# CHAPTER 24

## Class VI Injection Wells and Facilities
## Underground Injection Control Program

**Section 1. Authority ~~and Purpose~~.**

These regulations are promulgated pursuant to Wyoming Statutes (W.S.) §§ 35-11-101 through 2005, specifically § 313~~, and no person shall sequester carbon dioxide unless authorized by an Underground Injection Control (UIC) permit issued by the Department of Environmental Quality (DEQ). The injection of carbon dioxide for purposes of a project for enhanced recovery of oil or other minerals approved by the Wyoming Oil and Gas Conservation Commission shall not be subject to the provisions of this regulation unless the operator converts to geologic sequestration upon the cessation of oil and gas recovery operations or as otherwise required by the Commission or Director~~.

~~These rules and regulations also provide financial assurance for the purposes specified in § 35-11-313.~~

**Section 2. Definitions.** The following definitions supplement ~~those~~ the definitions contained in Section § 35-11-103 of the Wyoming Environmental Quality Act.

(a) “Abandoned well” means a well whose use has been permanently discontinued or that is in a state of disrepair such that it cannot be used for its intended purpose or for observation purposes. Temporary or intermittent cessation of injection operations is not abandonment.

(b) "Aquifer" means a zone, stratum, or group of strata that can store and transmit water in sufficient quantities for a specific use.

(c) “Area of review” means the subsurface three-dimensional extent of the carbon dioxide plume, associated pressure front, and displaced fluids, as well as the overlying formations, and surface area above that delineated region. ~~The area of review is based on available site characterization, monitoring, and operational data as set forth in Section 8 of this chapter.~~

(d) "Background" means the constituents or parameters and the concentrations or measurements that describe water quality and water quality variability prior to the ~~subsurface discharge~~ underground injection.

(e) “Bore/casing annulus” means the space between the wellbore and the well casing.

(f) “Carbon dioxide plume” means the underground extent, in three dimensions, of an injected carbon dioxide stream.

(g) "Carbon dioxide stream" means carbon dioxide, plus associated substances derived from the source materials and any processing, and any substances added to the stream to enable or improve the injection process. Within this Chapter, the term "carbon dioxide stream" ~~This chapter~~ does not ~~apply to~~ include any carbon dioxide stream that meets the definition of a hazardous waste under 40 C.F.R. ~~Part~~ § 261.3.

(h) "Casing" means a pipe or tubing of appropriate material, of varying diameter and weight, lowered into a borehole during or after drilling ~~in order~~ to support the sides of the hole ~~and thus~~ to prevent the walls from caving, to prevent loss of drilling mud into porous ground, or to prevent water, gas, or other fluid from entering or leaving the hole.

(i) "Casing/tubing annulus" means the space between the well casing and the tubing.

(j) "Cementing" means ~~to seal~~ sealing the annular space around the outside of a casing string using a specially formulated mixture to hold the casing in place and prevent any movement of fluid in this annular space. Cementing also includes operations to seal the well at the time of abandonment.

(k) "Class I well" means a well used to inject hazardous or non-hazardous industrial, commercial, or municipal waste beneath the lowermost formation containing, within one- quarter (1/4) mile of the well bore, an underground source of drinking water.

~~(k)~~(l) "Class II ~~W~~well" ~~shall~~ means any commercial or non-commercial well used to dispose of water ~~and/~~or fluids directly associated with the production of oil ~~and/~~or gas, any well used to inject fluids or gas for enhanced oil recovery, or any well used for the storage of liquid hydrocarbons. ~~Non-hazardous gas plant wastes may be disposed of in a Class II well pending Environmental Protection Agency co-approval, as defined in Wyoming Oil and Gas Conservation Commission Rules and Regulations, Chapter 1, Section 2~~.

~~(l)~~(m) "Class V facility" means any property that contains an injection well, drywell, or subsurface fluid distribution system that is not defined as a Class I, II, III, IV, or VI well in ~~this chapter~~ these Regulations. ~~The~~ A Class V facility includes all systems of collection, treatment, and control that are associated with the ~~subsurface disposal~~ underground injection. ~~Class V injection wells are described in Water Quality Rules and Regulations Chapter 27.~~

~~(m)~~(n) "Class VI well" means a well ~~injecting a carbon dioxide stream for geologic sequestration, beneath the lowermost formation containing a USDW; or a well used for geologic sequestration of carbon dioxide that has been granted a waiver of the injection depth requirements pursuant to requirements of Section 10 of this chapter; or, a well used for geologic sequestration of carbon dioxide that has received an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to Section 5 of this cChapter. Class VI wells are regulated under this chapter.~~ that is used for injecting a carbon dioxide stream for geologic sequestration that:

(i) Is not experimental in nature and injects a carbon dioxide stream for geologic sequestration, beneath the lowermost formation containing an underground source of drinking water;

(ii) Has been granted a waiver of the injection depth requirements pursuant to requirements of Section 15 of this Chapter; or

(iii) Has received an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to Section 16 of this Chapter.

~~(n)~~(o) "Confining zone" means a geological formation, group of formations, or part of a formation stratigraphically overlying the injection zone(s) that act(s) as a barrier to fluid movement. For Class VI wells operating under an injection depth waiver, confining zone means a geologic formation, group of formations, or part of a formation stratigraphically overlying and underlying the injection zone(s) that acts as a barrier to fluid movement.

~~(o)~~(p) "Contaminant" means any pollution; wastes; or physical, chemical, biological, or radiological substance or matter in water.

~~(p)~~(q) "Corrective action" means the use of Administrator-approved methods to ensure that wells within the area of review do not serve as conduits for the movement of fluids into geologic formations other than those ~~to be~~ authorized under the permit.

~~(q) "Draft permit" means a document indicating the tentative decision by the Department to issue or deny, modify, revoke and reissue, or terminate a permit. A notice of intent to terminate a permit and a notice of intent to deny a permit are types of draft permits. A denial of a request for modification, revocation and reissuance, or termination is not a draft permit. A draft permit for issuance shall contain all conditions and content, compliance schedules and monitoring requirements required by this chapter.~~

(r) "Duly authorized representative" means a specific individual or a position having responsibility for the overall operation of the regulated facility or activity. The authorization shall be made in writing by a responsible corporate officer and shall be submitted to the Administrator.

(s) "Endanger~~ment~~" means ~~exposure~~ to expose to actions or activities that could pollute an ~~U~~underground ~~S~~source of ~~D~~drinking ~~W~~water ~~(USDW)~~.

(t) "Exempted aquifer" means an ~~"~~aquifer~~"~~ or a portion thereof that meets the criteria in the definition of ~~"~~underground source of drinking water~~"~~ but that has been exempted according to the procedures in Section ~~5(c)~~ 16 of this ~~c~~Chapter.

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

~~(v)~~(u) "Fact sheet" means a document briefly setting forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. ~~Fact sheets for Class VI wells are incorporated into the public notice.~~

~~(w) "Fault" means a surface or zone of rock fracture along which there has been displacement.~~

~~(x) "Flow rate" means the volume per time unit given to the flow of gases or other fluid substance that emerges from an orifice, pump, turbine or passes along a conduit or channel.~~

~~(y) "Fluid" means any material that flows or moves, whether semisolid, liquid, sludge, gas or any other form or state.~~

~~(z) "Formation" means a body of consolidated or unconsolidated rock characterized by a degree of lithologic homogeneity that is prevailingly, but not necessarily, tabular and is mappable on the earth's surface or traceable in the subsurface.~~

~~(aa) "Formation fluid" means fluid present in a formation under natural conditions as opposed to introduced fluids, such as drilling mud.~~

~~(bb)~~(v) "Geologic sequestration project" means an injection well or wells used to emplace a carbon dioxide stream into an injection zone for geologic sequestration. It includes the subsurface three-dimensional extent of the carbon dioxide plume, associated pressure front, and displaced fluid, as well as the surface area above that delineated region. ~~(Reference Section 35-11-103(c) of the Wyoming Environmental Quality Act for definitions of *geologic sequestration*, *geologic sequestration site*, and *geologic sequestration facilities*.)~~

~~(cc)~~(w) "Groundwater" means subsurface water that fills available openings in rock or soil materials such that they may be considered water saturated under hydrostatic pressure.

~~(dd)~~(x) "Groundwaters of the State" are all bodies of underground water that are wholly or partially within the boundaries of the State.

~~(ee)~~(y) "Hazardous waste" means a hazardous waste as defined in 40 C.F.R. § 261.3.

(z) "Indian lands" and "Indian country" means:

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

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

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

~~(ff) "Individual permit" means a permit issued for a specific facility operated by an individual operator, company, municipality, or agency. An individual permit may be established as an area permit and include multiple points of discharge that are all operated by the same person.~~

~~(gg)~~(aa) "Injectate" means the material injected through any underground injection facility ~~after it has received whatever pretreatment is done~~.

~~(hh)~~(bb) "Injection zone" means a geologic 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 geologic sequestration project.

~~(ii) "Lithology" means the description of rocks on the basis of their physical and chemical characteristics.~~

~~(jj)~~(cc) "Log" means ~~to make~~ a written record progressively describing the strata and geologic and hydrologic character thereof to include electrical, radioactivity, radioactive tracer, temperature, cement bond and similar surveys, a lithologic description of all cores, and test data.

~~(kk)~~(dd) "Long string casing" means a casing that is continuous from at least the top of the injection interval to the surface and that is cemented in place.

~~(ll) "Long-term stewardship" means after release of financial assurance, upon site closure, where the sequestration site may require periodic monitoring, measurement, or verification of plume stabilization over an indefinite period of time.~~

~~(mm) "Mechanical integrity" means the sound and unimpaired condition of all components of the well or facility or system for control of a subsurface discharge and associated activities.~~

~~(nn) "Owner or operator" means the owner or operator of any facility or activity subject to regulation under the Resource Conservation Recovery Act (RCRA) or an approved state program; the Safe Drinking Water Act Underground Injection Control (UIC) program administered by the US EPA or a state; the National Pollutant Discharge Elimination System (NPDES)or an authorized state program; or the Clean Water Act Section 404 Dredge and Fill permit program.~~

~~(oo)~~(ee) "Packer" means a device lowered into a well to produce a fluid-tight seal.

~~(pp) "Permit" means a Wyoming Underground Injection Control permit, unless otherwise specified.~~

~~(qq) "Permittee" means the named permit holder.~~

~~(rr)~~(ff) "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.

~~(ss)~~(gg) "Plugging record" means a systematic listing of permanent or temporary abandonment of water, oil, gas, test, exploration, and waste injection wells~~,~~. ~~and~~ A plugging record may contain a well log, description of amounts and types of plugging material used, the method employed for plugging, a description of formations that are sealed, and a graphic log of the well showing formation location, formation thickness, and location of plugging structures.

~~(tt)~~(hh) "Plume stabilization" ~~means~~ has been achieved when the carbon dioxide stream that has been injected subsurface essentially no longer expands vertically or horizontally and poses no threat to ~~USDWs~~ underground sources of drinking water, human health, safety, or the environment, as demonstrated by a minimum of three (3) consecutive years of monitoring data.

~~(uu) "Point of compliance" means a point at which the permittee shall meet all permit and regulatory requirements.~~

~~(vv) "Point of injection" means the last accessible sampling point prior to a fluid being released into the subsurface environment through a Class VI injection well.~~

~~(ww)~~(ii) "Post-injection site care" means the monitoring, measurement, verification, and other actions (including corrective action) needed to ensure that ~~USDW's~~ underground sources of drinking water are not endangered~~,~~ following the ~~closure~~ cessation of injection, and plugging and abandonment of injection wells until plume stabilization has been achieved and certified by the Administrator, as required under Section ~~17~~ 24 of this ~~c~~Chapter.

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

~~(yy)~~(jj) "Pressure front" means the zone of elevated pressure that is created by the injection of the carbon dioxide stream into the subsurface. The pressure front of a carbon dioxide plume refers to a zone where there is a pressure differential sufficient to cause movement of injected fluids or formation fluid if a migration pathway or conduit ~~were to~~ existed.

~~(zz) "Public hearing" means a non-adversary hearing held by the Administrator or Director of the Department. The hearing is conducted pursuant to Chapter 9 of the Wyoming Department of Environmental Quality Rules of Practice and Procedure.~~

~~(aaa)~~(kk) "Radioactive waste" means any waste that contains radioactive material in concentrations that exceed those listed in 10 C.F.R. Part 20, Appendix B, Table II, Column 2 ~~as of March 27, 2006~~.

~~(bbb)~~(ll) "Receiver" means any zone, interval, formation, or unit in the subsurface into which a carbon dioxide stream is injected.

~~(ccc)~~(mm) "Responsible corporate officer" means a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation.

~~(formerly located at Section 5(h)(i))~~(i) For a corporation~~-~~, ~~a~~"responsible corporate officer" means:

~~(formerly located at Section 5(h)(i)(A))~~(A) A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or

~~(formerly located at Section 5(h)(i)(B))~~(B) The manager of one (1) or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

~~(formerly located at Section 5(h)(ii))~~(ii) For a partnership ~~or sole proprietorship~~, "responsible corporate officer" ~~--~~ ~~by a~~ means a general partner. ~~or the proprietor, respectively;~~

~~(formerly located at Section 5(h)(ii))~~(iii) For a ~~partnership or~~ sole proprietorship ~~--~~, "responsible corporate officer" means ~~by a general partner or~~ the proprietor~~,~~ ~~respectively;~~.

~~(formerly located at Section 5(h)(iii))~~(iv) For a municipality, state, federal or other public agency~~--~~, "responsible corporate officer" means ~~by either~~ the principal executive officer or ranking elected official. For the purposes of this ~~section~~ definition, a principal executive officer of a ~~F~~federal agency includes:

~~(formerly located at Section 5(h)(iii)(A))~~(A) The chief executive officer of the agency~~,~~; or

~~(formerly located at Section 5(h)(iii)(B))~~(B) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency ~~(e.g., Regional Administrators of EPA)~~, such as a Regional Administrator.

~~(ddd)~~(nn) "Secondarily affected aquifer" means ~~any~~ an aquifer affected by migration of fluids from an injection facility~~, when the aquifer is not directly discharged into~~ that does not directly discharge into the secondarily affected aquifer.

~~(eee)~~(oo) "Site closure" ~~means the point/time, as certified by the Administrator following the requirements of Section 17 of this chapter, at which time the owner or operator of~~ occurs when a geologic sequestration project is released from post-injection site care responsibilities and the Administrator certifies site closure pursuant to Section 24(b)(iii) of this Chapter.

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

~~(ggg) "Subsurface discharge" means a discharge into a receiver.~~

~~(hhh)~~(pp) "Surface casing" means the first string of well casing to be installed in the well.

~~(iii) "Transmissive fault or fracture" means a fault or fracture that has sufficient permeability and vertical extent to allow fluids to move beyond the confining zone.~~

~~(jjj)~~(qq) "Underground injection" means a well injection, a subsurface discharge, a discharge into a receiver, or the subsurface emplacement of fluids through a well.

~~(kkk)~~(rr) ~~"USDW" or~~ "Underground source of drinking water" or "USDW" means ~~those~~ an aquifer~~s~~ or portions thereof that ~~meet the definition at 40 CFR144.3 as of November 15, 1984.~~ is not an exempted aquifer and:

(i) Supplies any public water system; or

(ii) Contains a sufficient quantity of groundwater to supply a public water system, and

(A) Currently supplies drinking water for human consumption; or

(B) Contains fewer than 10,000 mg/L total dissolved solids.

~~(lll) "US EPA Administrator" means the Administrator of US EPA in Washington, D.C.~~

~~(mmm) "Vadose Zone" means the unsaturated zone in the earth, between the land surface and the top of the first saturated aquifer. The vadose zone contains water at less than saturated conditions.~~

~~(nnn)~~(ss) "Water quality management area" means the area delineated for the protection of water quality under a Department-approved plan developed under Sections 303, 208, ~~and/~~or 201 of the ~~Federal~~ Clean Water Act, 33 U.S.C. § 1251 *et seq.* as amended.

~~(ooo)~~(tt) "Well" means ~~an opening, excavation, shaft, or hole in the ground allowing or used for an underground injection, or for monitoring, or an improved sinkhole; or a subsurface fluid distribution system.~~:

(i) An opening, excavation, shaft, or hole in the ground allowing or used for underground injection or monitoring;

(ii) An improved sinkhole; or

(iii) A subsurface fluid distribution system.

~~(ppp) "Well injection" means the subsurface emplacement of fluids through a well.~~

~~(qqq)~~(uu) "Well plug" means a watertight and gastight seal installed in a borehole or well to prevent movement of fluids.

~~(rrr)~~(vv) "Well stimulation" means ~~several~~ any process~~es~~ used to clean the wellbore, enlarge channels, ~~and~~ or increase pore space in the interval to be injected and includes surging, jetting, blasting, acidizing, and hydraulic fracturing.

~~(sss) "Well monitoring" means the measurement by on-site instruments or laboratory methods, of the quality of water in a well.~~

~~(ttt)~~(ww) "Workover" means to pull the tubing, packer, or any downhole hardware from the well and inspect, replace, or refurbish it prior to placing that hardware back in service, or to enter the hole with any drilling tool.

~~(uuu)~~(xx) "Wellhead protection area" means the area delineated for the protection of a public water supply utilizing a groundwater source under a Department-approved plan developed pursuant to Section ~~1528~~ 1428 of the ~~federal~~ Safe Drinking Water Act, 42 U.S.C. § 300h-7, or Section 1453 of the Safe Drinking Water Act, 42 U.S.C. § 300j-13.

**Section 3. Applicability.**

~~(formerly located at Section 4(a)(ii))~~(a) Construction, installation, operation, monitoring, testing, plugging, post-injection site care, and modification ~~to, or~~ of~~,~~ any Class VI well shall be allowed only in accordance with ~~these regulations~~ this Chapter.

~~(a)~~(b) ~~These regulations shall apply~~ This chapter applies to all Class VI wells ~~used to inject carbon dioxide streams for the purpose of geologic sequestration~~.

(i) This Chapter applies to owners, operators, and permittees of Class VI wells.

~~(b)~~(ii) ~~In addition, these regulations shall apply to owners and operators of~~ This Chapter applies to any Class I industrial, Class II, or Class V experimental or demonstration carbon dioxide injection project~~s who seek to apply for a Class VI geologic sequestration permit for their well or wells.~~ that is converted to a Class VI well. A permitted Class I, Class II, or Class V injection well may be converted to a Class VI well by obtaining a Class VI permit pursuant to this Chapter.

~~(i)~~(A) ~~Owners and/or operators of~~ To convert a permitted Class I, Class II, or Class V injection well~~(s) seeking to convert their well(s)~~ to a Class VI well, the applicant shall:

~~(i)~~(I) ~~a~~Apply for a Class VI permit; ~~and~~

~~(i)~~(II) ~~shall d~~Demonstrate to the Administrator that the well~~(s)~~ was~~/were~~ engineered and constructed to meet the requirements ~~outlined in Section 9(a)~~ of Section 14(a) of ~~of these regulations~~ this Chapter; and

~~(i)~~(III) ~~ensure protection of USDWs, I~~in lieu of meeting the requirements of Section ~~9(b)~~ 14(b) and Section ~~11(a)~~17(a) of this ~~c~~Chapter, demonstrate to the Administrator that the well will ensure protection of USDWs and will not endanger any USDW.

~~(i)~~(B) ~~By~~After December 10, 2011, owners or operators of ~~either~~ Class I wells previously permitted for the purpose of geologic sequestration ~~or~~ and Class V experimental technology wells no longer being used for experimental purposes that will continue injection of carbon dioxide for the purpose of geologic sequestration ~~must~~ shall ~~apply for~~ obtain a Class VI permit.

~~(ii)~~(C) If the Administrator determines that a converted Class I, Class II, or Class V injection well will not endanger any USDWs ~~will not be endangered~~, ~~such wells are exempt, at~~ the Administrator~~'s discretion,~~ may exempt the well from the requirements of Section ~~9~~14(b)(i) ~~through~~ - (vii) and Section ~~11~~17(a)(i) ~~through~~ - (v) of this ~~c~~Chapter.

~~(formerly located at Section 1)~~(c) The injection of carbon dioxide for purposes of a project for enhanced recovery of oil or other minerals approved by the Wyoming Oil and Gas Conservation Commission ~~shall~~ is not ~~be~~ subject to the provisions of this ~~regulation~~ Chapter unless the operator converts to geologic sequestration upon the cessation of oil and gas recovery operations or as otherwise required by the Commission or Director.

~~(c)~~(d) For owners ~~and~~ or operators of Class II ~~operations~~ wells described in W.S. § 35-11-313(c):

(i) The Director's determination of primary purpose and increased risk to a USDW shall include, at a minimum, an evaluation of the following criteria:

(A) Increase in reservoir pressure within the injection zone(s).

(B) Increase in carbon dioxide injection rates.

(C) Decrease in reservoir production rates.

(D) Distance between the injection zone(s) and USDWs.

(E) Suitability of the Class II area of review delineation.

(F) Quality of abandoned well plugs within the area of review.

(G) The owner's and/or operator's plan for recovery of carbon dioxide at the cessation of injection.

(H) The source and properties of the injected carbon dioxide.

(I) Any additional site-specific factors as determined by the Administrator.

(ii) An owner ~~and/~~or operator may apply for a Class VI permit upon recommendation by the Oil and Gas Conservation Commission supervisor, or by the Commission, that regulation of a Class II enhanced recovery operation be transferred to the Department.

(iii) An owner ~~and/~~or operator of a Class II enhanced recovery operation shall apply for a Class VI permit within thirty (30) days of receipt of written notice from the Director that a Class VI permit is required.

~~(d) These regulations do not apply to the injection of any carbon dioxide stream that meets the definition of a hazardous waste.~~

~~(e) Compliance with a permit during its term constitutes compliance, for purposes of enforcement, with Part C of the SDWA. However, a permit may be modified, revoked and reissued, or terminated during its term for cause as set forth in Section 4 of this chapter.~~

~~(f)~~(e) The requirements to maintain and implement approved plans, and maintain adequate financial responsibility, are directly enforceable regardless of whether the requirements are conditions of the permit.

**Section 4. ~~Permits Required;~~ Processing ~~of~~ Permits~~; Requirements Applicable to All Permits~~.**

~~(a) Permits required.~~

~~(i) Owners or operators of Class VI wells must obtain a permit in accordance with these regulations. Class VI wells are not authorized by rule to inject.~~

~~(ii) Construction, installation, operation, monitoring, testing, plugging, post-injection site care, and modification to, or of, any Class VI well shall be allowed only in accordance with these regulations.~~

~~(iii) Injections from Class VI wells shall be restricted to those receivers defined as Class V (Hydrocarbon Commercial) or Class VI groundwaters by the Department pursuant to Water Quality Rules and Regulations Chapter 8.~~

~~(iv) A separate permit to construct is not required under Water Quality Rules and Regulations Chapter 3 for any Class VI facility.~~

~~(v) Permits for Class VI wells shall be issued for the operating life of the facility and extend through the post-injection site care period until the geologic sequestration project is closed in accordance with Department rules and regulations.~~

~~(vi) Permits may be issued for individual Class VI wells and shall not be issued on an area basis for multiple points of discharge operated by the same person.~~

~~(vii) Each permit shall be reviewed by the Department at least once every five (5) years to determine whether it should be modified, revoked and reissued, terminated or a minor modification made pursuant to this chapter.~~

~~(viii) Sections of permit applications filed under this chapter that represent engineering work shall be sealed, signed, and dated by a licensed professional engineer as required by W.S. § 33-29-601.~~

~~(ix) Sections of permit applications filed under this chapter that represent geologic work shall be sealed, signed, and dated by a licensed professional geologist as required by W.S. § 33-41-115.~~

~~(b)~~(a) The following ~~P~~permit processing procedures are applicable to all Class VI ~~facilities, individual, and general~~ permits:

~~(b)(i)~~(i) The applicant shall submit the permit application to the Division in a format required by the Administrator.

~~(b)(ii)~~(ii) Within sixty (60) days of submission of ~~the~~ an application, the Administrator shall make an initial determination of completeness. An application shall be determined complete when the Administrator receives an application and any supplemental information necessary to determine compliance with ~~these regulations~~ this Chapter. The completeness of any application for a permit shall be judged independently of the status of any other permit application or permit for the same facility or activity.

~~(b)(iii)~~(iii) Re-submittal of information by an applicant for an incomplete application will ~~begin~~ restart the process described in this ~~s~~Section.

~~(b)(iv)~~(iv) At the end of any 60-day review period where an application is determined complete, the Administrator shall ~~prepare a fact sheet on the proposed operation and provide public notice pursuant to Section of this hapter.~~:

~~(b)(iv)~~(A) P~~p~~repare a draft permit for issuance or denial~~,~~;

~~(b)(iv)~~(B) P~~p~~repare a fact sheet on the proposed operation~~,~~; ~~and~~

~~(b)(iv)~~(C) P~~p~~rovide public notice pursuant to Section ~~20~~ 27 of this ~~c~~Chapter.~~;~~ and

~~(formerly (b)(xxxiv))~~(D) Notify in writing, ~~A list of~~ the contacts, ~~submitted to the Administrator,~~ for ~~those~~ any states or Tribes ~~identified to be within the area of review of the geologic sequestration project based on information~~ provided ~~in subparagraphs (b)(vii), (b)(vii)(A), (b)(vii)(B) of this section~~ pursuant to Section 10(b)(xxxvi) of this Chapter~~;~~ ~~and~~.

~~(A) If the Administrator tentatively decides to deny the permit application, he or she shall issue a notice of intent to deny. A notice of intent to deny the permit application is a type of draft permit that follows the same procedures as any draft permit prepared under this section.~~

~~(B) If the Administrator's final decision is that the tentative decision to deny the permit application was incorrect, he or she shall withdraw the notice of intent to deny and proceed to prepare a draft permit under Section 20(b) of this chapter.~~

~~(v) The Administrator may deny an individual permit for any of the following reasons:~~

~~(A) The application is incomplete;~~

~~(B) The project, if constructed and/or operated, will violate applicable state surface or groundwater standards;~~

~~(C) The application proposes the construction or operation of a project that does not meet the requirements of this chapter;~~

~~(D) The permitted facility would be in conflict with or is in conflict with a State-approved local wellhead protection plan, State-approved local source water protection plan, or State-approved water quality management plan; or~~

~~(E) Other justifiable reasons necessary to carry out the provisions of the Wyoming Environmental Quality Act.~~

~~(vi) Permits may be modified, revoked and reissued, or terminated either in response to a petition from any interested person (including the permittee) or upon the Administrator 's initiative. However, permits may only be modified, revoked and reissued, or terminated for the reasons specified in Section 4(b) of this chapter. All requests shall be in writing and shall contain facts or reasons supporting the request.~~

~~(A) If the Administrator decides the petition is not justified, the petitioner shall be sent a brief written response giving the reason for the decision. A request for modification, revocation and reissuance, or termination shall be considered denied if the Administrator takes no action within sixty (60) days after receiving the written request. Denials~~

~~of requests for modification, revocation and reissuance, or termination are not subject to public notice and comment. Denials by the Administrator may be appealed for hearing to the Environmental Quality Council by a letter briefly setting forth the relevant facts.~~

~~(vii) The Administrator may modify a permit when:~~

~~(A) Any material or substantial alterations or additions to the facility occur after permitting or licensing that justify the application of permit conditions that are different or absent in the existing permit;~~

~~(B) Any modification in the operation of the facility is capable of causing or increasing pollution in excess of applicable standards or permit conditions;~~

~~(C) Information warranting modification is discovered after the operation has begun that would have justified the application of different permit conditions at the time of permit issuance;~~

~~(D) Regulations or standards upon which the permit was based have changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued;~~

~~(E) Cause exists for termination, as described in this section, but the Department determines that modification is appropriate; or~~

~~(F) Modification is necessary to comply with applicable statutes, standards, or regulations.~~

~~(viii) The Administrator may modify a permit whenever the Administrator determines that permit changes are necessary based on:~~

~~(A) Area of review reevaluations under Section 8(d)(i) of this chapter;~~

~~(B) Any amendments to the testing and monitoring plan under Section 14(b)(xii) of this chapter;~~

~~(C) Any amendments to the injection well plugging plan under Section 16(c) of this chapter;~~

~~(D) Any amendments to the post-injection site care and site closure plan under Section 17(a)(iv) of this chapter;~~

~~(E) Any amendments to the emergency and remedial response plan under Section 18(a)(i) of this chapter;~~

~~(F) A review of monitoring and/or testing results conducted in accordance with permit requirements; or~~

~~(G) A determination that the injectate is a hazardous waste as defined in 40 CFR § 261.3 either because the definition has been revised, or because a previous determination has been changed.~~

~~(ix) Suitability of the facility location will not be considered at the time of permit modification or revocation and reissuance unless new information or standards indicate that a threat to human health or the environment exists that was unknown at the time of permit issuance.~~

~~(x) Minor modifications of permits may occur with the consent of the permittee without following the public notice requirements. Minor modifications will become final twenty (20) days from the date of receipt of such notice. For the purposes of this chapter, minor modifications may only:~~

~~(A) Correct typographical errors;~~

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

~~(C) 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;~~

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

~~(E) Change quantities or types of fluids injected that are within the capacity of the facility as permitted and, in the judgment of the Administrator, would not interfere with the operation of the facility or its ability to meet conditions described in the permit and would not change its classification;~~

~~(F) Change construction requirements approved by the Administrator pursuant to subparagraphs (c)(i)(BB)(I) through (III) of this section provided that any such alteration shall comply with the requirements of this chapter;~~

~~(G) Amend a plugging and abandonment plan that has been updated under Section 16 of this chapter; or~~

~~(H) Amend a Class VI injection well testing and monitoring plan, plugging plan, post-injection site care and site closure plan, or emergency and remedial response plan where the modifications merely clarify or correct the plan, as determined by the Administrator.~~

~~(xi) The Administrator may revoke and reissue or terminate a permit for any of the following reasons:~~

~~(A) Noncompliance with terms and conditions of the permit;~~

~~(B) Failure in the application or during the issuance process to disclose fully all relevant facts, or misrepresentation of any relevant facts at any time; or~~

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

~~(xii) The Administrator may modify a permit to resolve issues that could lead to the revocation of the permit under Section 4(b) of this chapter. The Administrator, as part of any notification of intent to terminate a permit, shall order the permittee to proceed with reclamation on a reasonable time period.~~

~~(xiii) If the Administrator tentatively decides to modify or revoke and reissue a permit, a draft permit incorporating the proposed changes shall be prepared. The Administrator may request additional information and, in the case of a modified permit, may require the submission of an updated application. In the case of revoked and reissued permits, the Administrator shall require the submission of a new application.~~

~~(xiv) In a permit modification under Section 4(b) of this chapter, only those conditions to be modified shall be reopened when a new draft permit is prepared. All other aspects of the existing permit shall remain in effect for the duration of the unmodified permit and the modified permit shall expire on the date when the original permit would have expired. When a permit is revoked and reissued under this section, the entire permit is reopened as if the permit has expired and is being reissued. During any revocation and reissuance proceeding, the permittee shall comply with all conditions of the existing permit until a new final permit is issued.~~

~~(xv) Permit modifications, revocations, or terminations shall be developed as a draft permit and are subject to the public notice and hearing requirements outlined in Section 20 of this chapter.~~

~~(xvi) Transfer of a permit is allowed only upon approval by the Administrator. When a permit transfer occurs pursuant to this section, the permit rights of the previous permittee will automatically terminate.~~

~~(A) The proposed permit holder shall apply in writing as though that person was the original applicant for the permit and shall further agree to be bound by all of the terms and conditions of the permit.~~

~~(B) Transfer will not be allowed if the permittee is in noncompliance with any term and conditions of the permit, unless the transferee agrees to bring the facility back into compliance with the permit.~~

~~(C) When a permit transfer occurs, the Administrator may modify a permit pursuant to this section. The Administrator shall provide public notice pursuant to Section 20 of this chapter for any modification other than a minor modification defined by this section.~~

~~(D) A permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued (under paragraph (xiii) of this subsection), or a minor modification made (under paragraph (xii) of this subsection), to identify the new permittee and incorporate such other requirements as may be necessary under the Safe Drinking Water Act.~~

~~(formerly Section 4(b)(iv))~~(b) ~~At the end of any 60-day review period where an application is determined complete,~~ If the ~~Administrator~~ Director intends to modify, terminate, revoke, or reissue a permit, the Administrator shall prepare a draft permit ~~for issuance or denial, prepare a fact sheet on the proposed operation,~~ incorporating the proposed changes and provide public notice pursuant to Section ~~20~~ 27 of this ~~c~~Chapter.

~~(A) If the Administrator tentatively decides to deny the permit application, he or she shall issue a notice of intent to deny. A notice of intent to deny the permit application is a type of draft permit that follows the same procedures as any draft permit prepared under this section.~~

~~(B) If the Administrator's final decision is that the tentative decision to deny the permit application was incorrect, he or she shall withdraw the notice of intent to deny and proceed to prepare a draft permit under Section 20(b) of this chapter.~~

~~(formerly Section 5(e))~~(c) Prior to ~~granting approval for the operation of~~ issuing a permit for a Class VI well, the ~~Administrator~~ Director shall consider ~~the following information~~:

~~(formerly Section 5(e)(i))~~(i) The final area of review based on modeling, using data obtained during logging and testing of the well and the formation as required by subparagraphs ~~(b)(xv), (b)(xxiii), (b)(xxiv), and (e)(iii) of this section~~ (b)(xviii), (b)(xix), (b)(xxvii), and (b)(xxviii) of Section 10 of this Chapter;

~~(formerly Section 5(e)(ii))~~(ii) Any relevant updates, based on data obtained during logging and testing of the well and the formation as required by subparagraphs ~~(b)(xv), (b)(xxiii), (b)(xxiv), and (e)(iii) of this section,~~ (b)(xviii), (b)(xix), (b)(xxvii), and (b)(xxviii) of Section 10 of this Chapter, to the information on the geologic structure and hydrogeologic properties of the proposed storage site and overlying formations, submitted to satisfy the requirements of subparagraph ~~(b)(ix) of this section~~ (b)(xi) of Section 10 of this Chapter;

~~(formerly Section 5(e))(iii)~~(iii) The results of the formation testing program required by ~~paragraph (b)(xvii) of this section~~ subparagraph (b)(xix) of Section 10 of this Chapter;

~~(formerly Section 5(e))(iv)~~(iv) Final injection well construction procedures that meet the requirements of Section ~~9~~ 14 of this ~~c~~Chapter;

~~(formerly Section 5(e))(v)~~(v) Any updates to the proposed area of review and corrective action plan, testing and monitoring plan, injection well-plugging plan, post-injection site care and site closure plan, or the emergency and remedial response plan submitted under ~~paragraph (b)(xxx) of this section~~ Section 10(b) of this chapter~~, which~~ that are necessary to address new information collected during logging and testing of the well and the formation as required by ~~all paragraphs of this section; and~~ Section 10 of this Chapter.

~~(formerly Section 4(b)(vi))~~(d) Permits may be modified, revoked and reissued, or terminated either in response to a petition from any interested person (including the permittee) or upon the Administrator 's initiative. ~~However, permits may only be modified, revoked and reissued, or terminated for the reasons specified in Section 4(b) of this chapter.~~

~~(formerly Section 4(b)(vi))~~(i) All ~~requests~~ petitions to modify, revoke and reissue, or terminate a permit shall be in writing and shall contain facts or reasons supporting the request.

~~(formerly Section 4(b)(vi)(A))~~(ii) If the Administrator decides ~~the~~ a petition to modify, revoke and reissue, or terminate a permit is not justified, the Administrator shall send the petitioner ~~shall be sent~~ a brief written response giving the reason for the decision. A ~~request~~ petition for modification, revocation and reissuance, or termination shall be considered denied if the Administrator takes no action within sixty (60) days after receiving the written request.

~~(formerly Section 4(b)(vi)(A))~~(iii) Denials of ~~requests~~ petitions for modification, revocation and reissuance, or termination are not subject to public notice and comment. ~~Denials by the Administrator may be appealed for hearing to the Environmental Quality Council by a letter briefly setting forth the relevant facts.~~

~~(formerly Section 4(a)(vii))~~(e) ~~Each permit shall be reviewed by t~~The ~~Department~~ Administrator shall review each permit at least once every five (5) years to determine whether it should be modified, revoked and reissued, or terminated ~~or a minor modification made pursuant to this chapter~~.

~~(c) Permit conditions.~~

~~(i) Permit conditions shall be incorporated either expressly or by reference. If incorporated by reference, a specific citation to the incorporated conditions must be given in the permit. All individual permits issued under this chapter shall contain the following conditions:~~

~~(A) A requirement that the permittee comply with all conditions of the permit, and any permit noncompliance constitutes a violation of these regulations and is grounds~~

~~for enforcement action, permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application;~~

~~(B) A requirement that if the permittee wishes to continue injection activity after the expiration date of the permit, the permittee must apply to the Administrator for, and obtain, a new permit prior to expiration of the existing permit;~~

~~(C) A stipulation that it shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit;~~

~~(D) A requirement that the permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit;~~

~~(E) A requirement that the permittee properly operate and maintain all facilities and systems of treatment and control, and related appurtenances, that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding and operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit;~~

~~(F) A stipulation that the filing of a request by the permittee, or at the instigation of the Administrator, for a permit modification, revocation, termination, or notification of planned changes or anticipated non-compliance, shall not stay any permit condition;~~

~~(G) A stipulation that this permit does not convey any property rights of any sort, or any exclusive privilege;~~

~~(H) A stipulation that the permittee shall furnish to the Administrator, within a specified time, any information that the Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. The permittee shall also furnish to the Administrator, upon request, copies of records required to be kept by the permit;~~

~~(I) A requirement that the permittee shall allow the Administrator, or an authorized representative of the Administrator, upon the presentation of credentials, during normal working hours, to enter the premises where a regulated facility is located, or where records are kept under the conditions of this permit, and~~

~~(I) Inspect the discharge and related facilities, practices, or operations regulated or required under this permit;~~

~~(II) Review and copy reports and records required by the permit;~~

~~(III) Collect fluid samples for analysis for the purposes of assuring permit compliance or as otherwise authorized by the SDWA, any substances or parameters at any location;~~

~~(IV) Measure and record water levels; and~~

~~(V) Perform any other function authorized by law or regulation.~~

~~(J) A requirement that the permittee furnish any information necessary to establish a monitoring program pursuant to Section 14 of this chapter. Conditions shall specify:~~

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

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

~~(III) Applicable reporting requirements based upon the impact of the regulated activity and as specified in Section 15 of this chapter. Reporting shall be no less frequent than specified in the above regulations.~~

~~(K) A requirement that all samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity and records of all monitoring information be retained by the permittee. The monitoring information to be retained shall be that information stipulated in the monitoring program established pursuant to the criteria in Section 14 of this chapter;~~

~~(L) A requirement that all applications, reports, and other information submitted to the Administrator contain certifications as required in Section 5(i) of this chapter, and be signed by a person who meets the requirements to sign permit applications found in Section 5(h), or for routine reports, a duly authorized representative;~~

~~(M) A requirement that the permittee give advance notice to the Administrator as soon as possible of any planned physical alteration or additions, other than authorized operation and maintenance, to the permitted facility and receive authorization prior to implementing the proposed alteration or addition;~~

~~(N) A requirement that any modification that may result in a violation of a permit condition shall be reported to the Administrator, and any modification that will result~~

~~in a violation of a permit condition shall be reported to the Administrator through the submission of a new or amended permit application;~~

~~(O) A requirement that any transfer of a permit must first be approved by the Administrator, and that no transfer will be approved if the facility is not in compliance with the existing permit unless the proposed permittee agrees to bring the facility into compliance;~~

~~(P) A requirement that monitoring results shall be reported at the intervals specified elsewhere in the permit;~~

~~(Q) A requirement that reports of compliance or non-compliance, or any progress reports on interim and final requirements contained in any compliance schedule, if one is required by the Administrator, shall be submitted no later than thirty (30) days following each schedule date;~~

~~(R) A requirement that the permittee shall report:~~

~~(I) Any monitoring or other information that indicates that any contaminant may cause an endangerment to a USDW or indicates that the injected carbon dioxide stream, displaced formation fluids, or associated pressure front may endanger a USDW or threaten human health, safety, or the environment. In addition, the owner or operator shall:~~

~~(1.) Immediately cease injection;~~

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

~~(3.) Notify the Administrator within twenty-four (24) hours.~~

~~(II) Any noncompliance with a permit condition or malfunction of the injection system that may cause fluid migration into or between USDWs or if an excursion is discovered. It shall be orally reported to the Administrator within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and a written submission shall be provided within five (5) days of the time the permittee becomes aware of any excursion or indication that a contaminant may cause an endangerment to a USDW. The written submission shall contain:~~

~~(1.) A description of the noncompliance and its cause;~~

~~(2.) The period of noncompliance, including exact dates and times, and, if the noncompliance has not been controlled, the anticipated time it is expected to continue; and~~

~~(3.) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.~~

~~.~~

~~(III) In addition, if an excursion is discovered the owner or operator shall provide written notice to all surface owners, mineral claimants, mineral owners, lessees and other owners of record of subsurface interests within thirty (30) days of discovery.~~

~~(S) A requirement that the permittee report all instances of noncompliance not already required to be reported under paragraphs (c)(i)(Q) through (R) of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (c)(i)(R) of this section;~~

~~(T) A requirement that if the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Administrator, the permittee shall promptly submit such facts or information;~~

~~(U) A requirement that the injection facility meet construction requirements outlined in Section 9 of this chapter, and that the permittee submit a notice of completion of construction to the Administrator; and allow for inspection of the facility upon completion of construction, prior to commencing any injection activity;~~

~~(V) A requirement that the permittee notify the Administrator at such times as the permit requires before conversion or abandonment of the facility;~~

~~(W) A requirement that injection may not commence until construction is complete. Construction is complete when:~~

~~(I) The permittee has submitted a notice of completion of construction to the Administrator; and~~

~~(II) The Administrator has inspected or otherwise reviewed the injection well and finds it is in compliance with the conditions of the permit, or the permittee has not received notice from the Administrator of their intent to inspect or otherwise review the injection well within thirteen (13) days of the date of the notice in subparagraph (U) of this paragraph, in which case prior inspection or review is waived and the permittee may commence injection. The Administrator shall include in his notice a reasonable time period in which they shall inspect the well.~~

~~(X) A requirement that the owner or operator of a Class VI well permitted under this part shall establish mechanical integrity prior to commencing injection or on a schedule determined by the Administrator. Thereafter, the owner or operator of Class VI wells must maintain mechanical integrity as defined in Section 13 of this chapter;~~

~~(Y) A requirement that when the Administrator determines that a Class VI well lacks mechanical integrity pursuant to Section 13 of this chapter, he/she shall give written notice of his/her determination to the owner or operator.~~

~~(I) Unless the Administrator requires immediate cessation, the owner or operator shall cease injection into the well within forty-eight (48) hours of receipt of the Administrator's determination.~~

~~(II) The Administrator may allow plugging of the well pursuant to the requirements of Section 16 of this chapter or require the permittee to perform such additional construction, operation, monitoring, reporting, and corrective action as is necessary to prevent the movement of fluid into or between USDWs caused by the lack of mechanical integrity. The owner or operator may resume injection upon written notification from the Administrator that the owner or operator has demonstrated mechanical integrity pursuant to Section 13 of this chapter.~~

~~(Z) A requirement that, for any Class VI well that lacks mechanical integrity, injection operations are prohibited until the permittee shows to the satisfaction of the Administrator under Section 13 of this chapter that the well has mechanical integrity.~~

~~(AA) A Class VI permit shall include conditions that meet the requirements set forth in Section 16 of this chapter. Where the plan meets the requirements of Section 16 of this chapter, the Administrator shall incorporate it into the permit as a permit condition. Temporary or intermittent cessation of injection operations is not abandonment.~~

~~(BB) Class VI injection well permits shall include conditions meeting the requirements of Section 9 of this chapter. Permits shall contain the following requirements when applicable:~~

~~(I) All wells shall achieve compliance with such requirements according to a compliance schedule established as a permit condition. The owner or operator of a proposed new injection well shall submit plans for testing, drilling, and construction as part of the permit application.~~

~~(II) No construction may commence until a permit has been issued containing construction requirements.~~

~~(III) All wells shall be in compliance with these requirements prior to commencing injection operations. Changes in construction plans during construction may be approved by the Administrator as minor modifications. No such changes may be physically incorporated into construction of the well prior to approval of the modification by the Administrator.~~

~~(IV) Corrective action as set forth in Section 8 of this chapter.~~

~~(V) Operation requirements as set forth in Section 9 of this chapter; the permit shall establish any maximum injection volumes and/or pressures necessary to ensure that fractures are not initiated in the confining zone, that injected fluids do not migrate into any underground source of drinking water, that formation fluids are not displaced into any underground source of drinking water, and to ensure compliance with the operating requirements.~~

~~(VI) Monitoring and reporting requirements as set forth in Sections 14 and 15 of this chapter. The permittee shall be required to identify types of tests and methods used to generate the monitoring data.~~

~~(VII) The owner or operator of a Class VI well must comply with the financial responsibility requirements set forth in Section 19 of this chapter.~~

~~(CC) The permit may, when appropriate, specify a schedule of compliance leading to compliance with the SDWA and 40 CFR Parts 144, 145, 146, and 124.~~

~~(I) Any schedules of compliance shall require compliance as soon as possible, and in no case later than three (3) years after the effective date of the permit.~~

~~(II) If a permit establishes a schedule of compliance that exceeds one (1) year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.~~

~~(1.) The time between interim dates shall not exceed one (1) year unless,~~

~~(2.) The time necessary for completion of any interim requirement is more than one (1) year and is not readily divisible into stages for completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.~~

~~(III) The permit shall be written to require that if paragraph (c)(i)(CC)(I) of this section is applicable, progress reports be submitted no later than thirty (30) days following each interim date and the final date of compliance.~~

~~(ii) In addition to the conditions required of all permits, the Administrator shall establish, on a case-by-case basis, conditions as required for monitoring, schedules of compliance, and such additional conditions as are necessary to prevent the migration of fluids into underground sources of drinking water. In the case of wells authorized by permit, these additional requirements shall be imposed by modifying the permit in accordance with this section, or the permit may be terminated under this section if cause exists, or appropriate enforcement action may be taken if the permit has been violated.~~

~~(iii) In addition to conditions required in all permits the Administrator shall establish conditions in permits as required on a case-by-case basis, to provide for and ensure~~

~~compliance with all applicable requirements of the SDWA and 40 CFR Parts 144, 145, 146, and 124.~~

~~(iv) New permits, and to the extent allowed under Section 4 modified or revoked and reissued permits, shall incorporate each of the applicable requirements referenced in this section. An applicable requirement is a State statutory or regulatory requirement that takes effect prior to final administrative disposition of the permit. An applicable requirement is also any requirement that takes effect prior to the modification or revocation and reissuance of a permit, to the extent allowed in Section 4.~~

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

**Section 5. ~~Permit Application.~~ Denying Permits.**

~~(a) It is the operator's responsibility to make application for and obtain a permit in accordance with these regulations. Each application must be submitted with all supporting data.~~

~~(b) A complete application for a Class VI well shall include:~~

~~(i) A brief description of the nature of the business and the activities to be conducted that require the applicant to obtain a permit under this chapter.~~

~~(ii) The name, address and telephone number of the operator, and the operator's ownership status and status as a Federal, State, private, public, or other entity.~~

~~(iii) Up to four SIC (Standard Industrial Classification) codes that best reflect the principal products or services provided by the facility.~~

~~(iv) The name, address, and telephone number of the facility. Additionally, the location of the geologic sequestration project shall be identified by section, township, range and county, noting which, if any, sections include Indian lands.~~

~~(v) Within the area of review, a listing and status of all permits or construction approvals associated with the geologic sequestration project received or applied for by the applicant under any of the following programs:~~

~~(A) Hazardous Waste Management under the Resource Conservation and Recovery Act (RCRA).~~

~~(B) UIC Program under the Safe Drinking Water Act.~~

~~(C) National Pollutant Discharge Elimination System (NPDES) under the Clean Water Act.~~

~~(D) Prevention of Significant Deterioration (PSD) program under the Clean Air Act.~~

~~(E) Nonattainment program under the Clean Air Act.~~

~~(F) National Emissions Standards for Hazardous Air Pollutants (NESHAPs) pre-construction approval under the Clean Air Act.~~

~~(G) Dredge and fill permitting program under section 404 of the Clean Water Act.~~

~~(vi) Within the area of review, a list of other relevant permits, whether federal or state, associated with the geologic sequestration project that the applicant has been required to obtain, such as construction permits. This includes a statement as to whether or not the facility is within a state approved water quality management plan area, a state approved wellhead protection area or a state approved source water protection area.~~

~~(vii) A map showing the injection well(s) for which a permit is sought and the applicable area of review, consistent with Section 8 of this chapter.~~

~~(A) Within the area of review, the map must show the number, or name and location of all known injection wells, producing wells, abandoned wells, plugged wells or dry holes, deep stratigraphic boreholes, state or EPA-approved subsurface cleanup sites, public drinking water supply wellhead or source water protection areas, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells and other pertinent surface features including structures intended for human occupancy, state, tribal, and territory boundaries, and roads.~~

~~(B) Only information of public record is required to be included on this map.~~

~~(C) The map should also show faults, if known or suspected.~~

~~(viii) A map delineating the area of review based upon modeling, using all available data including data available from any logging and testing of wells within and adjacent (within one (1) mile) to the area of review;~~

~~(A) A Class VI area of review shall never be less than the area of potentially affected groundwater.~~

~~(B) All areas of review shall be legally described by township, range, and section to the nearest ten (10) acres as described under the general land survey system.~~

~~(ix) A description of the general geology of the area to be affected by the injection of carbon dioxide including geochemistry, structure and faulting, fracturing and seals, and stratigraphy and lithology including petrophysical attributes. The description shall also~~

include sufficient information on the geologic structure and reservoir properties of the proposed storage site and overlying formations, including:

(A) Isopach maps of the proposed injection and confining zone(s), a structural contour map aligned with the top of the proposed injection zone, and at least two (2) geologic cross-sections of the area of review reasonably perpendicular to each other and showing the geologic formations from the surface to total depth;

(B) Location, orientation, and properties of known or suspected faults and fractures that may transect the confining zone(s) in the area of review and a determination that they would not interfere with containment;

(C) Information on seismic history that have affected the proposed area of review including knowledge of previous seismic events and history of these events, the presence and depth of seismic sources, and a determination that the seismicity would not compromise containment;

(D) Data sufficient to demonstrate the effectiveness of the injection and confining zone(s), including data on the depth, areal extent, thickness, mineralogy, porosity, vertical permeability, and capillary pressure of the injection and confining zone(s) within the area of review, and geologic changes based on field data that may include geologic cores, outcrop data, seismic surveys, well logs, and names and lithologic descriptions;

(E) Geomechanical information on fractures, stress, ductility, rock strength, and in situ fluid pressures within the confining zone; and

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

(x) A compilation of all wells and other drill holes within, and adjacent (within one (1) mile) to the area of review. Such data must include a description of each well and drill hole type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Administrator may require.

(A) Applicants shall also identify the location of all known wells within, and adjacent (within one (1) mile) to the area of review that penetrate the confining or injection zone.

(B) Applicants shall perform mapping with sufficient resolution as to make a comprehensive effort to identify wells that are not in the public record using aerial photography, aerial survey, physical traverse, or other methods acceptable to the Administrator.

(C) Applicants shall perform corrective action as specified in Section 8 of this chapter.

~~(xi) Maps and stratigraphic cross-sections indicating the general vertical and lateral limits of all USDWs, the location of water wells and springs within the area of review, their positions relative to the injection zone(s), and the direction of water movement, where known;~~

~~(xii) A characterization of the injection zone and aquifers above and below the injection zone that may be affected, including applicable pressure and fluid chemistry data to describe the projected effects of injection activities, and background water quality data that will facilitate the classification of any groundwaters that may be affected by the proposed discharge. This must include information necessary for the Division to classify the receiver and any secondarily affected aquifers under Water Quality Rules and Regulations Chapter 8;~~

~~(xiii) Baseline geochemical data on subsurface formations, including all USDWs in the area of review;~~

~~(xiv) Proposed operating data:~~

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

~~(B) Average and maximum surface 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 and any other substance(s) proposed for inclusion in the injectate stream; and~~

~~(E) Anticipated duration of the proposed injection period(s).~~

~~(xv) The compatibility of the carbon dioxide stream with fluids in the injection zone and minerals in both the injection and the confining zone(s), based on the results of the formation testing program, and with the materials used to construct the well;~~

~~(xvi) An assessment of the impact to fluid resources, on subsurface structures and the surface of lands that may reasonably be expected to be impacted, and the measures required to mitigate such impacts;~~

~~(xvii) Proposed formation testing program to obtain an analysis of the chemical and physical characteristics of the injection zone and confining zone and that meets the requirements of Section 11 of this chapter;~~

~~(xviii) Proposed stimulation program, a description of stimulation fluids to be used, and a determination that stimulation will not compromise containment. All stimulation programs must be approved by the Administrator as part of the permit application and incorporated into the permit;~~

(xix) Proposed procedure that outlines steps to conduct injection operation;

(xx) A wellbore schematic of the subsurface construction details and surface wellhead construction of the injection and monitoring wells;

(xxi) Injection well design and construction procedures that meet the requirements of Section 9 of this chapter;

(xxii) Proposed area of review and corrective action plan that meets the requirements under Section 8 of this chapter;

(xxiii) The status of corrective action on wells in the area of review;

(xxiv) All available logging and testing program data on the well(s) required by Section 11 of this chapter;

(xxv) A demonstration of mechanical integrity pursuant to Section 13 of this chapter;

(xxvi) A demonstration, satisfactory to the Administrator, that the applicant has met the financial responsibility requirements under Section 19 of this chapter;

(xxvii) Proposed testing and monitoring plan required by Section 14 of this chapter;

(xxviii)Proposed injection and monitoring well(s) plugging plan required by Section 16(b) of this chapter; where the plan meets the requirements of Section 16(b) of this chapter, the Administrator shall incorporate it into the permit as a permit condition.

(xxix) Proposed post-injection site care plan required by Section 17(a) of this chapter;

(xxx) Proposed emergency and remedial response plan required by Section 18 of this chapter;

(xxxi) A site and facilities description, including a description of the proposed geologic sequestration facilities;

(xxxii) Documentation sufficient to demonstrate that the applicant has all legal rights, including but not limited to the right to surface use, necessary to sequester carbon dioxide and associated constituents;

(xxxiii)Proof of notice to surface owners, mineral claimants, mineral owners, lessees, and other owners of record of subsurface interests as to the contents of such notice. Notice requirements shall at a minimum require:

~~(A) The publishing of notice of the application in a newspaper of general circulation in each county of the proposed operation at weekly intervals for four (4) consecutive weeks; and~~

~~(B) A copy of the notice shall also be mailed to all surface owners, mineral claimants, mineral owners, lessees and other owners of record of subsurface interests that are located within one (1) mile of the proposed boundary of the geologic sequestration site as defined by W.S. § 35-11-103(c)(xxi).~~

~~(xxxiv) A list of contacts, submitted to the Administrator, for those Tribes identified to be within the area of review of the geologic sequestration project based on information provided in subparagraphs (b)(vii), (b)(vii)(A), (b)(vii)(B) of this section; and~~

~~(xxxv) Any other information requested by the Administrator.~~

~~(c) Expansion to the Areal Extent of Existing Class II Aquifer Exemptions for Class VI Wells.~~

~~(i) The Administrator may consider a request from owners and/or operators of permitted Class II injection well(s) that are seeking to convert their well(s) to a Class VI well and are seeking an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption for the exclusive purpose of Class VI injection for geologic sequestration if the existing aquifer exemption and the affected wells meet the following conditions:~~

~~(A) It does not currently serve as a source of drinking water; and~~

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

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

~~(ii) Such requests will not be final until the Administrator submits the request as a revision to the applicable Federal UIC program under 40 CFR Part 147 or as a substantial program revision to an approved State UIC program under 40 CFR § 145.32 and EPA approves the request.~~

~~(A) 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 geologic sequestration must define (by narrative description, illustrations, maps, or other means) and describe in geographic and/or geometric terms (such as vertical and lateral limits and gradient) that are clear and definite, all aquifers or parts thereof that are requested to be designated as exempted using the criteria in subparagraphs (d)(i)(A-C) of this section.~~

~~(B) In evaluating a request to expand the areal extent of an aquifer exemption of a Class II enhanced oil recovery or enhanced gas recovery well for the purpose of Class VI injection, the Administrator must determine that the request meets the criteria for exemptions in subparagraphs (d)(i)(A-C) of this section. In making the determination, the Administrator shall consider:~~

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

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

~~(III) Whether the areal extent of the expanded aquifer exemption is of sufficient size to account for any possible revisions to the computational model during reevaluation of the area of review, pursuant to Section 8(d) of this chapter; and~~

~~(IV) Any information submitted to support a waiver request made by the owner or operator under Section 10 of this chapter, if appropriate.~~

~~(d) The Administrator shall notify, in writing, any Tribes within the area of review of the geologic sequestration project based on information provided in subparagraphs (b)(vii), (b)(vii)(A), (b)(vii)(B), and (b)(xxxiv) of this section.~~

~~(e) Prior to granting approval for the operation of a Class VI well, the Administrator shall consider the following information:~~

~~(i) The final area of review based on modeling, using data obtained during logging and testing of the well and the formation as required by subparagraphs (b)(xv), (b)(xxiii), (b)(xxiv), and (e)(iii) of this section;~~

~~(ii) Any relevant updates, based on data obtained during logging and testing of the well and the formation as required by subparagraphs (b)(xv), (b)(xxiii), (b)(xxiv), and (e)(iii) of this section, to the information on the geologic structure and hydrogeologic properties of the proposed storage site and overlying formations, submitted to satisfy the requirements of subparagraph (b)(ix) of this section;~~

~~(iii) The results of the formation testing program as required in paragraph (b)(xvii) of this section;~~

~~(iv) Final injection well construction procedures that meet the requirements of Section 9 of this chapter;~~

~~(v) Any updates to the proposed area of review and corrective action plan, testing and monitoring plan, injection well plugging plan, post injection site care and site closure plan, or the emergency and remedial response plan submitted under paragraph (b)(xxx) of this s~~Section, which are necessary to address new information collected during logging and testing of the well and the formation as required by all paragraphs of this section; and~~

~~(f) Owners or operators seeking a waiver of the requirement to inject below the lowermost USDW must also refer to Section 10 of this chapter and submit a supplemental report, as required at Section 10(a). The supplemental report is not part of the permit application.~~

~~(g) An applicant applying for a Class VI well permit must obtain public liability insurance to cover the geologic sequestration activities for which a permit is sought.~~

~~(i) The public liability insurance shall be in addition to the financial assurance required in Section 19 of this chapter.~~

~~(ii) The insurance policy shall provide for personal injury and property damage protection and shall be in place until a completion and release certificate has been obtained from the Administrator certifying that plume stabilization has been achieved.~~

~~(iii) The minimum insurance coverage for public liability insurance as required by W.S. § 35-11-313(f)(ii)(O) shall be five hundred thousand dollars ($500,000) for each occurrence of bodily injury or property damage, and one million dollars ($1,000,000) aggregate.~~

~~(iv)The public liability insurance shall include a rider requiring that the insurer notify the Administrator whenever substantive changes are made to the policy, including any termination or failure to renew.~~

~~(v) Self insurance in lieu of public liability insurance must meet state or federal requirements and be approved by the Administrator.~~

~~(h) All applications for permits, reports, or information to be submitted to the Administrator shall be signed by a responsible officer as follows:~~

~~(i) For a corporation - a responsible corporate officer means:~~

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

~~(B) The manager of one (1) or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.~~

~~(ii) For a partnership or sole proprietorship -- by a general partner or the proprietor, respectively;~~

~~(iii) For a municipality, state, federal or other public agency -- by either the principal executive officer or ranking elected official. For the purposes of this section, a principal executive officer of a Federal agency includes:~~

~~(A) The chief executive officer of the agency, or~~

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

~~(iv) A person is authorized as a responsible officer only if:~~

~~(A) The authorization is made in writing by a person described in paragraphs (i) through (iii) in this subsection;~~

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

~~(C) The written authorization is submitted to the Administrator.~~

~~(v) If an authorization under paragraph (iv) of this subsection is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (iv) of this subsection must be submitted to the Administrator prior to or together with any reports, information, or applications to be signed by an authorized representative.~~

~~(i) The application shall contain the following certification by the person signing the application:~~

~~"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 ensure 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."~~

~~(j) All data used to complete permit applications shall be kept by the applicant for the life of the geologic sequestration project and for ten (10) years following site closure.~~

~~(formerly Section 4(b)(v))~~(a) The ~~Administrator~~ Director may deny a~~n individual~~ permit for any of the following reasons:

~~(formerly Section 4(b)(v)(A))~~(i) The application is incomplete;

~~(formerly Section 4(b)(v)(B))~~(ii) The project, if constructed or operated, will violate applicable state surface or groundwater standards;

~~(formerly Section 4(b)(v)(C))~~(iii) The application proposes the construction or operation of a project that does not meet the requirements of this ~~c~~Chapter;

~~(formerly Section 4(b)(v)(a)(D))~~(iv) The permitted facility would be in conflict with or is in conflict with a State-approved local wellhead protection plan, State-approved local source water protection plan, or State-approved water quality management plan; or

~~(formerly Section 4(b)(v))(a)(E)~~(v) Other justifiable reasons necessary to carry out the provisions of the Wyoming Environmental Quality Act.

**Section 6.** ~~**Prohibitions.**~~ **Modifying Permits.**

~~(a) In addition to the requirements in W.S. § 35-11-301(a), no person shall:~~

~~(i) Discharge into, construct, operate, or modify any Class VI well unless permitted pursuant to this chapter;~~

~~(ii) Discharge to any zone except the authorized discharge zone as described in the permit;~~

~~(iii) Conduct any authorized injection activity in a manner that results in a violation of any permit condition, representations made in the application, or the request for coverage under the individual permit. A permit condition supersedes any application content.~~

~~(iv) Construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 141 or may otherwise adversely affect the health of persons. The applicant for a permit shall have the burden of showing that the requirements of this paragraph are met.~~

~~(b) If any water quality monitoring of an underground source of drinking water indicates the movement of any contaminant into the underground source of drinking water, except as authorized under this chapter, the Administrator shall prescribe such additional requirements for construction, corrective action, operation, monitoring, or reporting (including closure of the injection well) as are necessary to prevent such movement. In the case of wells authorized by permit, these additional requirements shall be imposed by modifying the permit in accordance with Section 4 of this chapter, or the permit may be terminated under Section 4 of~~

~~this chapter if cause exists, or appropriate enforcement action may be taken if the permit has been violated.~~

~~(c) No person shall inject any hazardous waste that has been banned from land disposal pursuant to Wyoming Hazardous Waste Rules Chapter 1.~~

~~(d) The construction of new, or operation or maintenance of any existing Class V wells for non-experimental geologic sequestration is prohibited.~~

~~(e) The Administrator may identify (by narrative description, illustrations, maps, or other means) and shall protect as underground sources of drinking water, all aquifers and parts of aquifers that meet the definition of "underground source of drinking water" in Section 2, except to the extent there is expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption for the exclusive purpose of Class VI injection for geologic sequestration under Section 5(c) of this chapter. Other than EPA-approved aquifer exemption expansions that meet the criteria set forth in Section 5(c) of this chapter, new aquifer exemptions shall not be issued for Class VI injection wells. Even if an aquifer has not been specifically identified by the Administrator, it is an underground source of drinking water if it meets the definition in Section 2 of this chapter.~~

~~(formerly Section 4(b)(vii))~~(a) The ~~Administrator~~ Director may modify a permit when:

~~(formerly Section 4(b)(vii)(A))~~(i) Any material or substantial alterations or additions to the facility occur after permitting ~~or licensing~~ that justify the application of different permit conditions ~~that are different or absent in the existing permit~~;

~~(formerly Section 4(b)(vii)(B))~~(ii) Any modification in the operation of the facility is capable of causing or increasing pollution in excess of applicable standards or permit conditions;

~~(formerly Section 4(b)(vii)(C))~~(iii) Information warranting modification is discovered after the operation has begun that would have justified the application of different permit conditions at the time of permit issuance;

~~(formerly Section 4(b)(vii)(D))~~(iv) Regulations or standards upon which the permit was based ~~have~~ changed ~~by promulgation of amended standards or regulations or by judicial decision~~ after the permit was issued;

~~(formerly Section 4(b)(vii)(E))~~(v) Cause exists for termination, as described in this ~~s~~Section, but the Department determines that modification is appropriate; ~~or~~

~~(formerly Section 4(b)(vii)(F))~~(vi)Modification is necessary to comply with applicable statutes, standards, or regulations~~.~~;

~~(formerly Section 4(b)(xvi))~~(vii) ~~Transfer of a permit is allowed only upon approval by the Administrator. When a permit transfer occurs pursuant to this section, the permit rights of the previous permittee will automatically terminate.~~The permit is transferred; or

~~(formerly Section 4(b)(viii)~~(viii) The Administrator ~~may modify a permit whenever the Administrator~~ determines that permit changes are necessary based on:

~~(formerly Section 4(b)(viii)(A)~~(A) Area of review reevaluations under Section ~~8(d)(i)~~ 13(c)(i) of this ~~c~~Chapter;

~~(formerly Section 4(b)(viii)(B)~~(B) ~~Any a~~Amendments to the testing and monitoring plan under Section ~~14(b)(xii)~~ 20(b)(xi) of this ~~c~~Chapter;

~~(formerly Section 4(b)(viii)(C)~~(C) ~~Any a~~Amendments to the injection well-plugging plan under Section ~~16(c)~~ 23(c) of this ~~c~~Chapter;

~~(formerly Section 4(b)(viii)(D)~~(D) ~~Any a~~Amendments to the post-injection site care and site closure plan under Section ~~17(a)(iv)~~ 24(a)(iv) of this ~~c~~Chapter;

~~(formerly Section 4(b)(viii)(E)~~(E) ~~Any a~~Amendments to the emergency and remedial response plan under Section ~~18(a)(i)~~ 25(a) of this ~~c~~Chapter;

~~(formerly Section 4(b)(viii)(F)~~(F) A review of monitoring ~~and/~~or testing results ~~conducted in accordance with permit requirements~~; or

~~(formerly Section 4(b)(viii)(G)~~(G) A determination that the injectate is a hazardous waste as defined in 40 CFR § 261.3 ~~either because the definition has been revised, or because a previous determination has been changed~~.

~~formerly Section 4(b)(x)~~(b) The Administrator may make ~~M~~minor modifications ~~of~~ to permits ~~may occur~~ with the consent of the permittee. ~~without following the public notice requirements.~~ The Administrator shall notify the permittee of ~~M~~minor modifications to its permit, and the modifications ~~will~~ shall become final twenty (20) days from the date of receipt of such notice. ~~For the purposes of this chapter,~~ ~~m~~Minor modifications may only:

~~formerly Section 4(b)(x)(A)~~(i) Correct typographical errors;

~~formerly Section 4(b)(x)(B)~~(ii) Require more frequent monitoring or reporting by the permittee;

~~formerly Section 4(b)(x)(C)~~(iii) 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;

~~formerly Section 4(b)(x)(D)~~(iv) Allow for a permit transfer and change in ownership or operational control of a facility where the Administrator determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees ~~have~~ has been submitted to the Administrator;

~~formerly Section 4(b)(x)(E)~~(v) Change quantities or types of fluids injected that are within the capacity of the facility as permitted and, in the judgment of the Administrator, would not interfere with the operation of the facility or its ability to meet conditions described in the permit and would not change its classification;

~~formerly Section 4(b)(x)(F)~~(vi) Change construction requirements approved by the Administrator pursuant to ~~subparagraphs (c)(i)(BB)(I) through (III) of this section~~ Section 9(b)(xxix)(A)-(C) of this Chapter, provided that ~~any such~~ the alteration ~~shall~~ compl~~y~~ies with the requirements of this ~~c~~Chapter;

~~formerly Section 4(b)(x)(G)~~(vii) Amend a well-plugging ~~and abandonment~~ plan that has been updated under Section ~~16~~ 23 of this ~~c~~Chapter; or

~~formerly Section 4(b)(x)(H)~~(ix) Amend a Class VI injection well testing and monitoring plan, well-plugging plan, post-injection site care and site closure plan, or emergency and remedial response plan where the modifications merely clarify or correct the plan~~, as determined by the Administrator~~.

~~formerly Section 4(b)(xii)~~(c) The ~~Administrator~~ Director may modify a permit to resolve issues that could lead to the revocation or termination of the permit under Section ~~4(b)~~ 7(a) of this ~~c~~Chapter. ~~The Administrator, as part of any notification of intent to terminate a permit, shall order the permittee to proceed with reclamation on a reasonable time period.~~

~~(formerly Section 4(b)(xiv)~~(d) When the ~~Administrator~~ Director modifies a permit, ~~In a permit modification under Section 4(b) of this chapter,~~ only ~~those~~ the conditions ~~to be~~ that are being modified shall be reopened when a new draft permit is prepared. All other aspects of the existing, unmodified permit shall remain in effect for the duration of the ~~un~~modified permit and the modified permit shall expire on the date when the original permit would have expired. ~~When a permit is revoked and reissued under this section, the entire permit is reopened as if the permit has expired and is being reissued. During any revocation and reissuance proceeding, the permittee shall comply with all conditions of the existing permit until a new final permit is issued. (formerly Section 4(b)(ix))~~ Suitability of the facility location ~~will~~ shall not be considered ~~at the time of permit modification or revocation and reissuance~~ unless new information or standards indicate that a threat to human health, safety, or the environment exists that was unknown at the time of permit issuance.

~~formerly Section (4)(b)(xiii)~~(e) ~~If the Administrator tentatively decides to modify or revoke and reissue a permit, a draft permit incorporating the proposed changes shall be prepared.~~ The Administrator ~~may request additional information and, in the case of a modified permit,~~ may require the submission of ~~an updated~~ a new application to modify a permit. ~~In the case of~~

~~revoked and reissued permits, the Administrator shall require the submission of a new application.~~

**Section 7. ~~Minimum Criteria for Siting Class VI Wells.~~ Terminating, Revoking, and Reissuing Permits.**

~~(a) Owners or operators of Class VI wells must demonstrate to the satisfaction of the Administrator that the wells will be sited in areas with a suitable geologic system. The geologic system must be comprised of:~~

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

~~(ii) A confining zone(s) that is free of transmissive faults or fractures and of sufficient areal extent and integrity to contain the injected carbon dioxide stream and displaced formation fluids and allow injection at proposed maximum pressures and volumes without initiating or propagating fractures in the confining zone(s) or causing non-transmissive faults to become transmissive.~~

~~(b) Owners or operators of Class VI wells must identify and characterize additional zones, if they exist, that will impede vertical fluid movement, allow for pressure dissipation, and provide additional opportunities for monitoring, mitigation, and remediation. Vertical faults and fractures that transect these zones must be identified.~~

~~(formerly Section 4(b)(xi)~~(a) The ~~Administrator~~ Director may terminate a permit or revoke and reissue ~~or terminate~~ a permit for any of the following reasons:

~~(formerly Section 4(b)(xi)(A)~~(i) Noncompliance with terms and conditions of the permit;

~~(formerly Section 4(b)(xi)(B)~~(ii) Failure in the application or during the issuance process to disclose fully all relevant facts, or misrepresentation of any relevant facts at any time; or

~~(formerly Section 4(b)(xi)(C)~~(iii) A determination that the activity ~~endangers~~ threatens human health, safety, or the environment and can only be regulated to acceptable levels by a permit modification or termination.

~~(formerly Section 4(b)(xii)~~(b) ~~The Administrator may modify a permit to resolve issues that could lead to the revocation of the permit under Section 4(b) of this chapter. The Administrator, a~~As part of any ~~notification~~ notice of intent to terminate a permit, the Director shall order the permittee to proceed with reclamation ~~on~~ within a reasonable time period.

~~(formerly Section 4(b)(xiii))~~(c) ~~If the Administrator tentatively decides to modify or revoke and reissue a permit, a draft permit incorporating the proposed changes shall be prepared. The Administrator may request additional information and, in the case of a modified permit, may~~

~~require the submission of an updated application.~~ ~~In the case of revoked and reissued permits, the Administrator shall require the submission of~~ A revoked permit may be reissued only if a new application is submitted.

~~(formerly Section 4(b)(xiv))~~(d) ~~In a permit modification under Section 4(b) of this cChapter, only those conditions to be modified shall be reopened when a new draft permit is prepared. All other aspects of the existing permit shall remain in effect for the duration of the unmodified permit and the modified permit shall expire on the date when the original permit would have expired.~~ When a permit is revoked and reissued ~~under this section~~, the entire permit is reopened as if the permit has expired and is being reissued, except that suitability of the facility location shall not be considered unless new information or standards indicate that a threat to human health, safety, or the environment exists that was unknown at the time of permit issuance. During any revocation and reissuance proceeding, the permittee shall comply with all conditions of the existing permit until a new final permit is issued.

**Section 8.** ~~**Area of Review Delineation and Corrective Action.**~~ **Transferring Permits.**

~~(a) The area of review is based on computational modeling that accounts for the physical and chemical properties of all phases of the injected carbon dioxide stream. The owner or operator will re-evaluate the area of review at least every two (2) years during the operational life of the facility, and then no less frequently than every five (5) years through the post-injection site care period until the geologic sequestration project is closed in accordance with department rules and regulations.~~

~~(b) The owner or operator of a Class VI well must prepare, maintain, and comply with a plan to delineate the area of review for a proposed geologic sequestration project, re-evaluate the delineation, and perform corrective action that meets the requirements of this section and is acceptable to the Administrator. As a part of the permit application for approval by the Administrator, the owner or operator must submit an area of review and corrective action plan that includes the following information:~~

~~(i) The method for delineating the area of review that meets the requirements of paragraph (c) of this section, including the name, version and availability of the model to be used, assumptions that will be made, and the site characterization data on which the model will be based;~~

~~(ii) A description of:~~

~~(A) The monitoring and operational conditions that would warrant a re-evaluation of the area of review prior to the next scheduled re-evaluation as determined by the minimum fixed frequency established in paragraph (a) of this section.~~

~~(B) How monitoring and operational data (e.g., injection rate and pressure) will be used to evaluate the area of review; and~~

~~(C) How corrective action will be conducted to meet the requirements of paragraph (c)(v) of this section, including:~~

~~(I) What corrective action will be performed prior to injection;~~

~~(II) 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;~~

~~(III) How corrective action will be adjusted if there are changes in the area of review; and~~

~~(IV) How site access will be ensured for future corrective action.~~

~~(c) Owners or operators of Class VI wells must perform the following actions to delineate the area of review, identify all wells that require corrective action, and perform corrective action on those wells:~~

~~(i) Predict, using existing computational modeling:~~

~~(A) The projected lateral and vertical migration of the carbon dioxide plume and formation fluids in the subsurface from the commencement of injection activities until the plume movement ceases;~~

~~(B) The pressure differentials, and demonstrate that pressure differentials sufficient to cause the movement of injected fluids or formation fluids into a USDW or to otherwise threaten human health, safety, or the environment will not be present (or for a fixed time period as determined by the Administrator);~~

~~(C) The potential need for brine removal, and;~~

~~(D) The long-term effects of pressure buildup if brine is not removed.~~

~~(ii) The modeling must:~~

~~(A) Be based on:~~

~~(I) Detailed geologic data available or collected to characterize the injection zone, confining zone and any additional zones; and~~

~~(II) Anticipated operating data, including injection pressures, rates and total volumes over the proposed operational life of the facility.~~

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

~~(C) Consider potential migration through faults, fractures, and artificial penetrations.~~

~~(iii) Using methods approved by the Administrator, 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 and/or completion, and any additional information the Administrator may require; and~~

~~(iv) Determine which abandoned wells in the area of review have been plugged in a manner that prevents the movement of:~~

~~(A) Carbon dioxide that may endanger USDWs or otherwise threaten human health, safety, or the environment; or~~

~~(B) Displaced formation fluids, or other fluids, including the use of materials compatible with the carbon dioxide stream, that may endanger USDWs or otherwise threaten human health, safety, or the environment.~~

~~(v) Owners or operators of Class VI wells that are determined to need corrective action using methods that are approved by the Administrator, must perform corrective action on all wells in the area of review to prevent the movement of fluid into or between USDWs including use of materials compatible with the carbon dioxide stream, where appropriate.~~

~~(d) At a fixed frequency, not to exceed two (2) years during the operational life of the facility, or five (5) years during the post-injection site care period (until site closure) as specified in the area of review and corrective action plan, or when monitoring and operational conditions warrant, owners or operators must:~~

~~(i) Re-evaluate the area of review in the same manner specified in paragraph (c)(i) of this section;~~

~~(ii) Identify all wells in the re-evaluated area of review that require corrective action in the same manner specified in paragraph (c)(iv) of this section;~~

~~(iii) Perform corrective action on wells requiring corrective action in the reevaluated area of review in the same manner specified in paragraph (c)(v) of this section; and~~

~~(iv) Submit an amended area of review and corrective action plan or demonstrate to the Administrator through monitoring data and modeling results that no change to the area of review and corrective action plan is needed.~~

~~(A) Any amendments to the area of review and corrective action plan must be approved by the Administrator;~~

~~(B) Any amendments to the area of review must be incorporated into the permit; and~~

~~(C) Any amendments to the area of review are subject to the permit modification requirements of Section 4 of this chapter, as appropriate.~~

~~(e) The emergency and remedial response plan (as required by Section 18 of this chapter) and a demonstration of financial responsibility (as described by Section 19 of this chapter) must account for the entire area of review (as modified), regardless of whether or not corrective action in the area of review is phased.~~

~~(f) All modeling inputs and data used to support area of review reevaluations under paragraph (d) of this section shall be retained for ten (10) years.~~

(a) To transfer a permit:

~~(formerly Section 4(b)(xvi))(A)~~(i) The proposed permit ~~holder~~ transferee shall apply in writing as though that person ~~was~~ were the original applicant for the permit; and

~~(formerly Section 4(b)(xvi))(A)~~(ii) The proposed permit transferee shall ~~further~~ agree to be bound by all of the terms and conditions of the permit.

~~(formerly Section 4(b)(xvi))~~(b) Transfer of a permit is allowed only upon approval by the ~~Administrator~~ Director.

~~(formerly Section 4(b)(xvi))~~(c) When a permit transfer occurs pursuant to this section, the permit rights of the previous permittee ~~will~~ automatically terminate.

~~(formerly Section 4(b)(xvi))(B)~~(d) Transfer ~~will~~ shall not be allowed if the permittee is in noncompliance with any term and conditions of the permit~~,~~ unless the transferee agrees to bring the facility back into compliance with the permit.

~~(formerly Section 4(b)(xvi))(D)~~(e) A permit may be transferred by modifying the permit or by revoking and reissuing the permit ~~the permittee to a new owner or operator only if the permit has been modified or revoked and reissued (under paragraph (xiii) of this subsection), or a minor modification made (under paragraph (xii) of this subsection),~~ to identify the new permittee and incorporate ~~such other requirements as may be necessary under the Safe Drinking Water Act~~ the requirements of this Chapter and the Wyoming Environmental Quality Act, W.S. § 35-11-101 *et seq*.

**Section 9. ~~Construction and Operation Standards for Class VI Wells.~~ Permit Conditions.**

~~(a) The owner or operator must ensure that all Class VI wells are designed, at a minimum, to the construction standards set forth by the Department and the Wyoming Oil and Gas Conservation Commission, as applicable, and constructed and completed to:~~

~~(i) Prevent the movement of fluids into or between USDWs or into any unauthorized zones;~~

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

~~(iii) Permit continuous monitoring of the annulus space between the injection tubing and long string casing.~~

~~(b) 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 well.~~

~~(i) All well materials must be compatible with fluids with which the materials may be expected to come into contact, and meet or exceed standards developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Administrator.~~

~~(ii) The casing and cementing program must be designed to prevent the movement of fluids into or between USDWs.~~

~~(iii) In order to allow the Administrator to determine and specify casing and cementing requirements, the owner or operator must provide the following information:~~

~~(A) Depth to the injection zone;~~

~~(B) Injection pressure, external pressure, internal pressure, and axial loading;~~

~~(C) Hole size;~~

~~(D) Size and grade of all casing strings (wall thickness, external diameter, nominal weight, length, joint specification and construction material), including whether the casing is new, or used;~~

~~(E) Corrosiveness of the carbon dioxide stream and formation fluids;~~

~~(F) Down-hole temperatures and pressures;~~

~~(G) Lithology of injection and confining zones;~~

~~(H) Type or grade of cement and additives; and~~

~~(I) Quantity, chemical composition, and temperature of the carbon dioxide stream.~~

~~(iv) Casing must extend through the base of the lowermost USDW above the injection zone and be cemented to the surface through the use of a single or multiple strings of casing and cement.~~

~~(v) At least one (1) long string casing, using a sufficient number of centralizers, must be set in a manner so as to create a cement bond through the overlying and/or underlying confining zones(s). The long string casing must extend to the injection zone, must be cemented by circulating cement to the surface in one (1) or more stages, and must be isolated by placing cement and/or other isolation techniques as necessary to provide adequate isolation of the injection zone and provide for protection of USDWs, human health, safety, and the environment.~~

~~(A) Circulation of cement may be accomplished by staging. The Administrator may approve an alternative method of cementing in cases where the cement cannot be recirculated to the surface, provided the owner or operator can demonstrate by using logs that the cement does not allow fluid movement behind the wellbore.~~

~~(vi) Cement and cement additives must be suitable for use with the carbon dioxide stream and formation fluids and of sufficient quality and quantity to maintain integrity over the operating life of the well.~~

~~(vii) The integrity and location of the cement shall be verified using technology capable of evaluating cement quality radially with sufficient resolution to identify the location of channels, voids, or other areas of missing cement to ensure that USDWs are not endangered and that human health, safety, and the environment are protected.~~

~~(c) All owners and operators of Class VI wells must inject fluids through tubing with a packer set at a depth opposite a cemented interval at the location approved by the Administrator.~~

~~(i) Tubing and packer materials used in the construction of each Class VI well must be compatible with fluids with which the materials 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 Administrator.~~

~~(ii) In order for the Administrator to determine and specify requirements for tubing and packer, the owner or operator must submit the following information:~~

~~(A) Depth of setting;~~

~~(B) Characteristics of the carbon dioxide stream (e.g., chemical content, corrosiveness, temperature, and density) and formation fluids;~~

~~(C) Maximum proposed injection pressure;~~

~~(D) Maximum proposed annular pressure;~~

~~(E) Maximum proposed injection rate (intermittent or continuous) and volume of the carbon dioxide stream;~~

~~(F) Size of tubing and casing; and~~

~~(G) Tubing tensile, burst, and collapse strengths.~~

~~(formerly Section 4(c)(i))~~(a) Permit conditions shall be incorporated either expressly or by reference. If incorporated by reference, a specific citation to the incorporated conditions ~~must~~ shall be given in the permit.

~~(formerly Section 4(c)(i))~~(b) All ~~individual~~ permits issued under this ~~c~~Chapter shall contain the following conditions:

~~(formerly Section 4(c)(i)(A))~~(i) A requirement that the permittee ~~comply~~ complies with all conditions of the permit, and a statement that any permit noncompliance constitutes a violation of these regulations and is grounds for enforcement action, permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application;

~~(formerly Section 4(c)(i)(B)) A requirement that if the permittee wishes to continue injection activity after the expiration date of the permit, the permittee must apply to the Administrator for, and obtain, a new permit prior to expiration of the existing permit;~~

~~(formerly Section 4(c)(i)(C))~~(ii) A stipulation that it shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit;

~~(formerly Section 4(c)(i)(D))~~(iii) A requirement that the permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit;

~~(formerly Section 4(c)(i)(E))~~(iv) A requirement that the permittee properly operates and maintains all facilities and systems of treatment and control, and related appurtenances, that are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding and operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit;

~~(formerly Section 4(c)(i)(F))~~(v) A stipulation that the filing of a request by the permittee, or at the instigation of the Administrator, for a permit modification, revocation,

termination, or notification of planned changes or anticipated non-compliance, shall not stay any permit condition;

~~(formerly Section 4(c)(i)(G))~~(vi) A stipulation that ~~this~~ the permit does not convey any property rights of any sort, or any exclusive privilege;

~~(formerly Section 4(c)(i)(H))~~(vii) A stipulation that the permittee shall furnish to the Administrator, within a specified time, any information that the Administrator ~~may~~ requests to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. The permittee shall also furnish to the Administrator, upon request, copies of records required to be kept by the permit;

~~(formerly Section 4(c)(i)(I))~~(viii) A requirement that the permittee shall allow the Administrator, or an authorized representative of the Administrator, upon the presentation of credentials, during normal working hours, to enter the premises where a regulated facility is located, or where records are kept under the conditions of this permit, and:

~~(formerly Section 4(c)(i)(I)(I))~~(A) Inspect the discharge and related facilities, practices, or operations regulated or required under this permit;

~~(formerly Section 4(c)(i)(I)(II))~~(B) Review and copy reports and records required by the permit;

~~(formerly Section 4(c)(i)(I)(III))~~(C) Collect fluid samples for analysis for the purposes of ~~assuring~~ ensuring permit compliance or as otherwise authorized by the ~~SDWA,~~ Wyoming Environmental Quality Act of any substances or parameters at any location;

~~(formerly Section 4(c)(i)(I)(IV))~~(D) Measure and record water levels; ~~and~~

(E) Collect resource data as defined by W.S. § 6-3-414; and

~~(formerly Section 4(c)(i)(I)(V))~~(F) Perform any other function authorized by law or regulation.

(ix) A requirement that:

(A) If the facility is located on property not owned by the permittee, the permittee shall also secure from the landowner upon whose property the facility is located permission for Department personnel and their invitees to enter the premises where the facility is located, or where records are kept under the conditions of this permit, and collect resource data as defined by W.S. § 6-3-414, inspect and photograph the facility, collect samples for analysis, review records, and perform any other function authorized by law or regulation. The permittee shall secure and maintain such access for the duration of the permit and the post-injection site care and site closure period; and

(B) If the facility cannot be directly accessed using public roads, the permittee shall also secure permission for Department personnel and their invitees to enter and cross all properties necessary to access the facility. The permittee shall secure and maintain such access for the duration of the permit and the post-injection site care and site closure period;

~~(formerly Section 4(c)(i)(J))~~(x) A requirement that the permittee furnishes any information necessary to establish a testing and monitoring ~~program~~ pursuant to Section ~~14~~ 20 of this ~~c~~Chapter. Conditions shall specify:

~~(formerly Section 4(c)(i)(J)(I))~~(A) Required monitoring including type, intervals, and frequency sufficient to yield data that are representative of the monitored activity including when appropriate, continuous monitoring;

~~(formerly Section 4(c)(i)(J)(II))~~(B) Requirements concerning the proper use, maintenance, and installation, ~~when appropriate,~~ of monitoring equipment or methods, including biological monitoring methods ~~when appropriate~~; and

~~(formerly Section 4(c)(i)(J)(III))~~(C) ~~Applicable r~~Reporting and notice requirements based upon the impact of the regulated activity and as specified in Section ~~15~~ 22 of this ~~c~~Chapter. Reporting shall be no less frequent than specified in ~~the above regulations.~~ Section 22 of this Chapter;

~~(formerly Section 4(c)(i)(K))~~(xi) A requirement that all samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity and that records of all monitoring information be retained by the permittee~~. The monitoring information to be retained shall be that information stipulated in the monitoring program established pursuant to the criteria in Section 14 of this chapter~~;

~~(formerly Section 4(c)(i)(L))~~(xii) A requirement that all applications, reports, and other information submitted to the Administrator contain the certifications ~~as~~ required in Section ~~5(i)~~ 10(d) of this ~~c~~Chapter by a responsible corporate officer~~, and be signed by a person who meets the requirements to sign permit applications found in Section 5(h), or for routine reports, a duly authorized representative~~;

(A) A responsible corporate officer, as defined in Section 2(mm) of this Chapter, may authorize an individual or a position that does not meet the requirements of subparagraphs (i), (ii), (iii), or (iv) of Section 2(mm) to act as a "duly authorized representative." ~~(formerly located at Section 5(h)(iv)) A person is authorized~~ To authorize ~~as~~ a ~~responsible officer~~ duly authorized representative ~~only if~~:

~~(formerly located at Section 5(h)(iv)(A))~~(I) ~~The authorization is made in writing by a person described in paragraphs (i) through (iii) in this subsection~~ A person who meets the requirements of subparagraph (i), (ii), (iii), or (iv) of Section 2(mm) shall authorize the duly authorized representative in writing;

~~(formerly located at Section 5(h)(iv)(B))~~(II) The authorization shall ~~specifies~~ specify ~~either~~ an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility~~. (A duly authorized representative may thus be either a named individual or any individual occupying a named position)~~; and

~~(formerly located at Section 5(h)(iv)(B))~~(III) The responsible corporate officer shall submit the written authorization ~~is submitted~~ to the Administrator.

~~(formerly located at Section 5(h)(v))~~(B) If an authorization under ~~paragraph (iv) of this subsection~~ subparagraph (A) of this subparagraph is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, ~~a new authorization satisfying the requirements of paragraph (iv) of this subsection must be submitted to~~ the responsible corporate official shall notify the Administrator that the authorization is no longer accurate or shall submit to the Administrator a new authorization satisfying the requirements of subparagraph (A) of this subparagraph prior to or together with any reports, or information~~, or applications~~ to be signed by a~~n~~ duly authorized representative.

~~(formerly Section 4(c)(i)(M))~~(xiii) A requirement that the permittee give advance notice to the Administrator as soon as possible of any planned physical alteration or additions, other than authorized operation and maintenance, to the permitted facility and receive authorization from the Administrator prior to implementing the proposed alteration or addition;

~~(formerly Section 4(c)(i)(N))~~(xiv) A requirement that any modification that may result in a violation of a permit condition shall be reported to the Administrator, and any modification that will result in a violation of a permit condition shall be reported to the Administrator through the submission of a new or amended permit application;

~~(formerly Section 4(c)(i)(O))~~(xv) A requirement that any transfer of a permit ~~must~~ shall first be approved by the ~~Administrator~~ Director, and that no transfer will be approved if the facility is not in compliance with the existing permit unless the proposed permittee agrees to bring the facility into compliance;

~~(formerly Section 4(c)(i)(P))~~(xvi) A requirement that monitoring results shall be reported at the intervals specified ~~elsewhere~~ in the permit;

~~(formerly Section 4(c)(i)(Q))~~(xvii) A requirement that reports of compliance or non~~-~~compliance, or any progress reports on interim and final requirements contained in any compliance schedule~~, (~~if one is required by the Administrator~~,~~) shall be submitted no later than thirty (30) days following each schedule date;

~~(formerly Section 4(c)(i)(R))~~(xviii) ~~A requirement that the permittee shall report~~ The following reporting and mitigation requirements:

~~(formerly Section 4(c)(i)(R)(I))~~(A) If ~~A~~any monitoring or other information ~~that~~ indicates that any contaminant, ~~may cause an endangerment to a USDW or indicates that~~ the injected carbon dioxide stream, displaced formation fluids, or associated pressure front may endanger a USDW or threaten human health, safety, or the environment~~.~~, ~~In addition,~~ the ~~owner or operator~~ permittee shall:

~~(formerly Section 4(c)(i)(R)(I)(1.))~~(I)Immediately cease injection;

~~(formerly Section 4(c)(i)(R)(I)(2.))~~(II) Take all steps reasonably necessary to identify and characterize any release; ~~and~~

~~(formerly Section 4(c)(i)(R)(I)(3.))~~(III) Orally ~~N~~notify the Administrator within twenty-four (24) hours~~.~~ of discovering the condition; and

~~formerly Section 4(c)(i)(R)(II))~~(IV) Provide a written ~~submission~~ report ~~shall be provided~~ to the Administrator within five (5) days of ~~the time the permittee becomes aware of~~ discovering ~~any excursion or indication that a contaminant may cause an endangerment to a USDW~~ the condition. The written ~~submission~~ report shall contain:

~~formerly Section 4(c)(i)(R)(II)(1.))~~(1.) A description of the ~~noncompliance~~ endangerment and its cause;

~~formerly Section 4(c)(i)(R)(II)(2.))~~(2.) The period of ~~noncompliance~~ endangerment, including exact dates and times, and, if the ~~noncompliance~~ endangerment has not been controlled, the anticipated time it is expected to continue; and

~~formerly Section 4(c)(i)(R)(II)(3.))~~(3.) The ~~S~~steps taken or planned to reduce, eliminate, and prevent reoccurrence of the ~~noncompliance~~ endangerment~~.~~;

~~formerly Section 4(c)(i)(R)(II))~~(B) If the permittee discovers ~~A~~any noncompliance with a permit condition or a requirement of this Chapter that may cause fluid migration into or between USDWs, ~~or~~ any malfunction of the injection system that may cause fluid migration into or between USDWs, or ~~if~~ any excursion, ~~is discovered~~ the permittee shall~~.~~:

~~formerly Section 4(c)(i)(R)(II))~~(I) ~~It shall be o~~Orally ~~reported to~~ notify the Administrator within twenty-four (24) hours ~~from the time the permittee becomes aware of the circumstances,~~ of discovering the condition;

~~formerly Section 4(c)(i)(R)(II))~~(II) ~~and~~ Provide a written ~~submission~~ report to the Administrator ~~shall be provided~~ within five (5) days of ~~the time the permittee becomes aware of any excursion or indication that a contaminant may cause an endangerment to a USDW.~~ discovering the condition, which ~~The written submission~~ shall contain:

~~formerly Section 4(c)(i)(R)(II)(1.))~~(1.) A description of the noncompliance, malfunction, or excursion and its cause;

~~formerly Section 4(c)(i)(R)(II)(2.))~~(2.) The period of noncompliance, malfunction, or excursion, including exact dates and times, and, if the noncompliance, malfunction, or excursion has not been controlled, the anticipated time it is expected to continue; and

~~formerly Section 4(c)(i)(R)(II)(3.)~~(3.) The ~~S~~steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance, malfunction, or excursion.

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~~formerly Section 4(c)(i)(R)(III))~~(III) ~~In addition, i~~If an excursion is discovered, ~~the owner or operator shall~~ provide written notice to all surface owners, mineral claimants, mineral owners, lessees, and other owners of record of subsurface interests within thirty (30) days of ~~discovery.~~ discovering the excursion; and

~~formerly Section 18(b)(v)~~(IV) Implement the emergency and remedial response plan approved by the Administrator;

~~(formerly Section 4(c)(i)(S))~~(xix) A requirement that the permittee report all instances of noncompliance not already required to be reported under ~~paragraphs (c)(i)(Q) through (R)~~ subparagraph (b)(xix)(B)of this ~~s~~Section, at the time monitoring reports are submitted. The reports shall contain the information listed in ~~paragraph (c)(i)(R)~~ subparagraph (b)(xix)(B)(II) of this ~~s~~Section;

~~(formerly Section 4(c)(i)(T))~~(xx) A requirement that if the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Administrator, the permittee shall promptly submit such facts or information;

~~(formerly Section 4(c)(i)(U))~~(xxi) A requirement that the injection facility meet construction requirements outlined in Section ~~9~~ 14 of this ~~c~~Chapter, ~~and~~ that the permittee submit a notice of completion of construction to the Administrator~~;~~, and that the permittee allows ~~for~~ the Administrator to inspect~~ion of~~ the facility upon completion of construction~~,~~ and prior to commencing any underground injection activity;

~~(formerly Section 4(c)(i)(V))~~(xxii) A requirement that the permittee ~~notify~~ notifies the Administrator ~~at such times as the permit requires~~ before ~~conversion or~~ abandonment of the facility;

~~(formerly Section 4(c)(i)(W))~~(xxiii) A requirement that injection ~~may~~ shall not commence until construction is complete~~.~~ , and that ~~C~~construction is complete when:

~~(formerly Section 4(c)(i)(W)(I))~~(A) The permittee has submitted a notice of completion of construction to the Administrator; and

~~(formerly Section 4(c)(i)(W)(II))~~(B) The Administrator has inspected or ~~otherwise~~ reviewed the injection well and ~~finds~~ found it is in compliance with the conditions of the permit~~,~~;

~~(formerly Section 4(c)(i)(W)(II))~~(I) Within thirteen (13) days of the date of the notice in subparagraph (xxii) of this paragraph, the Administrator shall provide notice to the permittee of the ~~or the permittee has not received notice from the Administrator of their~~ intent to inspect or ~~otherwise~~ review the injection well. ~~within thirteen (13) days of the date of the notice in subparagraph (U) of this paragraph,~~The notice shall include a reasonable time period in which the Administrator shall inspect or review the well; but

~~(formerly Section 4(c)(i)(W)(II))~~(II) If the Administrator does not provide the notice required by subparagraph (I) of this subparagraph, the requirement for ~~in which case~~ prior inspection or review is waived, and the permittee may commence injection~~.~~; ~~The Administrator shall include in his notice a reasonable time period in which they shall inspect the well.~~

~~(formerly Section 4(c)(i)(X))~~(xxiv) A requirement that the ~~owner or operator of a Class VI well permitted under this part~~ permittee shall establish mechanical integrity prior to commencing injection or on a schedule determined by the Administrator~~.~~ and that ~~T~~thereafter, the ~~owner or operator of a Class VI wells~~ permittee ~~must~~ shall maintain mechanical integrity as defined in Section ~~13~~ 19 of this ~~c~~Chapter;

~~(formerly Section 4(c)(i)(Y))~~(xxv) A requirement that ~~when~~ if the Administrator determines that a Class VI well lacks mechanical integrity ~~pursuant to Section 13 of this chapter, he/she shall~~ and gives written notice of ~~his/her~~ the determination to the ~~owner or operator.~~permittee, the permittee shall:

~~(formerly Section 4(c)(i)(Y)(I))~~(A) ~~Unless the Administrator requires immediate cessation, the owner or operator shall c~~Cease injection into the well within forty-eight (48) hours of receipt of the Administrator's determination~~.~~unless the Administrator requires immediate cessation;

~~(formerly Section 4(c)(i)(Y)(II))~~(B) ~~The Administrator may allow plugging of the well pursuant to the requirements of Section 16 of this chapter or require the permittee to p~~Perform ~~such additional~~ any construction, operation, monitoring, reporting, and corrective action ~~as is necessary~~ that the Administrator requires to prevent the movement of fluid into or between USDWs caused by the lack of mechanical integrity~~.~~, or plug the well pursuant to the requirements of Section 23 of this Chapter if allowed by the Administrator; and

~~(formerly Section 4(c)(i)(Y)(II))~~(C) ~~The owner or operator may resume injection upon written notification from the Administrator~~ Not resume injection into the well until the Administrator provides written notice that the ~~owner or operator~~ permittee has demonstrated mechanical integrity pursuant to Section ~~13~~ 19 of this ~~c~~Chapter.

~~(formerly Section 4(c)(i)(Z))~~(xxvi) A requirement that, for any Class VI well that lacks mechanical integrity, injection operations are prohibited until the permittee shows to the satisfaction of the Administrator under Section ~~13~~ 19 of this ~~c~~Chapter that the well has mechanical integrity~~.~~;

~~(formerly Section 4(c)(i)(AA))~~(xxvii) ~~A Class VI permit shall include conditions that meet the requirements set forth in Section 16 of this chapter. Where the plan meets the requirements of Section 16 of this chapter,~~ A requirement that the permittee comply with a well-plugging plan that meets the requirements of Section 23 of this Chapter, which ~~the Administrator~~ shall be incorporated ~~it~~ into the permit ~~as a permit condition.~~; and ~~Temporary or intermittent cessation of injection operations is not abandonment.~~

~~(formerly Section 4(c)(i)(BB))~~(xxviii) ~~Class VI injection well permits shall include c~~Conditions ~~meeting~~ that implement the requirements of Section ~~9~~ 14 of this ~~c~~Chapter. ~~Permits shall contain the following requirements when applicable~~ The conditions shall:

~~(formerly Section 4(c)(i)(BB)(I))~~(A) Require ~~A~~all wells ~~shall~~ to achieve compliance with ~~such~~ the requirements of Section 14 of this Chapter according to a compliance schedule established as a permit condition~~.~~; ~~The owner or operator of a proposed new injection well shall submit plans for testing, drilling, and construction as part of the permit application.~~

~~(formerly Section 4(c)(i)(BB)(II))~~(B) Prohibit ~~No~~ construction ~~may~~ from commenc~~e~~ing until a permit has been issued containing construction requirements~~.~~;

~~(formerly Section 4(c)(i)(BB)(III))~~(C) Require that ~~A~~all wells ~~shall be in compliance~~ comply with the~~se~~ construction requirements of Section 14 of this Chapter prior to commencing injection operations. Changes in construction plans during construction may be approved by the Administrator as minor modifications. No such changes may be physically incorporated into construction of the well prior to approval of the modification by the Administrator.

~~(formerly Section 4(c)(i)(BB)(IV))~~(D) Include a ~~C~~corrective action plan as set forth in Section ~~8~~ 13 of this ~~c~~Chapter~~.~~;

~~(formerly Section 4(c)(i)(BB)(V))~~(E) Require that all wells comply with the ~~O~~operational requirements ~~as set forth in~~ of Section ~~9~~ 14 of this ~~c~~Chapter;

~~(formerly Section 4(c)(i)(BB)(V))~~(F) ~~the permit shall c~~Establish any maximum injection volumes and~~/or~~ pressures necessary to ensure that fractures are not initiated in the confining zone, to ensure that injected fluids do not migrate into any underground source of drinking water, to ensure that formation fluids are not displaced into any underground source of drinking water, and to ensure compliance with the operating requirements~~.~~;

~~(formerly Section 4(c)(i)(BB)(VI))~~(G) Establish ~~M~~monitoring and reporting requirements ~~as~~ set forth in Sections ~~14~~ 20 and ~~15~~ 22 of this ~~c~~Chapter. The permittee shall be required to identify types of tests and methods used to generate the monitoring data~~.~~; and

~~(formerly Section 4(c)(i)(BB)(VII)))~~(H) ~~The owner or operator of a Class VI well must~~ Require the permittee to comply with the financial responsibility requirements set forth in Section ~~19~~ 26 of this ~~c~~Chapter.

~~(formerly Section 4(a)(v))~~(c) Permits for Class VI wells shall be issued for the operating life of the facility and extend through the post-injection site care period until the ~~geologic sequestration project is closed in accordance with Department rules and regulations~~ Administrator certifies site closure pursuant to Section 24(b)(iii) of this Chapter.

~~(formerly Section 4(a)(vi))~~(d) Permits may be issued for individual Class VI wells and shall not be issued on an area basis for multiple points of discharge operated by the same person.

~~(formerly Section 4(c)(i)(CC))~~(e) ~~The p~~Permits may~~, when appropriate,~~ specify a schedule of compliance leading to compliance with ~~the SDWA and 40 CFR Parts 144, 145, 146, and 124~~ permit conditions, this Chapter, and the Wyoming Environmental Quality Act, W.S. § 35-11-101 *et seq*.

~~(formerly Section 4(c)(i)(CC)(I))~~(i) ~~Any s~~Schedules of compliance shall require compliance as soon as possible, and in no case later than three (3) years after the effective date of the permit.

~~(formerly Section 4(c)(i)(CC)(II))~~(ii) If a permit establishes a schedule of compliance that exceeds one (1) year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement. ~~(formerly Section 4(c)(i)(CC)(II)(1.))~~ The time between interim dates shall not exceed one (1) year unless, ~~(formerly Section 4(c)(i)(CC)(II)(2.))~~ ~~T~~the time necessary for completion of any interim requirement is more than one (1) year and is not readily divisible into stages for completion, and in that case, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.

~~(formerly Section 4(c)(i)(III))~~(iii) The ~~permit~~ compliance schedule shall ~~be written to~~ require ~~that if paragraph (c)(i)(CC)(I) of this section is applicable,~~ the permittee to submit progress reports ~~be submitted~~ no later than thirty (30) days following each interim date and the final date of compliance.

~~(formerly Section 4(c)(ii))~~(f) ~~In addition to the conditions required of all permits, t~~The ~~Administrator~~ Director shall ~~establish~~ include in permits, on a case-by-case basis~~,~~:

~~(formerly Section 4(c)(ii))~~(i) ~~c~~Conditions ~~as required~~ for monitoring, schedules of compliance, and ~~such~~ any additional conditions ~~as are~~ necessary to prevent the migration of fluids into underground sources of drinking water. ~~In the case of wells authorized by permit,~~

~~these additional requirements shall be imposed by modifying the permit in accordance with this section, or the permit may be terminated under this section if cause exists, or appropriate enforcement action may be taken if the permit has been violated.~~The Director shall evaluate what conditions are necessary and shall establish these conditions when issuing, modifying, or revoking and reissuing permits; and

~~(formerly Section 4(c)(iii))~~(ii)~~In addition to conditions required in all permits the Administrator shall establish c~~Conditions ~~in permits as required on a case-by-case basis,~~ to ~~provide for and~~ ensure compliance with all applicable requirements of ~~the SDWA and 40 CFR Parts 144, 145, 146, and 124~~ this Chapter and the Wyoming Environmental Quality Act, W.S. § 35-11-101 *et seq*.

~~(formerly Section 4(c)(iv))~~(g) ~~New permits, and t~~To the extent ~~allowed~~ possible under Section ~~4~~ 9 of this Chapter, modified or revoked and reissued permits, shall incorporate ~~each of the applicable requirements referenced~~ all of the permit conditions required ~~in~~ by this ~~s~~Section. ~~An applicable requirement is a State statutory or regulatory requirement that takes effect prior to final administrative disposition of the permit. An applicable requirement is also any requirement that takes effect prior to the modification or revocation and reissuance of a permit, to the extent allowed in Section 4.~~

(h) When they meet the requirements of this Chapter and are approved by the Administrator, all plans shall be incorporated into the permit.

~~(formerly Section 5(b)(xviii)) Proposed stimulation program, a description of stimulation fluids to be used, and a determination that stimulation will not compromise containment. All stimulation programs must be approved by the Administrator as part of the permit application and incorporated into the permit;~~

~~(formerly Section 5(b)(xxviii)) Proposed injection and monitoring well(s) plugging plan required by Section 16(b) of this chapter; where the plan meets the requirements of Section 16(b) of this chapter, the Administrator shall incorporate it into the permit as a permit condition.~~

**Section 10.** **~~Class VI Injection Depth Waiver Requirements.~~ Permit Application.**

~~(a) The owner and/or operator seeking a waiver of the requirement to inject below the lowermost USDW shall submit a supplemental report concurrent with the permit application. The report shall contain the following:~~

~~(i) A demonstration that the injection zones are laterally continuous, is not a USDW, and is not hydraulically connected to USDWs; does not outcrop within the area of review; has adequate injectivity, volume, and sufficient porosity to safely contain the injected carbon dioxide and formation fluids; and has appropriate geochemistry.~~

~~(ii) A demonstration that the injection zones are bounded by laterally continuous, impermeable confining units above and below the injection zones adequate to~~

~~prevent fluid movement and pressure buildup outside of the injection zones; and that the confining unit(s) is/are free of transmissive faults and fractures. The report shall further characterize the regional fracture properties and contain a demonstration that the fractures will not interfere with injection, serve as conduits, or endanger USDWs.~~

~~(iii) A computer model demonstrating that USDWs above and below the injection zone will not be endangered as a result of fluid movement. The modeling shall be done in conjunction with the area of review determination, as described in Section 8 of this chapter, and is subject to requirements, as described in Section 8(c) of this chapter, and periodic reevaluation, as described in Section 8(d) of this chapter.~~

~~(iv) A demonstration that well design and construction, in conjunction with the waiver, will ensure isolation of the injectate in lieu of the requirements of Section 9(a)(i) of this chapter and will meet the well construction requirements of paragraph (f) of this section.~~

~~(v) A description of how the monitoring and testing and any additional plans will be tailored to this geologic sequestration project to ensure protection of USDWs above and below the injection zone.~~

~~(vi) Information on the location of all public water supplies affected, reasonably likely to be affected, or served by USDWs in the area of review.~~

~~(vii) Any other information requested by the Administrator.~~

~~(b) To inform the EPA Regional Administrator's decision on whether to grant a waiver of the injection depth requirements of 40 CFR §§ 144.6, 146.5(f), and 146.86(a)(1), the Administrator must submit, to the EPA Regional Administrator, documentation of the following:~~

~~(i) An evaluation of the following information as it relates to siting, construction, and operation of a geologic sequestration project with a waiver:~~

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

~~(B) The suitability of the injection zone(s) (e.g., lateral continuity; lack of transmissive faults and fractures; knowledge of current or planned artificial penetrations into the injection zone(s) or formations below the injection zone);~~

~~(C) The potential capacity of the geologic formation(s) to sequester carbon dioxide, accounting for the availability of alternative injection sites;~~

~~(D) All other site characterization data, the proposed emergency and remedial response plan, and a demonstration of financial responsibility;~~

~~(E) Community needs, demands, and supply from drinking water resources;~~

~~(F) Planned needs, potential and/or future use of USDWs and non-USDWs in the area;~~

~~(G) Planned or permitted water, hydrocarbon, or mineral resource exploitation potential of the proposed injection formation(s) and other formations both above and below the injection zone to determine if there are any plans to drill through the formation to access resources in or beneath the proposed injection zone(s)/formation(s);~~

~~(H) The proposed plan for securing alternative resources or treating USDW formation waters in the event of contamination related to the Class VI injection activity; and~~

~~(I) Any other applicable considerations or information requested by the Administrator.~~

~~(ii) Consultation with the Public Water System Supervision Directors of all States and Tribes having jurisdiction over lands within the area of review of a well for which a waiver is sought.~~

~~(iii) Any written waiver-related information submitted by the Public Water System Supervision Director(s) to the (UIC) Director.~~

~~(c) Concurrent with the Class VI permit application public notice process, the Administrator shall give public notice that an injection depth waiver request has been submitted. The notice shall clearly state:~~

~~(i) The depth of the proposed injection zone(s);~~

~~(ii) The location of the injection wells;~~

~~(iii) The name and depth of all USDWs within the area of review;~~

~~(iv) A map of the area of review;~~

~~(v) The names of any public water supplies affected, reasonably likely to be affected, or served by the USDWs in the area of review; and~~

~~(vi) The results of any consultation between the UIC program and the Public Water System Supervision program within the area of review.~~

~~(d) Following the injection depth waiver application public notice, the Administrator of the Water Quality Division of the Department of Environmental Quality shall provide all the information received through the waiver application process to the US EPA Regional Administrator. Based on the information provided, the US EPA Regional Administrator shall provide written concurrence or non-concurrence regarding waiver issuance.~~

~~(i) If the US EPA Regional Administrator requires additional information to make a decision, the Administrator of the Water Quality Division of the Department of Environmental Quality shall provide the information. The US EPA Regional Administrator may require public notice of the new information.~~

~~(ii) The Administrator of the Water Quality Division of the Department of Environmental Quality shall not issue a depth injection waiver without receipt of written concurrence from the US EPA Regional Administrator.~~

~~(e) If an injection depth waiver is issued, within thirty (30) days of issuance, the EPA shall post the following information on the Office of Water's website:~~

~~(i) The depth of the proposed injection zone(s).~~

~~(ii) The location of the injection wells.~~

~~(iii) The name and depth of all USDWs within the area of review.~~

~~(iv) A map of the area of review.~~

~~(v) The names of any public water supplies affected, reasonably likely to be affected, or served by the USDWs in the area of review.~~

~~(vi) The date of waiver issuance.~~

~~(f) Upon receipt of a waiver of the requirement to inject below the lowermost USDW for geologic sequestration, the owner or operator of a Class VI well must comply with the following:~~

~~(i) All requirements of Sections 8, 11, 12, 13, 15, 16, 18, and 19 of this chapter.~~

~~(ii) All the requirements of Section 9 of this chapter with the following modified requirements:~~

~~(A) The Class VI well shall be constructed and completed to prevent the movement of fluids into any unauthorized zones including USDWs, in lieu of requirements of Section 9(a)(i) of this chapter.~~

~~(B) The casing and cementing program shall be designed to prevent the movement of fluids into any unauthorized zones including USDWs, in lieu of requirements of Section 9(b) and 9(b)(i)of this chapter.~~

~~(C) The casing shall extend through the base of the nearest USDW directly above the injection zone and shall be cemented to the surface; or at the Administrator's~~

~~discretion, another formation above the injection zone and below the nearest USDW above the injection zone.~~

~~(iii) All the requirements of Section 14 of this chapter with the following modified requirements:~~

~~(A) The owner or operator shall monitor the groundwater quality, geochemical changes, and pressure in the first USDWs immediately above and below the injection zone(s); and any other formation at the discretion of the Administrator.~~

~~(B) The owner or operator shall conduct testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using direct methods to monitor for pressure changes in the injection zone(s); and, indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Administrator determines, based on site-specific geology, that such methods are not appropriate.~~

~~(iv) All requirements of Section 17 of this chapter with the following, modified post-injection site care monitoring requirements:~~

~~(A) The owner or operator shall monitor the groundwater quality, geochemical changes and pressure in the first USDWs immediately above and below the injection zone; and in any other formations at the discretion of the Administrator.~~

~~(B) Testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using direct methods in the injection zone(s); and indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Administrator determines based on site-specific geology, that such methods are not appropriate;~~

~~(v) Any additional requirements requested by the Administrator to ensure protection of USDWs above and below the injection zone(s).~~

~~(formerly Section 5(a))~~(a) It is the operator's responsibility to ~~make application~~ apply for and obtain a permit in accordance with these regulations. Each application ~~must~~ shall be submitted with all supporting data.

~~(formerly Section 5(b))~~(b) In addition to the requirements of W.S. § 35-11-313(f)(ii), ~~A~~ a complete application for a Class VI well shall include:

~~(formerly Section 5(b)(i))~~(i) A brief description of the nature of the business and the activities to be conducted that require the applicant to obtain a permit under this ~~c~~Chapter~~.~~;

~~(formerly Section 5(b)(ii))~~(ii) The name, address, and telephone number of the operator, and the operator's ownership status and status as a ~~F~~federal, ~~S~~state, private, public, or other entity~~.~~;

~~(formerly Section 5(b)(iii))~~(iii) Up to four ~~SIC (~~Standard Industrial Classification~~)~~ codes that best reflect the principal products or services provided by the facility~~.~~;

~~(formerly Section 5(b)(iv))~~(iv) The name, address, and telephone number of the facility~~.~~;

~~(formerly Section 5(b)(iv))~~(v) ~~Additionally, t~~The location of the geologic sequestration project ~~shall be~~ identified by section, township, range, and county, noting which~~, if any,~~ sections (if any) include Indian lands~~.~~;

~~(formerly Section 5(b)(v))~~(vi) Within the area of review, a listing and status of all permits or construction approvals associated with the geologic sequestration project received or applied for ~~by the applicant~~ under any of the following programs or corresponding state programs:

~~(formerly Section 5(b)(v)(A))~~(A) Hazardous Waste Management under the Resource Conservation and Recovery Act ~~(RCRA).~~, 42 U.S.C. § 6901 *et seq.*;

~~(formerly Section 5(b)(v)(B))~~(B) UIC Program under the Safe Drinking Water Act~~.~~, 42 U.S.C. § 300f *et seq.*;

~~(formerly Section 5(b)(v)(C))~~(C) National Pollutant Discharge Elimination System ~~(NPDES)~~ under the Clean Water Act~~.~~, 33 U.S.C. § 1251 *et seq.*;

~~(formerly Section 5(b)(v)(D))~~(D) Prevention of Significant Deterioration ~~(PSD)~~ program under the Clean Air Act~~.~~, 42 U.S.C. § 7401 *et seq.*;

~~(formerly Section 5(b)(v)(E))~~(E) Nonattainment program under the Clean Air Act~~.~~, 42 U.S.C. § 7401 *et seq.*;

~~(formerly Section 5(b)(v)(F))~~(F) National Emissions Standards for Hazardous Air Pollutants ~~(NESHAPs)~~ pre-construction approval under the Clean Air Act~~.~~, 42 U.S.C. § 7401 *et seq.*;

~~(formerly Section 5(b)(v)(G))~~(G) Dredge and fill permitting program under section 404 of the Clean Water Act~~.~~, 33 U.S.C. § 1251 *et seq.*;

~~(formerly Section 5(b)(vi))~~(vii) Within the area of review, a list of other relevant permits~~, whether federal or state,~~ associated with the geologic sequestration project that the applicant ~~has been~~ is required to obtain~~,~~; ~~such as construction permits.~~

~~(formerly Section 5(b)(vi))~~(viii) ~~This includes a~~A statement ~~as to~~ of whether ~~or not~~ the ~~facility~~ geologic sequestration project is within a state-approved water quality management plan area, a state-approved wellhead protection area or a state-approved source water protection area~~.~~;

~~(formerly Section 5(b)(vii))~~(ix) A map showing the injection well(s) for which a permit is sought and the applicable area of review, consistent with Section ~~8~~ 13 of this ~~c~~Chapter~~.~~;

~~(formerly Section 5(b)(vii)(A))~~(A) Within the area of review, the map ~~must~~ shall ~~show~~ list the number, or name and location of:

~~(formerly Section 5(b)(vii)(A))~~(I) ~~a~~All ~~known~~ injection wells, producing wells, abandoned wells, plugged wells, ~~or~~ dry holes, or deep stratigraphic boreholes~~,~~;

~~(formerly Section 5(b)(vii)(A))~~(II) All state- or EPA-approved subsurface cleanup sites~~,~~;

~~(formerly Section 5(b)(vii)(A))~~(III) All ~~public drinking water supply~~ water quality management plan areas, wellhead protection areas, ~~or~~ and source water protection areas~~,~~;

~~(formerly Section 5(b)(vii)(A))~~(IV) All surface bodies of water, springs, mines (surface and subsurface), quarries, and water wells~~,~~; ~~and~~

~~(formerly Section 5(b)(vii)(A))~~(V) ~~o~~Other pertinent surface features, including structures intended for human occupancy~~,~~;

~~(formerly Section 5(b)(vii)(A))~~(VI) Roads; and

~~(formerly Section 5(b)(vii)(A))~~(VII) ~~s~~State~~, tribal, and territory~~ and Indian reservation boundaries~~, and roads.~~;

~~(formerly Section 5(b)(vii)(B))~~(B) ~~Only information~~ The applicant shall include on this map all relevant information of public record ~~is required to be included on this map.~~ or known to the applicant; and

~~(formerly Section 5(b)(vii)(C))~~(C) The map ~~should~~ shall also show known or suspected faults~~, if known or suspected.~~;

~~(formerly Section 5(b)(viii))~~(x) A map delineating the area of review that:

(A) Meets the requirements of Section 13 of this Chapter;

~~(formerly Section 5(b)(viii))~~(B) Is based upon modeling~~,~~;

~~(formerly Section 5(b)(viii))~~(C) ~~using~~ Uses all available data, including data available from any logging and testing of wells within and adjacent to (within one (1) mile of) ~~to~~ the area of review; and

~~(formerly Section 5(b)(viii)(B))~~(D) ~~All areas of review shall be legally described~~ Describes the area of review by township, range, and section to the nearest ten (10) acres, as described under the general land survey system~~.~~;

~~(formerly Section 5(b)(ix)~~(xi) For the description required by W.S. 35-11-313(f)(ii)(A), ~~A description of the general geology of the area to be affected by the injection of carbon dioxide including geochemistry, structure and faulting, fracturing and seals, and stratigraphy and lithology including petrophysical attributes. The description shall also include~~ sufficient information on the geologic structure and reservoir properties of the proposed storage site and overlying formations, including:

~~(formerly Section 5(b)(ix)(A)~~(A) Isopach maps of the proposed injection and confining zone~~(s)~~, a structural contour map aligned with the top of the proposed injection zone, and at least two (2) geologic cross-sections of the area of review reasonably perpendicular to each other and showing the geologic formations from the surface to total depth;

~~(formerly Section 5(b)(ix)(B)~~(B) Location, orientation, and properties of known or suspected faults and fractures that may transect the confining zone~~(s)~~ in the area of review and a determination that they ~~would~~ will not ~~interfere with containment~~ allow fluid movement;

~~(formerly Section 5(b)(ix)(C)~~(C) Information on seismic history that ~~have~~ has affected the proposed area of review including knowledge of previous seismic events and history of these events, the presence and depth of seismic sources, and a determination that the seismicity ~~would~~ will not ~~compromise containment~~ allow fluid movement out of the injection zone;

~~(formerly Section 5(b)(ix)(D)~~(D) Data sufficient to demonstrate the effectiveness of the injection and confining zone~~(s)~~, including:

~~(formerly Section 5(b)(ix)(D)~~(I) ~~d~~Data on the depth, areal extent, thickness, mineralogy, porosity, vertical permeability, and capillary pressure of the injection and confining zone~~(s)~~ within the area of review~~,~~; and

~~(formerly Section 5(b)(ix)(D)~~(II) A description of geologic changes based on field data that may include geologic cores, outcrop data, seismic surveys, well logs, and names and lithologic descriptions;

~~(formerly Section 5(b)(ix)(E)~~(E) Geomechanical information on fractures, stress, ductility, rock strength, and in situ fluid pressures within the confining zone; and

~~(formerly Section 5(b)(ix)(F)~~(F) Geologic and topographic maps and cross-sections illustrating regional geology, hydrogeology, and the geologic structure of the local area~~.~~;

~~(formerly Section 5(b)(x))~~(xii) A ~~compilation~~ list of all wells and other drill holes within~~,~~ and adjacent to (within one (1) mile) ~~to~~ the area of review. ~~Such data must~~ The list shall include a description of each well and drill hole type, construction, date drilled, location, depth, record of plugging and~~/or~~ completion, and any additional information the Administrator ~~may~~ require~~s.~~;

~~(formerly Section 5(b)(x)(A))~~(xiii) ~~Applicants shall also identify~~ A list of the identity and ~~the~~ location of all known wells within~~,~~ and adjacent to (within one (1) mile) ~~to~~ the area of review that penetrate the confining or injection zone~~.~~;

~~(formerly Section 5(b)(x)(B) Applicants shall perform mapping with sufficient resolution as to make a comprehensive effort to identify wells that are not in the public record using aerial photography, aerial survey, physical traverse, or other methods acceptable to the Administrator.~~

~~(formerly Section 5(b)(x)(C) Applicants shall perform corrective action as specified in Section 8 of this chapter.~~

~~(formerly Section 5(b)(xi))~~(xiv) Maps and stratigraphic cross-sections indicating the general vertical and lateral limits of all USDWs in the area of review~~,~~; the location of water wells and springs ~~with~~in the area of review~~,~~; the~~ir~~ positions relative to the injection zone~~(s)~~ of all USDWS, water wells, and springs in the area of review, and the direction of water movement~~, where~~ (if known);

~~(formerly Section 5(b)(xii))~~(xv) ~~A~~ For the characterization required by W.S. 35-11-313(f)(ii)(B), ~~of the injection zone and aquifers above and below the injection zone that may be affected, including applicable pressure and fluid chemistry data to describe the projected effects of injection activities, and background water quality data that will facilitate the classification of any groundwaters that may be affected by the proposed discharge. This must include~~ information necessary for the Division to classify the receiver and any secondarily affected aquifers under Water Quality Rules and Regulations Chapter 8;

~~(formerly Section 5(b)(xiii))~~(xvi) Baseline geochemical data on subsurface formations, including all USDWs in the area of review;

~~(formerly Section 5(b)(xiv))~~(xvii) Proposed operating data, including:

~~(formerly Section 5(b)(xiv)(A))~~(A) Average and maximum daily rate and volume and~~/or~~ mass and total anticipated volume and~~/or~~ mass of the carbon dioxide stream;

~~(formerly Section 5(b)(xiv)(B))~~(B) Average and maximum surface injection pressure;

~~(formerly Section 5(b)(xiv)(C))~~(C) The source of the carbon dioxide stream; and

~~(formerly Section 5(b)(xiv)(D))~~(D) An analysis of the chemical and physical characteristics of the carbon dioxide stream and any other substance~~(s)~~ proposed for inclusion in the injectate stream; and

~~(formerly Section 5(b)(xiv)(E))~~(E) Anticipated duration of the proposed injection period~~(s).~~;

~~(formerly Section 5(b)(xv))~~(xviii) The compatibility of the carbon dioxide stream with fluids in the injection zone and minerals in both the injection and the confining zone~~(s)~~, based on the results of the formation testing program, and with the materials used to construct the well;

~~(formerly Section 5(b)(xvi)) An assessment of the impact to fluid resources, on subsurface structures and the surface of lands that may reasonably be expected to be impacted, and the measures required to mitigate such impacts;~~

~~(formerly Section 5(b)(xvii)~~(xix) Proposed formation testing program to obtain an analysis of the chemical and physical characteristics of the injection zone and confining zone and that meets the requirements of Section ~~11~~ 16 of this ~~c~~Chapter;

~~(formerly Section 5(b)(xviii))~~(xx) Proposed stimulation program, a description of stimulation fluids to be used, and a determination that stimulation will not ~~compromise containment~~ allow fluid movement out of the injection zone~~. All stimulation programs must be approved by the Administrator as part of the permit application and incorporated into the permit~~;

~~(formerly Section 5(b)(xix))~~(xxi) Proposed procedure that outlines steps to conduct injection operations;

~~(formerly Section 5(b)(xx))~~(xxii) A wellbore schematic of the subsurface construction details and surface wellhead construction of the injection and monitoring wells;

~~(formerly Section 7(a))~~(xxiii) ~~Owners or operators of Class VI wells must~~ A demonstrate~~e~~ion, to the satisfaction of the Administrator, that the injection wells will be sited in areas with a suitable geologic system~~. The geologic system must be comprised of~~ that meets the requirements of Section 12(a) of this Chapter, including:

~~(formerly Section 7(b))~~(A) ~~Owners or operators of Class VI wells must~~ ~~i~~Identif~~y~~ication and characteriz~~e~~ation of additional zones, if they exist, that will impede vertical fluid movement, allow for pressure dissipation, and provide additional opportunities for monitoring, mitigation, and remediation~~.~~; and

~~(formerly Section 7(b))~~(B) Identification of ~~V~~vertical faults and fractures that transect the~~se~~ zones ~~must be~~ identified~~.~~ in subparagraph (A) of this subparagraph;

~~(formerly Section 5(b)(xxi))~~(xxiv) Injection well design and construction procedures that meet the requirements of Section ~~9~~ 14 of this ~~c~~Chapter, including the information listed in Section 14(c)(ii) of this Chapter;

~~(formerly Section 5(b)(xxii))~~(xxv) Proposed area of review and corrective action plan that meets the requirements under Section ~~8~~ 13 of this ~~c~~Chapter;

~~(formerly Section 5(b)(xxiii))~~(xxvi) The status of corrective action on wells in the area of review;

~~(formerly Section 5(b)(xxiv))~~(xxvii) All available logging and testing program data on the well~~(s)~~ required by Section ~~11~~ 17 of this ~~c~~Chapter;

~~(formerly Section 5(b)(xxv))~~(xxviii) A demonstration of mechanical integrity ~~pursuant to~~ required by Section ~~13~~ 19 of this ~~c~~Chapter;

~~(formerly Section 5(b)(xxvi))~~(xxix) A demonstration, satisfactory to the Administrator, that the applicant has met the financial responsibility requirements ~~under~~ of Section ~~19~~ 26 of this ~~c~~Chapter;

~~(formerly Section 19(c)(i))~~(xxx) ~~The~~ A written financial assurance cost estimate required by Section 26(b) of this Chapter; ~~for the various phases of the sequestration project shall consider the following events:~~

~~(formerly Section 5(g))~~(xxxi) ~~An applicant applying for a Class VI well permit must obtain~~ A public liability insurance certificate ~~to cover the geologic sequestration activities for which a permit is sought.~~ that, in addition to meeting the requirements of W.S. § 35-11-313(f)(ii)(O), demonstrates that the public liability insurance policy meets the requirements of Section 26(l)(i)(B) of this Chapter; identifies each facility by name, address, and EPA Identification Number; and identifies the amounts and types of coverage for each facility;

~~(formerly Section 5(b)(xxvii))~~(xxxii) Proposed testing and monitoring plan required by Section ~~14~~ 20 of this ~~c~~Chapter;

~~(formerly Section 5(b)(xxviii))~~(xxxiii) Proposed injection and monitoring well~~(s)~~ plugging plan required by Section ~~16(b)~~ 23 of this ~~c~~Chapter; ~~where the plan meets the requirements of Section 16(b) of this chapter, the Administrator shall incorporate it into the permit as a permit condition.~~

~~(formerly Section 5(b)(xxix))~~(xxxiv) Proposed post-injection site care and site closure plan required by Section ~~17(a)~~ 24(a) of this ~~c~~Chapter;

~~(formerly Section 5(b)(xxx))~~(xxxv) Proposed emergency and remedial response plan required by Section ~~18~~ 25 of this ~~c~~Chapter;

~~(formerly Section 5(b)(xxxiv))~~(xxxvi) A list of contacts~~, submitted to the Administrator,~~ for ~~those~~ states or Tribes on Indian lands identified pursuant to ~~be within the area of review of the geologic sequestration project based on information provided in~~ subparagraphs ~~(b)(vii), (b)(vii)(A), (b)(vii)(B)~~ (b)(v) and (b)(ix)(A)(VII) of this ~~s~~Section; and

~~(formerly Section 5(b)(xxxv))~~(xxxvii) Any other information requested by the Administrator.

~~(formerly Section 5(h))~~(c) All applications for permits, reports, or information ~~to be~~ submitted to the Administrator shall be signed by a responsible corporate officer ~~as follows:~~.

~~(formerly Section 5(i))~~(d) The application shall contain the following certification by the ~~person~~ responsible corporate officer signing the application:

"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 ensure 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."

~~(formerly Section 4(a)(viii))~~(e) Sections of permit applications ~~filed under this chapter~~ that represent engineering work shall be sealed, signed, and dated by a licensed professional engineer as required by W.S. § 33-29-601.

~~(formerly Section 4(a)(ix))~~(f) Sections of permit applications ~~filed under this chapter~~ that represent geologic work shall be sealed, signed, and dated by a licensed professional geologist as required by W.S. § 33-41-115.

**Section 11. ~~Logging, Sampling, and Testing Prior to Injection Well Operation.~~ Prohibitions.**

~~(a) During the drilling and construction of a Class VI injection well, the owner or operator must run appropriate logs, surveys and tests to determine or verify the depth, thickness, porosity, permeability, and lithology of, and the salinity of any formation fluids in all relevant geologic formations in order to ensure conformance with the injection well construction requirements under Section 9 of this chapter, and to establish accurate baseline data against which future measurements may be compared. The owner or operator must submit to the Administrator a descriptive report prepared by a knowledgeable log analyst that includes an interpretation of the results of such logs and tests. At a minimum, such logs and tests must include:~~

~~(i) Deviation checks measured during drilling on all holes constructed by drilling a pilot hole that is subsequently enlarged by reaming or another method. Such 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~~

~~(ii) 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, or other approved device to evaluate cement quality radially with sufficient resolution to identify channels, voids, or other areas of missing cement, and a temperature log, after the casing is set and cemented.~~

~~(iii) 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 Administrator 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.~~

~~(iv) Test(s) 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; and~~

~~(D) A casing inspection log.~~

~~(v) Any alternative methods that provide equivalent or better information and that are required of, and/or approved by the Administrator.~~

~~(b) The owner or operator must take whole cores or sidewall cores of the injection zone and confining system, and formation fluid samples from the injection zone(s), and submit to the Administrator a detailed report prepared by a log analyst that includes:~~

~~(i) Well log analyses (including well logs);~~

~~(ii) Core analyses; and~~

~~(iii) Formation fluid sample information.~~

~~(iv) The Administrator may accept data from cores and fluid samples from nearby wells if the owner or operator can demonstrate that such data are representative of conditions in the wellbore.~~

~~(c) The owner or operator must record the formation fluid temperature, formation fluid pH and conductivity, reservoir pressure, and static fluid level of the injection zone(s).~~

~~(d) The owner or operator must determine fracture pressures of the injection and confining zones and verify hydrogeologic and geo-mechanical characteristics of the injection zone by conducting a pressure fall-off test, any other information requested by the Administrator; and,~~

~~(i) A pump test; or~~

~~(ii) Injectivity tests.~~

~~(e) The owner or operator must provide the Administrator with the opportunity to witness all logging and testing by this section. The owner or operator must submit a schedule of such activities to the Administrator prior to conducting the first test and notify the Administrator of any changes to the schedule thirty (30) days prior to the next scheduled test.~~

~~(formerly Section 6(a))~~(a) ~~In addition to the requirements in~~ Pursuant to the provisions of W.S. § 35-11-301(a), no person shall:

~~(formerly Section 6(a)(i))~~(i) Discharge into, construct, operate, or modify any Class VI well unless permitted pursuant to this ~~c~~Chapter;

~~(formerly Section 6(a)(ii))~~(ii) Discharge or inject to any zone except the authorized ~~discharge~~ injection zone as described in the permit;

~~(formerly Section 6(a)(iii))~~(iii) Conduct any ~~authorized~~ injection activity in a manner that results in a violation of any permit condition~~,~~ or that conflicts with any representations made in ~~the~~ a permit application~~,~~; ~~or the request for coverage under the individual permit. A permit condition supersedes any application content.~~

~~(formerly Section 6(a)(iv))~~(iv) Construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation ~~under~~ contained in 40 C.F.R. Part 141, Subparts E, F, and G, or may otherwise adversely affect ~~the~~ human health ~~of persons~~, safety, or the environment. The applicant for a permit shall have the burden of showing that the requirements of this paragraph are met.

~~(formerly Section 6(c))~~(v) ~~No person shall i~~Inject any hazardous waste that has been banned from land disposal pursuant to Wyoming Hazardous Waste Rules, Chapter 1~~.~~;

~~(formerly Section 6(d))~~(vi) ~~The c~~Construct~~ion of~~ a new, ~~or~~ operat~~ion~~e an existing, or ~~maintenance~~ maintain ~~of any~~ an existing Class V well~~s~~ for non-experimental geologic sequestration ~~is prohibited~~.

~~(formerly Section 4(a)(iii))~~(b) ~~Injections from~~ Class VI wells shall ~~be restricted~~ inject only to ~~those~~ receivers ~~defined~~ classified by the Department pursuant to Water Quality Rules and Regulations, Chapter 8, as Class V (Hydrocarbon Commercial) or Class VI groundwaters ~~by the Department pursuant to Water Quality Rules and Regulations Chapter 8~~. No Class VI well shall inject to any Class I, Class II, Class III, Class IV, or unclassified groundwaters.

~~(formerly Section 6(e))~~(c) The Administrator ~~may identify (by narrative description, illustrations, maps, or other means) and~~ shall designate and protect as underground sources of drinking water, all aquifers and parts of aquifers that meet the definition of "underground source of drinking water" in Section 2 of this Chapter, except to the extent there is expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption for the exclusive purpose of Class VI injection for geologic sequestration under Section ~~5(c)~~ 16 of this ~~c~~Chapter. ~~Other than EPA-approved aquifer exemption expansions that meet the criteria set forth in Section 5(c) of this chapter, new aquifer exemptions shall not be issued for Class VI injection wells. Even if an aquifer has not been specifically identified by the Administrator, it is an underground source of drinking water if it meets the definition in Section 2 of this chapter.~~

~~(formerly Section 6(e))~~(i) The Administrator may identify underground sources of drinking water ~~(~~by narrative description, illustrations, maps, or other means~~)~~.

~~(formerly Section 6(e))~~(ii) Other than EPA-approved aquifer exemption expansions that meet the ~~criteria set forth in~~ requirements of Section ~~5(c)~~ 16 of this ~~c~~Chapter, new aquifer exemptions shall not be issued for Class VI injection wells. Even if an aquifer has not been specifically identified by the Administrator, it is an underground source of drinking water if it meets the definition in Section 2 of this ~~c~~Chapter.

**Section 12. ~~Injection Well Operating Requirements.~~ Minimum Criteria for Siting Class VI Wells.**

~~(a) The owner or operator must ensure that injection pressure does not exceed ninety (90) percent of the fracture pressure of the injection zone(s) so as to ensure that the injection does not initiate new fractures or propagate existing fractures in the injection zone(s).~~

~~(i) In no case may injection pressure cause movement of injection or formation fluids in a manner that endangers a USDW, or otherwise threatens human health, safety, or the environment.~~

~~(ii) In no case may injection pressure initiate fractures in the confining zone(s) or cause the movement of injectate or formation fluids that endangers a USDW or otherwise threatens human health, safety, or the environment.~~

~~(b) Injection of the carbon dioxide stream between the outermost casing protecting USDWs and the wellbore is prohibited.~~

~~(c) The owner or operator must fill the annulus between the tubing and the long string casing with a non-corrosive fluid approved by the Administrator. The owner or operator must maintain on the annulus a pressure that exceeds the operating injection pressure, unless the Administrator determines that such requirement might harm the integrity of the well or endanger USDWs.~~

~~(d) Other than during periods of well workover or maintenance approved by the Administrator in which the sealed tubing-casing annulus is, by necessity, disassembled for maintenance or corrective procedures, the owner or operator must maintain mechanical integrity of the injection well at all times.~~

~~(e) The owner or operator must install and use continuous recording devices to monitor:~~

~~(i) Injection pressure; and~~

~~(ii) Rate, volume, and temperature of the carbon dioxide stream.~~

~~(f) The owner or operator must install and use continuous recording devices to monitor the pressure on the annulus between the tubing and the long string casing and annulus fluid volume.~~

~~(g) The owner or operator must install, test, and use alarms and automatic surface shut-off systems, or at the discretion of the Administrator use down-hole shut-off systems (e.g., automatic shut-off, check valves), or other mechanical devices that provide equivalent protection, designed to alert the operator and shut-in the well when operating parameters such as injection rate, injection pressure, or other parameters approved by the Administrator diverge beyond ranges and/or gradients specified in the permit.~~

~~(h) If an automatic shutdown is triggered or a loss of mechanical integrity is discovered, the owner or operator must immediately investigate and identify as expeditiously as possible the cause. If, upon such investigation, the well appears to be lacking mechanical integrity, or if monitoring required under paragraphs (e), (f), and (g) of this section otherwise indicates that the well may be lacking mechanical integrity, the owner or operator must :~~

~~(i) Immediately cease injection;~~

~~(ii) Take all steps reasonably necessary to determine whether there may have been a release of the injected carbon dioxide stream or formation fluids into any unauthorized zone;~~

~~(iii) Notify the Administrator within twenty-four (24) hours;~~

~~(iv) Restore and demonstrate mechanical integrity to the satisfaction of the Administrator as soon as practicable and prior to resuming injection; and~~

~~(v) Notify the Administrator when injection can be expected to resume~~.

~~(formerly Section 7(a))~~(a) ~~Owners or operators of~~ All Class VI wells ~~must~~ shall ~~demonstrate to the satisfaction of the Administrator that the wells will~~ be sited in areas with a suitable geologic system. The geologic system ~~must~~ shall be comprised of:

~~(formerly Section 7(a)(i))~~(i) An injection zone of sufficient areal extent, thickness, porosity, and permeability to receive the total anticipated volume of the carbon dioxide stream; and

~~(formerly Section 7(a)(ii))~~(ii) ~~A c~~Confining zone~~(s)~~ that ~~is~~ are free of transmissive faults or fractures and of sufficient areal extent and integrity to contain the injected carbon dioxide stream and displaced formation fluids and allow injection at proposed maximum pressures and volumes without initiating or propagating fractures in the confining zone~~(s)~~ or causing non-transmissive faults to become transmissive.

~~(formerly Section 7(a))~~(b) Owners or operators of Class VI wells ~~must~~ shall identify and characterize additional zones, if they exist, that will impede vertical fluid movement, allow for pressure dissipation, and provide additional opportunities for monitoring, mitigation, and remediation. ~~Vertical f~~Faults and fractures that transect these zones ~~must~~ shall be identified.

**Section 13. ~~Mechanical Integrity.~~ Area of Review Delineation and Corrective Action.**

~~(a) A Class VI well has mechanical integrity if:~~

~~(i) There is no significant leak in the casing, tubing, or packer; and~~

~~(ii) There is no significant fluid movement into a USDW through channels adjacent to the injection wellbore.~~

~~(b) To evaluate the absence of significant leaks under paragraph (a)(i) of this section, owners or operators must, following an initial annulus pressure test, continuously monitor injection pressure, rate, injected volumes, and pressure on the annulus between tubing and long string casing and annulus fluid volume as specified in Section 12 (e) and (f) of this chapter;~~

~~(c) At least once per year, the owner or operator must use one (1) of the following methods to determine the absence of significant fluid movement under subparagraph (a)(ii) of this section:~~

~~(i) An approved tracer survey such as an oxygen-activation log; or~~

~~(ii) A temperature or noise log.~~

~~(d) If required by the Administrator, at a frequency specified in the testing and monitoring plan required in Section 14 of this chapter, the owner or operator must run a casing inspection log to determine the presence or absence of corrosion in the long-string casing.~~

~~(e) The Administrator may require any other test to evaluate mechanical integrity under paragraph (a)(i) or (a)(ii) of this section. Also, the Administrator may allow the use of a test to demonstrate mechanical integrity other than those listed above, with the written approval of the US EPA Administrator. To obtain approval, the Administrator must submit a written request to the US EPA Administrator that must set 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 Administrator, the owner or operator and the Administrator must apply methods and standards generally accepted in the industry.~~

~~(i) When the owner or operator reports the results of mechanical integrity tests to the Administrator, he/she shall include a description of the test(s) and the method(s) used.~~

~~(ii) In making his/her evaluation, the Administrator must review monitoring and other test data submitted since the previous evaluation.~~

~~(g) The Administrator may require additional or alternative tests if the results presented by the owner or operator under paragraph (e) of this section are not satisfactory to the Administrator to demonstrate that there is no significant leak in the casing, tubing or packer, or significant movement of fluid into or between USDWs resulting from the injection activity as stated in paragraphs (a)(i) and (a)(ii) of this section.~~

~~(formerly Section 8(b))~~(a) The owner or operator of a Class VI well ~~must~~ shall prepare, maintain, and comply with a plan to delineate the area of review for a proposed geologic sequestration project, re-evaluate the delineation, and perform corrective action that meets the requirements of this ~~s~~Section and is ~~acceptable to~~ approved by the Administrator. ~~(formerly Section 8(a))~~ The area of review ~~is~~ shall be based on computational modeling that accounts for the physical and chemical properties of all phases of the injected carbon dioxide stream. ~~(formerly Section 5(b)(viii)(A)) A Class VI~~ The area of review shall never be less than the area of potentially affected groundwater. ~~As a part of the permit application for approval by the Administrator, the owner or operator must submit a~~An area of review and corrective action plan ~~that~~ shall include~~s~~ the following information:

~~(formerly Section 8(b)(i))~~(i) The method for delineating the area of review that meets the requirements of paragraph ~~(c)~~(b) of this ~~s~~Section, including the name, version and availability of the model ~~to~~ that will be used, assumptions that will be made, and the site characterization data on which the model will be based;

~~(formerly Section 8(b)(ii))~~(ii) A description of:

~~(formerly Section 8(b)(ii)(A))~~(A) The monitoring and operational conditions that would warrant a re-evaluation of the area of review prior to the next scheduled re-evaluation as determined by the minimum fixed frequency established in paragraph ~~(a)~~(c) of this ~~s~~Section.

~~(formerly Section 8(b)(ii)(B))~~(B) How monitoring and operational data (e.g., injection rate and pressure) will be used to evaluate the area of review; and

~~(formerly Section 8(b)(ii)(C))~~(C) How corrective action will be conducted to meet the requirements of paragraph ~~(c)(v)~~ (b)(v) of this ~~s~~Section, including:

~~(formerly Section 8(b)(ii)(C)(I))~~(I) What corrective action will be performed prior to injection;

~~(formerly Section 8(b)(ii)(C)(II))~~(II) 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;

~~(formerly Section 8(b)(ii)(C)(III))~~(III) How corrective action will be adjusted if there are changes in the area of review; and

~~(formerly Section 8(b)(ii)(C)(IV))~~(IV) How site access will be ensured for future corrective action.

~~(formerly Section 8(c))~~(b) Owners or operators of Class VI wells ~~must~~ shall perform the following actions to delineate the area of review, identify all wells that require corrective action, and perform corrective action on those wells:

~~(formerly Section 8(c)(i))~~(i) Predict, using existing site characterization, monitoring and operational data, and computational modeling:

~~(formerly Section 8(c)(i)(A))~~(A) The projected lateral and vertical migration of the carbon dioxide plume and formation fluids in the subsurface from the commencement of injection activities until the plume movement ceases;

~~(formerly Section 8(c)(i)(B))~~(B) The pressure differentials, ~~and~~ demonstrate~~e~~ing that pressure differentials sufficient to cause the movement of injected fluids or formation fluids into a USDW or to otherwise threaten human health, safety, or the environment will not be present, ~~(~~or ~~for~~ until the end of a fixed time period ~~as~~ determined by the Administrator~~)~~;

~~(formerly Section 8(c)(i)(C))~~(C) The potential need for brine removal~~,~~; and~~;~~

~~(formerly Section 8(c)(i)(D))~~(D) The long-term effects of pressure buildup if brine is not removed.

~~(formerly Section 8(c)(ii))~~(ii) ~~The~~ Use modeling ~~must~~ that:

~~(formerly Section 8(c)(ii)(A))~~(A) ~~Be~~ Is based on:

~~(formerly Section 8(c)(ii)(A)(I))~~(I) Detailed geologic data available or collected to characterize the injection zone, confining zone, and any additional zones; and

~~(formerly Section 8(c)(ii)(A)(II))~~(II) Anticipated operating data, including injection pressures, rates and total volumes over the proposed operational life of the facility~~.~~;

~~(formerly Section 8(c)(ii)(B))~~(B) Takes into account any relevant geologic heterogeneities, other discontinuities, data quality, and their possible impact on model predictions; and

~~(formerly Section 8(c)(ii)(C))~~(C) Considers potential migration through faults, fractures, and artificial penetrations.

~~(formerly Section 8(c)(iii))~~(iii) Using methods approved by the Administrator, identify all penetrations, including active and abandoned wells and underground mines, in the area of review that may penetrate the confining zone~~.~~, and ~~P~~provide a description of each well's type, construction, date drilled, location, depth, record of plugging and~~/or~~ completion, and any additional information the Administrator may require; ~~and~~

~~(formerly Section 8(c)(iv))~~(iv) Determine which abandoned wells in the area of review have been plugged in a manner that prevents the movement of:

~~(formerly Section 8(c)(iv)(A))~~(A) Carbon dioxide that may endanger USDWs or otherwise threaten human health, safety, or the environment; or

~~(formerly Section 8(c)(iv)(B))~~(B) Displaced formation fluids, or other fluids, including the use of materials compatible with the carbon dioxide stream, that may endanger USDWs or otherwise threaten human health, safety, or the environment~~.~~; and

~~(formerly Section 8(c)(v))~~(v) Owners or operators of Class VI wells ~~must~~ shall ~~that are determined to need corrective action using methods that are approved by the Administrator, must~~ perform corrective action on ~~all~~ any 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 USDWs including use of materials compatible with the carbon dioxide stream, where appropriate.

~~(formerly Section 8(d))~~(c) At a fixed frequency, not to exceed two (2) years during the operational life of the facility~~,~~ or five (5) years during the post-injection site care period (until site closure) as specified in the area of review and corrective action plan, or when monitoring and operational conditions warrant, owners or operators ~~must~~ shall:

~~(formerly Section 8(d)(i))~~(i) Re-evaluate the area of review in the same manner specified in ~~paragraph (c)(i)~~ subparagraph (b)(i) of this ~~s~~Section;

~~(formerly Section 8(d)(ii))~~(ii) Identify all wells in the re-evaluated area of review that require corrective action in the same manner specified in ~~paragraph (c)(iv)~~ subparagraph (b)(iv) of this ~~s~~Section;

~~(formerly Section 8(d)(iii))~~(iii) Perform corrective action on wells requiring corrective action in the reevaluated area of review in the same manner specified in ~~paragraph (c)(v)~~ subparagraph (b)(v) of this ~~s~~Section; and

~~(formerly Section 8(d)(iv))~~(iv) Submit an amended area of review and corrective action plan, or demonstrate to the Administrator through monitoring data and modeling results that no change to the area of review and corrective action plan is needed.

~~(formerly Section 8(d)(iv)(A))~~(A) ~~Any a~~Amendments to the area of review and corrective action plan ~~must~~ shall be subject to approv~~ed~~al ~~by~~ of the Administrator~~;~~.

~~(formerly Section 8(d)(iv)(B))~~(B) ~~Any a~~Amendments to the area of review ~~must~~ shall be incorporated into the permit~~;~~. ~~and~~

~~(formerly Section 8(d)(iv)(C))~~(C) ~~Any a~~Amendments to the area of review are subject to the permit modification requirements of Section ~~4~~ 6 of this ~~c~~Chapter~~, as appropriate~~.

**Section 14. ~~Testing and Monitoring Requirements.~~Construction and Operation Standards for Class VI Wells.**

~~(a) The owner or operator of a Class VI well must prepare, maintain, and comply with a testing and monitoring plan to verify that the geologic sequestration project is operating as permitted and is not endangering USDWs. The testing and monitoring plan must be submitted with the permit application, for Administrator approval, and must include a description of how the owner or operator will meet the requirements of this section, including accessing sites for all necessary monitoring and testing during the life of the project.~~

~~(b) Testing and monitoring associated with geologic sequestration projects must, at a minimum, include:~~

~~(i) Plans and procedures for environmental surveillance and excursion detection, prevention, and control programs, including a monitoring plan to:~~

~~(A) Assess the migration of the injected carbon dioxide; and~~

~~(B) Ensure the retention of the carbon dioxide in the geologic sequestration site.~~

~~(ii) Analysis of the carbon dioxide stream with sufficient frequency to yield data representative of its chemical and physical characteristics;~~

~~(iii) Installation and use, except during well workovers, of continuous recording devices to monitor:~~

~~(A) Injection pressure;~~

~~(B) Rate and volume;~~

~~(C) Pressure on the annulus between the tubing and the long string casing;~~

~~(D) The annulus fluid volume added; and~~

~~(E) The pressure on the annulus between the tubing and the long string casing.~~

~~(iv) Corrosion monitoring of the well materials for loss of mass, thickness, cracking, pitting, and other signs of corrosion must be performed and recorded at least quarterly to ensure that the well components meet the minimum standards for material strength and performance set forth in Section 9(b) of this chapter 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 Administrator.~~

~~(v) Periodic monitoring of the groundwater quality and geochemical changes above the confining zone(s) that may be a result of carbon dioxide movement or displaced formation fluid movement through the confining zone(s) or additional identified zones including:~~

~~(A) The location and number of monitoring wells must be based on specific information about the geologic sequestration project, including injection rate and volume, geology, the presence of artificial penetrations and other relevant factors; and~~

~~(B) The monitoring frequency and spatial distribution of monitoring wells based on baseline geochemical data that have been collected under Section 5(b)(xiii) of this~~

~~chapter and any modeling results in the area of review evaluation required by Section 8(c) of this chapter.~~

~~(vi) A demonstration of external mechanical integrity pursuant to Section 13(c) at least once per year until the well is plugged; and if required by the Administrator, a casing inspection log pursuant to requirements of Section 13(d) of this chapter at a frequency established in the testing and monitoring plan;~~

~~(vii) A pressure fall-off test that identifies reservoir conditions with respect to flow dynamics at least once every five (5) years unless more frequent testing is required by the Administrator based on site-specific information; and~~

~~(viii) Testing and monitoring to track the extent of the carbon dioxide plume, the position of the pressure front, and surface displacement using:~~

~~(A) Direct methods in the injection zone(s); and~~

~~(B) Indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Administrator determines, based on site-specific geology, that such methods are not appropriate;~~

~~(ix) At the Administrator's discretion, based on site-specific conditions, surface air monitoring and/or soil gas monitoring to detect movement of carbon dioxide that could endanger a USDW, or otherwise threaten human health, safety, or the environment.~~

~~(A) The surface air or soil gas monitoring plan must be based on potential risks to USDWs, and modeling within the area of review;~~

~~(B) The monitoring frequency and spatial distribution of surface air monitoring and/or soil gas monitoring must reflect baseline data. The monitoring plan must specify how the proposed monitoring will yield useful information on the area of review delineation and the potential movement of fluid containing any contaminant into USDWs in exceedence of any primary drinking water regulation under 40 CFR Part 141, or which may otherwise adversely affect human health, safety, or the environment.~~

~~(x) If an owner or operator demonstrates that monitoring employed under 40 CFR §§ 98.440 to 98.449 (Clean Air Act, 42 U.S.C. 7401 et seq.) accomplishes the goals of (b)(ix)(A) and (B) of this section, and meets the requirements pursuant to 40 CFR § 146.91(c)(5), the Administrator that requires surface air/soil gas monitoring must approve the use of monitoring employed under 40 CFR §§ 98.440 to 98.449. Compliance with §§ 98.440 to 98.449 pursuant to this provision is considered a condition of the Class VI permit;~~

~~(xi) Any additional monitoring, as required by the Administrator, necessary to support, upgrade, and improve computational modeling of the area of review re-evaluation required under Section 8(d) of this chapter and as necessary to demonstrate that there is no movement of fluid containing any contaminant into underground sources of drinking water in~~

~~exceedence of any primary drinking water regulation under 40 CFR Part 141, or which could otherwise adversely affect human health, safety, or the environment;~~

~~(xii) The owner or operator shall periodically review the testing and monitoring plan to incorporate monitoring data collected under this subpart, operational data collected under Section 12 of this chapter, and the most recent area of review reevaluation performed under Section 8 of this chapter. In no case shall the owner or operator review the testing and monitoring plan less often than once every five (5) years. Based on this review, the owner or operator shall submit an amended testing and monitoring plan or demonstrate to the Administrator that no amendment to the testing and monitoring plan is needed. Any amendments to the testing and monitoring plan must be approved by the Administrator, must be incorporated into the permit, and are subject to the permit modification requirements of Section 4 of this chapter, as appropriate. Amended plans or demonstrations shall be submitted to the Administrator as follows:~~

~~(A) Within one (1) year of an area of review reevaluation;~~

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

~~(C) When required by the Administrator.~~

~~(xiii) A quality assurance and surveillance plan for all testing and monitoring requirements.~~

~~(c) The permittee shall retain records of all monitoring information, including the following:~~

~~(i) Calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report, or application. This period may be extended by request of the Administrator at any time; and~~

~~(ii) The nature and composition of all injected fluids until three (3) years after the completion of any plugging and abandonment procedures specified under Section 16 of this chapter. The Administrator may require the owner or operator to deliver the records to the Administrator at the conclusion of the retention period.~~

~~(d) Records of monitoring information shall include:~~

~~(i) The date, exact place, and time of sampling or measurements;~~

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

~~(iii) The date(s) analyses were performed;~~

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

~~(v) The analytical techniques or methods used; and~~

~~(vi) The results of such analyses.~~

~~(formerly Section 9(a))~~(a) The owner or operator ~~must~~ shall design, construct, and complete ~~ensure that~~ all Class VI wells ~~are designed, at a minimum,~~ to meet the construction standards ~~set forth by the Department and the Wyoming Oil and Gas Conservation Commission, as applicable, and constructed and completed~~ in this Section and to:

~~(formerly Section 9(a)(i))~~(i) Prevent the movement of fluids into or between USDWs or into any unauthorized zones;

~~(formerly Section 9(a)(ii))~~(ii) ~~Permit~~ Allow the use of appropriate testing devices and workover tools; and

~~(formerly Section 9(a)(iii))~~(iii) ~~Permit~~ Allow continuous monitoring of the annulus space between the injection tubing and long string casing.

~~(formerly Section 9(b))~~(b) Casing and cement or other materials used in the construction of each Class VI well ~~must~~ shall have sufficient structural strength and be designed for the life of the well.

~~(formerly Section 9(b)(i))~~(i) All well materials ~~must~~ shall be compatible with fluids with which the materials may be expected to come into contact~~,~~ and shall meet or exceed the following standards ~~developed for such materials by: the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Administrator.~~

(A) American Petroleum Institute Specification 5CT;

(B) American Petroleum Institute RP 5C1;

(C) American Petroleum Institute RP 10B-2;

(D) American Petroleum Institute Specification 10A;

(E) American Petroleum Institute RP 10D-2;

(F) American Petroleum Institute Specification 11D1;

(G) American Petroleum Institute RP 14B; and

(H) American Petroleum Institute RP 14C.

~~(formerly Section 9(b)(ii))~~(ii) The casing and cementing program ~~must~~ shall be designed to prevent the movement of fluids into or between USDWs.

~~(formerly Section 9(b)(iii))~~(iii) ~~In order t~~To allow the Administrator to determine and specify casing and cementing requirements, the owner or operator ~~must~~ shall provide the following information in a construction design plan:

~~(formerly Section 9(b)(iii)(A))~~(A) Depth to the injection zone;

~~(formerly Section 9(b)(iii)(B))~~(B) Injection pressure, external pressure, internal pressure, and axial loading;

~~(formerly Section 9(b)(iii)(C))~~(C) Hole size;

~~(formerly Section 9(b)(iii)(D))~~(D) Size and grade of all casing strings (wall thickness, external diameter, nominal weight, length, joint specification and construction material), including whether the casing is new~~,~~ or used;

~~(formerly Section 9(b)(iii)(E))~~(E) Corrosiveness of the carbon dioxide stream and formation fluids;

~~(formerly Section 9(b)(iii)(F))~~(F) Down-hole temperatures and pressures;

~~(formerly Section 9(b)(iii)(G))~~(G) Lithology of injection and confining zones;

~~(formerly Section 9(b)(iii)(H))~~(H) Type or grade of cement and additives; and

~~(formerly Section 9(b)(iii)(I))~~(I) Quantity, chemical composition, and temperature of the carbon dioxide stream.

~~(formerly Section 9(b)(iv))~~(iv) Casing ~~must~~ shall extend through the base of the lowermost USDW above the injection zone and be cemented to the surface through the use of a single or multiple strings of casing and cement.

~~(formerly Section 9(b)(v))~~(v) At least one (1) long string casing, using a sufficient number of centralizers, ~~must~~ shall be set ~~in a manner so as~~ to create a cement bond through the overlying and~~/or~~ underlying confining zone~~(s)~~.

~~(formerly Section 9(b)(v))~~(A) The long string casing ~~must~~ shall: ~~extend to the injection zone, must be cemented by circulating cement to the surface in one (1) or more stages, and must be isolated by placing cement and/or other isolation techniques as necessary to~~

~~provide adequate isolation of the injection zone and provide for protection of USDWs, human health, safety, and the environment.~~

~~(formerly Section 9(b)(v))~~(I) ~~e~~Extend to the injection zone~~,~~;

~~(formerly Section 9(b)(v))~~(II) ~~must b~~Be cemented by circulating cement to the surface in one (1) or more stages~~,~~; and

~~(formerly Section 9(b)(v))~~(III) ~~must b~~Be isolated by placing cement ~~and/~~or other isolation techniques as necessary to provide adequate isolation of the injection zone and provide for protection of USDWs, human health, safety, and the environment.

~~(formerly Section 9(b)(v)(A))~~(B) Circulation of cement may be accomplished by staging. The Administrator may approve an alternative method of cementing in cases where the cement cannot be recirculated to the surface~~, provided~~ if the owner or operator ~~can~~ demonstrates by using logs that the cement does not allow fluid movement behind the wellbore.

~~(formerly Section 9(b)(vi))~~(vi) Cement and cement additives ~~must~~ shall be suitable for use with the carbon dioxide stream and formation fluids, and be of sufficient quality and quantity to maintain integrity over the operating life of the well.

~~(formerly Section 9(b)(vii))~~(vii) The integrity and location of the cement shall be verified using technology capable of evaluating cement quality radially with sufficient resolution to identify the location of channels, voids, or other areas of missing cement to ensure that USDWs are not endangered and that human health, safety, and the environment are protected. The owner or operator shall provide a cement bond log (CBL) to the Administrator with an evaluation, certified by a licensed professional engineer or a licensed professional geologist, of the following:

(A) Quantitative estimations of the cement compressive strength;

(B) A bond index; and

(C) Qualitative interpretation of the cement-to-formation bond.

~~(formerly Section 9(c))~~(c) All owners and operators of Class VI wells ~~must~~ shall inject fluids through tubing with a packer set at a depth opposite a cemented interval at the location approved by the Administrator.

~~(formerly Section 9(c)(i))~~(i) Tubing and packer materials used in the construction of each Class VI well ~~must~~ shall be compatible with fluids with which the materials may be expected to come into contact and ~~must~~ shall meet or exceed the following standards ~~developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Administrator.~~:

(A) American Petroleum Institute Specification 5CT;

(B) American Petroleum Institute RP 5C1;

(C) American Petroleum Institute RP 10B-2;

(D) American Petroleum Institute Specification 10A;

(E) American Petroleum Institute RP 10D-2;

(F) American Petroleum Institute Specification 11D1;

(G) American Petroleum Institute RP 14B; and

(H) American Petroleum Institute RP 14C.

~~(formerly Section 9(c)(ii))~~(ii) ~~In order for t~~The Administrator ~~to~~ shall determine and specify requirements for tubing and packer~~, the owner or operator must submit~~ based on the following information:

~~(formerly Section 9(c)(ii)(A))~~(A) Depth of setting;

~~(formerly Section 9(c)(ii)(B))~~(B) Characteristics of the carbon dioxide stream (e.g., chemical content, corrosiveness, temperature, and density) and formation fluids;

~~(formerly Section 9(c)(ii)(C))~~(C) Maximum proposed injection pressure;

~~(formerly Section 9(c)(ii)(D))~~(D) Maximum proposed annular pressure;

~~(formerly Section 9(c)(ii)(E))~~(E) Maximum proposed injection rate (intermittent or continuous) and volume of the carbon dioxide stream;

~~(formerly Section 9(c)(ii)(F))~~(F) Size of tubing and casing; and

~~(formerly Section 9(c)(ii)(G))~~(G) Tubing tensile, burst, and collapse strengths.

**Section 15. ~~Reporting Requirements.~~ Class VI Injection Depth Waiver Requirements.**

~~(a) The owner or operator must, at a minimum, provide the following reports to the Administrator, for each permitted Class VI well:~~

~~(i) Semi-annual reports, which are required by the permit shall be submitted to the Administrator within thirty (30) days following the end of the period covered in the report, and shall contain:~~

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

~~(B) Monthly average, maximum and minimum values for injection pressure, flow rate and volume, and annular pressure;~~

~~(C) A description of any event that exceeds operating parameters for annulus pressure or injection pressure as specified in the permit;~~

~~(D) A description of any event that triggers a shutdown device required pursuant to Section 12(g) of this chapter, and the response taken;~~

~~(E) The monthly volume of the carbon dioxide stream injected over the reporting period and project cumulatively;~~

~~(F) Monthly annulus fluid volume added; and~~

~~(G) The results of monitoring prescribed under Section 14 of this chapter.~~

~~(ii) Report, within thirty (30) days the results of:~~

~~(A) Periodic tests of mechanical integrity;~~

~~(B) Any other test of the injection well conducted by the permittee if required by the Administrator; and~~

~~(C) Any well workover.~~

~~(iii) Report, within twenty-four (24) hours:~~

~~(A) Any evidence that the injected carbon dioxide stream or associated pressure front may cause an endangerment to a USDW;~~

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

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

~~(D) Pursuant to compliance with the requirement at Section 14(b)(x) of this chapter for surface air or soil gas monitoring or other monitoring technologies, if required by the Administrator, any release of carbon dioxide to the atmosphere or biosphere.~~

~~(iv) Owners or operators must notify the Administrator in writing thirty (30) days in advance of:~~

~~(A) Any planned well workover;~~

~~(B) Any planned stimulation activities, other than stimulation for formation testing conducted under Section 5 of this chapter; and~~

~~(C) Any other planned test of the injection well conducted by the permittee.~~

~~(b) Owners or operators must submit all required reports, submittals, and notifications to both the Administrator and to EPA, in an electronic format acceptable to the EPA.~~

~~(c) The permittee shall submit a written report to the Administrator of all remedial work concerning the failure of equipment or operational procedures that resulted in a violation of a permit condition, at the completion of the remedial work.~~

~~(d) For any aborted or curtailed operation, a complete report shall be submitted within thirty (30) days of complete termination of the discharge or associated activity.~~

~~(e) The permittee shall retain all monitoring records required by the permit for a period of ten (10) years following site closure. The Administrator may require the owner or operator to deliver the records to the Administrator at the conclusion of the retention period.~~

~~formerly Section 10(a))~~(a) ~~The~~ An owner ~~and/~~or operator seeking a waiver of the requirement to inject below the lowermost USDW shall submit a supplemental report concurrent with the permit application. The report shall contain the following:

~~formerly Section 10(a)(i))~~(i) A demonstration that the injection zones are laterally continuous, ~~is~~ are not ~~a~~ USDWs, and ~~is~~ are not hydraulically connected to USDWs; do~~es~~ not outcrop within the area of review; ~~has~~ have adequate injectivity, volume, and sufficient porosity to safely contain the injected carbon dioxide and formation fluids; and ~~has~~ have appropriate geochemistry~~.~~;

~~formerly Section 10(a)(ii))~~(ii) A demonstration that the injection zones are bounded by laterally continuous, impermeable confining units above and below the injection zones adequate to prevent fluid movement and pressure buildup outside of the injection zones; ~~and~~

~~formerly Section 10(a)(ii))~~(iii) A demonstration that the confining unit~~(s)~~ ~~is/~~are free of transmissive faults and fractures~~.~~;

~~formerly Section 10(a)(ii))~~(iv) ~~The report shall further~~ A characterize~~e~~ation of the regional fracture properties and ~~contain~~ a demonstration that the fractures will not interfere with injection, serve as conduits, or endanger USDWs~~.~~;

~~formerly Section 10(a)(iii))~~(v) A computer model demonstrating that USDWs above and below the injection zone will not be endangered as a result of fluid movement. The modeling shall be done in conjunction with the area of review determination~~, as~~ described in Section ~~8~~ 13 of this ~~c~~Chapter, ~~and~~ is subject to the requirements~~, as described in~~ of Section ~~8(c)~~ 13(b) of this ~~c~~Chapter, and shall be periodically reevaluat~~ion~~ed~~,~~ as ~~described in~~ required by Section ~~8(d)~~ 13(c) of this ~~c~~Chapter~~.~~;

~~formerly Section 10(a)(iv))~~(vi) A demonstration that well design and construction, in conjunction with the waiver, will ensure isolation of the injectate in lieu of the requirements of Section ~~9(a)(i)~~ 14(a)(i) of this ~~c~~Chapter and will meet the well construction requirements of paragraph (f) of this ~~s~~Section~~.~~;

~~formerly Section 10(a)(v))~~(vii) A description of how the monitoring and testing and any additional plans will be tailored to this geologic sequestration project to ensure protection of USDWs above and below the injection zone~~.~~;

~~formerly Section 10(a)(vi))~~(viii) Information on the location of all public water supplies affected, reasonably likely to be affected, or served by USDWs in the area of review~~.~~; and

~~formerly Section 10(a)(vii))~~(ix) Any other information requested by the Administrator.

~~formerly Section 10(b))~~(b) To inform the US EPA Regional Administrator's decision on whether to grant a waiver of the injection depth requirements of 40 C.F.R. §§ 144.6, 146.5(f), and 146.86(a)(1), the Administrator ~~must~~ shall submit~~,~~ to the US EPA Regional Administrator~~,~~ documentation of the following:

~~formerly Section 10(b)(i))~~(i) An evaluation of the following information as it relates to siting, construction, and operation of a geologic sequestration project with a waiver:

~~formerly Section 10(b)(i)(A))~~(A) The integrity of the upper and lower confining units;

~~formerly Section 10(b)(i)(B))~~(B) The suitability of the injection zone(s) (~~e.g.,~~ including lateral continuity~~;~~, lack of transmissive faults and fractures~~;~~, and knowledge of current or planned artificial penetrations into the injection zone(s) or formations below the injection zone);

~~formerly Section 10(b)(i)(C))~~(C) The potential capacity of the geologic formation(s) to sequester carbon dioxide, accounting for the availability of alternative injection sites;

~~formerly Section 10(b)(i)(D))~~(D) All other site characterization data, the proposed emergency and remedial response plan, and a demonstration of financial responsibility;

~~formerly Section 10(b)(i)(E))~~(E) Community needs, demands, and supply from drinking water resources;

~~formerly Section 10(b)(i)(F))~~(F) Planned needs~~,~~ and potential and~~/or~~ future use of USDWs and non-USDW~~s~~ aquifers in the area;

~~formerly Section 10(b)(i)(G))~~(G) Planned or permitted water, hydrocarbon, or mineral resource exploitation potential of the proposed injection formation(s) and other formations both above and below the injection zone to determine if there are any plans to drill through the formation to access resources in or beneath the proposed injection zone(s)~~/~~ or formation(s);

~~formerly Section 10(b)(i)(H))~~(H) The proposed plan for securing alternative resources or treating USDW formation waters in the event of contamination related to the Class VI injection activity; and

~~formerly Section 10(b)(i)(I))~~(I) Any other applicable considerations or information requested by the Administrator~~.~~;

~~formerly Section 10(b)(ii))~~(ii) Consultation with the ~~P~~public ~~W~~water ~~S~~system ~~S~~supervision ~~D~~directors of all ~~S~~states and Tribes having jurisdiction over lands within the area of review of a well for which a waiver is sought~~.~~; and

~~formerly Section 10(b)(iii))~~(iii) Any written waiver-related information submitted by ~~the~~ a ~~P~~public ~~W~~water ~~S~~system ~~S~~supervision ~~D~~director~~(s)~~ to the ~~(UIC) Director~~ Department.

~~formerly Section 10(c))~~(c) Concurrent with the Class VI permit application public notice process pursuant to Section 27 of this Chapter, the Administrator shall give public notice that an injection depth waiver request has been submitted. The notice shall clearly state:

~~(formerly Section 10(c)(i))~~(i) The depth of the proposed injection zone(s);

~~(formerly Section 10(c)(ii))~~(ii) The location of the injection wells;

~~(formerly Section 10(c)(iii))~~(iii) The name and depth of all USDWs within the area of review;

~~(formerly Section 10(c)(iv))~~(iv) A map of the area of review;

~~(formerly Section 10(c)(v))~~(v) The names of any public water supplies affected, reasonably likely to be affected, or served by the USDWs in the area of review; and

~~(formerly Section 10(c)(vi))~~(vi) The results of any consultation between the UIC program and the Public Water System Supervision ~~program~~ Directors within the area of review.

~~(formerly Section 10(d))~~(d) Following the injection depth waiver application public notice, the Administrator of the Water Quality Division of the Department of Environmental Quality shall provide all the information received through the waiver application process to the US EPA Regional Administrator. Based on the information provided, the US EPA Regional Administrator shall provide written concurrence or non-concurrence regarding waiver issuance.

~~(formerly Section 10(d)(i))~~(i) If the US EPA Regional Administrator requires additional information to make a decision, the Administrator of the Water Quality Division of the Department of Environmental Quality shall provide the information. The US EPA Regional Administrator may require public notice of the new information.

~~(formerly Section 10(d)(i))~~(ii)The Administrator of the Water Quality Division of the Department of Environmental Quality shall not issue a depth injection waiver without receipt of written concurrence from the US EPA Regional Administrator.

~~(formerly Section 10(e))~~(e) If an injection depth waiver is issued, within thirty (30) days of issuance, the EPA shall post the following information on the Office of Water's website:

~~(formerly Section 10(e)(i))~~(i) The depth of the proposed injection zone(s)~~.~~;

~~(formerly Section 10(e)(ii))~~(ii) The location of the injection wells~~.~~;

~~(formerly Section 10(e)(iii))~~(iii) The name and depth of all USDWs within the area of review~~.~~;

~~(formerly Section 10(e)(iv))~~(iv) A map of the area of review~~.~~;

~~(formerly Section 10(e)(v))~~(v) The names of any public water supplies affected, reasonably likely to be affected, or served by the USDWs in the area of review~~.~~; and

~~(formerly Section 10(e)(vi))~~(vi) The date of waiver issuance.

~~(formerly Section 10(f))~~(f) Upon receipt of a waiver of the requirement to inject below the lowermost USDW for geologic sequestration, the owner or operator of a Class VI well ~~must~~ shall comply with the following:

~~(formerly Section 10(f)(i))~~(i) All requirements of Sections ~~8~~ 13,~~ 11~~ 17,~~ 12~~ 18,~~ 13~~ 19,~~ 15~~ 22,~~ 16~~ 23,~~ 18~~ 25, and ~~19~~ 26 of this ~~c~~Chapter~~.~~;

~~(formerly Section 10(f)(ii))~~(ii) All the requirements of Section ~~9~~ 14 of this ~~c~~Chapter with the following modified requirements:

~~(formerly Section 10(f)(ii)(A))~~(A) In lieu of meeting the requirements of Section 14(a)(i) of this Chapter, ~~T~~the Class VI well shall be constructed and completed to prevent the movement of fluids into any unauthorized zones, including USDWs~~, in lieu of requirements of Section 9(a)(i) of this chapter.~~;

~~(formerly Section 10(f)(ii)(B))~~(B) In lieu of meeting the requirements of Section 14(b) and 14(b)(i) of this Chapter, ~~T~~the casing and cementing program shall ~~be designed to~~ prevent the movement of fluids into any unauthorized zones including USDWs~~, in lieu of requirements of Section 9(b) and 9(b)(i)of this chapter.~~; and

~~(formerly Section 10(f)(ii)(C))~~(C) The casing shall extend through the base of the nearest USDW directly above the injection zone and shall be cemented to the surface~~;~~ or, at the Administrator's discretion, at another formation above the injection zone and below the nearest USDW above the injection zone~~.~~;

~~(formerly Section 10(f)(iii))~~(iii) All the requirements of Section ~~14~~ 20 of this ~~c~~Chapter with the following modified requirements:

~~(formerly Section 10(f)(iii)(A))~~(A) The owner or operator shall monitor the groundwater quality, geochemical changes, and pressure in the first USDWs immediately above and below the injection zone(s)~~;~~ and in any other formation at the discretion of the Administrator~~.~~; and

~~(formerly Section 10(f)(iii)(B))~~(B) The owner or operator shall conduct 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) in the injection zone(s) by using: ~~direct methods to monitor for pressure changes in the injection zone(s); and, indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Administrator determines, based on site-specific geology, that such methods are not appropriate.~~

~~(formerly Section 10(f)(iii)(B))~~(I) Direct methods, ~~to monitor for pressure changes in the injection zone(s);~~ and,

~~(formerly Section 10(f)(iii)(B))~~(II) Indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Administrator determines, based on site-specific geology, that such methods are not appropriate~~.~~;

~~(formerly Section 10(f)(iv))~~(iv) All requirements of Section ~~17~~ 24 of this ~~c~~Chapter with the following~~,~~ modified ~~post-injection site care~~ ~~monitoring~~ requirements:

~~(formerly Section 10(f)(iv)(A))~~(A) The owner or operator shall monitor the groundwater quality, geochemical changes and pressure in the first USDWs immediately above and below the injection zone~~;~~ and in any other formations at the discretion of the Administrator~~.~~; and

~~(formerly Section 10(f)(iv)(B))~~(B) Testing and monitoring in the injection zone(s) to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using direct methods ~~in the injection zone(s);~~ and indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and~~/or~~ down-hole carbon dioxide detection tools)~~,~~ unless the Administrator determines, based on site-specific geology, that such methods are not appropriate; and

~~(formerly Section 10(f)(v))~~(v) Any additional requirements ~~requested~~ imposed by the Administrator to ensure protection of USDWs above and below the injection zone(s).

**Section 16. ~~Injection Well plugging.~~ Expansion to the Areal Extent of Existing Class II Injection Well Aquifer Exemptions for Class VI Injection Wells.**

~~(a) Prior to the well-plugging, the owner or operator must flush each Class VI injection well with a buffer fluid, determine bottom hole reservoir pressure, and perform a final external mechanical integrity test in accordance with Section 13 of this chapter.~~

~~(b) The owner or operator of a Class VI well must prepare, maintain, update on the same schedule as the update to the area of review delineation, and comply with a well-plugging plan that is acceptable to the Administrator. Temporary or intermittent cessation of injection operations is not abandonment. The well-plugging plan must include the following information:~~

~~(i) Appropriate test or measure to determine bottom hole reservoir pressure;~~

~~(ii) Appropriate testing methods to ensure final external mechanical integrity as specified in Section 13 of this chapter;~~

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

~~(iv) The placement of each plug including the elevation of the top and bottom of each plug;~~

~~(v) The type and grade and quantity of material, suitable for use with the carbon dioxide stream, to be used in plugging;~~

~~(vi) A description of the method of placement of the plugs.~~

~~(c) The owner or operator must notify the Administrator, in writing, at least sixty (60) days before plugging a well.~~

~~(i) If any changes have been made to the original well-plugging plan, the owner or operator must also provide the revised well-plugging plan.~~

~~(ii) At the discretion of the Administrator, a shorter notice period may be allowed.~~

~~(iii) Any amendments to the injection well-plugging plan must be approved by the Administrator, must be incorporated into the permit, and are subject to the permit modification requirements of Section 4 of this chapter, as appropriate.~~

~~(d) Within sixty (60) days after completion of plugging and abandonment of a well or well field the permittee shall submit to the Administrator a final report that includes:~~

~~(i) Certification of completion in accordance with approved plans and specifications by a licensed professional engineer or a licensed professional geologist.~~

~~(ii) Certification of accuracy by the owner or operator and by the person who performed the plugging operation (if other than the owner or operator).~~

~~(iii) The owner or operator shall retain the well-plugging report for ten (10) years following site closure.~~

~~(formerly Section 5(c)(i)(A))~~(a) 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 geologic sequestration ~~must~~ shall define (by narrative description, illustrations, maps, or other means) and describe (in geographic and/or geometric terms ~~(~~such as vertical and lateral limits and gradient~~)~~ that are clear and definite)~~,~~ all aquifers or parts thereof that are requested to be designated as exempted using the criteria in subparagraphs ~~(d)(i)(A-C)~~(b)(i)(A)-(C) of this ~~s~~Section.

~~(formerly Section 5(c)(i))~~(b) The Administrator may consider a request from an owner~~s~~ ~~and/~~or operator~~s~~ of permitted Class II injection well~~(s) that are seeking~~ to convert ~~their~~ its well~~(s)~~ to a Class VI well and ~~are seeking an expansion to~~ expand the areal extent of ~~an~~ the existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption for the exclusive purpose of Class VI injection for geologic sequestration.

~~(formerly Section 5(c)(i))~~(i) The Administrator may approve the request if the existing aquifer exemption and the ~~affected~~ well~~s~~ meet the following conditions:

~~(formerly Section 5(c)(i)(A))~~(A) ~~It~~ The groundwater does not currently serve as a source of drinking water; ~~and~~

~~(formerly Section 5(c)(i)(B))~~(B) The total dissolved solids content of

the groundwater is more than 3,000 mg/L and less than 10,000 mg/L; and

~~(formerly Section 5(c)(i)(C))~~(C) ~~It~~ The groundwater is not reasonably expected to supply a public water system.

~~(formerly Section 5(c)(ii)(B))~~(ii) ~~In evaluating~~ The Administrator may evaluate a request to expand the areal extent of an aquifer exemption of a Class II enhanced oil recovery or enhanced gas recovery well for the purpose of Class VI injection~~,~~ if the Administrator:

~~(formerly Section 5(c)(ii)(B))~~(A) ~~must d~~Determines that the request meets the criteria for exemptions in subparagraphs ~~(d)(i)(A-C)~~ (b)(i)(A)-(C) of this ~~s~~Section~~.~~:

~~(formerly Section 5(c)(ii)(B)(II))~~(B) ~~in order to ensure~~ Determines that the proposed injection operation will not at any time endanger USDWs including non-exempted portions of the injection formation; and

~~(formerly Section 5(c)(ii)(B))~~(C) ~~In making the determination, the Administrator shall c~~Considers, in making the determinations required by subparagraphs (b)(ii)(A)-(B) of this Section, the following:

~~(formerly Section 5(c)(ii)(B)(I))~~(I) Current and potential future use of the USDWs to be exempted as drinking water resources;

~~(formerly Section 5(c)(ii)(B)(II))~~(II) The predicted extent of the injected carbon dioxide plume, and any mobilized fluids that may result in degradation of water quality~~,~~ over the lifetime of the geologic sequestration project, as informed by computational modeling performed pursuant to Section ~~8(c)(i)~~ 13(b)(i) of this ~~c~~Chapter~~, in order to ensure that the proposed injection operation will not at any time endanger USDWs including non-exempted portions of the injection formation~~;

~~(formerly Section 5(c)(ii)(B)(III))~~(III) Whether the areal extent of the expanded aquifer exemption is of sufficient size to account for any possible revisions to the computational model during reevaluation of the area of review, pursuant to Section ~~8(d)~~ 13(c) of this ~~c~~Chapter; and

~~(formerly Section 5(c)(ii)(B)(IV))~~(IV) Any information submitted to support ~~a~~ an injection depth waiver request ~~made by the owner or operator under~~ pursuant to Section ~~10~~ 15 of this ~~c~~Chapter~~, if appropriate~~.

~~(formerly Section 5(c)(ii))~~(c) ~~Such requests will~~ Approvals under this Section are not ~~be~~ final until:

~~(formerly Section 5(c)(ii))~~(i) ~~t~~The Administrator submits the request as a revision to the ~~applicable Federal UIC~~ state-administered program under 40 C.F.R. Part 147 or as a substantial ~~program~~ revision ~~to an approved~~ of a ~~S~~state ~~UIC~~ program under 40 C.F.R. § 145.32;

and

~~(formerly Section 5(c)(ii))~~(ii) EPA approves the ~~request~~ revision.

**Section 17. ~~Post-injection Site Care and Site Closure.~~ Logging, Sampling, and Testing Prior to Injection Well Operation.**

~~(a) The owner or operator of a Class VI well must prepare, maintain, update on the same schedule as the update to the area of review delineation, and comply with a plan for post-injection site care and site closure that meets the requirements of paragraph (a)(ii) of this sSection and is acceptable to the Administrator.~~

~~(i) The owner or operator must submit the post-injection site care and site closure plan as a part of the permit application to be approved by the Administrator, in consultation with EPA.~~

~~(ii) The post-injection site care and site closure plan must include the following information:~~

~~(A) A demonstration containing substantial evidence that the geologic sequestration project will no longer pose a risk of endangerment to USDWs or will not harm or present a risk to human health, safety, or the environment at the end of the post-injection site care timeframe. The demonstration must be based on significant, site-specific data and information, including all data and information collected pursuant to Sections 4 and 7 of this chapter.~~

~~(B) The site closure plan shall address all reclamation, required monitoring, and remediation sufficient to show that the carbon dioxide injected into the geologic sequestration site will not harm human health, safety, the environment, or drinking water supplies.~~

~~(C) Detailed plans for post-injection monitoring, verification, maintenance, and mitigation;~~

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

~~(E) The predicted position of the carbon dioxide plume and associated pressure front at the time when plume movement has ceased and pressure differentials sufficient to cause the movement of injected fluids or formation fluids into a USDW are no longer present, as demonstrated in the area of review evaluation required under Section 8(c)(i) of this chapter;~~

~~(F) A description of post-injection monitoring locations, methods, and proposed frequency; and~~

~~(G) A proposed schedule for submitting post-injection site care monitoring results pursuant to Section 15(b) of this chapter, as appropriate.~~

~~(H) The duration of the post-injection site care timeframe that ensures compliance with subparagraph (A) of this subsection.~~

~~(I) The results of computational modeling performed pursuant to delineation of the area of review under Section 8 of this chapter;~~

~~(J) The predicted timeframe for pressure decline within the injection zone, and any other zones, such that formation fluids may not be forced into any USDWs; and/or the timeframe for pressure decline to pre-injection pressures;~~

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

~~(L) 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;~~

~~(M) The predicted rate of carbon dioxide trapping in the immobile capillary phase, dissolved phase, and/or mineral phase;~~

~~(N) The results of laboratory analyses, research studies, and/or field or site-specific studies to verify the information required in paragraphs (J) and (K) of this subsection;~~

~~(O) A characterization of the confining zone(s) including a demonstration that it is free of transmissive faults, fractures, and micro-fractures and of appropriate thickness, permeability, and integrity to impede fluid (e.g., carbon dioxide, formation fluids) movement;~~

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

~~(Q) A description of the well construction and an assessment of the quality of plugs of all abandoned wells within the area of review;~~

~~(R) The distance between the injection zone and the nearest USDWs above and/or below the injection zone; and~~

~~(S) Any additional site-specific factors required by the Administrator.~~

~~(iii) Information submitted to support the demonstration in paragraph (a)(ii) of this section must meet the following criteria:~~

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

~~(B) Estimation techniques must be appropriate and EPA-certified test protocols must be used where available;~~

~~(C) 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 geologic sequestration project;~~

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

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

~~(F) An analysis must be performed to identify and assess aspects of the post-injection site care timeframe demonstration that contribute significantly to uncertainty. The owner or operator must conduct sensitivity analyses to determine the effect that significant uncertainty may contribute to the modeling demonstration.~~

~~(G) An approved quality assurance and quality control plan must address all aspects of the demonstration; and,~~

~~(H) Any additional criteria required by the Administrator.~~

~~(iv) Upon cessation of injection, owners or operators of Class VI wells must either submit an amended post-injection site care and site closure plan or demonstrate to the Administrator through monitoring data and modeling results that no amendment to the plan is needed. Any amendments to the post-injection site care and site closure plan must be:~~

~~(A) Approved by the Administrator.~~

~~(B) Incorporated into the permit.~~

~~(C) Subject to the permit modification requirements of Section 4 of this chapter, as appropriate.~~

~~(v) The owner or operator may modify and resubmit the post-injection site care and site closure plan for the Administrator's approval within thirty (30) days of such change.~~

~~(b) The owner or operator shall monitor the site following the cessation of injection to show the position of the carbon dioxide plume and pressure front and demonstrate that USDWs are not being endangered.~~

~~(i) The owner or operator shall continue to conduct monitoring as specified in the Administrator-approved post-injection site care and site closure plan until closure is certified by the Administrator.~~

~~(ii) The owner or operator can request and demonstrate to the satisfaction of the Administrator that the post-injection site care and site closure plan should be revised to reduce the frequency of monitoring.~~

~~(iii) Prior to authorization for site closure, the owner or operator must demonstrate to the Administrator, based on monitoring, other site-specific data, and modeling that is reasonably consistent with site performance, that no additional monitoring is needed to ensure that the geologic sequestration project does not, and is not expected to pose an endangerment to a USDW or otherwise threaten human health, safety, or the environment. In addition, the owner or operator must demonstrate, based on the best available understanding of the site, including monitoring data and/or modeling, that all other site closure standards and requirements have been met.~~

~~(iv) If such a demonstration cannot be made, the owner or operator must continue post-injection site care.~~

~~(v) The owner or operator must notify the Administrator, in writing, at least 120 days before filing a request for site closure. At this time, if any changes have been made to the original post-injection site care and site closure plan, the owner or operator must also provide the revised plan. At the discretion of the Administrator, a shorter notice period may be allowed.~~

~~(vi) Post-injection site care shall be for a period of not less than ten (10) years after the date when all wells excluding monitoring wells have been appropriately plugged and abandoned, all subsurface operations and activities have ceased and all surface equipment and improvements have been removed or appropriately abandoned, or so long thereafter as necessary to obtain a completion and release certificate from the Administrator certifying that plume stabilization has been achieved without the use of control equipment based on a minimum of three (3) consecutive years of monitoring data.~~

~~(c) After the Administrator has certified site closure, the owner or operator must plug monitoring wells, as determined by the Administrator, in a manner that will not allow movement of injection or formation fluids.~~

~~(d) Once the Administrator has certified site closure, the owner or operator must submit a site closure report within ninety (90) days after completion of all closure operations. The report must thereafter be retained at a location designated by the Administrator for ten (10) years. The report must include:~~

~~(i) Documentation of appropriate injection and monitoring well plugging as specified in Section 16 of this chapter and paragraph (c) of this section.~~

~~(ii) The owner or operator must provide a copy of a survey plat that has been submitted to the local zoning authority designated by the Administrator.~~

~~(A) The plat must indicate the location of the injection well(s) and monitoring wells relative to permanently surveyed benchmarks.~~

~~(B) The owner or operator must also submit a copy of the plat to the US EPA Regional Administrator.~~

~~(iii) Documentation of appropriate notification and information to such State, local and tribal authorities as have authority over drilling activities to enable such State and local authorities to impose appropriate conditions on subsequent drilling activities that may penetrate the injection and confining zone(s).~~

~~(iv) Proof of providing notice to surface owners, mineral claimants, mineral owners, lessees, and other owners of record of subsurface interests as to the proposed site closure. Notice requirements at a minimum shall include:~~

~~(A) The publishing of notice of the application in a newspaper of general circulation in each county of the proposed operation at weekly intervals for four (4) consecutive weeks;~~

~~(B) The published notice shall provide a mechanism to request a public hearing;~~

~~(C) A copy of the notice shall also be mailed to all surface owners, mineral claimants, mineral owners, lessees and other owners of record of subsurface interests that are located within one (1) mile of the proposed boundary of the geologic sequestration site.~~

~~(v) Records reflecting the nature, composition and volume of the carbon dioxide stream.~~

~~(e) Each owner or operator of a Class VI injection well must record a notation on the deed to the facility property or any other document that is normally examined during title search that will in perpetuity provide any potential purchaser of the property the following information:~~

~~(i) The fact that land has been used to sequester carbon dioxide;~~

~~(ii) The name of the State agency, local authority, and/or tribe with which the survey plat was filed, as well as the address of the Regional Environmental Protection Agency Office to which it was submitted; and~~

~~(iii) The volume of fluid injected, the injection zone or zones into which it was injected, and the period over which injection occurred.~~

~~(f) Well-plugging reports, post-injection site care data, including, if appropriate, data and information used to develop the demonstration of the post-injection site care time frame, and the site closure report collected pursuant to requirements of subsection (d) above shall be retained for ten (10) years following site closure. The owner or operator must deliver the records to the Administrator at the conclusion of the retention period, and the records must thereafter be retained at a location designated by the Administrator for that purpose.~~

~~(formerly Section 11(a))~~(a) During the drilling and construction of a Class VI injection well, the owner or operator ~~must~~ 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 fluids in all relevant geologic formations ~~in order~~ to ensure ~~conformance with~~ the ~~injection~~ well meets the construction requirements ~~under~~ of Section ~~9~~ 14 of this ~~c~~Chapter~~,~~ and to establish accurate baseline data against which future measurements may be compared. The owner or operator ~~must~~ shall submit to the Administrator a descriptive report prepared by a knowledgeable log analyst that includes an interpretation of the results of ~~such~~ the logs and tests. At a minimum, ~~such~~ the logs and tests ~~must~~ shall include:

~~(formerly Section 11(a)(i))~~(i) Deviation checks measured during drilling on all holes constructed by drilling a pilot hole that is subsequently enlarged by reaming or another method. ~~Such~~ Deviation checks ~~must~~ shall 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~~

~~(formerly Section 11(a)(ii))~~(ii) Before and upon installation of the surface casing:

~~(formerly Section 11(a)(ii)(A))~~(A) Resistivity, spontaneous potential, and caliper logs before the casing is installed; and

~~(formerly Section 11(a)(ii)(B))~~(B) A cement bond and variable density log, or other approved device to evaluate cement quality radially with sufficient resolution to identify channels, voids, or other areas of missing cement~~,~~ and a temperature log~~,~~ after the casing is set and cemented~~.~~;

~~(formerly Section 11(a)(iii))~~(iii) Before and upon installation of the long string casing:

~~(formerly Section 11(a)(iii)(A))~~(A) Resistivity, spontaneous potential, porosity, caliper, gamma ray, fracture finder logs, and any other logs the Administrator requires for the given geology before the casing is installed; and

~~(formerly Section 11(a)(iii)(B))~~(B) A cement bond and variable density log, and a temperature log after the casing is set and cemented~~.~~;

~~(formerly Section 11(a)(iv))~~(iv) Test~~(s)~~ designed to demonstrate the internal and external mechanical integrity of injection wells, which may include:

~~(formerly Section 11(a)(iv)(A))~~(A) A pressure test with liquid or gas;

~~(formerly Section 11(a)(iv)(B))~~(B) A tracer survey, such as oxygen-activation logging;

~~(formerly Section 11(a)(iv)(C))~~(C) A temperature or noise log; and

~~(formerly Section 11(a)(iv)(D))~~(D) A casing inspection log~~.~~; and

~~(formerly Section 11(a)(v))~~(v) Any alternative methods that provide equivalent or better information and that are required ~~of, and/~~or approved by the Administrator.

~~(formerly Section 11(b))~~(b) The owner or operator ~~must~~ shall take whole cores or sidewall cores of the injection zone and confining system~~, and~~ as well as formation fluid samples from the injection zone(s)~~.~~.

~~(formerly Section 11(b))~~(i) The owner or operator shall ~~and~~ submit to the Administrator a detailed report prepared by a log analyst that includes:

~~(formerly Section 11(b)(i))~~(A) Well log analyses (including well logs);

~~(formerly Section 11(b)(ii))~~(B) Core analyses; and

~~(formerly Section 11(b)(iii))~~(C) Formation fluid sample information.

~~(formerly Section 11(b)(iv))~~(ii) The Administrator may accept data from cores and fluid samples from nearby wells if the owner or operator can demonstrate that such data are representative of conditions in the wellbore.

~~(formerly Section 11(c))~~(c) The owner or operator ~~must~~ shall record the formation fluid temperature, formation fluid pH and conductivity, reservoir pressure, and static fluid level of the injection zone(s).

~~(formerly Section 11(d))~~(d) The owner or operator ~~must~~ shall determine fracture pressures of the injection and confining zones and verify hydrogeologic and geo-mechanical

characteristics of the injection zone by conducting a pressure fall-off test, any other ~~information~~ test requested by the Administrator~~;~~, and~~;~~:

~~(formerly Section 11(d)(i))~~(i) A pump test; or

~~(formerly Section 11(d)(ii))~~(ii) Injectivity tests.

~~(formerly Section 11(e))~~(e) The owner or operator ~~must~~ shall provide the Administrator with the opportunity to witness all logging and testing by this section. The owner or operator ~~must~~ shall submit a schedule of such activities to the Administrator prior to conducting the first test and shall notify the Administrator of any changes to the schedule thirty (30) days prior to the next scheduled test.

**Section 18. ~~Emergency and Remedial Response.~~ Injection Well Operating Requirements.**

~~(a) As part of the permit application, the owner or operator must provide the Administrator with an emergency and remedial response plan that describes actions to be taken to address movement of the injectate or formation fluids that may cause an endangerment to a USDW or threaten human health, safety, or the environment during construction, operation, closure, and post-closure periods.~~

~~(i) The emergency and remedial response plan must be reviewed and updated, as necessary, on the same schedule as the update to the area of review delineation.~~

~~(ii) Any amendments to the emergency and remedial response plan must be approved by the Administrator, must be incorporated into the permit, and are subject to the permit modification requirements of Section 4 of this chapter, as appropriate.~~

~~(A) Amended plans or demonstrations shall be submitted to the Administrator as follows:~~

~~(I) Within one (1) year of an area of review reevaluation;~~

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

~~(III) When required by the Administrator.~~

~~(b) If monitoring data, or other evidence obtained by the owner or operator indicate that the injected carbon dioxide stream, displaced formation fluids or associated pressure front may endanger a USDW or threatens human health, safety, or the environment, the owner or operator must:~~

~~(i) Immediately cease injection;~~

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

~~(iii) Notify the Administrator within twenty-four (24) hours.~~

~~(iv) In addition to paragraphs (i-iii) of this subsection, if an excursion is discovered, the owner or operator shall provide verbal notice to the Department within twenty-four (24) hours, followed by written notice to all surface owners, mineral claimants, mineral owners, lessees and other owners of record of subsurface interests within thirty (30) days of when the excursion is discovered; and~~

~~(v) Implement the emergency and remedial response plan approved by the Administrator.~~

~~(c) The Administrator may allow the operator to resume injection prior to remediation if the owner or operator demonstrates that the injection operation will not endanger USDWs or otherwise threaten human health, safety, or the environment.~~

~~(formerly Section 12(a))~~(a) The owner or operator ~~must~~ shall ensure that injection pressure does not exceed ninety percent (90%) ~~percent~~ of the fracture pressure of the injection zone(s) ~~so as~~ to ensure that the injection does not initiate new fractures or propagate existing fractures in the injection zone(s).

~~(formerly Section 12(a)(i))~~(i) In no case may injection pressure cause movement of injection or formation fluids in a manner that endangers a USDW, or otherwise threatens human health, safety, or the environment.

~~(formerly Section 12(a)(ii))~~(ii) In no case may injection pressure initiate fractures in the confining zone~~(s)~~ or cause the movement of injectate or formation fluids that endangers a USDW or otherwise threatens human health, safety, or the environment.

~~(formerly Section 12(b))~~(b) Injection of the carbon dioxide stream between the outermost casing protecting USDWs and the wellbore is prohibited.

~~(formerly Section 12(c))~~(c) The owner or operator ~~must~~ shall fill the annulus between the tubing and the long string casing with a non-corrosive fluid approved by the Administrator. The owner or operator ~~must~~ shall maintain on the annulus a pressure that exceeds the operating injection pressure, unless the Administrator determines that such requirement might harm the integrity of the well or endanger USDWs.

~~(formerly Section 12(d))~~(d) Other than during periods of well workover or maintenance approved by the Administrator in which the sealed tubing-casing annulus is, by necessity, disassembled for maintenance or corrective procedures, the owner or operator ~~must~~ shall maintain mechanical integrity of the injection well at all times.

~~(formerly Section 12(e))~~(e) The owner or operator ~~must~~ shall install and use continuous recording devices to monitor:

~~(formerly Section 12(e)(i))~~(i) Injection pressure; and

~~(formerly Section 12(e)(ii))~~(ii) Injection ~~R~~rate, volume, and temperature of the carbon dioxide stream.

~~(formerly Section 12(f))~~(f) The owner or operator ~~must~~ shall install and use continuous recording devices to monitor the pressure on the annulus between the tubing and the long string casing and annulus fluid volume.

~~(formerly Section 12(g))~~(g) The owner or operator ~~must~~ shall install, test, and use alarms and automatic surface shut-off systems~~,~~ or, at the discretion of the Administrator, use down-hole shut-off systems (e.g., automatic shut-off, check valves)~~,~~ or other mechanical devices that provide equivalent protection, designed to alert the operator and shut-in the well when operating parameters such as injection rate, injection pressure, or other parameters approved by the Administrator diverge beyond ranges ~~and/~~or gradients specified in the permit.

~~(formerly Section 12(h))~~(h) If an automatic shutdown is triggered or a loss of mechanical integrity is discovered, the owner or operator ~~must~~ shall immediately investigate and identify as expeditiously as possible the cause. If, upon such investigation, the well appears to be lacking mechanical integrity, or if monitoring required under paragraphs (e), (f), and (g) of this ~~s~~Section otherwise indicates that the well may be lacking mechanical integrity, the owner or operator ~~must~~ shall:

~~(formerly Section 12(h)(i))~~(i) Immediately cease injection;

~~(formerly Section 12(h)(ii))~~(ii) Take all steps reasonably necessary to determine whether there may have been a release of the injected carbon dioxide stream or formation fluids into any unauthorized zone;

~~(formerly Section 12(h)(iii))~~(iii) Notify the Administrator within twenty-four (24) hours;

~~(formerly Section 12(h)(iv))~~(iv) Restore and demonstrate mechanical integrity to the satisfaction of the Administrator as soon as practicable and prior to resuming injection; and

~~(formerly Section 12(h)(v))~~(v) Notify the Administrator when injection can be expected to resume.

**Section 19.** **~~Financial Responsibility.~~** **Mechanical Integrity.**

~~(a) Financial responsibility requirements are to ensure that owners or operators have the financial resources to carry out activities related to closing and remediating geologic sequestration sites if needed so they do not endanger the environment or USDWs.~~

~~(b) Owners or operators of Class VI wells must demonstrate and maintain financial responsibility for all applicable phases of the geologic sequestration project including complete site reclamation in the event of default. The phases of a geologic sequestration project are as follows:~~

~~(i) Permitting/Characterization.~~

~~(ii) Monitoring and testing, including the requirements of Section 14 of this chapter.~~

~~(iii) Operations (injection and permanent well closure activities), including the requirements of Section 16 of this chapter.~~

~~(iv) Post-injection site care ("plume stabilization" monitoring until certified by the Administrator; above ground reclamation completed), including the requirements of Section 17 of this chapter.~~

~~(v) Emergency and remedial response (that meets the requirements of Section 18 of this chapter).~~

~~(c) The owner or operator must submit a detailed written estimate, at the time of permit application and updated annually in accordance with paragraph (j)(iii) below, in current dollars, that includes the cost of performing corrective action on wells in the area of review that meets the requirements of Section 8 of this chapter; plugging the injection well(s) that meets the requirements of Section 16 of this chapter; post injection site care and site closure that meets the requirements of Section 17 of this chapter; monitoring activities that meets the requirements of Section 14 of this chapter; and emergency and remedial response that meets the requirements of Section 18 of this chapter.~~

~~(i) The financial assurance cost estimate for the various phases of the sequestration project shall consider the following events:~~

~~(A) Contamination of underground sources of water including drinking water supplies.~~

~~(B) Mineral rights infringement.~~

~~(C) Single large volume release of carbon dioxide that impacts human health and safety and/or causes ecological damage.~~

~~(D) Low level leakage of carbon dioxide to the surface that impacts human health and safety and/or causes ecological damage.~~

~~(E) Storage rights infringement.~~

~~(F) Property and infrastructure damage including changes to surface topography and structures.~~

~~(G) Entrained contaminant releases (non-CO2).~~

~~(H) Accidents/unplanned events.~~

~~(I) Well capping and permitted abandonment.~~

~~_____~~

~~(ii) The Risk Activity matrix in Appendix A of this chapter shall be considered during the risk assessment process.~~

~~(iii) The cost estimate shall be based upon a multi-disciplinary analytical framework such as Monte Carlo or other commonly accepted stochastic modeling tools.~~

~~(A) Cost curves shall combine risk probabilities, event outcomes, and damages assessment to calculate expected losses under a series of events.~~

~~(B) For all cases of potential damages, the probability distributions should be identified for 50 percent, 95 percent, and 99 percent probabilities of occurrence.~~

~~(d) The owner or operator must also submit a proposed cost estimate for measurement, monitoring, and verification of plume stabilization following post-closure certification and release of all other financial assurance instruments.~~

~~(e) The cost estimate must be performed for each phase separately and must be based on the costs to the regulatory agency of hiring a third party to perform the required activities. A third party is a party who is not within the corporate structure of the owner or operator.~~

~~(f) The owner or operator must demonstrate and maintain financial responsibility as determined by the Administrator that meets the conditions of this section.~~

~~(g) The financial responsibility instrument(s) used shall be from the following list of qualifying instruments:~~

~~(i) Trust Funds;~~

~~(ii) Surety Bonds;~~

~~(iii) Letter of Credit;~~

~~(iv) Insurance.~~

~~(A) Any insurance instruments submitted for financial assurance purposes shall include State of Wyoming as an additional insured.~~

~~(B) Inclusion of the State of Wyoming as an additional insured shall not be deemed a waiver of sovereign immunity.~~

~~(v) Self-insurance (i.e., Financial Test and Corporate Guarantee);~~

~~(vi) Escrow account;~~

~~(vii) Any other instrument(s) satisfactory to the Administrator.~~

~~(h) The qualifying instrument(s) must be sufficient to cover the cost of the estimate required in subsection (d) of this section.~~

~~(i) The qualifying financial responsibility instrument(s) must comprise protective conditions of coverage that include at a minimum cancellation, renewal, continuation provisions, specifications on when the provider becomes liable following a notice of cancellation, and requirements for the provider to meet a minimum rating, minimum capitalization, and the ability to pass the bond rating test when applicable.~~

~~(i) Cancellation – An owner or operator must provide that their financial mechanism may not cancel, terminate or fail to renew except for failure to pay such financial instrument. If there is a failure to pay the financial instrument, the financial institution may elect to cancel, terminate, or fail to renew the instrument by sending notice by certified mail to the owner or operator and the Administrator. The cancellation must not be final for 120 days after receipt of cancellation notice. The owner or operator must provide an alternate financial responsibility demonstration within sixty (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 sixty (60) days of notification by the Administrator.~~

~~(ii) Renewal – Owners or operators must renew all financial instruments, if an instrument expires, for the entire term of the geologic sequestration project. The instrument may be automatically renewed as long as, at a minimum, the owner or operator has the option of renewal at the face amount of the expiring instrument.~~

~~(iii) Continuation – Cancellation, termination, or failure to renew may not occur and the financial instrument shall remain in full force and effect in the event that on or before the date of expiration:~~

~~(A) The Administrator deems the facility abandoned.~~

~~(B) The permit is terminated, revoked, or a new permit is denied.~~

~~(C) Closure is ordered by the Administrator, a U.S. district court, or other court of competent jurisdiction.~~

~~(D) The owner or operator is named as debtor in a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code.~~

~~(E) The amount due is paid.~~

~~(j) The qualifying financial responsibility instrument(s) must be approved by the Administrator. The Administrator shall also approve the use and length of pay-in-periods for trust funds and escrow accounts.~~

~~(i) The Administrator shall consider and approve the financial responsibility demonstration for all the phases of the geologic sequestration project prior to issuing a Class VI permit.~~

~~(ii) The Administrator may find that the financial responsibility demonstration is unsatisfactory for any reason, as long as that reason is not arbitrary or capricious. The Administrator may exercise discretion in negotiating a satisfactory financial responsibility demonstration or to deny a demonstration.~~

~~(iii) The owner or operator must provide any updated information related to their financial responsibility instrument(s) on an annual basis and if there are any changes, the Administrator must evaluate the financial responsibility demonstration to confirm that the instrument(s) used remain adequate for use. The owner or operator must maintain financial responsibility requirements regardless of the status of the Administrator's review of the financial responsibility demonstration.~~

~~(iv) The owner or operator must provide an adjustment of the cost estimate to the Administrator within sixty (60) days of notification by the Administrator, if the Administrator determines during the annual evaluation of the qualifying financial responsibility instrument(s) that the most recent demonstration is no longer adequate to cover the cost of corrective action (as required by Section 8 of this chapter), injection well plugging (as required by Section 16 of this chapter), post-injection site care and site closure (as required by Section 17 of this chapter), and emergency and remedial response (as required by Section 18 of this chapter).~~

~~(v) During the active life of the geologic sequestration project, the owner or operator must adjust the cost estimate for inflation within sixty (60) days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with paragraph (g) of this section and provide this adjustment to the Administrator. The owner or operator must also provide to the Administrator written updates of adjustments to the cost estimate within sixty (60) days of any amendments to the area of review and corrective action plan (Section 8 of this chapter), the injection well plugging plan (Section 16 of this chapter), the post-injection site care and site closure plan (Section 17 of this chapter), the emergency and remedial response plan (Section 18 of this chapter), and mitigation or reclamation costs that State may incur as a result of any default by the permit holder.~~

~~(vi) The Administrator must approve any decrease or increase to the initial cost estimate. During the active life of the geologic sequestration project, the owner or operator must revise the cost estimate no later than sixty (60) days after the Administrator has approved the request to modify the area of review and corrective action plan (Section 8 of this chapter), the injection well plugging plan (Section 16 of this chapter), the post-injection site care and site closure plan (Section 17 of this chapter), and the emergency and response plan (Section 18 of this chapter), if the change in the plan increases the cost. If the change to the plans decreases the cost, any withdrawal of funds must be approved by the Administrator. Any decrease to the value of the financial assurance instrument must first be approved by the Administrator. The revised cost estimate must be adjusted for inflation as specified in paragraph (k)(v) of this section.~~

~~(vii) Whenever the current cost estimate increases to an amount greater than the face amount of a financial instrument currently in use, the owner or operator, within sixty (60) days after the increase, must 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 Administrator, 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 owner or operator has received written approval from the Administrator.~~

~~(k) The owner or operator may demonstrate financial responsibility by using one (1) or multiple qualifying financial instruments for specific phases of the geologic sequestration project.~~

~~(i) In the event that the owner or operator combines more than one (1) instrument for a specific geologic sequestration phase (e.g., well plugging), such combination must be limited to instruments that are not based on financial strength or performance (i.e., self-insurance or performance bond). For example trust funds, surety bonds guaranteeing payment into a trust fund, letters of credit, escrow account, and insurance.~~

~~(ii) When using a third-party instrument to demonstrate financial responsibility, the owner or operator must provide proof that the third-party providers either have passed financial strength requirements based on credit ratings; or has met a minimum rating, minimum capitalization, and ability to pass the bond rating test when applicable.~~

~~(iii) An owner or operator using certain types of third-party instruments must establish a standby trust to enable the State of Wyoming to be party to the financial responsibility agreement without the State of Wyoming 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.~~

~~(iv) An owner or operator may deposit money into an escrow account to cover financial responsibility requirements; this account must segregate funds sufficient to cover estimated costs for Class VI (geologic sequestration) financial responsibility from other accounts and uses.~~

~~(v) An owner or operator or its guarantor may use self-insurance to demonstrate financial responsibility for certain phases of geologic sequestration projects. In order to satisfy this requirement the owner or operator must meet a tangible net worth of an amount approved by the Administrator, 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, have assets located in the United States amounting to at least 90 percent of total assets or at least six (6) times the sum of the current well-plugging, post injection site care and site closure cost, and must submit a report of its bond rating and financial information annually. In addition the owner or operator must either: 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 meet all of the following five financial ratio thresholds: a ratio of total liabilities to net worth less than 2.0; a ratio of current assets to current liabilities greater than 1.5; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; a ratio of current assets minus current liabilities to total assets greater than -0.1; and a net profit (revenues minus expenses) greater than 0.~~

~~(vi) An owner or operator who is not able to meet corporate financial test criteria may arrange a corporate guarantee by demonstrating 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 owner or operator.~~

~~(vii) An owner or operator may obtain an insurance policy to cover the estimated costs of geologic sequestration activities requiring financial responsibility. This insurance policy must be obtained from a third party provider.~~

~~(l) The owner or operator must maintain financial responsibility and resources until the administrator receives and approves the completed post-injection site care and site closure plan and the administrator approves site closure.~~

~~(m) The owner or operator must notify the Administrator by certified mail of adverse financial conditions such as bankruptcy that may affect the ability to carry out injection well-plugging and post-injection site care and site closure.~~

~~(i) In the event that the owner or operator or the third party provider of a financial responsibility instrument is going through a bankruptcy, the owner or operator must notify the Administrator by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor, within ten (10) days after commencement of the proceeding.~~

~~(ii) A guarantor of a corporate guarantee must make such a notification to the Administrator if he/she is named as debtor, as required under the terms of the corporate guarantee.~~

~~(iii) An owner or operator who fulfills the requirements of paragraph (g) 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 owner or operator must establish other financial assurance within sixty (60) days after such an event.~~

~~(n) The owner or operator may be released from a financial instrument in the following circumstances:~~

~~(i) The owner or operator has completed the phase of the geologic sequestration project for which the financial instrument was required and has fulfilled all its financial obligations as determined by the Administrator, including obtaining financial responsibility for the next phase of the geologic sequestration project, if required.~~

~~(ii) The owner or operator has submitted a replacement financial instrument and received written approval from the Administrator accepting the new financial instrument and releasing the owner or operator from the previous financial instrument.~~

~~(iii) The owner or operator has submitted a revised cost estimate for the remaining phases of the geologic sequestration project. The revised cost estimate may demonstrate that a partial release of the financial instrument is warranted and can still provide adequate financial assurance for the remainder of the project. Partial release of the financial instrument is at the discretion of the Administrator.~~

~~(o) Following the release of all financial assurance and receipt of a site closure certificate, the Administrator must approve the cost estimate prepared for the post-closure measurement, monitoring and verification of a geologic sequestration site. The cost estimate shall only be provided after plume stabilization and all remediation work has been completed.~~

~~(formerly Section 13(a))~~(a) A Class VI well has mechanical integrity if:

~~(formerly Section 13(a)(i))~~(i) There is no significant leak in the casing, tubing, or packer; and

~~(formerly Section 13(a)(ii))~~(ii) There is no significant fluid movement into a USDW through channels adjacent to the injection wellbore.

~~(formerly Section 13(b))~~(b) To evaluate the absence of significant leaks under subparagraph (a)(i) of this ~~s~~Section, owners or operators ~~must~~ shall, following an initial annulus pressure test, continuously monitor injection pressure, rate, injected volumes, and pressure on the annulus between tubing, ~~and~~ long string casing, and annulus fluid volume as specified in Section ~~12~~ 18(e) ~~and~~ -(f) of this ~~c~~Chapter~~;~~.

~~(formerly Section 13(c))~~(c) At least once per year, the owner or operator ~~must~~ shall use one (1) of the following methods to determine the absence of significant fluid movement under subparagraph (a)(ii) of this ~~s~~Section:

~~(formerly Section 13(c)(i))~~(i) An approved tracer survey such as an oxygen-activation log; or

~~(formerly Section 13(c)(ii))~~(ii) A temperature or noise log.

~~(formerly Section 13(d))~~(d) If required by the Administrator, at a frequency specified in the testing and monitoring plan required in Section ~~14~~ 20 of this ~~c~~Chapter, the owner or operator ~~must~~ shall run a casing inspection log to determine the presence or absence of corrosion in the long-string casing.

~~(formerly Section 13(e))~~(e) The Administrator may require any other test to evaluate mechanical integrity under ~~paragraph (a)(i) or (a)(ii) of~~ this ~~s~~Section. ~~Also, t~~The Administrator may allow the use of a test to demonstrate mechanical integrity other than those listed ~~above,~~ in paragraph (c) of this Section with the written approval of the US EPA Administrator. To obtain approval, the Administrator ~~must~~ shall submit a written request to the US EPA Administrator that ~~must~~ shall set forth the proposed test and all technical data supporting its use.

~~(formerly Section 13(f))~~(f) In conducting and evaluating the tests enumerated in this section or others to be allowed by the Administrator, the owner or operator and the Administrator ~~must~~ shall apply methods and standards generally accepted in the industry.

~~(formerly Section 13(f)(i))~~(i) When the owner or operator reports the results of mechanical integrity tests to the Administrator, ~~he/she~~ the owner or operator shall include a description of the test~~(s)~~ and the method~~(s)~~ used.

~~(formerly Section 13(f)(ii))~~(ii) In making ~~his/her~~ an evaluation, the Administrator ~~must~~ shall review monitoring and other test data submitted since the previous evaluation.

~~(formerly Section 13(g))~~(g) The Administrator may require additional or alternative tests if the results presented by the owner or operator under paragraph (e) of this ~~s~~Section are not satisfactory to the Administrator to demonstrate that there is no significant leak in the casing, tubing or packer~~, or~~ and that there is no significant movement of fluid into or between USDWs resulting from the injection activity ~~as stated in paragraphs (a)(i) and (a)(ii) of this section~~.

**Section 20. ~~Public Participation, Public Notice and Public Hearing Requirements.~~ Testing and Monitoring Requirements.**

~~(a) The Administrator shall give public notice if a draft permit has been prepared or a hearing has been scheduled.~~

~~(b) Public notice of the preparation of a draft permit shall allow at least sixty (60) days for public comment. Public notice of a public hearing shall be given at least thirty (30) days before the hearing. Public notice of the hearing may be given at the same time as public notice of the draft permit and the two notices may be combined.~~

~~(c) Public notice shall be given by:~~

~~(i) Mailing a copy of the notice, a copy of the fact sheet, the permit application (if any) and the draft permit (if any) to the following persons:~~

~~(A) The applicant, by certified or registered mail;~~

~~(B) The U.S. Environmental Protection Agency, Region 8 Drinking Water Program;~~

~~(C) The U.S. Environmental Protection Agency, Underground Injection Control Program;~~

~~(D) Wyoming Game and Fish Department;~~

~~(E) Wyoming State Engineer;~~

~~(F) State Historical Preservation Officer;~~

~~(G) Wyoming Oil and Gas Conservation Commission;~~

~~(H) Wyoming Department of Environmental Quality, Land Quality Division~~

~~(I) Wyoming State Geological Survey;~~

~~(J) Wyoming Water Development Office;~~

~~(K) Wyoming Department of Environmental Quality, Air Quality Division;~~

~~(L) Wyoming Department of Environmental Quality, Solid and Hazardous Waste Division; and~~

~~(M) U.S. Army Corps of Engineers;~~

~~(N) Persons on the mailing list developed by the Department, including those who request in writing to be on the list and by soliciting participants in public hearings in that area for their interest in being included on "area" mailing lists; and~~

~~(O) Any unit of local government having jurisdiction over the area where the facility is proposed to be located.~~

~~(ii) Publication of the notice in a newspaper of general circulation in the location of the facility or operation; and~~

~~(iii) At the discretion of the Administrator, any other method reasonably expected to give actual notice of the action in question to the persons potentially affected by it, including press releases or any other forum or medium to elicit public participation.~~

~~(d) All public notices issued under this chapter shall contain the following minimum information:~~

~~(i) Name and address of the Department;~~

~~(ii) Name and address of permittee or permit applicant, and, if different, of the facility or activity regulated by the permit;~~

~~(iii) A brief description of the business conducted at the facility or activity described in the permit application or the draft permit;~~

~~(iv) The type and quantity of wastes, fluids, or pollutants that are proposed to be or are being treated, stored, disposed of, injected, emitted, or discharged.~~

~~(v) A brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions;~~

~~(vi) Reasons why any requested variances or alternatives to required standards do or do not appear justified;~~

~~(vii) Name, address and telephone number of a person from whom interested persons may obtain further information, including copies of the draft permit, as the case may be, statement of basis or fact sheet, and the application;~~

~~(viii) A brief description of comment procedures including,~~

~~(A) Procedures to request a hearing;~~

~~(B) The beginning and ending dates of the comment period;~~

~~(C) The address where comments will be received; and~~

~~(D) Other procedures that the public may use to participate in the final permit decision; and~~

~~(ix) Any additional information considered necessary and proper.~~

~~(e) In addition to the information required in paragraph (d) of this section, any notice for public hearing shall contain the following:~~

~~(i) Reference to the date of previous public notices relating to the permit;~~

~~(ii) Date, time and place of hearing; and~~

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

~~(f) The Department shall provide an opportunity for the applicant, permittee, or any interested person to submit written comments regarding any aspect of a permit or to request a public hearing.~~

~~(g) During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing. Requests for public hearings must be made in writing to the Administrator and shall state the reasons for the request.~~

~~(h) The Administrator shall hold a hearing whenever the Administrator finds, on the basis of requests, a significant degree of public interest in a draft permit. The Administrator has the discretion to hold a hearing whenever such a hearing may clarify issues involved in a permit decision.~~

~~(i) The public comment period shall automatically extend to the close of any public hearing. The Administrator may also extend the comment period by so stating at the public hearing.~~

~~(j) The Administrator shall render a decision on the draft permit within sixty (60) days after the completion of the comment period if no hearing is requested. If a hearing is held, the Administrator shall make a decision on any Department hearing as soon as practicable after receipt of the transcript or after the expiration of the time set to receive written comments.~~

~~(k) At the time a final decision is issued, the Department shall respond, in writing, to those comments received during the public comment period or comments received during the allotted time for a hearing held by the Department. This response shall:~~

~~(i) Specify any changes that have been made to the permit; and~~

~~(ii) Briefly describe and respond to all comments voicing a technical or regulatory concern that is within the authority of the Department to regulate.~~

~~(l) The response to comments shall also be available to the public.~~

~~(m) Requests for a contested case hearing on a permit issuance, denial, revocation, termination, or any other final Department action appealable to the Council shall be in accordance with the Department of Environmental Quality Rules of Practice and Procedure.~~

~~(formerly Section 14(a))~~(a) The owner or operator of a Class VI well ~~must~~ shall prepare, maintain, and comply with a testing and monitoring plan to verify that the geologic sequestration project is operating as permitted and is not endangering USDWs. The testing and monitoring plan ~~must~~ shall be submitted with the permit application, ~~for~~ shall be subject to

Administrator approval, and ~~must~~ shall include a description of how the owner or operator will meet the requirements of this ~~s~~Section, including accessing sites for all necessary monitoring and testing during the life of the project.

~~(formerly Section 14(b))~~(b) In addition to the requirements of W.S. § 35-11-313, ~~T~~testing and monitoring associated with geologic sequestration projects ~~must~~ shall~~, at a minimum,~~ include:

~~(i) Plans and procedures for environmental surveillance and excursion detection, prevention, and control programs, including a monitoring plan to:~~

~~(A) Assess the migration of the injected carbon dioxide; and~~

~~(B) Ensure the retention of the carbon dioxide in the geologic sequestration site.~~

~~(formerly Section 14(b)(ii))~~(i)Analysis of the carbon dioxide stream with sufficient frequency to yield data representative of its chemical and physical characteristics;

~~(formerly Section 14(b)(iii))~~(ii) Installation and use, except during well workovers, of continuous recording devices to monitor:

~~(formerly Section 14(b)(iii)(A))~~(A) Injection pressure;

~~(formerly Section 14(b)(iii)(B))~~(B) Injection ~~R~~rate and volume;

~~(formerly Section 14(b)(iii)(C))~~(C) Pressure on the annulus between the tubing and the long string casing;

~~(formerly Section 14(b)(iii)(D))~~(D) The annulus fluid volume added; and

~~(formerly Section 14(b)(iii)(E))~~(E) The pressure on the annulus between the tubing and the long string casing~~.~~;

~~(formerly Section 14(b)(iv))~~(iii) Corrosion monitoring of the well materials for loss of mass, loss of thickness, cracking, pitting, and other signs of corrosion, which ~~must~~ shall be performed and recorded at least quarterly to ensure that the well components meet the minimum standards for material strength and performance set forth in Section ~~9(b)~~ 14(b) of this ~~c~~Chapter by:

~~(formerly Section 14(b)(iv)(A)~~(A) Analyzing coupons of the well construction materials placed in contact with the carbon dioxide stream;

~~(formerly Section 14(b)(iv)(B))~~(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

~~(formerly Section 14(b)(iv)(C))~~(C) Using an alternative method approved by the Administrator~~.~~;

~~(formerly Section 14(b)(v))~~(iv) Periodic monitoring of the groundwater quality and geochemical changes above the confining zone~~(s)~~ that may be a result of carbon dioxide movement or displaced formation fluid movement through the confining zone~~(s)~~ or additional ~~identified~~ zones. ~~including~~ The monitoring wells shall:

~~(formerly Section 14(b)(v)(A))~~(A) ~~The location and number of monitoring wells must be based on~~ Use specific information about the geologic sequestration project, including injection rate and volume, geology, the presence of artificial penetrations, and other relevant factors to establish the location and number of monitoring wells; and

~~(formerly Section 14(b)(v)(B))~~(B) ~~The monitoring frequency and spatial distribution of monitoring wells based on~~ Use baseline geochemical data that have been collected under Section ~~5(b)(xiii)~~ 10(b)(xvi) of this ~~c~~Chapter and any modeling results in the area of review evaluation required by Section ~~8(c)~~ 13(b) of this ~~c~~Chapter~~.~~to establish the monitoring frequency and spatial distribution of monitoring wells;

~~(formerly Section 14(b)(vi))~~(v) A demonstration of external mechanical integrity pursuant to Section ~~13(c)~~ 19(c) at least once per year until the well is plugged;

~~(formerly Section 14(b)(vi))~~(vi) ~~and i~~If required by the Administrator, a casing inspection log pursuant to requirements of Section ~~13(d)~~ 19(d) of this ~~c~~Chapter at a frequency established in the testing and monitoring plan;

~~(formerly Section 14(b)(vii))~~(vii) A pressure fall-off test that identifies reservoir conditions with respect to flow dynamics at least once every five (5) years, unless more frequent testing is required by the Administrator based on site-specific information; ~~and~~

~~(formerly Section 14(b)(viii))~~(viii) Testing and monitoring to track the extent of the carbon dioxide plume, the position of the pressure front, and surface displacement using:

~~(formerly Section 14(b)(viii)(A))~~(A) Direct methods in the injection zone(s); and

~~(formerly Section 14(b)(viii)(B))~~(B) Indirect methods in the injection zone (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools)~~,~~ unless the Administrator determines, based on site-specific geology, that such methods are not appropriate;

~~(formerly Section 14(b)(ix))~~(ix) ~~At the Administrator's discretion,~~ ~~b~~Based on site-specific conditions, surface air monitoring ~~and/~~or soil gas monitoring to detect movement of carbon dioxide that could endanger a USDW~~,~~ or otherwise threaten human health, safety, or the environment~~.~~;

~~(formerly Section 14(b)(ix)(A))~~(A) The surface air or soil gas monitoring plan ~~must~~ shall:

~~(formerly Section 14(b)(ix)(A))~~(I) ~~b~~Be based on potential risks to USDWs, and modeling within the area of review;

~~(formerly Section 14(b)(ix)(B))~~(II) Use baseline data to establish ~~T~~the monitoring frequency and spatial distribution of surface air monitoring ~~and/~~or soil gas monitoring ~~must reflect baseline data.~~; and

~~(formerly Section 14(b)(ix)(B))~~(III) ~~The monitoring plan must~~ ~~s~~Specify how the proposed monitoring will yield useful information ~~on~~ for the area of review delineation and the potential movement of fluid:

~~(formerly Section 14(b)(ix)(B))~~(1.) ~~c~~Containing any contaminant into USDWs in ~~exceedence~~ exceedance of any primary drinking water regulation under 40 C.F.R. Part 141~~,~~; or

~~(formerly Section 14(b)(ix)(B))~~(2.) ~~w~~Which may otherwise adversely affect human health, safety, or the environment~~.~~;

~~(formerly Section 14(b)(x))~~(B) If an owner or operator demonstrates that monitoring employed under 40 C.F.R. §§ 98.440 to 98.449 ~~(Clean Air Act, 42 U.S.C. 7401 et seq.)~~ accomplishes the goals of subparagraph (b)(ix)(A) ~~and (B)~~ of this ~~s~~Section, ~~and meets the requirements pursuant to 40 CFR § 146.91(c)(5),~~ the Administrator ~~that requires surface air/soil gas monitoring must~~ shall approve the use of monitoring employed under 40 C.F.R. §§ 98.440 to 98.449. ~~Compliance with §§ 98.440 to 98.449 pursuant to this provision is considered a condition of the Class VI permit~~ An owner or operator who uses monitoring employed under 40 C.F.R. §§ 98.440 to 98.449 to meet the requirements of this Section shall comply with 40 C.F.R. §§ 98.440 to 98.449;

~~(formerly Section 14(b)(xi))~~(x) Any additional monitoring, as required by the Administrator, necessary to support, upgrade, and improve computational modeling of the area of review re-evaluation required under Section ~~8(d)~~ 13(c) of this ~~c~~Chapter and as necessary to demonstrate that there is no movement of fluid containing any contaminant into ~~underground sources of drinking water~~ USDWs in ~~exceedence~~ exceedance of any primary drinking water regulation under 40 C.F.R. Part 141, Subparts E, F, and G, or which could otherwise adversely affect human health, safety, or the environment;

~~(formerly Section 14(b)(xii))~~(xi) The owner or operator shall periodically review the testing and monitoring plan to incorporate monitoring data collected under this ~~subpart~~ Section, operational data collected under Section ~~12~~ 18 of this ~~c~~Chapter, and the most recent area of review reevaluation performed under Section ~~8~~ 13 of this ~~c~~Chapter. ~~In no case shall t~~The owner or operator shall review the testing and monitoring plan ~~less often than~~ at least once every five (5) years. Based on this review, the owner or operator shall submit an amended

testing and monitoring plan or demonstrate to the Administrator that no amendment to the testing and monitoring plan is needed. Any amendments to the testing and monitoring plan ~~must be approved~~ are subject to approval by the Administrator, ~~must~~ shall be incorporated into the permit, and are subject to the permit modification requirements of Section ~~4~~ 6 of this ~~c~~Chapter~~, as appropriate~~. Amended plans or demonstrations shall be submitted to the Administrator as follows:

~~(formerly Section 14(b)(xii)(A))~~(A) Within one (1) year of an area of review reevaluation;

~~(formerly Section 14(b)(xii)(B))~~(B) Following any significant changes to the facility, such as addition of monitoring wells or newly permitted injection wells within the area of review~~, on a schedule determined by the Administrator~~; or

~~(formerly Section 14(b)(xii)(C))~~(C) When required by the Administrator~~.~~; and

~~(formerly Section 14(b)(xiii))~~(xii) A quality assurance and surveillance plan for all testing and monitoring requirements.

~~(formerly Section 14(d))~~(c) The owner or operator shall create and retain ~~R~~records of all monitoring information ~~shall~~ that include:

~~(formerly Section 14(d)(i))~~(i) The date, time, and exact place, ~~and time~~ of sampling or measurements;

~~(formerly Section 14(d)(ii))~~(ii) The individual~~(s)~~ who performed the sampling or measurements;

~~(formerly Section 14(d)(iii))~~(iii) The date~~(s)~~ analyses were performed;

~~(formerly Section 14(d)(iv))~~(iv) The individual~~(s)~~ who performed the analyses;

~~(formerly Section 14(d)(v))~~(v) The analytical techniques or methods used; and

~~(formerly Section 14(d)(vi))~~(vi) The results of such analyses.

**Section 21. Record Retention.**

~~(formerly Section 14(c))~~(a) ~~The permittee~~ An owner or operator of a Class VI well shall ~~retain~~ maintain records ~~of all monitoring information, including~~ according to the following schedules:

~~(formerly Section 14(c)(i))~~(i) Calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report, or application. This period may be extended by request of the Administrator at any time; ~~and~~

~~(formerly Section 14(c)(ii))~~(ii) The nature and composition of all injected fluids until ~~three (3)~~ ten (10) years after the completion of any plugging and abandonment procedures ~~specified~~ under Section ~~16~~ 23 of this ~~c~~Chapter~~.~~;

~~(formerly Section 8(f))~~(iii) All modeling inputs and data used to support area of review reevaluations under ~~paragraph (d)~~ Section 13 of this ~~section~~ Chapter shall be retained for ten (10) years~~.~~;

~~(formerly Section 17(f))~~(iv) The ~~W~~well-plugging report~~s,~~ required by Section 23 of this Chapter, the site closure report required by Section 24 of this Chapter, and any post-injection site care data, (including~~, if appropriate,~~ data and information used to ~~develop~~ establish ~~the demonstration of~~ the post-injection site care time frame~~,~~) ~~and the site closure report collected pursuant to requirements of subsection (d) above~~ shall be retained for ten (10) years following site closure~~.~~; ~~The owner or operator must deliver the records to the Administrator at the conclusion of the retention period, and the records must thereafter be retained at a location designated by the Administrator for that purpose.~~

~~(formerly Section 5(j))~~(v) All data used to complete permit applications shall be ~~kept~~ retained ~~by the applicant~~ for the life of the geologic sequestration project and for ten (10) years following site closure~~.~~; and

~~(formerly Section 15(e))~~(vi) ~~The permittee shall retain a~~All other monitoring records required by ~~the~~ a permit shall be retained for a period of ten (10) years following site closure. ~~The Administrator may require the owner or operator to deliver the records to the Administrator at the conclusion of the retention period.~~

~~(formerly Section 14(c)(ii))~~(b) ~~The Administrator may require the owner or operator to deliver the records to the Administrator at the conclusion of the retention period.~~ The owner or operator must deliver the records to the Administrator at the conclusion of the retention period, and the records must thereafter be retained at a location designated by the Administrator for that purpose.

## Section 22. Reporting and Notice Requirements.

~~(formerly Section 15(a))~~(a) The owner or operator ~~must~~ shall~~, at a minimum,~~ provide the following reports to the Administrator, for each ~~permitted~~ Class VI well:

~~(formerly Section 15(a)(i))~~(i) Semi-annual reports~~,~~. ~~which~~ Semi-annual reports ~~are~~ required by the permit shall be submitted to the Administrator within thirty (30) days following the end of the period covered in the report~~,~~ and shall contain:

~~(formerly Section 15(a)(i)(A))~~(A) Any changes to the physical, chemical, and other relevant characteristics of the carbon dioxide stream from the proposed operating data;

~~(formerly Section 15(a)(i)(B))~~(B) Monthly average, maximum, and minimum values for injection pressure, flow rate and volume, and annular pressure;

~~(formerly Section 15(a)(i)(C))~~(C) A description of any event that exceeds operating parameters for annulus pressure or injection pressure as specified in the permit;

~~(formerly Section 15(a)(i)(D))~~(D) A description of any event that triggers a shutdown device required pursuant to Section ~~12(g)~~ 18(g) of this ~~c~~Chapter, and the response taken;

~~(formerly Section 15(a)(i)(E))~~(E) The monthly volume of the carbon dioxide stream injected over the reporting period and project cumulatively;

~~(formerly Section 15(a)(i)(F))~~(F) Monthly annulus fluid volume added; and

~~(formerly Section 15(a)(i)(G))~~(G) The results of monitoring ~~prescribed under~~ required by Section ~~14~~ 20 of this ~~c~~Chapter~~.~~;

~~(formerly Section 15(a)(ii))~~(ii) Reports, within thirty (30) days, the results of:

~~(formerly Section 15(a)(ii)(A))~~(A) Periodic tests of mechanical integrity;

~~(formerly Section 15(a)(ii)(B))~~(B) Any other test of the injection well conducted by the ~~permittee~~ owner or operator if required by the Administrator; and

~~(formerly Section 15(a)(ii)(C))~~(C) Any well workover~~.~~; and

~~(formerly Section 15(a)(iii))~~(iii) Reports, within twenty-four (24) hours, of:

~~(formerly Section 15(a)(iii)(A))~~(A) Any evidence that the injected carbon dioxide stream or associated pressure front may cause an endangerment to a USDW;

~~(formerly Section 15(a)(iii)(B))~~(B) Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between USDWs;

~~(formerly Section 15(a)(iii)(C))~~(C) Any triggering of a shut-off system, either ~~(i.e.,~~ down-hole or at the surface~~)~~;

~~(formerly Section 15(a)(iii)(D))~~(D) ~~Pursuant to compliance with the requirement at Section 14(b)(x) of this chapter for surface air or soil gas monitoring or other monitoring technologies, if required by the Administrator, a~~Any release of carbon dioxide to the atmosphere or biosphere~~.~~indicated by the surface air or soil gas monitoring or other monitoring technologies required by Section 14(b)(ix) of this Chapter; and

(E) Any failure to maintain mechanical integrity.

~~(formerly Section 15(a)(iv))~~(b) Owners or operators ~~must~~ shall notify the Administrator in writing thirty (30) days in advance of:

~~(formerly Section 15(a)(iv)(A))~~(i) Any planned well workover;

~~(formerly Section 15(a)(iv)(B))~~(ii) Any planned stimulation activities, other than stimulation for formation testing conducted under Section ~~5~~ 10 of this ~~c~~Chapter; and

~~(formerly Section 15(a)(iv)(C))~~(iii) Any other planned test of the injection well conducted by the ~~permittee~~ owner or operator.

~~(formerly Section 15(b))~~(c) Owners or operators ~~must~~ shall submit all required reports, submittals, and notifications to both the Administrator and to EPA~~,~~ (in an electronic format acceptable to ~~the~~ EPA).

~~(formerly Section 15(c))~~(d) ~~The permittee~~ Owners or operators shall submit a written report to the Administrator of all remedial work concerning the failure of equipment or operational procedures that resulted in a violation of a permit condition~~,~~ at the completion of the remedial work.

~~(formerly Section 15(d))~~(e) For any aborted or curtailed operation, the owner or operator shall submit to the Administrator a complete report ~~shall be submitted~~ within thirty (30) days of complete termination of the discharge or associated activity.

**Section 23. Injection Well-plugging.**

~~(formerly Section 16(a))~~(a) Prior to ~~the~~ well-plugging, the owner or operator ~~must~~ shall flush each Class VI injection well with a buffer fluid, determine bottom hole reservoir pressure, and perform a final external mechanical integrity test in accordance with Section ~~13~~ 19 of this ~~c~~Chapter.

~~(formerly Section 16(b))~~(b) The owner or operator of a Class VI well ~~must~~ shall prepare, maintain, update on the same schedule as the update to the area of review delineation, and comply with a well-plugging plan that is ~~acceptable to~~ approved by the Administrator.

~~Temporary or intermittent cessation of injection operations is not abandonment.~~ The well-plugging plan ~~must~~ shall include the following information:

~~(formerly Section 16(b)(i))~~(i) Appropriate test or measure to determine bottom hole reservoir pressure;

~~(formerly Section 16(b)(ii))~~(ii) Appropriate testing methods to ensure final external mechanical integrity as specified in Section ~~13~~ 19 of this ~~c~~Chapter;

~~(formerly Section 16(b)(iii))~~(iii) The type and number of plugs to be used;

~~(formerly Section 16(b)(iv))~~(iv) The placement of each plug including the elevation of the top and bottom of each plug;

~~(formerly Section 16(b)(v))~~(v) The type and grade and quantity of material, suitable for use with the carbon dioxide stream, to be used in plugging; and

~~(formerly Section 16(b)(vi))~~(vi) A description of the method of placement of the plugs.

~~(formerly Section 16(c)(iii))~~(c) Any amendments to the injection well-plugging plan ~~must be approved~~ are subject to approval by the Administrator, ~~must~~ shall be incorporated into the permit if approved, and are subject to the permit modification requirements of Section ~~4~~ 6 of this ~~c~~Chapter~~, as appropriate~~.

~~(formerly Section 16(c))~~(d) The owner or operator ~~must~~ shall notify the Administrator, in writing, at least sixty (60) days before plugging a well.

~~(formerly Section 16(c)(i))~~(i) If any changes have been made to the original well-plugging plan, the owner or operator ~~must~~ shall also provide the revised well-plugging plan with notice of its intent to plug the well.

~~(formerly Section 16(c)(ii))~~(ii) ~~At the discretion of t~~The Administrator~~,~~ may allow a shorter notice period ~~may be allowed~~.

~~(formerly Section 16(d))~~(e) Within sixty (60) days after completion of plugging and abandonment of a well or well field, the ~~permittee~~ owner or operator shall submit to the Administrator a final report that includes:

~~(formerly Section 16(d)(i))~~(i) Certification of completion in accordance with approved plans and specifications by a licensed professional engineer or a licensed professional geologist~~.~~; and

~~(formerly Section 16(d)(ii))~~(ii) Certification of accuracy by the owner or operator and by the person who performed the plugging operation (if other than the owner or operator).

## Section 24. Post-injection Site Care and Site Closure.

~~(formerly Section 17(a))~~(a) The owner or operator of a Class VI well ~~must~~ shall prepare, maintain, update on the same schedule as the update to the area of review delineation, and comply with a plan for post-injection site care and site closure that meets the requirements of subparagraph (a)(ii) of this ~~s~~Section and is ~~acceptable to~~ approved by the Administrator.

~~(formerly Section 17(a)(i))~~(i) The ~~owner or operator must submit the~~ post-injection site care and site closure plan ~~as a part of the permit application to be~~ is subject to approv~~ed~~al by the Administrator~~,~~ in consultation with EPA.

~~(formerly Section 17(a)(ii))~~(ii) The post-injection site care and site closure plan ~~must~~ shall include the following information:

~~(formerly Section 17(a)(ii)(A))~~(A) A demonstration containing substantial evidence that the geologic sequestration project will no longer pose a risk of endangerment to USDWs ~~or~~ and will not harm or present a risk to human health, safety, or the environment at the end of the post-injection site care timeframe. The demonstration ~~must~~ shall be based on significant, site-specific data and information, including all data and information collected pursuant to Sections ~~4~~ 10 and ~~7~~ 12 of this ~~c~~Chapter~~.~~;

~~(formerly Section 17(a)(ii)(B))~~(B) The site closure plan shall address all reclamation, ~~required~~ monitoring, and remediation sufficient to show that the carbon dioxide stream injected into the geologic sequestration site will not harm human health, safety, the environment, or drinking water supplies~~.~~;

~~(formerly Section 17(a)(ii)(C))~~(C) Detailed plans for post-injection monitoring, verification, maintenance, and mitigation;

~~(formerly Section 17(a)(ii)(D))~~(D) The pressure differential between pre-injection and predicted post-injection pressures in the injection zone;

~~(formerly Section 17(a)(ii)(E))~~(E) The predicted position of the carbon dioxide plume and associated pressure front at the time when plume movement has ceased and pressure differentials sufficient to cause the movement of injected fluids or formation fluids into a USDW are no longer present, as demonstrated in the area of review evaluation required under Section ~~8(c)(i)~~ 13(b)(i) of this ~~c~~Chapter;

~~(formerly Section 17(a)(ii)(F))~~(F) A description of post-injection monitoring locations, methods, and proposed frequency; ~~and~~

~~(formerly Section 17(a)(ii)(G))~~(G) A proposed schedule for submitting post-injection site care monitoring results pursuant to Section ~~15(b)~~ 22(c) of this ~~c~~Chapter~~, as appropriate~~.;

~~(formerly Section 17(a)(ii)(H))~~(H) The duration of the post-injection site care timeframe that ensures compliance with subparagraph (A) of this ~~subsection.~~paragraph;

~~(formerly Section 17(a)(ii)(I))~~(I) The results of computational modeling performed pursuant to delineation of the area of review under Section ~~8~~ 13 of this ~~c~~Chapter;

~~(formerly Section 17(a)(ii)(J))~~(J) The predicted timeframe for pressure decline:

~~(formerly Section 17(a)(ii)(J))~~(I) ~~w~~Within the injection zone~~,~~ and any other zones~~,~~ such that formation fluids may not be forced into any USDWs; ~~and/~~or

~~(formerly Section 17(a)(ii)(J))~~(II) ~~the timeframe for pressure decline t~~To pre-injection pressures;

~~(formerly Section 17(a)(ii)(K))~~(K) The predicted rate of carbon dioxide plume migration within the injection zone, and the predicted timeframe for the cessation of migration;

~~(formerly Section 17(a)(ii)(L))~~(L) 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;

~~(formerly Section 17(a)(ii)(M))~~(M) The predicted rate of carbon dioxide trapping in the immobile capillary phase, dissolved phase, and~~/or~~ mineral phase;

~~(formerly Section 17(a)(ii)(N))~~(N) The results of laboratory analyses, research studies, and~~/or~~ field or site-specific studies to verify the information required in subparagraphs (J) and (K) of this ~~subsection~~ paragraph;

~~(formerly Section 17(a)(ii)(O))~~(O) A characterization of the confining zone~~(~~s~~)~~ including a demonstration that ~~it is~~ they are free of transmissive faults, fractures, and micro-fractures and of appropriate thickness, permeability, and integrity to impede fluid (~~e.g.,~~ including carbon dioxide~~,~~ and formation fluids) movement;

~~(formerly Section 17(a)(ii)(P))~~(P) The presence of potential conduits for fluid movement, including planned injection wells and project monitoring wells associated with the proposed geologic sequestration project or any other projects in proximity to the predicted or modeled~~,~~ final extent of the carbon dioxide plume and area of elevated pressure;

~~(formerly Section 17(a)(ii)(Q))~~(Q) A description of the well construction and an assessment of the quality of plugs of all abandoned wells within the area of review;

~~(formerly Section 17(a)(ii)(R))~~(R) The distance between the injection zone and the nearest USDWs above and~~/or~~ below the injection zone; and

~~(formerly Section 17(a)(ii)(S))~~(S) Any additional site-specific factors required by the Administrator.

~~(formerly Section 17(a)(iii))~~(iii) Information submitted to support the demonstration in subparagraph (a)(ii) of this ~~s~~Section ~~must~~ shall meet the following criteria:

~~(formerly Section 17(a)(iii)(A))~~(A) All analyses and tests performed ~~to support the demonstration must~~ shall be accurate, reproducible, and performed in accordance with ~~the established quality assurance~~ industry standards;

~~(formerly Section 17(a)(iii)(B))~~(B) Estimation techniques ~~must~~ shall be appropriate; ~~and~~

~~(formerly Section 17(a)(iii)(B))~~(C) EPA-certified test protocols ~~must~~ shall be used where available;

~~(formerly Section 17(a)(iii)(C))~~(D) Predictive models ~~must~~ shall be appropriate and tailored to the site conditions, composition of the carbon dioxide stream and injection, and site conditions over the life of the geologic sequestration project;

~~(formerly Section 17(a)(iii)(D))~~(E) Predictive models ~~must~~ shall be calibrated using existing information (~~e.g., at~~ which may be obtained from Class I, Class II, ~~or~~ Class V experimental technology , or Class VI well sites) where sufficient data are available;

~~(formerly Section 17(a)(iii)(E))~~(F) Reasonably conservative values and modeling assumptions ~~must~~ shall be used and disclosed to the Administrator whenever values are estimated on the basis of known, historical information instead of site-specific measurements;

~~(formerly Section 17(a)(iii)(F))~~(G) An analysis ~~must~~ shall be performed to identify and assess aspects of the post-injection site care timeframe demonstration that contribute significantly to uncertainty. The owner or operator ~~must~~ shall conduct sensitivity analyses to determine the effect that significant uncertainty may contribute to the modeling demonstration~~.~~;

~~(formerly Section 17(a)(iii)(G))~~(H) An approved quality assurance and quality control plan ~~must~~ shall address all aspects of the demonstration; and~~,~~

~~(formerly Section 17(a)(iii)(H))~~(I) Any additional criteria required by the Administrator shall be met.

~~(formerly Section 17(a)(iv))~~(iv) Upon cessation of injection, owners or operators of Class VI wells ~~must~~ shall either submit an amended post-injection site care and site

closure plan or demonstrate to the Administrator through monitoring data and modeling results that no amendment to the plan is needed. Any amendments to the post-injection site care and site closure plan ~~must~~ shall be:

~~(formerly Section 17(a)(iv)(A))~~(A) Subject to ~~A~~approv~~ed~~al by the Administrator~~.~~;

~~(formerly Section 17(a)(iv)(B))~~(B) Incorporated into the permit~~.~~; and

~~(formerly Section 17(a)(iv)(C))~~(C) Subject to the permit modification requirements of Section ~~4~~ 6 of this ~~c~~Chapter~~, as appropriate~~.

~~(formerly Section 17(a)(v))~~(v) The owner or operator may ~~modify~~ amend ~~and resubmit~~ the post-injection site care and site closure plan. ~~for the Administrator's approval within thirty (30) days of such change~~. The owner or operator shall re-submit the post-injection site care and closure plan for the Administrator's approval within thirty (30) days of amending the plan.

(vi) Upon receipt of the Administrator's approval of the post-injection site care and site closure plan, the owner or operator shall submit the proposed cost estimate for measurement, monitoring, and verification of plume stabilization required by Section 26(i) of this Chapter.

~~(formerly Section 17(b))~~(b) The owner or operator shall monitor the site following the cessation of injection to ~~show~~ ascertain the position of the carbon dioxide plume and pressure front and demonstrate that USDWs are not being endangered.

~~(formerly Section 17(b)(i))~~(i) The owner or operator shall continue to conduct monitoring as specified in the Administrator-approved post-injection site care and site closure plan until the Administrator certifies site closure ~~is certified by the Administrator~~ pursuant to Section 24(b)(iii) of this Chapter.

~~(formerly Section 17(b)(ii))~~(ii) The owner or operator ~~can~~ may request ~~and demonstrate to the satisfaction of the Administrator~~ that the post-injection site care and site closure plan ~~should~~ be revised to reduce the frequency of monitoring , and the Administrator may approve the request if the owner or operator demonstrates that the plan should be revised.

~~(formerly Section 17(b)(iii))~~(iii) Prior to ~~authorization for~~ certification of site closure, the owner or operator ~~must~~ shall demonstrate to the Administrator, based on monitoring, other site-specific data, and modeling that is reasonably consistent with site performance, that no additional monitoring is needed to ensure that the geologic sequestration project does not, and is not expected to ~~pose an~~ endanger~~ment to~~ a USDW or otherwise threaten human health, safety, or the environment. In addition, the owner or operator ~~must~~ shall demonstrate, based on the best available understanding of the site~~,~~ including monitoring data and~~/or~~ modeling, that all other site closure standards and requirements have been met.

~~(formerly Section 17(b)(iv))~~(iv) If ~~such a demonstration cannot be made~~ the owner or operator does not demonstrate that the requirements of subparagraph (b)(iii) of this Section have been met, the owner or operator ~~must~~ shall continue post-injection site care.

~~(formerly Section 17(b)(v))~~(v) The owner or operator ~~must~~ shall notify the Administrator, in writing, at least 120 days before filing a request for site closure. At this time, if any changes have been made to the original post-injection site care and site closure plan, the owner or operator ~~must~~ shall also provide the revised plan. ~~At the discretion of t~~The Administrator~~,~~ may allow a shorter notice period ~~may be allowed~~.

~~(formerly Section 17(b)(vi))~~(vi) Post-injection site care shall ~~be~~ continue for a period ~~of not less than ten (10) years after the date when all wells excluding monitoring wells have been appropriately plugged and abandoned, all subsurface operations and activities have ceased and all surface equipment and improvements have been removed or appropriately abandoned, or so long thereafter as necessary to obtain a completion and release certificate from the Administrator certifying that plume stabilization has been achieved without the use of control equipment based on a minimum of three (3) consecutive years of monitoring data.~~that meets the criteria of W.S. § 35-11-313(f)(vi)(F).

~~(formerly Section 17(c))~~(c) After the Administrator has certified site closure, the owner or operator ~~must~~ shall plug monitoring wells~~, as determined by the Administrator,~~ in a manner approved by the Administrator that will not allow movement of injection or formation fluids.

~~(formerly Section 17(d))~~(d) ~~Once the Administrator has certified site closure, t~~The owner or operator ~~must~~ shall submit a site closure report within ninety (90) days after completion of all closure operations. ~~The report must thereafter be retained at a location designated by the Administrator for ten (10) years.~~ The report ~~must~~ shall include:

~~(formerly Section 17(d)(i))~~(i) Documentation of ~~appropriate~~ injection and monitoring well-plugging ~~as specified in~~ that meets the requirements of Section ~~16~~ 23 of this ~~c~~Chapter and paragraph (c) of this ~~s~~Section~~.~~;

~~(formerly Section 17(d)(ii))~~(ii) ~~The owner or operator must provide a~~ A copy of a survey plat that has been submitted to the local zoning authority designated by the Administrator~~.~~, and:

~~(formerly Section 17(d)(ii)(A))~~(A) The plat ~~must~~ shall indicate the location of the injection well(s) and monitoring wells relative to permanently surveyed benchmarks~~.~~; and

~~(formerly Section 17(d)(ii)(B))~~(B) The owner or operator ~~must~~ shall also submit a copy of the plat to the US EPA Regional Administrator~~.~~;

~~(formerly Section 17(d)(iii))~~(iii) Documentation of appropriate notification and information to ~~such~~ the State, local and tribal authorities ~~as~~ that have authority over drilling

activities to enable ~~such State and local authorities~~ them to impose appropriate conditions on subsequent drilling activities that may penetrate the injection and confining zone~~(s)~~.;

~~(formerly Section 17(d)(iv))~~(iv) Proof ~~of providing notice to surface owners, mineral claimants, mineral owners, lessees, and other owners of record of subsurface interests as to the proposed site closure. Notice requirements at a minimum shall include~~ that the owner or operator has:

~~(formerly Section 17(d)(iv)(A))~~(A) ~~The p~~Publish~~ing~~ed ~~of~~ notice of the application for site closure, including ~~(formerly Section 17(d)(iv)(B)) The published notice shall provide~~ a mechanism to request a public hearing~~;~~, ~~(formerly Section 17(d)(iv)(A))~~ in a newspaper of general circulation in each county of the proposed operation at weekly intervals for four (4) consecutive weeks; and

~~(formerly Section 17(d)(iv)(C))~~(B) ~~A copy of the notice shall also be m~~Mailed notice of the application for site closure to all surface owners, mineral claimants, mineral owners, lessees, and other owners of record of subsurface interests that are located within one (1) mile of the proposed boundary of the geologic sequestration site~~.~~; and

~~(formerly Section 17(d)(v))~~(v) Records ~~reflecting~~ of the nature, composition, and volume of the carbon dioxide stream.

~~(formerly Section 17(e))~~(e) Each owner or operator of a Class VI injection well ~~must~~ shall record a notation on the deed to the facility property or any other document that is normally examined during title search that will in perpetuity provide notice to any potential purchaser of the property, and shall file an affidavit in accordance with W.S. § 35-11-313(f)(vi)(G), that includes the following information:

~~(formerly Section 17(e)(i))~~(i) The fact that land has been used to sequester carbon dioxide;

~~(formerly Section 17(e)(ii))~~(ii) The name of the State agency, local authority, ~~and/~~or ~~t~~Tribe with which the survey plat was filed, as well as the address of the ~~Regional Environmental Protection Agency~~ EPA regional ~~O~~office to which it was submitted; and

~~(formerly Section 17(e)(iii))~~(iii) The volume of fluid injected, the injection zone or zones into which it was injected, and the period over which injection occurred.

**Section 25. Emergency and Remedial Response.**

~~(formerly Section 18(a))~~(a) ~~As part of the permit application, the~~ All owners or operators of a Class VI well shall develop, maintain, and comply ~~must provide the Administrator~~ with an emergency and remedial response plan that describes actions to be taken to address movement of the injectate or formation fluids that ~~may cause an~~ endanger~~ment~~s ~~to~~ a USDW or threatens human health, safety, or the environment during construction, operation, closure, and post-closure periods.

~~(formerly Section 18(a)(i))~~(i) The emergency and remedial response plan ~~must~~ shall be reviewed and updated, as necessary, on the same schedule as the update to the area of review delineation.

~~(formerly Section 18(a)(ii))~~(ii) Any amendments to the emergency and remedial response plan ~~must~~ shall be subject to approv~~ed~~al by the Administrator, ~~must~~ shall be incorporated into the permit, and are subject to the permit modification requirements of Section ~~4~~ 6 of this ~~c~~Chapter~~, as appropriate~~. ~~(formerly Section 18(a)(ii)(A))~~ Amend~~ed~~ments ~~plans or demonstrations~~ to the emergency and remedial response plan shall be submitted to the Administrator as follows:

~~(formerly Section 18(a)(ii)(A)(I))~~(A) Within one (1) year of an area of review reevaluation;

~~(formerly Section 18(a)(ii)(A)(II))~~(B) Following any significant changes to the facility, such as addition of injection or monitoring wells~~, on a schedule determined by the Administrator~~; or

~~(formerly Section 18(a)(ii)(A)(III))~~(C) When required by the Administrator.

~~(formerly Section 18(e))~~(iii) The emergency and remedial response plan ~~(as required by Section 18 of this chapter) and a demonstration of financial responsibility (as described by Section 19 of this chapter) must~~ shall account for the entire area of review ~~(as modified)~~ delineated pursuant to Section 13 of this Chapter, regardless of whether ~~or not~~ corrective action in the area of review is phased.

~~(formerly Section 18(b))~~(b) If any monitoring data~~,~~ or other ~~evidence obtained by the owner or operator~~ information indicate that any contaminant, the injected carbon dioxide stream, displaced formation fluids, or associated pressure front may endanger a USDW or threaten~~s~~ human health, safety, or the environment, the owner or operator ~~must~~ shall:

~~(formerly Section 18(b)(i))~~(i) Immediately cease injection;

~~(formerly Section 18(b)(ii))~~(ii) Take all steps reasonably necessary to identify and characterize any release;

~~(formerly Section 18(b)(iii))~~(iii) Orally ~~N~~notify the Administrator within twenty-four (24) hours~~.~~ of discovering the condition; and

~~(formerly Section 4(c)(i)(R)(II))~~(iv) ~~Any noncompliance with a permit condition or malfunction of the injection system that may cause fluid migration into or between USDWs or if an excursion is discovered. It shall be orally reported to the Administrator within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and a written submission shall be~~ P~~p~~rovide~~d~~ a written report to the Administrator within five (5) days of ~~the time the permittee becomes aware of any excursion or indication that a contaminant may cause~~

~~an endangerment to a USDW~~ discovering the condition. The written ~~submission~~ report shall contain:

~~(formerly Section 4(c)(i)(R)(II))(1.)~~(A) A description of the noncompliance and its cause;

~~(formerly Section 4(c)(i)(R)(II))(2.)~~(B) The period of noncompliance, including exact dates and times, and, if the noncompliance has not been controlled, the anticipated time it is expected to continue; and

~~(formerly Section 4(c)(i)(R)(II))(3.)~~(C) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

~~(formerly Section 18(b)(iv))~~(c) ~~In addition to paragraphs (i-iii) of this subsection, if an~~ If an owner or operator discovers any noncompliance with a permit condition or a requirement of this Chapter that may cause fluid migration into or between USDWs, any malfunction of the injection system that may cause fluid migration into or between USDWs, or any excursion ~~is discovered~~, the owner or operator shall:

~~(formerly Section 18(b)(iv))~~(i) ~~provide verbal notice to the Department~~ Orally notify the Administrator within twenty-four (24) hours~~,~~ of discovering the condition;

~~(formerly Section 4(c)(i)(R)(II))~~(ii) ~~Any noncompliance with a permit condition or malfunction of the injection system that may cause fluid migration into or between USDWs or if an excursion is discovered. It shall be orally reported to the Administrator within twenty-four (24) hours from the time the permittee becomes aware of the circumstances, and~~ Provide a written ~~submission~~ report to the Administrator ~~shall be provided~~ within five (5) days of ~~the time the permittee becomes aware of any excursion or indication that a contaminant may cause an endangerment to a USDW.~~ discovering the condition, ~~The written submission~~ which shall contain:

~~(formerly Section 4(c)(i)(R)(II)(1.))~~(A) A description of the noncompliance, malfunction, or excursion and its cause;

~~(formerly Section 4(c)(i)(R)(II))(2.)~~(B) The period of noncompliance, malfunction, or excursion, including exact dates and times, and, if the noncompliance, malfunction, or excursion has not been controlled, the anticipated time it is expected to continue;

~~(formerly Section 4(c)(i)(R)(II))(3.)~~(C) Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance, malfunction, or excursion.

~~(formerly Section 18(b)(iv))~~(iii) If an excursion is discovered, ~~followed by~~ provide written notice to all surface owners, mineral claimants, mineral owners, lessees, and other owners of record of subsurface interests within thirty (30) days of ~~when~~ discovering the excursion ~~is discovered~~; and

~~(formerly Section 18(b)(v))~~(iv) Implement the emergency and remedial response plan approved by the Administrator.

~~(formerly Section 18(c))~~(d) The Administrator may allow the owner or operator to resume injection prior to ~~remediation~~ implementing the emergency and remedial response plan if the owner or operator demonstrates that the injection operation will not endanger USDWs or otherwise threaten human health, safety, or the environment.

~~(formerly Section 6(b))~~(e) If any water quality monitoring of ~~an underground source of drinking water~~ a USDW indicates the movement of any contaminant into the ~~underground source of drinking water~~ USDW, except as authorized under this ~~c~~Chapter, the Administrator shall prescribe ~~such~~ any additional requirements for construction, corrective action, operation, monitoring, ~~or~~ reporting, ~~(including~~ or closure of the injection well~~)~~ ~~as~~ that are necessary to prevent ~~such~~ further movement~~.~~, and:

~~(formerly Section 6(b))~~(i) ~~In~~ If the ~~case of~~ well~~s~~ responsible for the movement is authorized by permit, these additional requirements shall be imposed by modifying the permit ~~in accordance with Section 4 of this chapter,~~; or

~~(formerly Section 6(b))~~(ii) The Director ~~the permit~~ may ~~be~~ terminate~~d~~ or revoke and reissue the permit ~~under~~ pursuant to Section ~~4~~ 7 of this ~~c~~Chapter ~~if cause exists, or appropriate enforcement action may be taken if the permit has been violated~~.

**Section 26. Financial Responsibility.**

~~(formerly Section 19(b))~~(a) Owners or operators of Class VI wells ~~must~~ shall establish, demonstrate, and maintain financial responsibility for all applicable phases of the geologic sequestration project, including complete site reclamation in the event of default. The phases of a geologic sequestration project are ~~as follows~~:

~~(formerly Section 19(b)(i))~~(i) Permitting/~~C~~characterization~~.~~;

~~(formerly Section 19(b)(ii))~~(ii) Testing and m~~M~~onitoring ~~and testing~~, ~~including the requirements of~~ pursuant to Section ~~14~~ 20 of this ~~c~~Chapter~~.~~;

~~(formerly Section 19(b)(iii))~~(iii) Operations, including ~~(~~injection and ~~permanent well closure activities)~~well-plugging, ~~including the requirements of~~ pursuant to Section~~s~~ ~~16~~ 18 and 23 of this ~~c~~Chapter~~.~~;

~~(formerly Section 19(b)(iv))~~(iv) Post-injection site care, including ~~(“~~plume stabilization~~”~~, monitoring, measurement, verification, corrective action, and other actions needed to ensure that underground sources of drinking water are not endangered from the time of well-plugging until site closure is certified by the Administrator~~;~~ and above ground-reclamation is completed~~)~~, ~~including the requirements of~~ pursuant to Section ~~17~~ 24 of this ~~c~~Chapter~~.~~; and

~~(formerly Section 19(b)(v))~~(v) Emergency and remedial response ~~(that meets the requirements of~~ pursuant to Section ~~18~~ 25 of this ~~c~~Chapter~~)~~.

~~(formerly Section 19(c))~~(b) The owner or operator ~~must~~ shall develop ~~submit a detailed written estimate, at the time of permit application~~ and annually update~~d annually~~ in accordance with paragraph ~~(j)(iii) below~~ (f) of this Section, a written financial assurance cost estimate.~~,~~

~~(formerly Section 19(c))~~(i) ~~in current dollars,~~ The financial assurance cost estimate shall ~~that~~ include~~s~~ the cost in current dollars of:

~~(formerly Section 19(c))~~(A) ~~p~~Performing corrective action on other wells in the area of review that require corrective action ~~meets the requirements of~~ under Section ~~8~~ 13 of this ~~c~~Chapter;

~~(formerly Section 19(c))~~(B) ~~p~~Plugging the injection well~~(s)~~ ~~that meets the requirements of~~ under Section ~~16~~ 23 of this ~~c~~Chapter;

~~(formerly Section 19(c))~~(C) ~~p~~Post-injection site care and site closure ~~that meets the requirements of~~ under Section ~~17~~ 24 of this ~~c~~Chapter;

~~(formerly Section 19(c))~~(D) Testing and monitoring ~~activities that meets the requirements of~~ under Section ~~14~~ 20 of this ~~c~~Chapter; and

~~(formerly Section 19(c))~~(E) E~~e~~mergency and remedial response ~~that meets the requirements of~~ under Section ~~18~~ 25 of this ~~c~~Chapter.

~~(formerly Section 19(c)(i))~~(ii)The financial assurance cost estimate ~~for the various phases of the sequestration project~~ shall consider the following events:

~~(formerly Section 19(c)(i)(A))~~(A) Contamination of underground sources of water including, drinking water supplies~~.~~;

~~(formerly Section 19(c)(i)(B))~~(B) Mineral rights infringement~~.~~;

~~(formerly Section 19(c)(i)(C))~~(C) Single large-volume release of carbon dioxide that impacts human health and safety ~~and/~~or that causes ecological damage~~.~~;

~~(formerly Section 19(c)(i)(D))~~(D) Low-level leakage of carbon dioxide to the surface that impacts human health and safety ~~and/~~or that causes ecological damage~~.~~;

~~(formerly Section 19(c)(i)(E))~~(E) Storage rights infringement~~.~~;

~~(formerly Section 19(c)(i)(F))~~(F) Property and infrastructure damage, including changes to surface topography and structures~~.~~;

~~(formerly Section 19(c)(i)(G))~~(G) Entrained contaminant releases ~~(non-~~

~~$CO_2$)~~ of contaminants other than carbon dioxide~~.~~;

~~(formerly Section 19(c)(i)(H))~~(H) Accidents~~/~~ and unplanned events~~.~~;

~~(formerly Section 19(c)(i)(I))~~(I) Well capping and permitted abandonment~~.~~; and

~~(formerly Section 19(c)(i)(J))~~(J) Removal of above-ground facilities and site reclamation.

~~(formerly Section 19(c)(ii))~~(iii) The owner or operator shall consider the Risk Activity ~~m~~Matrix in Appendix A of this ~~c~~Chapter ~~shall be considered during the risk assessment process~~ to develop the financial assurance cost estimate .

~~(formerly Section 19(c)(iii))~~(iv) The financial assurance cost estimate shall be based upon a multi-disciplinary analytical framework such as Monte Carlo or other commonly accepted stochastic modeling tools.

~~(formerly Section 19(c)(iii)(A))~~(A) Cost curves shall combine risk probabilities, event outcomes, and damages assessment to calculate expected losses under a series of events.

~~(formerly Section 19(c)(iii)(B))~~(B) For all cases of potential damages, the probability distributions should be identified for 50 percent, 95 percent, and 99 percent probabilities of occurrence.

~~(formerly Section 19(e))~~(v) The owner or operator shall perform the financial assurance cost estimate ~~must be performed~~ for each phase separately. ~~and~~

~~(formerly Section 19(e))~~(vi) ~~must be based~~ The owner or operator shall base the financial assurance cost estimate on the costs to the regulatory agency of hiring a third party (that is not within the corporate structure of the owner or operator) to perform the required activities. ~~A third party is a party who is not within the corporate structure of the owner or operator.~~

~~(formerly Section 8(e))~~(vii) The ~~emergency and remedial response plan (as required by Section 18 of this chapter) and a demonstration of~~ financial ~~responsibility~~ assurance cost estimate ~~(as described by Section 19 of this chapter) must~~ shall account for the entire area of review ~~(as modified), regardless of whether or not corrective action in the area of review is phased~~ delineated pursuant to Section 13 of this Chapter.

(viii) The owner or operator shall submit an updated financial assurance cost estimate to the Administrator annually within thirty (30) days of the anniversary date when the original financial assurance cost estimate was submitted.

~~(formerly Section 19(g))~~(c) The financial responsibility instrument~~(s)~~ used shall be from the following list of qualifying instruments and shall be submitted on a Wyoming

Department of Environmental Quality form:

~~(formerly Section 19(g)(i))~~(i) Irrevocable Trust Funds with government-backed securities;

~~(formerly Section 19(g)(ii))~~(ii) Surety Bonds;

~~(formerly Section 19(g)(iii))~~(iii) Irrevocable Letter of Credit;

~~(iv) Insurance.~~

~~(A) Any insurance instruments submitted for financial assurance purposes shall include State of Wyoming as an additional insured.~~

~~(B) Inclusion of the State of Wyoming as an additional insured shall not be deemed a waiver of sovereign immunity.~~

~~(v) Self-insurance (i.e., Financial Test and Corporate Guarantee);~~

~~(vi) Escrow account;~~

~~(vii) Any other instrument(s) satisfactory to the Administrator.~~

(iv) Cash; or

(v) Federally Insured Certificates of Deposit.

~~(formerly Section 19(h))~~(d) The qualifying instrument~~(s)~~ ~~must~~ shall be sufficient to cover the cost of the financial assurance cost estimate required in ~~subsection (d)~~ paragraph (b) of this ~~s~~Section.

~~(formerly Section 19(i))~~(e) The qualifying financial responsibility instrument~~(s)~~ ~~must~~ shall comprise protective conditions of coverage that include at a minimum cancellation, renewal, continuation provisions, specifications on when the provider becomes liable following a notice of cancellation, and requirements for the provider to meet a minimum rating, minimum capitalization, and the ability to pass the bond rating test when applicable.

~~(formerly Section 19(i)(i))~~(i) ~~Cancellation –~~ An owner or operator ~~must~~ shall provide that their financial mechanism may not cancel, terminate or fail to renew except for failure to pay such financial instrument. ~~If there is a failure to pay the financial instrument, the financial institution may elect to cancel, terminate, or fail to renew the instrument by sending notice by certified mail to the owner or operator and the Administrator. The cancellation must not be final for 120 days after receipt of cancellation notice. The owner or operator must provide an alternate financial responsibility demonstration within sixty (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 sixty (60) days~~

~~of notification by the Administrator.~~

~~(formerly Section 19(i)(i))~~(A) If there is a failure to pay the financial instrument, the financial institution may elect to cancel, terminate, or fail to renew the instrument by sending notice by certified mail to the owner or operator and the ~~Administrator~~ Director;

~~(formerly Section 19(i)(i))~~(B) The cancellation shall not be final for 120 days after receipt of cancellation notice;

~~(formerly Section 19(i)(i))~~(C) ~~The owner or operator must provide an alternate financial responsibility demonstration~~ W~~w~~ithin sixty (60) days of notice of cancellation, the owner or operator shall provide to the Director an alternate financial responsibility demonstration that meets the requirements of paragraphs (c), (d), (e), (f), and (g) of this Section; and

~~(formerly Section 19(i)(i))~~(D) If an alternate financial responsibility demonstration is not acceptable (or possible), any funds from the instrument being cancelled ~~must~~ shall be released within sixty (60) days of notification by the ~~Administrator~~ Director.

~~(formerly Section 19(i)(ii))~~(ii) ~~Renewal –~~ Owners or operators ~~must~~ shall renew all financial instruments, if an instrument expires, for the entire term of the geologic sequestration project. The instrument may be automatically renewed as long as, at a minimum, the owner or operator has the option of renewal at the face amount of the expiring instrument.

~~(formerly Section 19(i)(iii))~~(iii) ~~Continuation –~~ Cancellation, termination, or failure to renew may not occur and the financial instrument shall remain in full force and effect in the event that on or before the date of expiration:

~~(formerly Section 19(i)(iii)(A))~~(A) The Administrator deems the facility abandoned.

~~(formerly Section 19(i)(iii)(B))~~(B) The permit is terminated, revoked, or a new permit is denied.

~~(formerly Section 19(i)(iii)(C))~~(C) Closure is ordered by the ~~Administrator~~ Director, a U.S. district court, or other court of competent jurisdiction.

~~(formerly Section 19(i)(iii)(D))~~(D) The owner or operator is named as debtor in a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code.

~~(formerly Section 19(i)(iii)(E))~~(E) The amount due is paid.

~~(formerly Section 19(j))~~(f) The qualifying financial responsibility instrument~~(s)~~ ~~must be approved~~ are subject to approval by the ~~Administrator~~ Director. The ~~Administrator shall also approve the~~ use and length of pay-in-periods for trust funds and escrow accounts are also subject to approval by the Director.

~~(formerly Section 19(j)(i))~~(i) No Class VI permit shall be issued until and unless ~~T~~the ~~Administrator~~ Director ~~shall~~ has considered and approved the financial responsibility demonstration for all ~~the~~ phases of the geologic sequestration project ~~prior to issuing a Class VI permit~~.

~~(formerly Section 19(j)(ii))~~(ii) ~~The Administrator may find that the financial responsibility demonstration is unsatisfactory for any reason, as long as that reason is not arbitrary or capricious.~~ The ~~Administrator~~ Director may ~~exercise discretion in~~ negotiat~~ing~~e a satisfactory financial responsibility demonstration or ~~to~~ deny a demonstration.

~~(formerly Section 19(j)(iii))~~(iii) The owner or operator ~~must~~ shall provide any updated information related to ~~their~~ financial responsibility instrument~~(s)~~ on an annual basis, and if there are any changes, the ~~Administrator~~ Director ~~must~~ shall evaluate the financial responsibility demonstration ~~to confirm that~~ and determine whether the instrument~~(s)~~ used ~~remain~~ are adequate ~~for use~~. The owner or operator ~~must~~ shall maintain financial responsibility requirements regardless of the status of the ~~Administrator's~~ Director's review of the financial responsibility demonstration.

~~(formerly Section 19(j)(iv))~~(iv) The owner or operator ~~must~~ shall provide an adjustment of the financial assurance cost estimate to the Administrator within sixty (60) days of ~~notification by the Administrator~~ receiving notice~~, if~~ that the Administrator has determine~~s~~d ~~during the annual evaluation of the qualifying financial responsibility instrument(s)~~ that ~~the most recent~~ a demonstration of financial assurance is not ~~longer~~ adequate to cover the cost of corrective action ~~(as required by Section 8 of this chapter)~~, injection well-plugging ~~(as required by Section 16 of this chapter)~~, post-injection site care and site closure ~~(as required by Section 17 of this chapter)~~, and emergency and remedial response ~~(as required by Section 18 of this chapter)~~.

~~(formerly Section 19(j)(v))~~(v)During ~~the active life~~ all phases of the geologic sequestration project, the owner or operator ~~must~~ shall adjust the financial assurance cost estimate for inflation within sixty (60) days prior to the anniversary date of the establishment of the financial instrument~~(s)~~ used to comply with ~~paragraph (g) of~~ this ~~s~~Section and provide this adjustment to the Administrator. The owner or operator ~~must~~ shall also provide to the Administrator written updates of adjustments to the cost estimate within sixty (60) days of any amendments to the area of review and corrective action plan ~~(Section 8 of this chapter)~~, the injection well-plugging plan ~~(Section 16 of this chapter)~~, the post-injection site care and site closure plan ~~(Section 17 of this chapter)~~, the emergency and remedial response plan ~~(Section 18 of this chapter)~~, and mitigation or reclamation costs that the State may incur as a result of any default by the permit holder.

~~(formerly Section 19(j)(vi))~~(vi) ~~The Administrator must approve a~~Any decrease or increase to the ~~initial~~ financial assurance cost estimate shall be subject to approval by the Administrator. During ~~the active life~~ all phases of the geologic sequestration project, the owner or operator ~~must~~ shall revise the cost estimate no later than sixty (60) days after the Administrator has approved ~~the~~ a request to modify the area of review and corrective

action plan ~~(Section 8 of this chapter)~~, the injection well-plugging plan ~~(Section 16 of this chapter)~~, the post-injection site care and site closure plan ~~(Section 17 of this chapter)~~, ~~and~~ or the emergency and response plan ~~(Section 18 of this chapter)~~, if the change in the plan increases the cost. If the change to the plan~~s~~ decreases the cost, any withdrawal of funds ~~must be~~ is subject to approv~~ed~~al by the Administrator. Any decrease to the value of the financial assurance instrument ~~must first be~~ is subject to approv~~ed~~al by the Administrator. ~~The revised cost estimate must be adjusted for inflation as specified in paragraph (j)(v) of this section.~~

~~(formerly Section 19(j)(vii))~~(vii) Whenever the current financial assurance cost estimate increases to an amount greater than the face amount of a financial instrument currently in use, the owner or operator, within sixty (60) days after the increase, ~~must~~ shall either cause the face amount to be increased to an amount at least equal to the current financial assurance cost estimate and submit evidence of such increase to the Administrator, or the owner or operator shall obtain other financial responsibility instruments to cover the increase. Whenever the current financial assurance cost estimate decreases, the face amount of the financial assurance instrument may be reduced to the amount of the current financial assurance cost estimate only after the owner or operator has received written approval from the Administrator.

~~(formerly Section 19(k))~~(g) The owner or operator may demonstrate financial responsibility by using one (1) or multiple qualifying financial instruments ~~for specific phases of the geologic sequestration project.~~ subject to the following requirements:

(i) Owners or operators that propose to demonstrate financial assurance with surety bonds shall meet the following requirements:

(A) A corporate surety shall not be considered good and sufficient unless:

(I) It is licensed to do business in the State;

(II) The estimated bond amount does not exceed the limit of risk as provided for in W.S. § 26-5-110, nor raise the total of all bonds held by the applicant under that surety above three (3) times the limit of risk; and

(III) The surety agrees:

(1.) Not to cancel bond unless the Department gives prior written approval of a good and sufficient replacement surety with transfer of the liability that has accrued against the operator on the permit area, site, or facility;

(2.) To be jointly and severally liable with the permittee, owner, or operator.

(3.) To provide immediate written notice to the Department and operator once it becomes unable or may become unable due to any action filed

against it to fulfill its obligations under the bond.

(B) If for any reason the surety becomes unable to fulfill its obligations under the bond, the operator shall provide the required notice. Failure to comply with this provision shall result in suspension of the permit.

(C) The surety bond shall be submitted on a Wyoming Department of Environmental Quality form.

(ii) Owners or operators that propose to demonstrate financial assurance with cash, or government securities, or a combination of both, shall meet the following requirements:

(A) Securities that are unencumbered shall only include those that are United States government securities or state government securities that are acceptable to the Director. Government securities shall be endorsed to the order of the Department and placed in possession of the Department. Possession shall be in the form of the cash value of the irrevocable trust for the full amount of the reclamation obligation and payable to the Department and federally insured.

(B) An owner or operator shall satisfy the requirements of this subsection by establishing an irrevocable trust that conforms to the requirements below and submitting an originally signed duplicate of the trust agreement to the Director for consideration.

(I) The irrevocable trust shall be submitted to the Director on the Wyoming Department of Environmental Quality Irrevocable Trust Form and be signed by the owner, operator, or guarantor as principal and the financial institution as Trustee, and made payable to the Department;

(II) The Trustee shall be a bank organized to do business in the United States that has the authority to act as a trustee and whose trust operations is regulated and examined by a federal agency;

(III) The irrevocable trust shall be cash funded for the full amount of the financial assurance obligation to be provided in the irrevocable trust before it may be approved to satisfy the requirements of financial assurance in lieu of a bond. For purposes of this subsection, “the full amount of the financial assurance obligation to be provided” means the amount of coverage required to be provided by paragraphs (b) and (i) of this Section, less the amount of financial assurance obligation that is being provided by other financial assurance mechanisms being used to demonstrate financial assurance by the owner, operator, or guarantor;

(IV) Any bond may be canceled by the surety only after ninety (90) days written notice to the Director, and upon receipt of the Director's written consent, which may be granted only when the requirements of the irrevocable trust have been fulfilled; and

(V) Irrevocable trust forfeiture proceedings shall occur only after the Department provides notice to the owner or operator and trustee pursuant to W.S. 35-

11-701 that a violation exists and the Environmental Quality Council has approved the request of the Director to begin forfeiture proceedings.

(iii) Owners or operators that propose to demonstrate financial assurance with irrevocable letters of credit shall meet the following conditions:

(A) The irrevocable letter of credit shall be payable to the Department in part or in full upon demand and receipt from the Director of a notice of forfeiture issued in accordance with paragraph (t) of this Section;

(B) The irrevocable letter of credit shall not be in excess of ten percent of the issuing or supporting bank's capital surplus account as shown on a balance sheet liabilities certified by a certified public accountant;

(C) The Director shall not accept standby letters of credit;

(D) The Director shall not accept letters of credit from a bank for any person, on all permits held by that person, in excess of the limitations imposed by W.S. §13-3-402; and

(E) The irrevocable letter of credit shall provide that:

(I) The bank will give prompt notice to the owner or operator and the Director of any notice received or action filed alleging the insolvency or bankruptcy of the bank or alleging any violations of regulatory requirements that could result in suspension or revocation of the bank's charter or license to do business;

(II) In the event the bank becomes unable to fulfill its obligations under the letter of credit for any reason, notice shall be given immediately to the owner or operator and the Director; and

(III) Upon the incapacity of a bank by reason of bankruptcy, insolvency, or suspension or revocation of its charter or license, the owner or operator shall be deemed to be without performance bond coverage in violation of the Act. The Director shall issue a notice of violation against any owner or operator who is without bond coverage, specifying a reasonable period to replace bond coverage, not to exceed ninety (90) days. During this period the Director or the Director's designated representative shall conduct weekly inspections to ensure continuing compliance with other permit requirements, the regulations and the Act. If the notice is not abated in accordance with the schedule, a cessation order shall be issued.

(IV) The irrevocable letter of credit may be cancelled by the surety only after ninety (90) days notice to the Director, and upon receipt of the Director's written consent, which may be granted only when the requirements of the bond have been fulfilled.

(F) The irrevocable letter may only be issued by a bank organized to do business in the U.S. that identifies by name, address, and telephone number an agent upon whom any process, notice or demand required or permitted by law to be served upon the bank may be served.

(I) If the bank fails to appoint or maintain an agent in this State, or whenever any such agent cannot be reasonably found, then the Director shall be an agent for such bank upon whom any process, notice or demand may be served for the purpose of this Chapter. In the event of any such process, the Director shall immediately cause one copy of such process, notice or demand to be forwarded by registered mail to the bank at its principal place of business. The Director shall keep a record of all processes, notices, or demands served upon him under this paragraph, and shall record therein the time of such service and his action with reference thereto.

(II) Nothing herein contained shall limit or affect the right to serve any process, notice or demand required or permitted by law to be served upon the bank in any other manner now or hereafter permitted by law.

~~(formerly Section 19(l))~~(h) The owner or operator ~~must~~ shall maintain financial responsibility and resources until: ~~the administrator receives and approves the completed post-injection site care and site closure plan and the administrator approves site closure.~~

(i) The Administrator receives the site closure report and certifies site closure.

(A) When the conditions of W.S. § 35-11-313(f)(vi)(F) have been met, the owner or operator may submit a written request to the Administrator to release the retained financial assurance instruments; and

(B) The Administrator shall evaluate the request within sixty (60) days of the receipt of the financial assurance release request.

(I) If the Administrator finds the owner or operator has demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met, the Administrator shall prepare a draft recommendation to the Director to approve the request and provide public notice pursuant to Section 27 of this Chapter.

(II) Re-submittal of information by an operator for an incomplete demonstration of the requirements of W.S. § 35-11-313(f)(vi)(F) will restart the process described in this subsection.

(III) If the Administrator finds the owner or operator has not demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met, the Administrator shall prepare a draft recommendation to the Director to deny the request.

(C) After receiving public comment and holding a hearing (if a hearing

is held) pursuant to Section 27 of this Chapter, the Director shall determine whether the operator has demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met.

(I) If the Director finds the owner or operator has demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met, the Director shall notify the owner or operator and request the State Treasurer to release that portion of the final financial assurance instruments. The State Treasurer shall then return the financial assurance instruments constituting that portion of the financial assurance so retained.

(II) If the Director finds the owner or operator has not demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met, the Director shall notify the owner or operator by registered mail within a reasonable time after the request is filed. The notice shall state the reasons for denial and shall recommend corrective actions.

~~formerly Section 19(n)~~(ii) The owner or operator ~~may be~~ meets the requirements for ~~released~~ release from a financial instrument in the following circumstances:

~~formerly Section 19(n)(i)~~(A) The owner or operator has completed the phase of the geologic sequestration project for which the financial instrument was required and has fulfilled all its financial obligations as determined by the ~~Administrator~~ Director, including obtaining financial responsibility for the next phase of the geologic sequestration project, if required~~.~~;

~~formerly Section 19(n)(ii)~~(B) The owner or operator has submitted a replacement financial instrument and received written approval from the ~~Administrator~~ Director accepting the new financial instrument and releasing the owner or operator from the previous financial instrument~~.~~; or

~~formerly Section 19(n)(iii)~~(C)The owner or operator has submitted a revised financial assurance cost estimate for the remaining phases of the geologic sequestration project. The revised financial assurance cost estimate may demonstrate that a partial release of the financial instrument is warranted and ~~can~~ will still provide adequate financial assurance for the remainder of the geologic sequestration project. Partial release of the financial instrument is at the discretion of the ~~Administrator~~ Director.

~~formerly Section 19(o)~~(i) Within a reasonable time following certification of site closure by the Administrator, plume stabilization, the completion of all remediation work, and release of all other financial assurance instruments, the owner or operator shall submit a proposed cost estimate for measurement, monitoring, and verification of plume stabilization. ~~Following the release of all financial assurance and receipt of a site closure certificate, t~~The Administrator ~~must~~ shall ~~approve~~ evaluate and determine whether the proposed cost estimate ~~prepared for the post-closure measurement, monitoring and verification of a geologic sequestration site~~ is adequate. ~~The cost estimate shall only be provided after plume stabilization and all remediation work has been completed.~~

~~formerly Section 19(m)~~(j) The owner or operator ~~must~~ shall notify the ~~Administrator~~

Director by certified mail of adverse financial conditions, such as bankruptcy, that may affect ~~the~~ its ability to ~~carry out~~ complete injection well-plugging and post-injection site care and site closure.

~~formerly Section 19(m)(i))~~(i) ~~In the event that the owner or operator or the third party provider of a financial responsibility instrument is going through a bankruptcy, t~~The owner or operator ~~must~~ shall notify the ~~Administrator~~ Director by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the owner or operator or the third-party provider of a financial responsibility instrument as debtor, within ten (10) days after commencement of the proceeding.

~~formerly Section 19(m)(iii)~~(ii) An owner or operator who fulfills the requirements of ~~paragraph (g) of~~ this ~~s~~Section by obtaining ~~a~~ an irrevocable trust fund, surety bond, or irrevocable letter of credit~~, escrow account, or insurance policy will~~ shall 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 owner or operator must establish other financial assurance within sixty (60) days after such an event.~~

~~formerly Section 19(m)(iii)~~(A) ~~b~~Bankruptcy of the trustee or issuing institution~~,~~;

~~formerly Section 19(m)(iii)~~(B) ~~or a~~ A suspension or revocation of the authority of the trustee institution to act as trustee of the institution issuing the irrevocable trust fund, surety bond, or irrevocable letter of credit~~,~~; ~~escrow account, or insurance policy, or~~

~~formerly Section 19(m)(iii)~~(C) If the license to do business in Wyoming of the surety issuing financial assurance is suspended or revoked.

~~formerly Section 19(m)(iii)~~(iii) Within sixty (60) days after such an event ~~T~~the owner or operator ~~must~~ shall establish other financial assurance ~~within sixty (60) days after such an event~~ that meets the requirements of paragraphs (c), (d), (e), (f), and (g) of this Section.

(k) The Department shall conduct bond forfeiture proceedings pursuant to W.S. § 35-11-421. If the forfeited financial assurance instrument is inadequate to cover the costs of the closure, mitigation, reclamation, measurement, monitoring, verification, and pollution control, the Department may request that the Attorney General bring suit to recover costs against the owner, operator, or permittee.

~~(formerly Section 5(g))~~(l) ~~An applicant applying for a Class VI well permit must~~ The owner or operator shall obtain and maintain public liability insurance ~~to cover the~~ for a geologic sequestration ~~activities for which a permit is sought~~ project.

~~(formerly Section 5(g)(i))~~(i) The public liability insurance policy shall ~~be in addition to the financial assurance required in Section 19 of this chapter.~~:

~~(formerly Section 5(g)(ii))~~(A) ~~The insurance policy shall provide for personal injury and property damage protection and shall be in place until a completion and release certificate has been obtained from the Administrator certifying that plume stabilization has been achieved.~~Include coverage for the major risks identified in Appendix A to this Chapter;

(B) Provide minimum coverage that:

(I) Accounts for site-specific risk factor and bond adjustment factor calculations, based on the previous year's information; and

~~(formerly Section 5(g)(iii))~~(II) ~~The minimum insurance coverage for public liability insurance as required by W.S. § 35-11-313(f)(ii)(O) shall be five hundred thousand dollars ($500,000) for each occurrence of bodily injury or property damage, and one million dollars ($1,000,000) aggregate.~~ Is at least $15 million per occurrence with an annual aggregate of at least $45 million, exclusive of legal defense costs; and

~~(formerly Section 5(g)(iv))~~(C) ~~The public liability insurance shall i~~Include a rider that requir~~ing~~es ~~that~~ the insurer to notify the Administrator whenever substantive changes are made to the policy, including any termination or failure to renew.

(ii) The owner or operator shall recalculate the minimum coverage amount of the public liability insurance policy annually and at the same time that the owner or operator updates the financial assurance cost estimate pursuant to paragraph (b) of this Section. The owner or operator shall submit a copy of the current public liability insurance policy annually and at the same time that the owner or operator submits an updated financial assurance cost estimate pursuant to subparagraph (b)(viii) of this Section.

~~(formerly Section 5(g)(ii))~~(iii) The owner or operator shall maintain the public liability insurance policy ~~shall provide for personal injury and property damage protection and shall be in place until a completion and release certificate has been obtained from~~ until the Administrator ~~certifying~~ certifies that plume stabilization has been achieved.

**Section 27. Public Participation, Public Notice and Public Hearing Requirements.**

~~(formerly Section 20(a))~~(a) The Administrator shall give public notice if a draft permit has been prepared, after receiving a financial assurance release request pursuant to Section 26(h)(i)(A) of this Chapter and finding the operator has met the requirements of W.S. 35-11-313(f)(vi)(F), or if a hearing has been scheduled.

~~(formerly Section 20(b))~~(i) Public notice of the preparation of a draft permit shall allow at least sixty (60) days for public comment.

~~(formerly Section 20(b))~~(ii) Public notice of a ~~public~~ hearing or recommendation to release financial assurance after certifying site closure shall be given at least thirty (30) days before the hearing.

~~(formerly Section 20(b))~~(iii) Public notice of ~~the~~ a hearing may be given at the same time as public notice of the draft permit or of a draft recommendation to release financial assurance after certifying site closure, and the two notices may be combined.

~~(formerly Section 20(c))~~(b) Public notice shall be given by:

~~(formerly Section 20(c)(i))~~(i) ~~Mailing~~ Providing a copy of the notice, a copy of the fact sheet, the permit application (if any), and the draft permit (if any) to the following persons:

~~(formerly Section 20(c)(i)(A))~~(A) The applicant, by certified or registered mail;

~~(formerly Section 20(c)(i)(B))~~(B) The U.S. Environmental Protection Agency, Region 8 Drinking Water Program, by mail;

~~(formerly Section 20(c)(i)(C))~~(C) The U.S. Environmental Protection Agency, Underground Injection Control Program, by mail;

~~(formerly Section 20(c)(i)(D))~~(D) Wyoming Game and Fish Department;

~~(formerly Section 20(c)(i)(E))~~(E) Wyoming State Engineer;

~~(formerly Section 20(c)(i)(F))~~(F) State Historical Preservation Officer;

~~(formerly Section 20(c)(i)(G))~~(G) Wyoming Oil and Gas Conservation Commission;

~~(formerly Section 20(c)(i)(H))~~(H) Wyoming Department of Environmental Quality, Land Quality Division;

~~(formerly Section 20(c)(i)(I))~~(I) Wyoming State Geological Survey;

~~(formerly Section 20(c)(i)(J))~~(J) Wyoming Water Development Office;

~~(formerly Section 20(c)(i)(K))~~(K) Wyoming Department of Environmental Quality, Air Quality Division;

~~(formerly Section 20(c)(i)(L))~~(L) Wyoming Department of Environmental Quality, Solid and Hazardous Waste Division; and

~~(formerly Section 20(c)(i)(M))~~(M) U.S. Army Corps of Engineers;

(N) Federal agencies with jurisdiction over fish, shellfish, and wildlife resources and over coastal zone management plans;

(O) The Advisory Council on Historic Preservation;

(P) Any Tribes with Indian reservations and Indian lands identified pursuant to Sections 10(b)(v) and 10(b)(ix)(A)(VII) of this Chapter;

~~(formerly Section 20(c)(i)(N))~~(Q) Persons on the mailing list developed by the Department, including those who request in writing to be on the list and ~~by soliciting~~ participants in ~~public~~ hearings in that area ~~for their interest in being~~ ~~included~~ who request to be on "area" mailing lists; and

~~(formerly Section 20(c)(i)(O))~~(R) Any unit of state or local government having jurisdiction over the area where the facility is proposed to be located.

~~(formerly Section 20(c)(ii))~~(ii) ~~Publication of~~ Publishing the notice in a newspaper of general circulation in the location of the facility or operation; and

~~(formerly Section 20(c)(iii))~~(iii) At the discretion of the Administrator, any other method reasonably expected to give actual notice of the proposed action ~~in question~~ to the persons potentially affected by it, including press releases or any other forum or medium to elicit public participation.

~~(formerly Section 20(d))~~(c) All public notices issued under this chapter shall contain the following minimum information:

~~(formerly Section 20(d)(i))~~(i) Name and address of the Department;

~~(formerly Section 20(d)(ii))~~(ii) Name and address of the owner, operator, permittee, or permit applicant, and, if different, of the facility or activity regulated by the permit;

~~(formerly Section 20(d)(iii))~~(iii) A brief description of the business conducted at the facility or activity described in the permit application, ~~or~~ described in the draft permit, or subject to regulation under this Chapter;

~~(formerly Section 20(d)(iv))~~(iv) The type and quantity of wastes, fluids, or pollutants that are proposed to be or are being treated, stored, disposed of, injected, emitted, or discharged~~.~~;

~~(formerly Section 20(d)(v))~~(v) A brief summary of the basis for the draft permit conditions, including references to applicable statutory or regulatory provisions;

~~(formerly Section 20(d)(vi))~~(vi) Reasons why any requested variances or alternatives to required standards do or do not appear justified;

~~(formerly Section 20(d)(vii))~~(vii) Name, address and telephone number of a person from whom interested persons may obtain further information, including copies of the draft permit, ~~as the case may be,~~ statement of basis, ~~or~~ fact sheet, and the application; and

~~(formerly Section 20(d)(viii))~~(viii) A brief description of comment procedures, including~~,~~:

~~(formerly Section 20(d)(viii)(A))~~(A) Procedures to request a hearing;

~~(formerly Section 20(d)(viii)(B))~~(B) The beginning and ending dates of the comment period;

~~(formerly Section 20(d)(viii)(C))~~(C) The address where comments ~~will be received~~ may be submitted; and

~~(formerly Section 20(d)(viii)(D))~~(D) Other procedures that the public may use to participate in the final permit decision~~;~~.~~and~~

~~(formerly Section 20(e))~~(d) In addition to the information required in paragraph ~~(d))~~(c) of this ~~s~~Section, any notice for ~~public~~ a hearing shall contain the following:

~~(formerly Section 20(e)(i))~~(i) Reference to the date of previous public notices relating to the permit;

~~(formerly Section 20(e)(ii))~~(ii) Date, time, and place of hearing; and

~~(formerly Section 20(e)(iii))~~(iii) A brief description of the nature and purpose of the hearing, including applicable rules and procedures.

~~(formerly Section 20(f))~~(e) The Department shall provide an opportunity for the applicant, permittee, owner, operator, or any interested person to submit written comments regarding any aspect of a permit or to request a ~~public~~ hearing.

~~(formerly Section 20(g))~~(i) During the public comment period, any interested person may submit written comments on the draft permit and may request a ~~public~~ hearing. Requests for ~~public~~ hearings ~~must~~ shall be made in writing to the Administrator and shall state the reasons for the request.

~~(formerly Section 20(h))~~(ii) The Administrator shall hold a hearing whenever the Administrator finds, on the basis of requests, a significant degree of public interest in a draft permit.

~~(formerly Section 20(h))~~(iii) The Administrator ~~has the discretion to~~ may hold a hearing whenever ~~such~~ a hearing may clarify issues involved in a permit decision.

~~(formerly Section 20(i))~~(iv) The public comment period shall automatically extend to the close of any ~~public~~ hearing. The Administrator may also extend the comment period by so stating at the ~~public~~ hearing.

~~(formerly Section 20(j))~~(f) The ~~Administrator~~ Director shall render a decision on the draft permit within sixty (60) days after ~~the~~ completion of the public comment period if no hearing is ~~requested~~ held. If a hearing is held, the ~~Administrator~~ Director shall make a decision on any Department hearing as soon as practicable after receipt of the transcript or after the expiration of the time set to receive written comments.

~~(formerly Section 20(k))~~(g) At the time a final decision is issued, the ~~Department~~ Administrator shall respond~~,~~ in writing~~,~~ to ~~those~~ comments received during the public comment period or ~~comments received~~ during the ~~allotted time for a~~ hearing held by the Department. This response shall:

~~(formerly Section 20(k)(i))~~(i) Specify any changes that have been made to the permit and the reasons for the changes; and

~~(formerly Section 20(k)(ii))~~(ii) Briefly describe and respond to all comments ~~voicing~~ stating a technical or regulatory concern that is within the authority of the Department to regulate.

**Section 28. Incorporation by Reference.**

(a) These rules incorporate by reference the following statutes, rules, and regulations in effect as of July 1, 2020:

(i) 10 C.F.R. Part 20, Appendix B, Table II, Column 2, available at http://www.ecfr.gov;

(ii) 40 C.F.R. §§ 98.440 to 98.449, ~~,~~ available at http://www.ecfr.gov;

(iii) 40 C.F.R. ~~§~~ 141, Subparts E, F, and G, available at: http://www.ecfr.gov;

(iv) 40 C.F.R. § 261.3-available at: http://www.ecfr.gov;

(v) American Petroleum Institute Recommended Practice, API RP 14C, Recommended Practice for Analysis, Design, Installation and Testing of Safety Systems for Offshore Production Facilities, Recommended Practice 14C, (2018), referred to as "API RP 14C", available at https://www.apiwebstore.org/publications/item.cgi?af9eaacd-f8b0-4d7c-bfa7-2c39a409f892;

(vi) American Petroleum Institute Specification, API Spec 10A, Specification for Cements and Materials for Well Cementing. 25th Edition, (2019), referred to as "API Specification 10A", available at https://www.apiwebstore.org/publications/item.cgi?82493435-f281-45d8-af82-07ad8131cb56;

(vii) American Petroleum Institute Recommended Practice, API RP 10D-2, Centralizer Placement and Stop-collar Testing, (2020), referred to as "API RP 10D-2", available at https://www.apiwebstore.org/publications/item.cgi?7ad6705a-954e-476c-b520-47cbbdce9f06;

(viii) American Petroleum Institute Recommended Practice, API RP 10B-2, Recommended Practice for Testing Well Cements, (2019), referred to as "API RP 10B-2", available at https://www.apiwebstore.org/publications/item.cgi?3c1808c7-6312-4b8d-b3de-291ef79704c5;

(ix) American Petroleum Institute Recommended Practice, API RP 14B, Design, Installation, Repair, and Operation of Subsurface Safety Valve Systems, (2012), referred to as "API RP 14 B", available at https://www.apiwebstore.org/publications/item.cgi?a1711f10-0121-4c12-936c-471c97a19f93;

(x) American Petroleum Institute Specification, API Spec 5CT, Specification for Casing and Tubing, (2019), referred to as "API Specification 5CT", available at https://www.apiwebstore.org/publications/item.cgi?5b345884-5a3a-4889-8066-60f93e467f29;

(xi) American Petroleum Institute Recommended Practice, API RP 5C1, Recommended Practices for Care and Use of Casing and Tubing, (2020), referred to as "API RP 5C1", available at https://www.apiwebstore.org/publications/item.cgi?010058af-29b1-412c-b892-ec3e5583c534; and

(xii) American Petroleum Institute Specification, API Spec 11D1, Packers and Bridge Plugs, (2015), referred to as "API Specification 11D1", available at https://www.apiwebstore.org/publications/item.cgi?4828a454-0fea-451b-a61b-18304836ea91.

(b) For these rules incorporated by reference:

(i) The Environmental Quality Council has determined that incorporation of the full text in these rules would be cumbersome or inefficient given the length or nature of the rules;

(ii) This Chapter does not incorporate later amendments or editions of incorporated codes, standards, rules, and regulations; and

(iii) All incorporated codes, standards, rules, and regulations are available for public inspection at the Department's Cheyenne office. Contact information for the Cheyenne office may be obtained at http://deq.wyoming.gov or from (307) 777-7937.

# Appendix A. Risk Activity Table

| | **Major Risk (Feature, Event, or Process)** |
|---|---|
| **1** | **Mineral Rights Infringement (Trespass)** |
| 1.1 | Leakage migrates into mineral zone or hydraulic front impacts recoverable mineral zone; causes may include plume migration different than modeled. |
| 1.2 | Post injection discovery of recoverable minerals. |
| 1.3 | New technology (or economic conditions) enables recovery of previously un-economically recoverable minerals. |
| 1.4 | Act of God (e.g. seismic event). |
| 1.5 | Formation fluid impact due to $CO_2$ injection. |
| 1.6 | Address also contributing causes 3.1, 3.2, 3.3, 3.5, 4.3, and 4.4 |
| **2** | **Water Quality Contamination** |
| 2.1 | Leakage of $CO_2$ outside permitted area. |
| 2.2 | Leakage of drilling fluid contaminates potable water aquifer. |
| 2.3 | Rock/acid water (i.e. geochemistry) interaction contaminates potable water by carryover of dissolved contaminants. |
| 2.4 | Act of God (e.g. seismic event). |
| 2.5 | Formation fluid impact due to $CO_2$ injection. |
| 2.6 | See also contributing causes 3.1, 3.2, 3.3, 3.5, 4.3, and 4.4 |
| **3** | **Single Large Volume $CO_2$ Release to the Surface – Asphyxiation/Health/Ecological** |
| 3.1 | Overpressurization (i.e. induced). |
| 3.2 | Caprock/reservoir failure. |
| 3.3 | Well blowout (e.g. at surface or bore failure below ground), includes monitoring wells – Causes could include seal failure (e.g. well, drilling or injection equipment). |
| 3.4 | Major mechanical failure of distribution system or storage facilities above ground or below ground (i.e. near the surface). |
| 3.5 | Orphan well failure (e.g. well not identified prior to injection). |
| 3.6 | Sabotage/Terrorist attack (e.g. on surface infrastructure). |
| 3.7 | Act of God (e.g. major seismic event) |
| **4** | **Low Level $CO_2$ Release to Surface – Ecological damage due to low-level releases; potential asphyxiation of human or ecological receptors** |
| 4.1 | Overpressurization (i.e. induced). |
| 4.2 | Caprock/reservoir failure (e.g. Plume migrates along fault line/fissure to surface). |
| 4.3 | Incomplete geological seal (e.g. inaccurate characterization of sub-surface geology). |
| 4.4 | Well seal failure (e.g. well, drilling or injection equipment) including monitor wells |
| 4.5 | Mechanical failure of distribution system or storage facilities above or below ground (e.g. near surface). |
| 4.6 | Orphan wells (e.g. well not identified prior to injection). |
| 4.7 | Induced seismicity leading to leakage. |
| 4.8 | Act of God (e.g. seismic event). |

**Risk Activity Table (continued)**

| | **Major Risk (Feature, Event, or Process)** |
|---|---|
| **5** | **Storage Rights Infringement ($CO_2$ or other entrained contaminant gases) – Form of Mineral Rights Infringement** |
| 5.1 | Leakage migrates into adjacent pore space; causes may include plume migrates faster than modeled. |
| 5.2 | Post injection decision (e.g. due to new technology or changed economic conditions) to store gas in adjacent pore space. |
| 5.3 | Acts of God affecting storage capacity of pore space. |
| 5.4 | Formation fluid impact due to $CO_2$ injection. |
| 5.5 | Will also require primary contributing causes 3.1, 3.2, 3.3, 3.5, 4.3, and 4.4 |
| **6** | **Modified Surface Topography (subsidence or uplift) Resulting in Property/Infrastructure Damage** |
| 6.1 | Induced Seismicity – Pressure from geochemistry induced reactivation of historic fault or dissolution of material caused by subsidence. |
| 6.2 | Formation fluid impact due to $CO_2$ injection. |
| **7** | **Entrained Contaminant (Non-$CO_2$) Releases** |
| 7.1 | Change in $CO_2$ composition/properties (e.g. concentration of contaminate in $CO_2$ supply increases). |
| 7.2 | Microbial activity initiated by injection process or composition. |
| | Will also require primary contributing causes 3.1, 3.2, 3.3, 3.5, 4.3, and 4.4 |
| **8** | **Accidents/Unplanned Events (Typical Insurable Events)** |
| 8.1 | Surface infrastructure damage |
| 8.2 | Saline water releases from surface storage impoundment. |