1070;

(7) all available logging and testing program data required by 20 AAC 25.1220;

(8) a demonstration of mechanical integrity under 20 AAC 25.1240;

(9) any updates to the proposed area of review and corrective action plan under 20 AAC 25.1070, testing and monitoring plan under 20 AAC 25.1250, Class VI well plugging plan under 20 AAC 25.1300, post-injection site care and site closure plan under 20 AAC 25.1310 or the emergency and remedial response plan submitted under 20 AAC 25.1260 as required by (a) of this section, which are necessary to address new information collected during the logging and testing of the Class VI well to be used in the storage facility and the formation as required by all paragraphs of this section and any updates to the alternative post-injection site care timeframe demonstration under 20 AAC 25.1310, if applicable, submitted under (a) of this section and

which are necessary to address new information collected during the logging and test of the well and the formation as required by all paragraphs of this section; and

(10) any other information required by the commission.

(d) A storage operator seeking a waiver of the requirement to inject below the lowermost underground source of drinking water shall also refer to 20 AAC 25.1270 and submit a supplemental report as required under that section. A supplemental report is not a part of the permit application. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.135 AS 41.06.150
AS 41.06.130

20 AAC 25.1085. Amalgamating property interests. If, as part of an application for a storage facility permit, a hearing is required under AS 41.06.140, the commission will provide public notice as required by AS 31.05.050(b) and to the persons identified in AS 41.06.125(b). A hearing under AS 41.06.140 will be conducted in accordance with the provisions of 20 AAC 25.540. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.125 AS 41.06.120 AS 41.06.160

20 AAC 25.1100. Draft permit; fact sheet. (a) The commission may issue a draft storage facility permit when the commission determines an application under 20 AAC 25.1050 is complete, including receipt of any supplemental information required by the commission. After the commission determines that an application for a storage facility permit is complete, the commission will either prepare a draft permit or deny the application. The commission will

determine the completeness of an application for a storage facility permit independently of any other permit application or permit for the same facility or activity.

(b) If the commission tentatively decides to deny an application for a storage facility permit, it will issue a notice of intent to deny. Except for a denial based on an incomplete application, a notice of intent to deny an application for a permit is a type of draft permit, and the commission will follow the procedure as any draft permit prepared under this section. If the commission's final decision is that the tentative decision to deny a permit was incorrect, the commission will withdraw the notice of intent to deny and proceed to prepare a draft permit under this section.

(c) Before preparing a draft permit,

(1) the commission will determine the storage capacity of the proposed storage facility under 20 AAC 25.1280 and the fee to be charged to the person applying for the permit under AS 41.06.120 (a)(3) and (4); and

(2) will make the consultation required in AS 41.06.130.

(d) In addition to the findings required under AS 41.06.130, a draft permit must include all the permit conditions required under 20 AAC 25.1120, 20 AAC 25.1130, all compliance schedules under 20 AAC 25.1140, all monitoring requirements under 20 AAC 25.1250, and other conditions determined by the commission.

(e) The commission will prepare a fact sheet for each draft permit for each completed storage facility permit application under 20 AAC 25.1050. In addition to setting out the principal facts, and the significant factual, legal, methodological, and policy questions identified by the commission, a fact sheet must include, as applicable

(1) a brief description of the type of facility or activity that is the subject of the draft permit;

(2) the type and quantity of carbon dioxide that is to be injected and stored;

(3) a brief summary of the basis for the draft permit conditions including references to applicable statutes and regulations;

(4) reasons why any requested variances or alternatives to required standards do or do not appear justified;

(5) a description of the procedure for making a final decision on the draft permit, including

(A) the beginning and ending dates of the comment period under 20 AAC 25.1050 and the address where comments will be received;

(B) how to request a hearing and the nature of that hearing;

(C) any other procedures by which the public may participate in the final decision;

(D) the name and contact information, including a telephone number, of a person to contact for additional information;

(6) if applicable, a description of information related to a Class VI well injection depth waiver request under 20 AAC 25.1270.

(f) The commission will notify and provide a copy of the draft permit and fact sheet, or if applicable, a notice of intent to deny, to persons entitled to notice under 20 AAC 25.1150; the materials required to be publicly provided may be provided electronically and may include an electronic link to access the materials. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.135

AS 41.06.125

20 AAC 25.1120. Conditions applicable to all permits. (a) For each storage facility permit, including a draft permit under 20 AAC 25.1100, the commission will incorporate, either expressly or by reference, the conditions of this section and applicable federal or state law. If incorporated by reference, a specific citation to the applicable state regulation must be given in the permit. The storage operator shall comply with all conditions of the permit; any noncompliance constitutes a violation of the Safe Drinking Water Act, and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The storage operator shall give advance notice to the commission of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements

(b) If a storage operator wishes to continue an activity regulated by a storage facility permit after the expiration date of the permit, the storage operator shall apply for and obtain a new permit.

(c) It is not a defense for a storage operator in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the conditions of the permit;

(d) A storage operator shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit;

(e) A storage facility operator shall 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 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 responsibility requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. A storage operator shall give notice to the commission as soon as possible of any planned physical alterations or additions to the storage facility.

(f) A storage facility permit may be modified, revoked and reissued, or terminated for cause under 20 AAC 25.1410. The filing of a request by the 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) Except as provided by AS 41.06.165; the storage facility permit does not convey any property rights of any sort, or any exclusive privilege; nor does it authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations.

(h) The storage operator shall furnish to the commission, within a time specified by the commission, any information which the commission may request to determine whether cause exists for modifying, revoking and reissuing, or terminating a storage facility permit, or to determine compliance with the permit. The storage operator shall also furnish to the commission, upon request, copies of records required to be kept by the storage facility permit.

(i) The storage operator shall allow the commission or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

(1) enter the storage facility premises where the regulated facility or activity is located or conducted or where records must be kept under the conditions of the permit;

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

(3) inspect at reasonable times, any facilities, equipment, including monitoring and control equipment, practices, or operations regulated or required under the 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, any substance or parameters at any location.

(j) The storage operator shall prepare, maintain, and comply with a testing and monitoring plan under 20 AAC 25.1250.

(k) The storage operator shall comply with reporting requirements under 20 AAC 25.1610.

(*l*) The storage operator shall obtain a Class VI well permit under 20 AAC 25.1180, and a Class VI well must meet the construction and completion requirements of 20 AAC 25.1210.

(m) The storage operator shall prepare, maintain, and comply with a Class VI well plugging plan under 20 AAC 25.1300(b).

(n) The storage operator shall establish and maintain mechanical integrity before commencing injection and shall maintain mechanical integrity under 20 AAC 25.1240.

(o) The storage operator shall prepare, maintain, and comply with the area of review and corrective action plan under 20 AAC 25.1070.

(p) The storage operator shall maintain financial responsibility under 20 AAC 25.1200.

(q) The storage operator shall maintain and comply with the postinjection and site care and facility closure plan under 20 AAC 25.1310. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.135 AS 41.06.150

AS 41.06.130

20 AAC 25.1130. Establishing storage facility permit conditions. (a) In addition to the requirements of 20 AAC 25.1080 and 20 AAC 25.1020, the commission will establish additional conditions for a storage facility permit and associated Class VI well as required on a case-by-case basis to prevent the migration of fluid into underground sources of drinking water and assure compliance with the Safe Drinking Water Act and 40 C.F.R. parts 144, 145, 146, and 124 and to provide for and assure compliance with federal or state legal requirements that take effect before the commission makes a final determination to issue a storage facility permit under 20 AAC 25.1080

(b) A new storage facility permit, and to the extent allowed under 20 AAC 25.1410, a modified or revoked and reissued permit, must incorporate the requirements of this section and 20 AAC 25.1120.

(c) The conditions in this section must be incorporated into a final permit either expressly or by reference. If incorporated by reference, the commission will identify in the permit a specific citation to the applicable regulation or other requirement. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.135

20 AAC 25.1140. Schedule of compliance. (a) As required by the commission on a case-by-case basis, the storage operator shall submit to the commission identified actions to be taken to achieve full compliance with the requirements of a storage facility permit and associated Class VI well. A schedule of compliance must require compliance as soon as possible, and in no case

later than three years after the date of the storage facility permit under 20 AAC 25.1170. If the permit establishes a schedule of compliance that exceeds one year from the date of the storage facility permit under 20 AAC 25.1170, the schedule of compliance must set forth interim requirements and dates for completion; the time between interim dates must not exceed one year. If the time necessary for completion of any interim requirement is more than one year, and is not readily divisible into stages for completion, the storage facility permit must specify interim dated for the submission of reports of progress toward completion of the interim requirements and shall indicate a project completion date. The permit must require that, if the commission requires a schedule of compliance, the storage operator shall submit a progress report to the commission not later than 30 days after each interim date and the final date of completion.

(b) A storage operator shall report any noncompliance which may endanger health or the environment, including:

(1) any monitoring or other information which indicates that any contaminant may endanger underground sources of drinking water;

(2) any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

(c) A storage operator shall orally report noncompliance covered by (b) of this section to the commission within 24 hours from the time the storage operator becomes aware of the noncompliance. A storage operator shall provide a written submission to the commission within 5 days of the time the storage operator becomes aware of the non-compliance, including

(1) a description of the noncompliance and its cause;

(2) the period of noncompliance, including exact dates and times,

(3) if the noncompliance has not been corrected, the anticipated time it is expected to continue; and

(4) steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(d) For noncompliance not covered by (b) of this section, the storage operator shall report all instances of noncompliance not reported in (c) of this section, at the time monitoring reports required by 20 AAC 25.1250 and 20 AAC 25.1610 are submitted. The reports must contain the information listed in paragraph (c) of this section,

(e) When a storage operator becomes aware that the storage operator failed to submit any relevant facts in a storage facility permit application, or submitted incorrect information in a storage facility permit application or in any report to the commission, the storage operator shall promptly submit such facts or information to the commission. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.135

20 AAC 25.1150. Public hearing; notice; public comment. (a) The commission will hold a public hearing subject to the requirements of AS 41.06.125 and this section before issuing or denying a completed storage facility permit application or issuing a modification and revocation of a permit under 20 AAC 25.1410.

(b) The commission will give not less than 30 days' notice of a public hearing under this section and will allow not less than 30 days for public comment. The time for public comment under this subsection may end after a public hearing that is scheduled on the issue.

(c) In addition to publication of notice required by AS 31.05.050(b), the commission will provide notice and a fact sheet, permit application, and draft permit accessible by an electronic link by electronic mail or if requested by the intended recipient, by United States Postal Service mail to the persons identified in AS 41.06.125 (b), and to

(1) the storage operator;

(2) the U.S. Environmental Protection Agency, Region 10, Drinking Water program;

(3) the U.S. Environmental Protection Agency, Underground Injection Control Program;

(4) the Alaska Department of Fish and Game;

(5) the Alaska Department of Natural Resources;

(6) the Alaska Historical Commission;

(7) The Office of History and Archeology within the Alaska Department of Natural Resources;

(8) the Alaska Department of Environmental Conservation;

(9) any affected States and Indian Tribes;

(10) other appropriate governmental authorities, including any unit of local government having jurisdiction over the area covered by a proposed storage facility;

(11) the U.S. Army Corps of Engineers;

(12) federal and state agencies not listed above with jurisdiction over fish, shellfish, and wildlife resources and over coastal zone management plans;

(13) persons on an area notice list developed by the commission that includes persons who request in writing to be on the notice list, participants in past permit actions in the

area of the proposed storage facility, and by notifying the public, through publication in newspaper of general circulation, or other written publication, including State-funded newsletters, or environmental bulletins of the opportunity to be on the notice list for an area proposed for carbon storage activities;

(14) any other federal or state agency or tribe that the commission knows has issued or is required to issue a permit for the same storage facility or carbon storage activity;

(d) A public notice issued under this section must contain the following information:

(1) the name and address of the commission processing the permit action for which notice is being given;

(2) the name and address of the storage operator, and if different, the facility or activity subject to the hearing;

(3) a brief description of the business conducted at the facility or activity described in the permit application or draft permit;

(4) a brief summary of the basis for the draft permit conditions, or findings under AS 41.06.170;

(5) the name, physical and electronic mailing address, telephone number of a person, and website link information from where an interested person may obtain documents related to the subject of the hearing, including the draft permit, the fact sheet, the application for a storage facility permit or certificate of closure, and further information concerning a permit, other information required by 40 C.F.R. 124.10(d)(1) (public notice of permit actions and public comment period), subpart A (general program requirements), revised as of June 12, 1990, and adopted by reference;

(6) a brief description of the public comment process, including the time period in

which to submit public comments, the address where to submit comments by writing, through electronic mail, or online comment link, and information on how to attend and participate in a public hearing;

(7) any additional information the commission considers necessary or proper.

(e) In addition to the requirements for the contents of a public notice under (d) of this section, a public notice of hearing must contain the following information:

(1) reference to the date of previous public notice relating to the permit or storage facility;

(2) the date, time, and place of the hearing; and

(3) a brief description of the nature of the nature and purpose of the hearing, including applicable rules and procedures.

(f) During the public comment period, and at a public hearing under this section, any person may submit written or oral statements and data concerning the subject of the hearing. The commission may set reasonable limits on the time allowed for oral statements and may require the submission of statements in writing. The commission may, at the hearing, extend the time for submission of written comments. The commission will make a transcript or recording of the hearing available to the public; the commission may produce a written transcript of a hearing under this section.

(g) The commission will consider public comment in making a final decision on a storage facility permit or modification under 20 AAC 25.1410, and will issue a response when the final determination is issued that

(1) specifies which provisions, if any, of the draft permit have been changed in the final decision, and the reasons for the change;

(2) briefly describes and responds to all significant comments on the draft permit raised during the public hearing or public comment period.

(h) A response to public comments under (g) of this section will be made available to the public.

(i) Public notice and comment under this section is not required for a minor permit modification under 20 AAC 25.1430 or for a permit denial when the commission determines a permit application is incomplete. (Eff. ____/____/_____, Register _____)

Authority: AS 31.05.030 AS 41.06.125 AS 41.06.145
AS 41.06.120

20 AAC 25.1160. Duration; storage facility permit. (a) Upon approval of a storage facility permit, the commission will issue the permit for the operating life of the facility and the post-injection site care period specified in the permit. The commission will review each storage facility permit, including each associated Class VI well permit, not less than once every five years to determine if it should be modified, revoked and reissued, terminated, or a minor modification made as provided in this chapter. The term of a permit may not be extended by modification beyond the maximum duration specified in this subsection except as provided in (d) of this section.

(b) The commission may issue a storage facility permit for a duration that is less than the full allowable term under (a) of this section.

(c) A storage facility permit, including a Class VI well permit and authorization to inject for a Class VI well, may only be transferred, modified, revoked and reissued, terminated, or a minor modification made as provided in 20 AAC 25.1410 or, 20 AAC 25.1430, as applicable.

(d) The conditions of an expired storage facility permit may continue until the effective date of a new permit if the storage operator has submitted a timely and complete application under 20 AAC 25.1080, and the commission, through no fault of the storage operator, does not issue a new permit with an effective date on or before the expiration date of the previous permit. A permit continued under this subsection remains fully effective and enforceable. When a storage operator is not in compliance with the terms of an expiring or expired storage facility permit, the commission may

(1) initiate enforcement action, including civil penalties under AS 41.06.180;

(2) issue a notice of intent to deny the new permit; in the event of a notice of intent to deny, the storage operator must cease activities authorized by the permit, except for approved well plugging and abandonment under 20 AAC 25.1300, or be subject to enforcement action;

(3) issue a new permit consistent with the requirements and process of 20 AAC 25.1410; or

(4) take other actions authorized by AS 41.06.110 or this chapter. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.60.145

20 AAC 25.1170. Storage facility permit. (a) After notice, public hearing, and consideration of public comment, and in compliance with AS 41.06, the commission may issue or deny a storage facility permit. A decision on a storage facility permit requires approval of at least two commissioners. If the commission denies a storage facility permit, it will issue a written determination of the reasons for the denial under 20 AAC 25.1150 and provide notice of

denial to the storage operator and the commissioner of the department of natural resources. A denial is a final agency decision.

(b) If the commission issues a storage facility permit, and in addition to the requirements of AS 41.06.145, a final storage facility permit must

(1) contain a description of the commission's findings under AS 41.06.130(b); this description may include references to federal or state regulation that require the conditions on which the commission's findings are based;

(2) as applicable, contain a description of parameters required by AS 41.06.135;

(3) include all conditions required for a permit under 20 AAC 25.1080, 20 AAC 25.1120 and 20 AAC 25.1130;

(4) identify and require as a condition of a permit timely payment of all fees associated with permit issuance and storage facility operations, including the injection surcharge required by AS 41.06.175;

(5) for a storage facility permit located on all or part on land where a carbon lease is required, require a storage facility permit holder to maintain its status as the holder of a carbon lease issued under AS 38.05.715;

(6) for a storage facility permit located on land where a carbon lease under AS 38.05.715 is not required, evidence of the lease or other agreement between the applicant for the storage facility permit and the surface and subsurface landowner;

(7) require a storage facility permit holder to maintain required payments, including payment of the carbon storage facility injection surcharge under AS 41.06.175;

(8) any other conditions the commission may require to protect underground sources of drinking water or public health and safety. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.135 AS 41.06.150
AS 41.06.130

20 AAC 25.1180. Class VI well permit; authorization to inject. (a) At the time of or following issuance of a storage facility permit under 20 AAC 25.1170, a storage operator shall obtain a permit to drill, deepen, convert, or operate, a Class VI well, or upon a demonstration of mechanical integrity under 20 AAC 25.1240, reenter a previously plugged and abandoned well for carbon storage purposes.

(b) A storage operator must submit an application to drill, deepen, convert, operate, or reenter a well to the commission in the format and with the information required by the commission.

(c) Not more than 30 days after conclusion of well drilling and completion activities, the storage operator shall submit to the commission an application to operate a Class VI well; the application shall be in a format approved by the commission and contain the information required by the commission. The application must include notice of the completion of construction in compliance with 20 AAC 25.1210. The commission may inspect or otherwise make a determination that the Class VI well is in compliance with the conditions of the permit.

(d) Injection of carbon dioxide is prohibited until construction is complete, or for a Class II well converting to carbon storage, approval by the commission of well mechanical integrity under 20 AAC 25.1240, and

(1) the storage operator has submitted a notice of completion of construction, or confirmation of well mechanical integrity as determined by the commission;

(2) the commission has approved an authorization to inject; for the purpose of this section, an authorization to inject means a commission-approved authorization to a storage operator of a Class VI well or other injection well to begin injection of carbon dioxide in approved amounts into a storage facility;

(e) An authorization to inject shall expire 12 months from the date it is issued if the injection well has not been drilled, deepened, reentered, operated or converted.

(f) No hearing is required for the commission to consider and approve or deny a request for an authorization to inject under a storage facility permit.

Authority: AS 41.06.120 AS 41.06.135

20 AAC 25.1200. Financial responsibility. (a) A storage operator shall demonstrate and maintain one of the following forms of financial responsibility satisfying the requirements of this section:

(1) trust fund;

(2) surety bond;

(3) letter of credit;

(4) insurance;

(5) self-insurance, including financial test and corporate guarantee;

(6) escrow account; or

(7) any other instrument satisfactory to the commission.

(b) Qualifying financial responsibility under this section must be sufficient to address endangerment of underground sources of drinking water and cover the cost of

(1) corrective action that meets the requirements of 20 AAC 25.1070;

(2) Class VI well plugging that meets the requirements of 20 AAC 25.1300;

(3) post injection site care and site closure that meets the requirements of 20 AAC 25.1310; and

(4) emergency and remedial response that meets the requirements of 20 AAC 25.1260.

(c) Qualifying financial responsibility under this section must include the following protective conditions of coverage:

(1) cancellation, renewal, and continuation provisions, including a prohibition on cancellation, termination, or failure to renew for other than failure to pay the financial instrument; 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

(A) the commission deems the storage facility abandoned;

(B) the permit is terminated or revoked or a new permit is denied;

(C) closure is ordered by the commission or a U.S. district court or other court of competent jurisdiction;

(D) the storage operator is named as debtor in a voluntary or involuntary proceeding under Title 11 (Bankruptcy) U.S. Code; or

(E) the amount due is paid.

(2) notice of cancellation, termination, or non-renewal by certified mail to the storage operator and the commission received not less than 120 days prior to cancellation, termination, or non-renewal;

(3) 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

(4) requirements for the provider to meet a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.

(d) If a provider cancels, terminates, or fails to renew financial responsibility under this section for failure to pay, the storage operator shall 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 cancelled must be released within 60 days of notification by the commission.

(e) A storage operator shall renew all financial instruments, if an instrument expires, for the entire term of the storage facility. The instrument may automatically renew if the 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.

(f) The qualifying financial responsibility under this section must be approved by the commission and may include more than one qualifying financial instrument for a storage facility or phase of a storage facility. In addition,

(1) the commission will require a financial responsibility demonstration for all the phases of the storage facility before issuing a storage facility permit under 20 AAC 25.1170 and

(2) the storage operator shall provide any updated information related to the storage operator’s financial responsibility instruments to the commission on an annual basis, and if there are any changes, the commission will evaluate, within a reasonable time, the financial responsibility demonstration to confirm that the instrument used remain adequate for use; the storage operator shall maintain financial responsibility requirements regardless of the status of the commission's review of the financial responsibility demonstration;

(3) the commission may disapprove of the use of a financial instrument if the commission determines that it is not sufficient to meet the requirements of this section.

(g) In making the financial responsibility demonstration required by this section, the storage operator may demonstrate financial responsibility by using one or multiple qualifying financial instruments for specific phases of the carbon storage project. If a storage operator combines more than one instrument for a specific carbon storage phase, including well plugging, the combination may not include instruments that are based on financial strength or performance of the storage operator, such as self-insurance or a performance bond, but shall include other mechanisms described in (a) of this section, including trust funds, surety bonds guaranteeing payment into a trust fund, letters of credit, escrow accounts, and insurance. Financial responsibility under this subsection is demonstrated by the combination of mechanisms, rather than a single mechanism, which must provide coverage for an amount at least equal to the current cost estimate. To demonstrate financial responsibility under this subsection, a storage operator

(1) when using a third-party instrument to demonstrate financial responsibility, shall 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;

(2) when using certain types of third-party instruments shall establish a standby trust to enable the commission to be party to the financial responsibility agreement without the commission being the beneficiary of any funds; the standby trust fund must be used along with other financial responsibility instruments, e.g., surety bonds, letters of credit, or escrow accounts, to provide a location to place funds if needed;

(3) when using a surety bond or cash bond to satisfy its financial responsibility requirements, shall be the principal on the bond and each surety bond must be executed by a responsible surety company authorized to transact business in this state;

(4) may deposit money to an escrow account to cover financial responsibility requirements; this account must segregate funds sufficient to cover estimated costs for Class VI well carbon storage financial responsibility from other accounts and uses.

(h) A storage operator or the storage operator’s guarantor may use self-insurance to demonstrate financial responsibility for a storage facility. To satisfy this requirement, the storage operator shall

(1) meet a tangible net worth of an amount approved by the commission,

(2) have a net working capital and tangible net worth each at least six times the sum of the current well plugging, post injection site care and site closure cost,

(3) have assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the current well plugging, post injection site care and site closure cost, and

(4) submit a report of its bond rating and financial information annually to the commission on a date set by the commission.

(i) The storage operator shall either

(1) have a bond rating test of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or

(2) meet all of the following five financial ratio thresholds

(A) a ratio of total liabilities to net worth less than 2.0;

(B) a ratio of current assets to current liabilities greater than 1.5;

(C) a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1;

(D) a ratio of current assets minus current liabilities to total assets greater than -0.1; and

(E) a net profit, revenues minus expenses, greater than 0.

(j) A storage operator that is unable to meet corporate financial test criteria in this section may arrange a corporate guarantee by demonstrating to the commission that its corporate parent meets the financial test requirements on its behalf. The parent's demonstration that it meets the financial test requirement is insufficient if it has not also guaranteed to fulfill the obligations for the storage operator.

(k) If a storage operator uses an insurance policy other than a self-insurance policy that meets the requirements of this section to meet its financial responsibility requirements under this section, the insurance policy must be obtained from a third-party provider.

(*l*) The requirement to maintain adequate financial responsibility and resources is directly enforceable regardless of whether the requirement is a condition of a storage facility permit under 20 AAC 25.1130. The storage operator shall maintain financial responsibility and resources until the commission issues a certificate of completion under 20 AAC 25.1320, although a storage operator may be released from certain financial instruments under (m) of this section.

(m) The storage operator may be released from a financial instrument if

(1) the storage operator has completed the phase of the storage facility for which the financial instrument was required and has fulfilled all its financial obligations as determined by the commission, including obtaining financial responsibility for the next phase of the storage

facility, if required; or

(2) the storage operator has submitted a replacement financial instrument and received written approval from the commission accepting the new financial instrument and releasing the storage operator from the previous financial instrument; or

(3) the commission issues a certificate of completion under 20 AAC 25.1320.

(n) The storage operator shall provide to the commission a detailed written estimate, in current dollars, of the cost of performing corrective action on wells in the area of review under 20 AAC 25.1070, plugging the Class VI well under 20 AAC 25.1300, post-injection site care and site closure under 20 AAC 25.1310, and the emergency and remedial response plan under 20 AAC 25.1260. The cost estimate shall be performed for each phase of a storage facility separately; the cost estimate must be based on the costs to the commission of hiring a third party to perform the required activities. For the purposes of this subsection, a third party is a party who is not within the corporate structure of the storage operator.

(o) During the active life of the storage facility, the storage operator must adjust the cost estimate for inflation within 60 days before the anniversary date of the establishment of the financial instrument used to comply with this section and provide the adjustment to the commission. The storage operator shall also provide to the commission written updates of adjustments to the cost estimate within 60 days of any amendments to the area of review and corrective action plan under 20 AAC 25.1070, the Class VI well plugging plan under 20 AAC 25.1300, the post-injection site care and site closure plan under 20 AAC 25.1310, and the emergency and remedial response plan under 20 AAC 25.1260. In adjusting for the cost of inflation, the storage operator shall use the consumer price index for urban consumers for urban

Alaska, as determined by the United States Department of Labor, Bureau of Labor Statistics, without seasonal adjustment, for December of the proceeding calendar year.

(p) The commission must approve any decrease or increase to the initial cost estimate under (n) of this section. During the active life of the storage facility, the storage operator shall revise the cost estimate not later than 60 days after the commission has approved a request to modify the area of review and corrective action plan under 20 AAC 25.1070, the Class VI well plugging plan under 20 AAC 25.1300, the post-injection site care and site closure plan under 20 AAC 25.1310, and the emergency and response plan under 20 AAC 25.1260, if the change in the plan increases the cost. If the change to the plan decreases the cost, any withdrawal of funds must be approved by the commission. Any decrease to the value of the financial assurance instrument must first be approved by the commission. The revised cost estimate shall be adjusted for inflation as specified in (o) of this section. Whenever the current cost estimate increases to an amount greater than the face amount of a financial instrument currently in use, the storage operator, within 60 days after the increase, shall 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 commission, 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 storage operator has received written approval from the commission.

(q) The storage operator shall notify the commission by certified mail or other trackable written delivery method of adverse financial conditions such as bankruptcy that may affect the ability to carry out its Class VI well plugging and post-injection site care and site closure under 20 AAC 25.1310. Notification shall occur

(1) in the event the storage operator or the third-party provider of a financial responsibility instrument is named as a debtor in a bankruptcy proceeding; the notice under this paragraph shall be made within 10 days after commencement of the bankruptcy proceeding; or

(2) by a guarantor of a corporate guarantee if the guarantor is named as debtor, as required under the terms of the corporate guarantee.

(r) A storage operator who fulfills the requirements of (a) of this section 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 storage operator shall establish other financial assurance within 60 days after the event.

(s) The storage operator shall provide an adjustment of the cost estimate this section, and any amended cost estimates, to the commission within 60 days of notification by the commission, if the commission determines during the annual evaluation of the qualifying financial responsibility instrument that the most recent demonstration is no longer adequate to cover the cost of corrective action required by 20 AAC 25.1070, Class VI well plugging as required by 20 AAC 25.1300, post-injection site care and site closure as required by 20 AAC 25.1310, and emergency and remedial response as required by 20 AAC 25.1260.

(t) The commission must approve the use and length of pay-in-periods for trust funds or escrow accounts. (Eff. ____/____/____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.135

20 AAC 25.1210. Class VI well construction requirements. (a) A storage operator shall ensure and demonstrate to the commission that each Class VI well, including a Class II well converted to a Class VI well to use for carbon storage, is constructed and completed to

(1) prevent the movement of fluid into or between underground sources of drinking water or into any unauthorized zone;

(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) The casing and cement or other materials used in the construction of each Class VI well must have sufficient structural strength and be designed for the life of the storage facility. All well material must be compatible with fluid with which the material may be expected to come into contact and must meet or exceed standards developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the commission. The storage operator's casing and cementing program shall be designed to prevent the movement of fluid into or between underground sources of drinking water. In order to allow the commission to determine and specify casing and cementing requirements for a Class VI well, the storage operator shall provide the following information:

(1) depth to the injection zone;

(2) injection pressure, external pressure, internal pressure, and axial loading;

(3) hole size;

(4) size and grade of all casing strings, including wall thickness, external diameter, nominal weight, length, joint specification, and construction material;

(5) corrosiveness of the carbon dioxide stream and formation fluid;

(6) down-hole temperatures;

(7) lithology of injection and confining zone or zones;

(8) type or grade of cement and cement additives; and

(9) quantity, chemical composition, and temperature of the carbon dioxide stream.

(c) In addition to the requirements of (b) of this section, the following requirements apply to the construction and mechanics of a Class VI well:

(1) the surface casing must extend through the base of the lowermost underground source of drinking water and be cemented to the surface through the use of a single or multiple strings of casing and cement;

(2) at least one long string casing, using a sufficient number of centralizers, must extend to the injection zone and must be cemented by circulating cement to the surface in one or more stages;

(3) the circulation of cement may be accomplished by staging; the commission may approve an alternative method of cementing in cases where the cement cannot be recirculated to the surface, provided the storage operator can demonstrate by using logs that the cement does not allow fluid movement behind the well bore;

(4) the cement and cement additives must be compatible with the carbon dioxide stream and formation fluid and of sufficient quality and quantity to maintain integrity over the design life of the storage facility; in demonstrating this compatibility, the integrity and location of the cement shall be verified using technology capable of evaluating cement quality radially and identifying the location of channels to ensure that underground sources of drinking water are not endangered.

(d) A storage operator shall ensure that the tubing and packer material used in the construction of each Class VI well are compatible with fluid with which the material may be expected to come into contact and must meet or exceed standards developed for such material by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the commission. Accordingly, each storage operator shall inject fluid into a Class VI well through tubing with a packer set at a depth opposite a cemented interval at the location approved by the commission. To allow the commission to determine and specify requirements for tubing and packer, the storage operator shall submit the following information as part of a storage facility permit process under 20 AAC 25.1080:

(1) depth of setting;

(2) characteristics of the carbon dioxide stream, chemical content, corrosiveness, temperature, and density, and types of formation fluid;

(3) maximum proposed injection pressure;

(4) maximum proposed annular pressure;

(5) proposed injection rate, intermittent or continuous, and volume and/or mass of the carbon dioxide stream;

(6) size of tubing and casing; and

(7) tubing tensile, burst, and collapse strengths.

(e) Notwithstanding (b) - (d) of this section, if the commission determines that a well previously used for enhanced oil or gas recovery and related well activities and that is converted for use as a Class VI under AS 41.06.185 and this chapter will not endanger underground sources of drinking water, the commission may exempt the storage operator from complying with the casing and cementing requirements of (b)(1) - (9) and (c) of this section and from the logging,

sampling, and testing requirements of 20 AAC 25.1220. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.185

20 AAC 25.1220. Logging, sampling, and testing before Class VI well operation. (a) During the drilling and construction of a Class VI well, the storage operator shall run appropriate logs, surveys and tests to determine or verify the depth, thickness, porosity, permeability, and lithology of, and the salinity of any formation fluid in all relevant geologic formations to ensure conformance with the Class VI well construction requirements under 20 AAC 25.1210 and to establish accurate baseline data against which future measurements may be compared. The storage operator shall submit to the commission not more than 90 days after completion, a descriptive report prepared by a knowledgeable log analyst that includes an interpretation of the results of such logs and tests. At a minimum, logs and tests under this section must include:

(1) deviation checks during drilling on all holes constructed by drilling a pilot hole which is enlarged by reaming or another method; the checks must 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 commission requires for the given geology before the casing is installed; and

(B) a cement bond and variable density log, and a temperature log after the casing is set and cemented;

(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 than would be provided by the tests in (a)(1) - (4) of this subsection and that are required by or approved by the commission.

(b) The storage operator shall take whole cores or sidewall cores of the injection zone and confining system and formation fluid samples from the injection zone, and shall submit to the commission a detailed report prepared by a log analyst that includes well log analyses, including well logs, core analyses, and formation fluid sample information. The commission may accept information on cores from nearby wells if the storage operator demonstrates that core retrieval is not possible and that such cores are representative of conditions at the well. The commission may require the storage operator to core other formations in the borehole.

(c) The storage operator shall record the fluid temperature, pH, conductivity, reservoir pressure, and static fluid level of the injection zone.

(d) At a minimum, the storage operator shall determine or calculate the following information concerning the injection and confining zone:

(1) fracture pressure;

(2) other physical and chemical characteristics of the injection and confining zone; and

(3) other physical and chemical characteristics of the formation fluid in the injection zone.

(e) To verify hydrogeologic characteristics of the injection zone, the storage operator shall, upon completion of a Class VI well but before operation, conduct a pressure fall-off test and

(1) a pump test; or

(2) injectivity tests.

(f) The storage operator shall provide the commission with the opportunity to witness all logging and testing required by this section. The storage operator shall submit a schedule of such activities to the commission not less than 30 days before conducting the first test and submit any changes to the schedule not less than 30 days before the next scheduled test. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.135

20 AAC 25.1230. Class VI well operating requirements. (a) Except during stimulation, the storage operator shall ensure that injection pressure in a Class VI well does not exceed 90 percent of the fracture pressure of the injection zone so as to ensure that the injection does not initiate new fractures or propagate existing fractures in the injection zone. In no case may

injection pressure initiate fractures in the confining zone or cause the movement of injection or formation fluid that endangers underground sources of drinking water. Under 20 AAC 25.1080(a)(9), all stimulation programs must be approved by the commission as part of the storage facility permit application and incorporated into the permit.

(b) Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.

(c) The storage operator shall fill the annulus between the tubing and the long string casing with a non-corrosive fluid approved by the commission. The storage operator shall maintain on the annulus a pressure that exceeds the operating injection pressure, unless the commission determines that such requirement might harm the integrity of the well or endanger underground sources of drinking water.

(d) Other than during periods of well workover, including maintenance, approved by the commission in which the sealed tubing-casing annulus is disassembled for maintenance or corrective procedures, the storage operator shall maintain mechanical integrity as required under 20 AAC 25.1240 of the Class VI well at all times.

(e) The storage operator shall install and use:

(1) continuous recording devices to monitor the injection pressure; the rate, volume or mass, and temperature of the carbon dioxide stream; and 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 commission, down-hole shut-off systems, including automatic shut-off, or 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 territorial waters of this state, designed to alert the operator and shut-in the well when operating parameters such as annulus pressure, injection rate, or other parameters diverge beyond permitted ranges or gradients specified in the storage facility permit.

(f) If a shutdown, including a down-hole or surface shutdown, is triggered or a loss of mechanical integrity is discovered, the storage operator must immediately investigate and identify as expeditiously as possible the cause of the shutoff. If, upon investigation, the well appears to be lacking mechanical integrity, or if monitoring required under (e) of this section otherwise indicates that the well may be lacking mechanical integrity, the storage operator must:

(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 fluid into any unauthorized zone;

(3) notify the commission not more than 24 hours after making the finding that the well may be lacking mechanical integrity;

(4) restore and demonstrate mechanical integrity to the satisfaction of the commission before resuming injection; and

(5) notify the commission when the storage operator expects injection to resume.

(Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.150

20 AAC 25.1240. Mechanical integrity. (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 underground sources of drinking water through channels adjacent to the injection well bore.

(b) To evaluate the absence of significant leaks under (a)(1) of this section, a storage operator shall, following an initial annulus pressure test, continuously monitor injection pressure, rate, injected volumes; pressure on the annulus between tubing and long-string casing; and annulus fluid volume as specified in 20 AAC 25.1230(e).

(c) At least once each year, the storage operator shall use one of the following methods to determine the absence of significant fluid movement under (a)(2) of this section:

(1) an approved tracer survey such as an oxygen-activation log; or

(2) a temperature or noise log.

(d) If required by the commission, at a frequency specified in the testing and monitoring plan required under 20 AAC 25.1250, the storage operator shall run a casing inspection log to determine the presence or absence of corrosion in the long-string casing.

(e) The commission may require any other test to evaluate mechanical integrity under (a)(1) or (a)(2) of this section. In addition, the commission may allow the use of a test to demonstrate mechanical integrity other than those listed above with the written approval of the United States Environmental Protection Agency Administrator. To obtain approval for a new mechanical integrity test, the commission will submit a written request to the administrator setting forth the proposed test and all technical data supporting its use.

(f) In conducting and evaluating the tests enumerated in this section or others to be allowed by the commission, the storage operator and the commission shall apply methods and standards generally accepted in the industry. When a storage operator reports the results of mechanical integrity tests to the commission, the storage operator shall include a description of

the test and the method used. In making its evaluation, the commission will review monitoring and other test data submitted by the storage operator since the previous evaluation.

(g) The commission may require additional or alternative tests if the results presented by the storage operator under (a) through (d) of this section are not satisfactory to the commission 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 underground sources of drinking water resulting from the injection activity as stated in (a)(1) and (2) of this section. The commission may allow the use of a test to demonstrate mechanical integrity other than those identified in this section with the written approval of the United States Environmental Protection Agency. The commission shall submit the information required for consideration by the United States Environmental Protection Agency.

(h) When the commission determines that a Class VI well lacks mechanical integrity under 20 AAC 25.1070 or this section, the commission shall give written notice of the commission’s determination to the storage operator. Unless the commission requires immediate cessation, the storage operator shall cease injection into the well within 48 hours of receipt of the commission's determination. The commission may allow plugging of the well pursuant to the requirements of 20 AAC 25.1300, or require the storage operator to perform additional construction, operation, monitoring, reporting and corrective action as is necessary to prevent the movement of fluid into or between underground sources of drinking water caused by the lack of mechanical integrity. The storage operator may resume injection upon written notification from the commission that the storage operator has demonstrated mechanical integrity pursuant to this section. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.135 AS 41.06.150

AS 41.06.130

20 AAC 25.1250. Testing and monitoring requirements; records of monitoring. (a) The storage operator shall prepare, maintain, and comply with a testing and monitoring plan to verify that the storage facility is operating as permitted under this chapter and is not endangering underground sources of drinking water. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. The storage operator shall submit the testing and monitoring plan with the permit application, for commission approval, and shall include a description of how the storage operator will meet the requirements of this section, including accessing sites for all necessary monitoring and testing during the life of the facility. Testing and monitoring associated with a storage facility must, at a minimum, include

(1) an analysis of the carbon dioxide stream with sufficient frequency to yield data representative of its chemical and physical characteristics;

(2) the installation and use, except during well workovers as defined in 20 AAC 25.1230(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;

(3) the corrosion monitoring of the well materials for loss of mass, thickness, cracking, pitting, and other signs of corrosion, which must be performed on a quarterly basis to ensure that the well components meet the minimum standards for material strength and performance set forth in 20 AAC 25.1210(b) by

(A) analyzing coupons of the well construction materials placed in contact with the carbon dioxide stream;

(B) routing the carbon dioxide stream through a loop constructed with the material used in the well and inspecting the materials in the loop; or

(C) using an alternative method approved by the commission;

(4) periodic monitoring of the ground water quality and geochemical changes above the confining zone that may be a result of carbon dioxide movement through the confining zone or additional identified zones including:

(A) the location and number of monitoring wells based on specific information about the storage facility, including injection rate and volume, geology, the presence of artificial penetrations, and other factors; and

(B) the monitoring frequency and spatial distribution of monitoring wells based on baseline geochemical data that has been collected under 20 AAC 25.1080 and on any modeling results in the area of review evaluation required by 20 AAC 25.1070;

(5) a demonstration of external mechanical integrity under 20 AAC 25.1240 at least once each year until the Class VI well is plugged; and, if required by the commission, a casing inspection log pursuant to the requirements of 20 AAC 25.1240. at a frequency established in the testing and monitoring plan;

(6) a pressure fall-off test at least once every five years unless more frequent testing is required by the commission based on site-specific information;

(7) 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

(A) direct methods in the injection zone; and,

(B) indirect methods, including seismic, electrical, gravity, or electromagnetic surveys or down-hole carbon dioxide detection tools, unless the commission determines, based on site-specific geology, that such methods are not appropriate;

(8) any additional monitoring, as required by the commission, necessary to support, upgrade, and improve computational modeling of the area of review evaluation required under 20 AAC 25.1070.

(b) The commission may require surface air monitoring or soil gas monitoring to detect movement of carbon dioxide that could endanger underground sources of drinking water and to ensure that carbon dioxide does not escape from the storage facility. For the purposes of this subsection,

(1) the design of Class VI well surface air or soil gas monitoring must be based on potential risks to underground sources of drinking water within the area of review;

(2) the monitoring frequency and spatial distribution of surface air monitoring or soil gas monitoring must be decided using baseline data, and the monitoring plan must describe how the proposed monitoring will yield useful information on the area of review delineation under 20 AAC 25.1070.

(c) If a storage operator demonstrates to the commission that monitoring employed under 42 U.S.C 7410 and 40 C.F.R. 98.440 to 98.449, (the Clean Air Act) accomplishes the goals of (c)(1) and (2) of this section, and meets the requirements of 20 AAC 25.1610, a regulatory department that requires surface air or soil gas monitoring must approve the use of monitoring employed 40 C.F.R. 98.440 to 98.449, Subchapter C, Part 98 (definition of source category), effective December 31, 2010, and adopted by reference. If the storage operator suggests, and the

commission approves, monitoring under this subsection, the commission will include compliance under this subsection as a condition of a storage facility permit and associated Class VI well. In the materials adopted by reference in this subsection; "geological sequestration" includes "carbon storage."

(d) A storage operator shall periodically review the testing and monitoring plan to incorporate monitoring data collected under this section, operational data collected under 20 AAC 25.1250, and the most recent area of review reevaluation performed under 20 AAC 25.1070. In no case shall the storage operator review the testing and monitoring plan less often than once every five years. Based on this review, the storage operator shall submit an amended testing and monitoring plan or demonstrate to the commission that no amendment to the testing and monitoring plan is needed. Any amendments to the testing and monitoring plan shall be approved by the commission, be incorporated into the permit, and subject to the permit modification requirements at 20 AAC 25.1410 or 20 AAC 25.1430. An amended plan or demonstrations shall be submitted to the commission:

(1) not more than one year after an area of review reevaluation;

(2) following any significant changes to the facility, such as the addition of monitoring wells or newly permitted injection wells within the area of review, on a schedule determined by the commission; or

(3) when required by the commission.

(e) Records of monitoring information under this section must include

(1) the date, exact place, and time of sampling or measurements;

(2) the individual who performed the sampling or measurements;

(3) the date the analyses were performed;

(4) the individual who performed the analyses;

(5) the analytical technique or method used; and

(6) the result of the analyses.

(f) All samples and measurements taken for the purpose of monitoring under this section must be representative of the monitored activity.

(g) A storage operator of a Class VI well must also maintain a quality assurance and surveillance plan for all testing and monitoring requirements of this section.

(h) A storage operator shall maintain records of monitoring information under this section as required under 20 AAC 25.1610. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.110 AS 41.06.130 AS 41.06.150

20 AAC 25.1260. Emergency and remedial response. (a) As part of a storage facility permit application under 20 AAC 25.1080, the storage operator shall provide the commission with an emergency and remedial response plan that describes actions the storage operator shall take to address movement of the injection or formation fluid that may endanger underground sources of drinking water during construction of a storage facility, including an associated Class VI well, operation of a storage facility, and the post-injection site care period under 20 AAC 25.1310. The requirement to maintain and implement an approved emergency and remedial response plan is directly enforceable regardless of whether the requirement is a condition of the storage facility permit.

(b) If the storage operator obtains evidence that the injected carbon dioxide stream and associated pressure front may endanger underground sources of drinking water, the storage operator shall:

(1) immediately cease injection;

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

(3) notify the commission not more than 24 hours after discovery; and

(4) implement the emergency and remedial response plan approved by the commission.

(c) The commission may allow the operator to resume injection before remediation if the storage operator demonstrates to the commission that the injection operation will not endanger underground sources of drinking water.

(d) The storage operator shall periodically review the emergency and remedial response plan developed under (a) of this section. In no case shall the storage operator review the emergency and remedial response plan less often than once every five years. Based on this review, the storage operator shall submit an amended emergency and remedial response plan or demonstrate to the commission that no amendment to the emergency and remedial response plan is needed. Any amendments to the emergency and remedial response plan must be approved by the commission, must be incorporated into the permit, and are subject to the permit modification requirements at 20 AAC 25.1410 or 20 AAC 25.1430, as appropriate. A storage operator shall submit an amended plan or demonstration that no amendment is needed

(1) within one year after an area of review reevaluation under 20 AAC 25.1070;

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

(3) when required by the commission.

(e) An emergency and remedial response plan and any updates shall be available to the public at the storage operator's operational office or through the storage operator's publicly

accessible web site. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.150

20 AAC 25.1270. Injection depth waiver requirements. (a) In seeking a waiver of the requirement to inject below the lowermost underground source of drinking water the storage operator shall submit to the commission a supplemental report concurrent with permit application under 20 AAC 25.1080. The supplemental report must include

(1) a demonstration that the injection zone is laterally continuous, is not an underground source of drinking water, and is not hydraulically connected to underground sources of drinking water; does not outcrop; has adequate injectivity, volume, and sufficient porosity to safely contain the injected carbon dioxide and formation fluid; and has appropriate geochemistry;

(2) a demonstration that the injection zone is bounded by laterally continuous, impermeable confining units above and below the injection zone adequate to prevent fluid movement and pressure buildup outside of the injection zone; and that the confining unit is free of transmissive faults and fractures; the report must further characterize the regional fracture properties and contain a demonstration that such fractures will not interfere with injection, serve as conduits, or endanger underground sources of drinking water;

(3) a demonstration, using computational modeling, that underground sources of drinking water 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 20 AAC 25.1070, and is subject to requirements under 20 AAC 25.1070(c), and periodic reevaluation, as set forth in 20 AAC 25.1070(e);

(4) a demonstration of how well design and construction, in conjunction with the waiver, will ensure isolation of the injectate in lieu of requirements under 20 AAC 25.1210(a)(1) and will meet well construction requirements under 20 AAC 25.1210;

(5) a description of how the monitoring and testing and any additional plans will be tailored to the storage facility to ensure protection of underground sources of drinking water above and below the injection zone, 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 underground sources of drinking water in the area of review; and

(7) provide any other information requested by the commission that the United States Environmental Protection Agency's Regional Administrator requires to inform the Regional Administrator's decision to issue a waiver.

(b) To assist the United States Environmental Protection Agency's Regional Administrator's decision on whether to grant a waiver of the injection depth requirements, the commission will submit to the Regional Administrator, documentation of the following:

(1) an evaluation of the following information as it relates to siting, construction, and operation of a storage facility with a waiver; including

(A) the integrity of the upper and lower confining units;

(B) the suitability of the injection zone, including lateral continuity; lack of transmissive faults and fractures or knowledge of current or planned artificial penetrations into the injection zone or formations below the injection zone;

(C) the potential capacity of the geologic formation 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 or future use of underground sources of drinking water and non-underground sources of drinking water in the area;

(G) planned or permitted water, hydrocarbon, or mineral resource exploitation potential of the proposed injection formation and other formation 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 formation;

(H) the proposed plan for securing alternative resources or treating an underground source of drinking water formation waters in the event of contamination related to the carbon storage injection activity; and,

(I) any other applicable considerations or information requested by the commission, and any written information submitted by the Commissioner of the Department of Environmental Conservation;

(2) a summary of the commission's consultation with the Department of Environmental Conservation and any tribe having jurisdiction over lands within the area of review of a well for which a waiver is sought;

(3) any other applicable considerations or information requested by the commission.

(c) The commission will give public notice to the persons identified in 20 AAC 25.1150(c) that a waiver application has been submitted. The notice must clearly state:

(1) the depth of the proposed injection zone;

(2) the location of the Class VI well;

(3) the name and depth of all underground sources of drinking water within the area of review;

(4) a map of the area of review; the map may be provided through an electronic link;

(5) the names of any public water supplies affected, reasonably likely to be affected, or served by underground sources of drinking water in the area of review; and,

(6) the results of consultation with the Department of Environmental Conservation required under paragraph (b)(2) of this section.

(d) Following public notice, the commission will provide all information received through the waiver application process to the United States Environmental Protection Agency Regional Administrator. Based on the information provided, the Regional Administrator will provide written concurrence or non-concurrence regarding the waiver issuance. If the Regional Administrator determines that additional information is required to support a decision, the commission will request that the storage facility permit applicant provide the information. The commission will publish public notice of the new information if requested by the Regional Administrator. The commission may not issue an injection depth waiver without receipt of written concurrence from the Regional Administrator.

(e) Upon receipt of a waiver, the storage operator shall comply with:

(1) all requirements at 20 AAC 25.1070, 20 AAC 25.1200, 20 AAC 25.1230, 20 AAC 25.1240, 20 AAC 25.1610, 20 AAC 25.1300 and 20 AAC 25.1260;

(2) all requirements at 20 AAC 25.1210 with the following modified requirements;

(A) the storage operator shall ensure that a Class VI well with an injection depth waiver is constructed and completed to prevent movement of fluid into any unauthorized zones including underground sources of drinking water;

(B) the casing and cementing program shall be designed to prevent the movement of fluid into an unauthorized zone including underground sources of drinking water in lieu of the requirements of 20 AAC 25.1210;

(C) the surface casing must extend through the base of the nearest underground source of drinking water directly above the injection zone and be cemented to the surface; or, at the commission's discretion, another formation above the injection zone and below the nearest underground source of drinking water above the injection zone;

(3) all requirements at 20 AAC 25.1250, with the following modifications:

(A) the storage operator shall monitor the groundwater quality, geochemical changes, and pressure in the first underground sources of drinking water immediately above and below the injection zone; and in any other formations at the discretion of the commission;

(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; and, indirect methods, e.g., seismic, electrical, gravity, or electromagnetic surveys or down-hole carbon dioxide detection tools, unless the commission determines, based on site-specific geology, that

such methods are not appropriate;

(4) all requirements under 20 AAC 25.1310 with the following modified post-injection site care monitoring requirements:

(A) the storage operator shall monitor the groundwater quality, geochemical changes and pressure in the first underground sources of drinking water immediately above and below the injection zone; and in any other formations at the discretion of the commission;

(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; and indirect methods ,including, seismic, electrical, gravity, or electromagnetic surveys or down-hole carbon dioxide detection tools, unless the commission determines based on site-specific geology, that such methods are not appropriate; and

(5) any additional requirements requested by the commission designed to ensure protection of underground sources of drinking water above and below the injection zone. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.150

20 AAC 25.1280 Determining storage reservoir capacity. (a) Upon application to the commission, a person may request that the commission make a determination of the storage capacity of a storage reservoir under AS 41.06.195. The commission may request information necessary to make a determination under this section.

(b) The applicant shall pay a fee for a storage capacity determination under this section

based on the commission's actual processing costs, including computer data processing costs, as determined by the commission. In determining the fee, the commission will maintain a record of all application processing costs. The commission will, as soon as practicable after receiving an application under this section, prepare and submit an estimate of the fee to the applicant. After the commission has made the storage capacity determination, the commission will send the applicant a final statement of the fee. The commission will not issue a determination on an application under this section until the applicant has paid the full fee.

(c) An applicant shall pay the fee established by the commission even if the applicant withdraws an application, or the commission denies the request to make a storage capacity determination. In the event of a withdrawal, the commission may reduce the fee amount to only costs incurred before the application is withdrawn but will include all costs actually incurred by the commission up to the point the application is withdrawn.

(d) Notwithstanding (a) of this section, the commission may on its own motion make a determination of the storage capacity of a reservoir. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.110 AS 41.06.195

20 AAC 25.1290. Fees. The commission will require a storage operator to pay all fees required by AS 41.06 in connection with a storage facility. Those fees include

(1) fees incurred under AS 41.06.120;

(2) fees for each metric ton of carbon dioxide injected for carbon storage under AS 41.06.160;

(3) the carbon storage facility injection surcharge under AS 41.06.175 and 20 AAC 25.1295;

(4) the fee for determination of storage reservoir capacity under AS 41.06.195 and 20 AAC 25.1280;

(5) other fees authorized by AS 41.06. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.110 AS 41.06.160 AS 41.06.195
AS 41.06.120 AS 41.06.175

20 AAC 25.1295. Injection surcharge. The commission will establish the carbon storage facility injection surcharge for each storage facility and incorporate the surcharge into a final permit issued under 20 AAC 25.1170 for the time period required by AS 41.06.175. The injection surcharge will be adjusted annually under AS 41.06.175. A surcharge adjustment does not require a storage facility permit modification. The commission will establish in the storage facility permit the date the annual surcharge is due. The commission may require quarterly installments of the injection surcharge under this section and incorporate the installment schedule into a storage facility permit. Failure to pay the surcharge is a violation of the storage facility permit obligations, and the commission may take appropriate action. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.175

20 AAC 25.1300. Class VI well plugging. (a) The storage operator shall, before plugging a Class VI well, flush the well with a buffer fluid, determine bottomhole reservoir pressure, and perform a final external mechanical integrity test.

(b) The storage operator shall prepare, maintain, and comply with a well plugging plan that is acceptable to the commission. The requirement to maintain and implement a commission-

approved plan is directly enforceable regardless of whether the requirement is a condition of the storage facility permit. The storage operator shall submit the well plugging plan as part of the permit application and shall include the following information:

(1) appropriate tests or measures for determining bottomhole reservoir pressure;

(2) appropriate testing methods to ensure external mechanical integrity as specified in 20 AAC 25.1240;

(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 must be compatible with the carbon dioxide stream; and

(6) the method of placement of the plugs.

(c) The storage operator shall notify the commission in writing pursuant to 20 AAC 25.1610, at least 60 days before plugging a Class VI well, although the commission may allow for a shorter notice period. At the time of notification under this section, the storage operator shall, if any changes have been made to the original well plugging plan submitted as part of the storage facility permit application, provide the revised well plugging plan. Any amendments to the Class VI well plugging plan must be approved by the commission, must be incorporated into the storage facility permit, and are subject to the permit modification requirements at 20 AAC 25.1410 or 20 AAC 25.1430 as appropriate.

(d) Within 60 days after plugging, the storage operator shall submit, pursuant to 20 AAC 25.1610, a plugging report to the commission. The report shall be certified as accurate by the storage operator and by the person who performed the plugging operation if other than the

storage operator. The storage operator shall retain the well plugging report for not less than 10 years following project completion. Upon project completion, the storage operator shall furnish the records under this subsection to the commission. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.150 AS 41.06.170
AS 41.06.130

20 AAC 25.1310. Post-injection site care; site closure; monitoring timeline. (a) A storage operator shall prepare, maintain, and comply with a plan for post-injection site care and site closure that meets the requirements of this section 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 storage facility permit. The storage operator shall submit the post-injection and site care and site closure plan as part of a storage facility permit application under 20 AAC 25.1080.

(b) The post-injection site care and site closure plan required under (a) of this section must include the following information:

(1) the pressure differential between pre-injection and predicted post-injection pressures in the injection zone;

(2) the predicted position of the carbon dioxide plume and associated pressure front at site closure as demonstrated in the area of review evaluation required under 20 AAC 25.1070(c)(1);

(3) a description of post-injection monitoring location, methods, and proposed frequency;

(4) a proposed schedule for submitting post-injection site care monitoring results

to the commission pursuant to 20 AAC 25.1610; and,

(5) the duration of the post-injection site care timeframe and, if approved by the commission under AS 41.06.170(a)(3) and this section, the demonstration of the alternative post-injection site care timeframe that ensures non-endangerment of underground sources of drinking water.

(c) A storage operator shall specify in a post-injection site care and site closure plan which wells will be plugged and which shall remain unplugged to be used as subsurface observation wells. A subsurface observation or groundwater monitoring well as approved in the plan must remain in place for continued monitoring during the closure and post closure periods.

(d) Upon cessation of injection of carbon dioxide into a storage reservoir, but before application for a certificate of completion, the storage operator shall either submit an amended post-injection site care and site closure plan or demonstrate to the commission through monitoring data and modeling results that no amendment to the plan is needed. An amendment to the post-injection site care and site closure plan must be approved by the commission and be incorporated into the storage facility permit and is subject to the permit modification requirements of 20 AAC 25.1410 or 20 AAC 25.1430, as appropriate.

(e) At any time during the life of the storage facility, a storage operator may modify and resubmit the post-injection site care and site closure plan for the commission's approval not more than 30 days after the change.

(f) Upon cessation of injection of carbon dioxide into a storage reservoir, and before a storage operator applies for a certificate of completion under 20 AAC 25.1320, the storage operator shall monitor the site to show the position of the carbon dioxide plume and pressure front and demonstrate to the commission that underground sources of drinking water are not

endangered. Following the cessation of injection, the storage operator shall continue to conduct monitoring as specified in the commission-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 requirements in (h) of this section, unless the storage operator makes a demonstration under (g) of this section. A post-injection site care plan must require the storage operator to continue monitoring the storage facility until the storage facility no longer poses a danger to underground sources of drinking water and the demonstration under (g) of this section is submitted by the storage operator and approved by the commission.

(g) Notwithstanding (f) of this section, if the storage operator demonstrates to the satisfaction of the commission before 50 years after cessation of carbon dioxide injections, or prior to the end of the approved alternative timeframe based on monitoring and other site-specific data, that the storage facility no longer poses a danger to underground sources of drinking water, the commission 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 through a certificate of completion under 20 AAC 25.1320 before the end of the 50-year period or before the end of the approved alternative timeframe, if the commission finds substantial evidence that the storage facility no longer poses a risk to underground sources of drinking water. If the commission does not approve the demonstration, the storage operator shall submit to the commission a plan to continue post-injection site care until a demonstration can be made and approved by the commission.

(h) The commission may approve, in consultation with the United States Environmental Protection Agency, an alternative post-injection site care timeframe other than the 50-year default under AS 41.06.170(a)(3), if a storage operator demonstrates during the permitting

process under 20 AAC 25.1080 that an alternative post-injection site care timeframe is appropriate and ensures non-endangerment of underground sources of drinking water. The demonstration must be based on significant, site-specific data and information including all data and information collected pursuant to 20 AAC 25.1080 and 20 AAC 25.1060 and must contain substantial evidence that the storage facility will no longer pose a risk to underground sources of drinking water at the end of the alternative post-injection site care timeframe. A demonstration of an alternative post-injection site care timeframe must include consideration and documentation of

(1) the results of computational modeling performed pursuant to delineation of the area of review under 20 AAC 25.1070;

(2) the predicted timeframe for pressure decline within the injection zone, and any other zones, such that formation fluid may not be forced into an underground source of drinking water; or the timeframe for pressure decline to pre-injection pressures;

(3) the predicted rate of carbon dioxide plume migration within the injection zone, and the predicted timeframe for the cessation of migration;

(4) 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;

(5) the predicted rate of carbon dioxide trapping in the immobile capillary phase, dissolved phase, or mineral phase;

(6) the results of laboratory analyses, research studies, or field or site-specific studies to verify the information required in (4) and (5) of this section;

(7) a characterization of the confining zone 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 fluid, movement;

(8) the presence of potential conduits for fluid movement including planned injection wells and project monitoring wells associated with the proposed storage facility or any other projects in proximity to the predicted or modeled, final extent of the carbon dioxide plume and area of elevated pressure;

(9) a description of the well construction and an assessment of the quality of plugs of all abandoned wells within the area of review;

(10) the distance between the injection zone and the nearest underground sources of drinking water above or below the injection zone; and

(11) any additional site-specific factors required by the commission.

(i) Information submitted to support the demonstration in subsection (h) must meet the following criteria:

(1) all analyses and tests performed to support the demonstration must be accurate, reproducible, and performed in accordance with the established quality assurance standards;

(2) estimation techniques must be appropriate and United States Environmental Protection Agency-certified test protocols must be used where available;

(3) predictive models must be appropriate and tailored to the site conditions, composition of the carbon dioxide stream and injection and site conditions over the life of the storage facility;

(4) predictive models must be calibrated using existing information where sufficient data are available;

(5) reasonably conservative values and modeling assumptions must be used and disclosed to the commission whenever values are estimated on the basis of known, historical information instead of site-specific measurements;

(6) an analysis must be performed to identify and assess aspects of the alternative post-injection site care timeframe demonstration that contributes significantly to uncertainty; for the purpose of this paragraph, the storage operator must conduct sensitivity analyses to determine the effect that significant uncertainty may contribute to the modeling demonstration;

(7) an approved quality assurance and quality control plan must address all aspects of the demonstration; and,

(8) any additional criteria required by the commission.

(j) Not less than 120 days before expiration of the approved monitoring period under this section, the storage operator shall either apply to the commission for an additional monitoring period, or for a certificate of completion under AS 41.06.170 and 20 AAC 25.1320. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.150 AS 41.06.170

20 AAC 25.1320. Certificate of completion; public process. (a) After cessation of carbon dioxide injection and compliance with the post-injection site care and monitoring plan, or any amendments to the plan approved by the commission, a storage operator shall apply to the commission, in a format approved by the commission, for a certificate of completion under AS 41.06.170. If, at the time of application, any changes have been made to the original post-injection site care and site closure plan, the storage operator shall also provide the revised plan. The storage operator shall apply for a certificate of completion not less than 120 days before its

proposed final site closure date. An application under this section must demonstrate, based on monitoring and other site-specific data, that no additional monitoring is needed to ensure that the storage facility does not pose a danger to underground sources of drinking water or otherwise endanger human health, human safety, or the environment.

(b) Before an authorization for a certificate of completion under AS 41.06.170 and under this section, the storage operator shall submit to the commission for review and approval a demonstration, based on monitoring and other site-specific data, that no additional monitoring is needed to ensure that the storage facility does not pose a danger to human health, human safety, the environment, or underground sources of drinking water.

(c) The commission may, before or after a hearing under this section, request information from the storage operator sufficient to allow the commission to consider the factors in AS 41.06.170(b). The commission will provide public notice and a hearing to consider an application for a certificate of completion. The commission will provide notice of the hearing in the same manner as a notice under AS 31.05.050(b) and will provide notice to persons identified in AS 41.06.170(a)(2) and AS 41.06.125(b)(1) - (3). The commission will provide not less than 30 days' notice of a hearing and will provide not less than 30 days for public comment. In addition to specifying the date, time, and location of the hearing, and process to submit public comments, the notice under this section must

(1) identify the storage operator, storage facility permit, and storage facility; identification of the storage facility must include an accurate plat certified by a registered surveyor that includes the location of the Class VI well relative to permanently surveyed benchmarks; and

(2) summarize the reasons for the request.

(d) After a hearing under this section, the commission may deny or approve a request for a certificate of completion. If the commission denies the request, it will issue a decision stating the reasons for the denial, and the steps the storage operator shall take to continue monitoring the storage facility or to re-apply for a certificate of completion. To approve a request for a certificate of completion, the commission must find that all conditions of 20 AAC 25.1000 - 20 AAC 25.1320 and AS 41.06.170(b) have been met. No less than two commissioners must approve issuance of a certificate of completion. A certificate of completion must identify all actions the storage operator shall take for final site closure, including the plugging of all monitoring wells in a manner approved by the commission, which will not allow movement of injection or formation fluid that endanger underground sources of drinking water.

(e) Not more than 90 days after the commission approves a certificate of completion, the storage operator shall submit a report to the commission. The report shall be retained at a location designated by the commission for not less than 10 years. The report must include:

(1) documentation of appropriate injection and monitoring well plugging as specified in 20 AAC 25.1300 and (d) of this section;

(2) documentation that a survey plat has been submitted to the state recorder's office; the plat must indicate the location of the Class VI well relative to permanently surveyed benchmarks, and the storage operator shall also submit a copy of the plat to the Regional Administrator of the appropriate United States Environmental Protection Agency Regional office;

(3) documentation of appropriate notification and information to each state, local authority and tribe authority over drilling activities to allow the state, and local authority, and tribe to impose appropriate conditions on subsequent drilling activities that may penetrate the

injection and confining zone; and

(4) records reflecting the nature, composition, and volume of the carbon dioxide stream.

(f) Each owner or operator of a Class VI well identified in the certificate of completion issued by the commission shall record, before transfer of the storage facility to the Department of Natural Resources under AS 41.06.170, 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 department with which the survey plat was filed, as well as the address of the Environmental Protection Agency 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.

(g) The storage operator shall retain for 10 years following issuance of the certificate of completion, records collected during the post-injection site care period. The storage operator shall deliver the records to the Department of Natural Resources at the conclusion of the retention period, and the Department of Natural Resources will maintain the records. The commission will be notified by the Department of Natural Resources when the records are delivered to the department.

(h) A certificate of completion issued under this section does not release a storage operator from liability arising from a knowing or intentional concealment or misrepresentation of material fact related to a storage facility, including the mechanical integrity of the storage facility

or the chemical composition of carbon dioxide injected into the facility. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.135 AS 41.06.165
AS 41.06.130 AS 41.06.150 AS 41.06.170

20 AAC 25.1400. Transfer; storage facility permit. (a) A storage facility permit, and an associated Class VI well permit and injection authorization, may be transferred to a new storage operator only by application by the proposed permit transferee as though that person were the original applicant for the permit, and upon approval by the commission. A permit may be transferred by the holder of the permit to a new storage operator only if

(1) the permit has been modified or revoked and reissued under 20 AAC 25.1410 or

(2) a minor modification is made under 20 AAC 25.1430 to identify the new storage operator and incorporate any other requirements necessary under federal and state laws, including 42 U.S.C. 300f-300j-27 (Safe Drinking Water Act).

(b) The commission will not approve a transfer if the storage operator is not in compliance with any term or condition of the storage facility permit to be transferred unless the storage operator agrees to bring the storage facility back into compliance with the permit.

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.135

20 AAC 25.1410. Modification, revocation and reissuance of permit. (a) A storage facility permit may be modified, or revoked and reissued, either on a request for review by any interested person, or on the commission's initiative, for the reasons specified in this section. The

commission will review the termination of a storage facility permit under 20 AAC 25.1420 or a minor modification under 20 AAC 25.1430.

(b) On receipt of a request for review or of information, including from a storage facility inspection, from a storage operator pursuant to a requirement in a storage facility permit, or from conducting a review of the storage facility permit, the commission may determine that cause exists for modification or revocation and reissuance of a permit. The following constitute cause for modification or revocation and reissuance under this section:

(1) an area of review reevaluation under 20 AAC 25.1070;

(2) any amendments to the testing and monitoring plan under 20 AAC 25.1250;

(3) any amendments to the Class VI well plugging plan under 20 AAC 25.1300;

(4) any amendments to the post-injection site care and site closure plan under 20 AAC 25.1310;

(5) any amendments to the emergency and remedial response plan under 20 AAC 25.1260;

(6) a review of monitoring or testing results conducted in accordance with permit requirements;

(7) the commission receives information that was not available at the time the permit was issued that justifies application of different permit conditions;

(8) material and substantial alterations or additions to the permitted facility or activity after permit issuance that justifies the application of permit conditions that are different or absent in the existing permit;

(9) the standards or regulations on which the permit was based have been changed by enactment of new or amended standards or adoption of regulations or by judicial decision

with precedential effect after the permit was issued;

(10) determination by the commission that good cause exists for modification of a compliance schedule under 20 AAC 25.1140, including an act of God, strike, flood, earthquake, or materials shortage or other event over which the storage operator has little or no control and for which there is no reasonably available remedy.

(c) If the commission determines under (b) of this section that cause exists, the commission may modify or revoke and reissue a permit, subject to the limitations of this section, and may request an updated storage facility permit application if necessary. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and reissuance for a new term under 20 AAC 25.1160. If the commission finds cause does not exist under this section or 20 AAC 25.1431, the commission will not modify or revoke and reissue the permit. If a permit modification satisfies the criteria in 20 AAC 25.1430 for minor modifications, the permit may be modified without a draft permit or public review under 20 AAC 25.1150. Otherwise, a draft permit must be prepared and the procedures in 20 AAC 25.1150 followed.

(d) If the commission determines that a request for review made under (a) of this section is not justified, the commission shall provide the person making the request a brief written response of the commission's decision. A denial of a request for modification, revocation and reissuance, or termination under 20 AAC 25.1420, are not subject to public notice, comment, or hearing.

(e) In addition to the factors set forth in (b) of this section, the commission may consider the following causes as a basis to modify or, alternatively, revoke and reissue a permit:

(1) a finding that cause exists for termination under 20 AAC 25.1420, and the

commission determines that modification or revocation and reissuance is appropriate.

(2) the commission has received notification of a proposed transfer of a storage facility permit;

(3) a determination that the waste being injected into a storage facility is a hazardous waste as defined in 20 AAC 25.1020(c), either because the definition of hazardous waste has been revised, or because a previous determination has been changed.

(f) The commission will not consider suitability of the storage facility location 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. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.135
AS 41.06.125

20 AAC 25.1420. Termination of permit. (a) The commission may, on a request for review by any interested person, or on the commission's initiative, terminate a storage facility permit during its term, or deny a permit renewal application for the following causes:

(1) noncompliance by the storage operator with any condition of the permit;

(2) the storage operator's failure in the application or during the permit issuance process to disclose fully all relevant facts, or the storage operator'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.

(b) If the commission tentatively decides to terminate a permit, the commission will issue notice of intent to terminate. A notice of intent to terminate is a type of draft permit which shall be subject to the applicable procedures in 20 AAC 25.1150. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.135
AS 41.06.125

20 AAC 25.1430. Minor modifications; storage facility permit. (a) Upon agreement between a storage operator and the commission, the commission may modify a permit to make a correction or allowance for change in the permitted activity listed in this section, without an application to amend the permit. Any permit modification not processed as a minor modification under this section will be made under 20 AAC 25.1410. A minor modification under this section is allowed only to

(1) correct a typographical error;

(2) require more frequent monitoring or reporting by the storage operator;

(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 commission 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 permittee has been submitted to the commission under 20 AAC 25.1400;

(5) change in the quantity or type of fluid injected which is within the capacity of the storage facility as permitted and, in the judgment of the commission, does not interfere with the operation of the facility or its ability to meet conditions described in the permit and does not change its classification;

(6) change a construction requirement approved by the commission under 20 AAC 25.1210, provided that the alteration shall comply with the requirements of 20 AAC 25.1000 - 20 AAC 25.1900;

(7) amend a Class VI well testing and monitoring plan under 20 AAC 25.1250, plugging plan under 20 AAC 25.1300, post-injection site care and site closure plan under 20 AAC 25.1310, or emergency and remedial response plan under 20 AAC 25.1260 if the modification merely clarifies or corrects the plan, as determined by the commission.

(b) Upon approval by the commission of a modification under this section, the commission will issue an amendment to the permit issued under 20 AAC 25.1170 that explains the modification made to the original permit. A modification under this section does not change the duration of the permit, or any aspect of the permit other than specifically addressed by the modification approved by the commission under this section. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.135

20 AAC 25.1600. Confidentiality of information. (a) Any information obtained by the commission by any rule, regulation, order or permit term or condition based on 20 AAC 25.1000 - 20 AAC 25.1900 or any investigation related to a storage facility, is public information, except as otherwise provided in the Alaska Public Records Act, AS 40.25100 - AS 40.25.295. On receipt

of a written request, the commission will determine in writing whether records held in connection with a storage facility are subject to nondisclosure under the Alaska Public Records Act.

(b) Information obtained under (a) of this section will be made available to the United States Environmental Protection Agency upon request. If the information has been submitted to the commission under a request for nondisclosure, the commission will submit that request to the United States Environmental Protection Agency when providing the information. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.110 AS 41.06.130 AS 41.06.135
AS 41.06.120

20 AAC 25.1610. Reporting requirements; monitoring and records. (a) A storage operator shall, at a minimum, provide the reports identified in this section to the commission and the United States Environmental Protection Agency in electronic format, for each permitted Class VI well as part of a storage facility permit. Reports required by this section, or a storage facility permit, or other information required by the commission shall be signed by a person authorized under 40 C.F.R. 144.32(b), effective January 10, 2011, and adopted by reference.

(b) A storage operator shall provide semi-annual reports, on a date established by the commission containing

(1) any changes to the physical, chemical, and other relevant characteristics of the carbon dioxide stream from the proposed operating data;

(2) the monthly average, maximum, and minimum values for injection pressure, flow rate and volume, and annular pressure;

(3) a description of any event that exceeds operating parameters for annulus pressure or injection pressure specified in the permit;

(4) a description of any event which triggers a shut-off device required pursuant to 20 AAC 25.1230 and the response taken;

(5) the monthly volume or mass of the carbon dioxide stream injected over the reporting period and the volume injected cumulatively over the life of the project;

(6) the monthly annulus fluid volume added; and

(7) the results of monitoring prescribed under 20 AAC 25.1250.

(c) A storage operator shall report, not later than 30 days after a test under this subsection, the results of:

(1) periodic tests of mechanical integrity;

(2) any well workover; and,

(3) any other test of the Class VI well conducted by the storage operator if required by the commission.

(d) A storage operator shall report within 24 hours

(1) any evidence that the injected carbon dioxide stream or associated pressure front may endanger underground sources of drinking water;

(2) any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between underground sources of drinking water;

(3) any triggering of a shut-off system, whether down-hole or at the surface;

(4) any failure to maintain mechanical integrity under 20 AAC 25.1240; or

(5) pursuant to compliance with the requirement at 20 AAC 25.1250 for surface air and soil gas monitoring or other monitoring technologies, if required by the commission, any

release of carbon dioxide to the atmosphere or biosphere.

(e) A storage operator shall notify the commission in writing not less than 30 days in advance of

(1) any planned well workover;

(2) any planned stimulation activities, other than stimulation for formation testing conducted under 20 AAC 25.1080, and

(3) any other planned test of the Class VI well conducted by the storage operator.

(f) Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity. A storage operator shall maintain records of all monitoring information including the following

(1) calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the storage facility permit, and records of all data used to complete the application for a storage facility permit for a period of at least three years from the date of the sample, measurement, report, or application; this period may be extended by request of the commission at any time; and

(2) the nature and composition of all injected fluid until not less than three years after the completion of any plugging and abandonment procedures specified under 20 AAC 25.1300; the commission may require a storage operator to deliver the records to the commission at the conclusion of the retention period.

(g) A storage operator shall retain

(1) all data collected under 20 AAC 25.1080 for a storage facility permit application throughout the life of the storage facility and for not less than 10 years following issuance of a certificate of completion under 20 AAC 25.1320;

(2) data on the nature and composition of all injected fluid collected pursuant to 20 AAC 25.1250 for not less than 10 years following issuance of a certificate of completion; the commission may require the storage operator to deliver the records to the commission or other state agency at the conclusion of the retention period;

(3) monitoring data collected pursuant to 20 AAC 25.1250 for not less than 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 certificate of completion report collected pursuant to requirements at 20 AAC 25.1310 for 10 years following issuance of a certificate of completion under 20 AAC 25.1320.

(5) all modeling inputs and data used to support area of review reevaluations under 20 AAC 25.1070(e).

(h) The storage operator shall deliver the records to the commission at the conclusion of the retention period, and the records will thereafter be retained at a location designated by the commission for that purpose. The commission may require the storage operator to retain any records required in this section for longer than 10 years after issuance of a certificate of completion.

(i) A storage operator shall provide access to the commission to storage facility records for a facility permitted under AS 41.06 and this chapter wherever located. All owners, operators, drilling contractors, drillers, service companies, or other persons engaged in drilling, completing, operating, or servicing a storage facility shall permit the commission, or its authorized representative, upon reasonable notice, to enter a lease, property, well, or drilling rig, in compliance with applicable state safety rules, to inspect the records and operations of wells and

to conduct sampling and testing. Unless designated as confidential under 20 AAC 25.1600, the information shall be a public record. If requested by the commission, a person shall furnish a copy of storage facility records to the commission. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.120 AS 41.06.130 AS 41.06.135

20 AAC 25.1650. Enforcement; penalties. A penalty or other enforcement action under 20 AAC 25.1000 - 20 AAC 25.1900 shall be governed by the process set out in 20 AAC 25.535. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.110 AS 41.06.180

20 AAC 25.1900. Definitions. In 20 AAC 25.1000 - 20 AAC 25.1900, the following definitions apply:

(1) "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;

(2) "aquifer" has the meaning given in 20 AAC 25.990;

(3) "area of review" means the area surrounding a storage facility where underground sources of drinking water may be endangered by the injection activity; and is delineated using computational modeling that accounts for the physical and chemical properties of all phases of the injected carbon dioxide stream and displaced fluid, and is based on available site characterization, monitoring and operational data under 20 AAC 25.1070;

(4) "carbon dioxide" has the meaning given in AS 41.06.210;

(5) "carbon dioxide plume" means the extent underground, in three dimensions of

an injected carbon dioxide stream;

(6) "carbon dioxide stream" means carbon dioxide that has been captured from an emission source, such as a power plant, plus incidental associated substances derived from 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 apply to any carbon dioxide stream that meets the definition of hazardous waste under 40 C.F.R. part 261**;**

(7) "carbon storage" has the meaning given in AS 41.06.210; and includes “geologic sequestration,” as defined in 40 C.F.R. 146.81, Part H, Applicability, effective January 10, 2011 and adopted by reference;

(8) "storage facility” has the meaning given in AS 41.06.210, and includes a “geologic sequestration project,” as defined in 40 C.F.R. 146.81;

(9) "casing" means a pipe or tubing of appropriate material, of varying diameter and weight, which is installed into a well to maintain the structural integrity of a well, to prevent the loss of drilling mud into porous ground, or to prevent water, gas, or other fluid from entering or leaving the hole;

(10) "cementing" means the operation whereby a cement slurry is pumped into a drilled hole and forced behind the casing;

(11) "Class VI well" means a well

(A) that is not experimental in nature that is used for geologic sequestration of carbon dioxide beneath the lowermost formation containing underground sources of drinking water; for the purpose of this subparagraph, "experimental" means use of a technology that has not been proven feasible under the conditions in which it is being tested;

(B) used for geologic sequestration of carbon dioxide that has been granted a waiver of the injection depth requirements under 20 AAC 25.1270; or

(C) used for geologic sequestration of carbon dioxide that has received an expansion to the areal extent of an existing Class II well under 20 AAC 25.442

(12) "closure period" means the period from cessation of carbon dioxide injection until the commission issues a certificate of completion under AS 41.06.170 and applicable regulation;

(13) "commission" has the meaning given in 20 AAC 25.990;

(14) "confining zone" means a geological formation, group of formations, or part of a formation stratigraphically overlying the injection zone that acts as a barrier to fluid movement; for a Class VI well operating under an injection depth waiver under 20 AAC 25.1270, confining zone means a geologic formation, group of formations, or part of a formation stratigraphically overlying and underlying the injection zone;

(15) "contaminant" means any physical, chemical, biological, or radiological substance or matter in water;

(16) "corrective action" means commission-approved methods to ensure that wells within the area of review do not serve as conduits for the movement of fluid into underground sources of drinking water;

(17) "draft permit" means a document prepared under 20 AAC 25.1080 indicating the commission's tentative decision to issue or deny a storage facility permit, or modify, revoke and reissue, or terminate an existing storage facility permit; “draft permit” does not include a denial by the commission of a request for modification, revocation and reissuance, or terminate an existing storage facility permit;

(18) "enhanced oil or gas recovery" has the meaning given in AS 41.06.210;

(19) "Environmental Protection Agency" or "EPA" means the United States Environmental Protection Agency;

(20) "exempted aquifer" has the meaning given in 20 AAC 25.990;

(21) "fault" means a surface or zone of rock fracture along which there has been displacement;

(22) "fluid" means any material or substance that flows or moves whether in a semisolid, liquid, sludge, gas, or any other form or state;

(23) "flow rate" means the volume per time unit given to the flow of gases or other fluid substances which emerges from an orifice, pump, turbine or passes along a conduit or channel;

(24) "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;

(25) "formation fluid" means fluid present in a formation under natural conditions as opposed to introduced fluid, such as drilling mud;

(26) "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 a storage facility;

(27) "lithology" means the description of rocks on the basis of their physical and chemical characteristics;

(28) "mechanical integrity" means the absence of significant leakage within an injection well's tubing, casing, or packer, or outside of the casing;

(29) "operator" means the person recognized as responsible for the well, site, storage facility, or storage facility covered by 20 AAC 25.1000 - 20 AAC 25.1900, and includes the storage operator as defined in AS 41.06.210; the operator can, but need not be, the owner of the storage facility;

(30) "owner" means the person that owns the well, site, or storage facility, and includes the "storage operator" as defined in AS 41.06.210; the owner may be, but is not always, the operator of the well, site, facility, or activity governed under 20 AAC 25.1000 - 20 AAC 25.1900;

(31) "packer" means a device lowered into a well to produce a fluid tight seal;

(32) "permit" means a storage facility permit under 20 AAC 25.1170, but does not include a permit which has not yet been the subject of final commission action, such as a draft permit;

(33) "person" means an individual, association, partnership, corporation, joint venture, protected series, or other legal or commercial entity, estate, trust, trustee, receiver, executor, administrator, fiduciary, municipality, state, federal, or tribal agency, or an agency or employee thereof;

(34) "plugging" or "well 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;

(35) "pressure" means the total load or force per unit area acting on a surface;

(36) "post injection site care" means appropriate monitoring and other actions, including corrective action, needed following cessation of injection of carbon dioxide to ensure that underground sources of drinking water are not endangered, as required by 20 AAC 25.1310;

(37) "pressure front" means the zone of elevated pressure that is created by the injection of carbon dioxide into the subsurface; 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 fluid or formation fluid into underground sources of drinking water;

(38) "site" means the land or water area where any storage facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity;

(39) "site closure" means the point or time, as determined by the commission through a certificate of completion under 20 AAC 25.1320, at which the storage operator is released from post-injection site care responsibilities;

(40) "stimulation" includes "well stimulation" and means several processes used to clean the well bore, enlarge channels, and increase pore space in the interval to be injected thus making it possible for wastewater to move more readily into the formation, and includes

(A) surging,

(B) jetting,

(C) blasting,

(D) acidizing,

(E) hydraulic fracturing;

(41) "surface casing" has the meaning given in 20 AAC 25.990;

(42) "transmissive fault or fracture" means a fault or fracture that has sufficient permeability and vertical extent to allow fluid to move between formations;

(43) "tribe" or “Indian tribe” means a

(A) tribe that is recognized by the United States Secretary of the Interior to exist as an Indian tribe under 25 U.S.C. 5131 (Federally Recognized Indian Tribe List Act of 1994);

(B) includes any subdivision, subsidiary, or business enterprise wholly owned by a federally recognized tribe;

(44) "underground sources of drinking water" or “USDW” has the meaning given in 20 AAC 25.990

(45) "well" has the meaning given in AS 41.06.210, a "well" may include an injection well;

(46) "well injection" or “underground injection” means the subsurface emplacement of fluid through a well;

(47) "well monitoring" means the measurement, by on-site instruments or laboratory methods, of the quality of water in a well;

(48) "well plug" means a watertight and gastight seal installed in a borehole or well to prevent movement of fluid. (Eff. ____/____/_____, Register _____)

Authority: AS 41.06.110 AS 41.06.130 AS 41.06.210

AS 41.06.120 AS 41.06.135