

1 CHAPTER 24

2
3 **Class VI Injection Wells and Facilities**
4 **Underground Injection Control Program**

5
6 **Section 1. Authority ~~and Purpose.~~**

7
8 These regulations are promulgated pursuant to Wyoming Statutes (W.S.) §§ 35-11-101 through
9 2005, specifically § 313, ~~and no person shall sequester carbon dioxide unless authorized by an~~
10 ~~Underground Injection Control (UIC) permit issued by the Department of Environmental Quality~~
11 ~~(DEQ). The injection of carbon dioxide for purposes of a project for enhanced recovery of oil or~~
12 ~~other minerals approved by the Wyoming Oil and Gas Conservation Commission shall not be~~
13 ~~subject to the provisions of this regulation unless the operator converts to geologic sequestration~~
14 ~~upon the cessation of oil and gas recovery operations or as otherwise required by the~~
15 ~~Commission or Director.~~

16
17 ~~These rules and regulations also provide financial assurance for the purposes specified in § 35-~~
18 ~~11-313.~~

19
20 **Section 2. Definitions.** The following definitions supplement ~~those~~ the definitions
21 contained in Section § 35-11-103 of the Wyoming Environmental Quality Act.

22
23 (a) “Abandoned well” means a well whose use has been permanently discontinued or
24 that is in a state of disrepair such that it cannot be used for its intended purpose or for
25 observation purposes. Temporary or intermittent cessation of injection operations is not
26 abandonment.

27
28 (b) "Aquifer" means a zone, stratum, or group of strata that can store and transmit
29 water in sufficient quantities for a specific use.

30
31 (c) “Area of review” means the subsurface three-dimensional extent of the carbon
32 dioxide plume, associated pressure front, and displaced fluids, as well as the overlying
33 formations, and surface area above that delineated region. ~~The area of review is based on~~
34 ~~available site characterization, monitoring, and operational data as set forth in Section 8 of this~~
35 ~~chapter.~~

36
37 (d) "Background" means the constituents or parameters and the concentrations or
38 measurements that describe water quality and water quality variability prior to the ~~subsurface~~
39 ~~discharge~~ underground injection.

40
41 (e) “Bore/casing annulus” means the space between the wellbore and the well casing.

42
43 (f) “Carbon dioxide plume” means the underground extent, in three dimensions, of
44 an injected carbon dioxide stream.

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

51
52 (h) “Casing” means a pipe or tubing of appropriate material, of varying diameter and
53 weight, lowered into a borehole during or after drilling ~~in order~~ to support the sides of the hole
54 ~~and thus~~ to prevent the walls from caving, to prevent loss of drilling mud into porous ground, or
55 to prevent water, gas, or other fluid from entering or leaving the hole.

56
57 (i) “Casing/tubing annulus” means the space between the well casing and the tubing.

58
59 (j) “Cementing” means ~~to seal~~ sealing the annular space around the outside of a
60 casing string using a specially formulated mixture to hold the casing in place and prevent any
61 movement of fluid in this annular space. Cementing also includes operations to seal the well at
62 the time of abandonment.

63
64 (k) “Class I well” means a well used to inject hazardous or non-hazardous industrial,
65 commercial, or municipal waste beneath the lowermost formation containing, within one- quarter
66 (1/4) mile of the well bore, an underground source of drinking water.

67
68 ~~(k)(l)~~ (l) “Class II ~~W~~well” ~~shall means~~ any commercial or non-commercial well used to
69 dispose of water ~~and/or~~ fluids directly associated with the production of oil ~~and/or~~ gas, any well
70 used to inject fluids or gas for enhanced oil recovery, or any well used for the storage of liquid
71 hydrocarbons. ~~Non-hazardous gas plant wastes may be disposed of in a Class II well pending~~
72 ~~Environmental Protection Agency co-approval, as defined in Wyoming Oil and Gas~~
73 ~~Conservation Commission Rules and Regulations, Chapter 1, Section 2.~~

74
75 ~~(j)(m)~~ (m) “Class V facility” means any property that contains an injection well, drywell, or
76 subsurface fluid distribution system that is not defined as a Class I, II, III, IV, or VI well in ~~this~~
77 ~~chapter~~ these Regulations. ~~The~~ A Class V facility includes all systems of collection, treatment,
78 and control that are associated with the ~~subsurface disposal~~ underground injection. ~~Class V~~
79 ~~injection wells are described in Water Quality Rules and Regulations Chapter 27.~~

80
81 ~~(m)(n)~~ (n) “Class VI well” means a well ~~injecting a carbon dioxide stream for geologic~~
82 ~~sequestration, beneath the lowermost formation containing a USDW; or a well used for geologic~~
83 ~~sequestration of carbon dioxide that has been granted a waiver of the injection depth~~
84 ~~requirements pursuant to requirements of Section 10 of this chapter; or, a well used for geologic~~
85 ~~sequestration of carbon dioxide that has received an expansion to the areal extent of an existing~~
86 ~~Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to Section 5~~
87 ~~of this cChapter. Class VI wells are regulated under this chapter. that is used for injecting a~~
88 carbon dioxide stream for geologic sequestration that:

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

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

96
97 (iii) Has received an expansion to the areal extent of an existing Class II
98 enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to Section 16 of this
99 Chapter.

100
101 ~~(n)~~(o) “Confining zone” means a geological formation, group of formations, or part of a
102 formation stratigraphically overlying the injection zone(s) that act(s) as a barrier to fluid
103 movement. For Class VI wells operating under an injection depth waiver, confining zone means
104 a geologic formation, group of formations, or part of a formation stratigraphically overlying and
105 underlying the injection zone(s) that acts as a barrier to fluid movement.

106
107 ~~(e)~~(p) “Contaminant” means any pollution; wastes; or physical, chemical, biological, or
108 radiological substance or matter in water.

109
110 ~~(p)~~(q) “Corrective action” means the use of Administrator-approved methods to ensure
111 that wells within the area of review do not serve as conduits for the movement of fluids into
112 geologic formations other than those ~~to be~~ authorized under the permit.

113
114 ~~(q) "Draft permit" means a document indicating the tentative decision by the~~
115 ~~Department to issue or deny, modify, revoke and reissue, or terminate a permit. A notice of~~
116 ~~intent to terminate a permit and a notice of intent to deny a permit are types of draft permits. A~~
117 ~~denial of a request for modification, revocation and reissuance, or termination is not a draft~~
118 ~~permit. A draft permit for issuance shall contain all conditions and content, compliance sched-~~
119 ~~ules and monitoring requirements required by this chapter.~~

120
121 (r) “Duly authorized representative” means a specific individual or a position having
122 responsibility for the overall operation of the regulated facility or activity. The authorization
123 shall be made in writing by a responsible corporate officer and shall be submitted to the
124 Administrator.

125
126 (s) “Endanger~~ment~~” means exposure to expose to actions or activities that could
127 pollute an Underground Ssource of Ddrinking Wwater (USDW).

128
129 (t) “Exempted aquifer” means an ~~“aquifer”~~ or a portion thereof that meets the criteria
130 in the definition of ~~“underground source of drinking water”~~ but that has been exempted
131 according to the procedures in Section ~~5(e)~~ 16 of this ~~e~~Chapter.

132
133 ~~(u) “Experimental technology” means a technology that has not been proven feasible~~
134 ~~under the conditions in which it is being tested.~~

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~~(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 prevailing, 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(e) of the Wyoming Environmental Quality Act for definitions of geologic sequestration, geologic sequestration site, and geologic sequestration facilities.)~~

~~(ee)~~(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

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

184
185 ~~(ff) —“Individual permit” means a permit issued for a specific facility operated by an~~
186 ~~individual operator, company, municipality, or agency. An individual permit may be established~~
187 ~~as an area permit and include multiple points of discharge that are all operated by the same~~
188 ~~person.~~

189
190 ~~(gg)(aa)~~ “Injectate” means the material injected through any underground injection
191 facility ~~after it has received whatever pretreatment is done.~~

192
193 ~~(hh)(bb)~~ “Injection zone” means a geologic formation, group of formations, or part
194 of a formation that is of sufficient areal extent, thickness, porosity, and permeability to receive
195 carbon dioxide through a well or wells associated with a geologic sequestration project.

196
197 ~~(ii) —“Lithology” means the description of rocks on the basis of their physical and~~
198 ~~chemical characteristics.~~

199
200 ~~(jj)(cc)~~ “Log” means ~~to make~~ a written record progressively describing the strata and
201 geologic and hydrologic character thereof to include electrical, radioactivity, radioactive tracer,
202 temperature, cement bond and similar surveys, a lithologic description of all cores, and test data.

203
204 ~~(kk)(dd)~~ “Long string casing” means a casing that is continuous from at least the
205 top of the injection interval to the surface and that is cemented in place.

206
207 ~~(ll) —“Long term stewardship” means after release of financial assurance, upon site~~
208 ~~closure, where the sequestration site may require periodic monitoring, measurement, or~~
209 ~~verification of plume stabilization over an indefinite period of time.~~

210
211 ~~(mm) —“Mechanical integrity” means the sound and unimpaired condition of all~~
212 ~~components of the well or facility or system for control of a subsurface discharge and associated~~
213 ~~activities.~~

214
215 ~~(nn) —“Owner or operator” means the owner or operator of any facility or activity~~
216 ~~subject to regulation under the Resource Conservation Recovery Act (RCRA) or an approved~~
217 ~~state program; the Safe Drinking Water Act Underground Injection Control (UIC) program~~
218 ~~administered by the US EPA or a state; the National Pollutant Discharge Elimination System~~
219 ~~(NPDES) or an authorized state program; or the Clean Water Act Section 404 Dredge and Fill~~
220 ~~permit program.~~

221
222 ~~(oo)(ee)~~ “Packer” means a device lowered into a well to produce a fluid-tight seal.

223
224 ~~(pp) —“Permit” means a Wyoming Underground Injection Control permit, unless~~
225 ~~otherwise specified.~~

226
227 ~~(qq) —“Permittee” means the named permit holder.~~

228
229 ~~(ff)~~(ff) “Plugging” means the act or process of stopping the flow of water, oil, or gas into
230 or out of a formation through a borehole or well penetrating that formation.

231
232 ~~(gg)~~(gg) “Plugging record” means a systematic listing of permanent or temporary
233 abandonment of water, oil, gas, test, exploration, and waste injection wells, ~~and~~ A plugging
234 record may contain a well log, description of amounts and types of plugging material used, the
235 method employed for plugging, a description of formations that are sealed, and a graphic log of
236 the well showing formation location, formation thickness, and location of plugging structures.

237
238 ~~(hh)~~(hh) “Plume stabilization” ~~means~~ has been achieved when the carbon dioxide stream
239 that has been injected subsurface essentially no longer expands vertically or horizontally and
240 poses no threat to USDWs underground sources of drinking water, human health, safety, or the
241 environment, as demonstrated by a minimum of three (3) consecutive years of monitoring data.

242
243 ~~(ii)~~ —“Point of compliance” ~~means a point at which the permittee shall meet all permit~~
244 ~~and regulatory requirements.~~

245
246 ~~(jj)~~ —“Point of injection” ~~means the last accessible sampling point prior to a fluid being~~
247 ~~released into the subsurface environment through a Class VI injection well.~~

248
249 ~~(kk)~~(ii) “Post-injection site care” means the monitoring, measurement,
250 verification, and other actions (including corrective action) needed to ensure that USDW’s
251 underground sources of drinking water are not endangered, following the ~~closure~~ cessation of
252 injection, and plugging and abandonment of injection wells until plume stabilization has been
253 achieved and certified by the Administrator, as required under Section ~~17~~ 24 of this ~~e~~Chapter.

254
255 ~~(ll)~~ —“Pressure” ~~means the total load or force per unit area acting on a surface.~~

256
257 ~~(mm)~~(jj) “Pressure front” means the zone of elevated pressure that is created by the
258 injection of the carbon dioxide stream into the subsurface. The pressure front of a carbon dioxide
259 plume refers to a zone where there is a pressure differential sufficient to cause movement of
260 injected fluids or formation fluid if a migration pathway or conduit ~~were to exist~~ed.

261
262 ~~(nn)~~ —“Public hearing” ~~means a non-adversary hearing held by the Administrator or~~
263 ~~Director of the Department. The hearing is conducted pursuant to Chapter 9 of the Wyoming~~
264 ~~Department of Environmental Quality Rules of Practice and Procedure.~~

265
266 ~~(oo)~~(kk) “Radioactive waste” means any waste that contains radioactive material in
267 concentrations that exceed those listed in 10 C.F.R. Part 20, Appendix B, Table II, Column 2 ~~as~~
268 ~~of March 27, 2006.~~

269
270 ~~(pp)~~(ll) “Receiver” means any zone, interval, formation, or unit in the subsurface
271 into which a carbon dioxide stream is injected.

272

273 ~~(eee)~~(mm) “Responsible corporate officer” means a president, secretary, treasurer, or
274 vice president of the corporation in charge of a principal business function, or any other person
275 who performs similar policy- or decision-making functions for the corporation.
276

277 ~~(formerly located at Section 5(h)(i))(i)~~ For a corporation, a “responsible
278 corporate officer” means:

279
280 ~~(formerly located at Section 5(h)(i)(A))(A)~~ A president, secretary,
281 treasurer, or vice president of the corporation in charge of a principal business function, or any
282 other person who performs similar policy- or decision-making functions for the corporation; or
283

284 ~~(formerly located at Section 5(h)(i)(B))(B)~~ The manager of one (1) or
285 more manufacturing, production, or operating facilities employing more than 250 persons or
286 having gross annual sales or expenditures exceeding \$25 million (in second quarter 1980
287 dollars), if authority to sign documents has been assigned or delegated to the manager in
288 accordance with corporate procedures.
289

290 ~~(formerly located at Section 5(h)(ii))(ii)~~ For a partnership ~~or sole~~
291 ~~proprietorship~~, “responsible corporate officer” – by a means a general partner, or the proprietor,
292 ~~respectively;~~
293

294 ~~(formerly located at Section 5(h)(ii))(iii)~~ For a ~~partnership or~~ sole
295 proprietorship ~~–~~, “responsible corporate officer” means by a general partner or the proprietor,
296 ~~respectively;~~
297

298 ~~(formerly located at Section 5(h)(iii))(iv)~~ For a municipality, state, federal or
299 other public agency, “responsible corporate officer” means by either the principal executive
300 officer or ranking elected official. For the purposes of this ~~section~~ definition, a principal
301 executive officer of a ~~F~~ederal agency includes:
302

303 ~~(formerly located at Section 5(h)(iii)(A))(A)~~ The chief executive officer of
304 the agency; or
305

306 ~~(formerly located at Section 5(h)(iii)(B))(B)~~ A senior executive officer
307 having responsibility for the overall operations of a principal geographic unit of the agency ~~(e.g.,~~
308 ~~Regional Administrators of EPA), such as a Regional Administrator.~~
309

310 ~~(ddd)~~(nn) “Secondarily affected aquifer” means ~~any~~ an aquifer affected by migration
311 of fluids from an injection facility, ~~when the aquifer is not directly discharged into~~ that does not
312 directly discharge into the secondarily affected aquifer.
313

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

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~~(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 aquifers or portions thereof that meet the definition at 40 CFR 144.3 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.

~~(III) “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;

365 (ii) An improved sinkhole; or

366
367 (iii) A subsurface fluid distribution system.

368
369 ~~(ppp) “Well injection” means the subsurface emplacement of fluids through a well.~~

370
371 ~~(qqq)(uu)~~ “Well plug” means a watertight and gastight seal installed in a borehole or
372 well to prevent movement of fluids.

373
374 ~~(rrr)(vv)~~ “Well stimulation” means ~~several~~ any processes used to clean the
375 wellbore, enlarge channels, ~~and~~ or increase pore space in the interval to be injected and includes
376 surging, jetting, blasting, acidizing, and hydraulic fracturing.

377
378 ~~(sss) “Well monitoring” means the measurement by on-site instruments or laboratory~~
379 ~~methods, of the quality of water in a well.~~

380
381 ~~(ttt)(ww)~~ “Workover” means to pull the tubing, packer, or any downhole hardware
382 from the well and inspect, replace, or refurbish it prior to placing that hardware back in service,
383 or to enter the hole with any drilling tool.

384
385 ~~(uuu)(xx)~~ “Wellhead protection area” means the area delineated for the protection of
386 a public water supply utilizing a groundwater source under a Department-approved plan
387 developed pursuant to Section ~~1528~~ 1428 of the ~~federal~~ Safe Drinking Water Act, 42 U.S.C. §
388 300h-7, or Section 1453 of the Safe Drinking Water Act, 42 U.S.C. § 300j-13.

389
390 **Section 3. Applicability.**

391
392 ~~(formerly located at Section 4(a)(ii))(a)~~ Construction, installation, operation,
393 monitoring, testing, plugging, post-injection site care, and modification ~~to, or~~ of; any Class VI
394 well shall be allowed only in accordance with ~~these regulations~~ this Chapter.

395
396 ~~(a)(b) These regulations shall apply~~ This chapter applies to all Class VI wells ~~used to~~
397 ~~inject carbon dioxide streams for the purpose of geologic sequestration.~~

398
399 (i) This Chapter applies to owners, operators, and permittees of Class VI
400 wells.

401
402 ~~(b)(ii) In addition, these regulations shall apply to owners and operators of~~ This
403 Chapter applies to any Class I industrial, Class II, or Class V experimental or demonstration
404 carbon dioxide injection projects ~~who seek to apply for a Class VI geologic sequestration permit~~
405 ~~for their well or wells, that is converted to a Class VI well. A permitted Class I, Class II, or Class~~
406 V injection well may be converted to a Class VI well by obtaining a Class VI permit pursuant to
407 this Chapter.

408

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

412
413 ~~(i)(I) a~~ Apply for a Class VI permit; ~~and~~

414
415 ~~(i)(II) shall d~~ Demonstrate to the Administrator that the well(s)
416 ~~was/were~~ engineered and constructed to meet the requirements ~~outlined in Section 9(a) of~~
417 Section 14(a) of ~~of these regulations~~ this Chapter; and

418
419 ~~(i)(III) ensure protection of USDWs, In~~ lieu of meeting the
420 requirements of Section ~~9(b) 14(b) and Section 11(a) 17(a) of this e~~ Chapter, demonstrate to the
421 Administrator that the well will ensure protection of USDWs and will not endanger any USDW.

422
423 ~~(i)(B) By~~ After December 10, 2011, owners or operators of ~~either~~ either Class I
424 wells previously permitted for the purpose of geologic sequestration ~~or and~~ and Class V experimental
425 technology wells no longer being used for experimental purposes that will continue injection of
426 carbon dioxide for the purpose of geologic sequestration ~~must~~ shall apply for obtain a Class VI
427 permit.

428
429 ~~(ii)(C) If the Administrator determines that~~ a converted Class I, Class II,
430 or Class V injection well will not endanger any USDWs ~~will not be endangered, such wells are~~
431 ~~exempt, at the Administrator's discretion,~~ may exempt the well from the requirements of Section
432 914(b)(i) through - (vii) and Section 1117(a)(i) through - (v) of this eChapter.

433
434 ~~(formerly located at Section 1)(c)~~ (c) The injection of carbon dioxide for purposes of a
435 project for enhanced recovery of oil or other minerals approved by the Wyoming Oil and Gas
436 Conservation Commission ~~shall is not be~~ is not subject to the provisions of this ~~regulation~~ Chapter
437 unless the operator converts to geologic sequestration upon the cessation of oil and gas recovery
438 operations or as otherwise required by the Commission or Director.

439
440 ~~(e)(d)~~ (d) For owners ~~and or~~ and or operators of Class II ~~operations~~ wells described in W.S. § 35-
441 11-313(c):

442
443 (i) The Director's determination of primary purpose and increased risk to a
444 USDW shall include, at a minimum, an evaluation of the following criteria:

445
446 (A) Increase in reservoir pressure within the injection zone(s).

447
448 (B) Increase in carbon dioxide injection rates.

449
450 (C) Decrease in reservoir production rates.

451
452 (D) Distance between the injection zone(s) and USDWs.

453
454 (E) Suitability of the Class II area of review delineation.

- 455
456 (F) Quality of abandoned well plugs within the area of review.
457
458 (G) The owner's and/or operator's plan for recovery of carbon dioxide
459 at the cessation of injection.
460
461 (H) The source and properties of the injected carbon dioxide.
462
463 (I) Any additional site-specific factors as determined by the
464 Administrator.

465
466 (ii) An owner ~~and~~/or operator may apply for a Class VI permit upon
467 recommendation by the Oil and Gas Conservation Commission supervisor, or by the
468 Commission, that regulation of a Class II enhanced recovery operation be transferred to the
469 Department.

470
471 (iii) An owner ~~and~~/or operator of a Class II enhanced recovery operation shall
472 apply for a Class VI permit within thirty (30) days of receipt of written notice from the Director
473 that a Class VI permit is required.

474
475 ~~(d) — These regulations do not apply to the injection of any carbon dioxide stream that~~
476 ~~meets the definition of a hazardous waste.~~

477
478 ~~(e) — Compliance with a permit during its term constitutes compliance, for purposes of~~
479 ~~enforcement, with Part C of the SDWA. However, a permit may be modified, revoked and~~
480 ~~reissued, or terminated during its term for cause as set forth in Section 4 of this chapter.~~

481
482 ~~(f)~~(e) The requirements to maintain and implement approved plans, and maintain
483 adequate financial responsibility, are directly enforceable regardless of whether the requirements
484 are conditions of the permit.

485
486 **Section 4. ~~Permits Required; Processing of Permits; Requirements Applicable to~~**
487 **~~All Permits.~~**

488
489 ~~(a) — Permits required.~~

490
491 ~~(i) — Owners or operators of Class VI wells must obtain a permit in accordance~~
492 ~~with these regulations. Class VI wells are not authorized by rule to inject.~~

493
494 ~~(ii) — Construction, installation, operation, monitoring, testing, plugging, post-~~
495 ~~injection site care, and modification to, or of, any Class VI well shall be allowed only in~~
496 ~~accordance with these regulations.~~

497
498 ~~(iii) — Injections from Class VI wells shall be restricted to those receivers~~
499 ~~defined as Class V (Hydrocarbon Commercial) or Class VI groundwaters by the Department~~
500 ~~pursuant to Water Quality Rules and Regulations Chapter 8.~~

501
502 ~~—————(iv) A separate permit to construct is not required under Water Quality Rules~~
503 ~~and Regulations Chapter 3 for any Class VI facility.~~

504
505 ~~—————(v) Permits for Class VI wells shall be issued for the operating life of the~~
506 ~~facility and extend through the post injection site care period until the geologic sequestration~~
507 ~~project is closed in accordance with Department rules and regulations.~~

508
509 ~~—————(vi) Permits may be issued for individual Class VI wells and shall not be~~
510 ~~issued on an area basis for multiple points of discharge operated by the same person.~~

511
512 ~~—————(vii) Each permit shall be reviewed by the Department at least once every five~~
513 ~~(5) years to determine whether it should be modified, revoked and reissued, terminated or a~~
514 ~~minor modification made pursuant to this chapter.~~

515
516 ~~—————(viii) Sections of permit applications filed under this chapter that represent~~
517 ~~engineering work shall be sealed, signed, and dated by a licensed professional engineer as~~
518 ~~required by W.S. § 33-29-601.~~

519
520 ~~—————(ix) Sections of permit applications filed under this chapter that represent~~
521 ~~geologic work shall be sealed, signed, and dated by a licensed professional geologist as required~~
522 ~~by W.S. § 33-41-115.~~

523
524 ~~(b)(a)~~ The following Ppermit processing procedures are applicable to all Class VI
525 ~~facilities, individual, and general~~ permits:

526
527 ~~(b)(i)(i)~~ (i) The applicant shall submit the permit application to the Division in
528 a format required by the Administrator.

529
530 ~~(b)(ii)(ii)~~ (ii) Within sixty (60) days of submission of ~~the~~ an application, the
531 Administrator shall make an initial determination of completeness. An application shall be
532 determined complete when the Administrator receives an application and any supplemental
533 information necessary to determine compliance with ~~these regulations~~ this Chapter. The
534 completeness of any application for a permit shall be judged independently of the status of any
535 other permit application or permit for the same facility or activity.

536
537 ~~(b)(iii)(iii)~~ (iii) Re-submittal of information by an applicant for an incomplete
538 application will ~~begin~~ restart the process described in this ~~s~~SSection.

539
540 ~~(b)(iv)(iv)~~ (iv) At the end of any 60-day review period where an application is
541 determined complete, the Administrator shall ~~prepare a fact sheet on the proposed operation and~~
542 ~~provide public notice pursuant to Section of this chapter.;~~

543
544 ~~(b)(iv)(A)~~ (A) Pprepare a draft permit for issuance or denial.;

545
546 ~~(b)(iv)(B)~~ (B) Pprepare a fact sheet on the proposed operation.; ~~and~~

547
548 (b)(iv)(C) Provide public notice pursuant to Section 20-27 of this
549 Chapter; and

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

555
556 (A) ~~If the Administrator tentatively decides to deny the permit~~
557 ~~application, he or she shall issue a notice of intent to deny. A notice of intent to deny the permit~~
558 ~~application is a type of draft permit that follows the same procedures as any draft permit~~
559 ~~prepared under this section.~~

560
561 (B) ~~If the Administrator's final decision is that the tentative decision to~~
562 ~~deny the permit application was incorrect, he or she shall withdraw the notice of intent to deny~~
563 ~~and proceed to prepare a draft permit under Section 20(b) of this chapter.~~

564
565 (v) ~~The Administrator may deny an individual permit for any of the following~~
566 ~~reasons:~~

567
568 ~~(A) The application is incomplete;~~

569
570 ~~(B) The project, if constructed and/or operated, will violate applicable~~
571 ~~state surface or groundwater standards;~~

572
573 ~~(C) The application proposes the construction or operation of a project~~
574 ~~that does not meet the requirements of this chapter;~~

575
576 ~~(D) The permitted facility would be in conflict with or is in conflict~~
577 ~~with a State approved local wellhead protection plan, State approved local source water~~
578 ~~protection plan, or State approved water quality management plan; or~~

579
580 ~~(E) Other justifiable reasons necessary to carry out the provisions of~~
581 ~~the Wyoming Environmental Quality Act.~~

582
583 (vi) ~~Permits may be modified, revoked and reissued, or terminated either in~~
584 ~~response to a petition from any interested person (including the permittee) or upon the~~
585 ~~Administrator's initiative. However, permits may only be modified, revoked and reissued, or~~
586 ~~terminated for the reasons specified in Section 4(b) of this chapter. All requests shall be in~~
587 ~~writing and shall contain facts or reasons supporting the request.~~

588
589 ~~(A) If the Administrator decides the petition is not justified, the~~
590 ~~petitioner shall be sent a brief written response giving the reason for the decision. A request for~~
591 ~~modification, revocation and reissuance, or termination shall be considered denied if the~~
592 ~~Administrator takes no action within sixty (60) days after receiving the written request. Denials~~

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

596
597 ~~(vii) The Administrator may modify a permit when:~~

598
599 ~~_____ (A) Any material or substantial alterations or additions to the facility~~
600 ~~occur after permitting or licensing that justify the application of permit conditions that are~~
601 ~~different or absent in the existing permit;~~

602
603 ~~_____ (B) Any modification in the operation of the facility is capable of~~
604 ~~causing or increasing pollution in excess of applicable standards or permit conditions;~~

605
606 ~~_____ (C) Information warranting modification is discovered after the~~
607 ~~operation has begun that would have justified the application of different permit conditions at the~~
608 ~~time of permit issuance;~~

609
610 ~~_____ (D) Regulations or standards upon which the permit was based have~~
611 ~~changed by promulgation of amended standards or regulations or by judicial decision after the~~
612 ~~permit was issued;~~

613
614 ~~_____ (E) Cause exists for termination, as described in this section, but the~~
615 ~~Department determines that modification is appropriate; or~~

616
617 ~~_____ (F) Modification is necessary to comply with applicable statutes,~~
618 ~~standards, or regulations.~~

619
620 ~~_____ (viii) The Administrator may modify a permit whenever the Administrator~~
621 ~~determines that permit changes are necessary based on:~~

622
623 ~~_____ (A) Area of review reevaluations under Section 8(d)(i) of this chapter;~~

624
625 ~~_____ (B) Any amendments to the testing and monitoring plan under Section~~
626 ~~14(b)(xii) of this chapter;~~

627
628 ~~_____ (C) Any amendments to the injection well plugging plan under Section~~
629 ~~16(e) of this chapter;~~

630
631 ~~_____ (D) Any amendments to the post-injection site care and site closure~~
632 ~~plan under Section 17(a)(iv) of this chapter;~~

633
634 ~~_____ (E) Any amendments to the emergency and remedial response plan~~
635 ~~under Section 18(a)(i) of this chapter;~~

636
637 ~~_____ (F) A review of monitoring and/or testing results conducted in~~
638 ~~accordance with permit requirements; or~~

639
640 ~~_____ (G) A determination that the injectate is a hazardous waste as defined~~
641 ~~in 40 CFR § 261.3 either because the definition has been revised, or because a previous~~
642 ~~determination has been changed.~~

643
644 ~~_____ (ix) Suitability of the facility location will not be considered at the time of~~
645 ~~permit modification or revocation and reissuance unless new information or standards indicate~~
646 ~~that a threat to human health or the environment exists that was unknown at the time of permit~~
647 ~~issuance.~~

648
649 ~~_____ (x) Minor modifications of permits may occur with the consent of the~~
650 ~~permittee without following the public notice requirements. Minor modifications will become~~
651 ~~final twenty (20) days from the date of receipt of such notice. For the purposes of this chapter,~~
652 ~~minor modifications may only:~~

653
654 ~~_____ (A) Correct typographical errors;~~

655
656 ~~_____ (B) Require more frequent monitoring or reporting by the permittee;~~

657
658 ~~_____ (C) Change an interim compliance date in a schedule of compliance,~~
659 ~~provided the new date is not more than 120 days after the date specified in the existing permit~~
660 ~~and does not interfere with attainment of the final compliance date requirement;~~

661
662 ~~_____ (D) Allow for a change in ownership or operational control of a facility~~
663 ~~where the Administrator determines that no other change in the permit is necessary, provided~~
664 ~~that a written agreement containing a specific date for transfer of permit responsibility, coverage,~~
665 ~~and liability between the current and new permittees have been submitted to the Administrator;~~

666
667 ~~_____ (E) Change quantities or types of fluids injected that are within the~~
668 ~~capacity of the facility as permitted and, in the judgment of the Administrator, would not~~
669 ~~interfere with the operation of the facility or its ability to meet conditions described in the permit~~
670 ~~and would not change its classification;~~

671
672 ~~_____ (F) Change construction requirements approved by the Administrator~~
673 ~~pursuant to subparagraphs (c)(i)(BB)(I) through (III) of this section provided that any such~~
674 ~~alteration shall comply with the requirements of this chapter;~~

675
676 ~~_____ (G) Amend a plugging and abandonment plan that has been updated~~
677 ~~under Section 16 of this chapter; or~~

678
679 ~~_____ (H) Amend a Class VI injection well testing and monitoring plan,~~
680 ~~plugging plan, post injection site care and site closure plan, or emergency and remedial response~~
681 ~~plan where the modifications merely clarify or correct the plan, as determined by the~~
682 ~~Administrator.~~

683

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

686
687 ~~_____ (A) Noncompliance with terms and conditions of the permit;~~

688
689 ~~_____ (B) Failure in the application or during the issuance process to disclose~~
690 ~~fully all relevant facts, or misrepresentation of any relevant facts at any time; or~~

691
692 ~~_____ (C) A determination that the activity endangers human health or the~~
693 ~~environment and can only be regulated to acceptable levels by a permit modification or~~
694 ~~termination.~~

695
696 ~~_____ (xii) The Administrator may modify a permit to resolve issues that could lead~~
697 ~~to the revocation of the permit under Section 4(b) of this chapter. The Administrator, as part of~~
698 ~~any notification of intent to terminate a permit, shall order the permittee to proceed with~~
699 ~~reclamation on a reasonable time period.~~

700
701 ~~_____ (xiii) If the Administrator tentatively decides to modify or revoke and reissue a~~
702 ~~permit, a draft permit incorporating the proposed changes shall be prepared. The Administrator~~
703 ~~may request additional information and, in the case of a modified permit, may require the~~
704 ~~submission of an updated application. In the case of revoked and reissued permits, the~~
705 ~~Administrator shall require the submission of a new application.~~

706
707 ~~_____ (xiv) In a permit modification under Section 4(b) of this chapter, only those~~
708 ~~conditions to be modified shall be reopened when a new draft permit is prepared. All other~~
709 ~~aspects of the existing permit shall remain in effect for the duration of the unmodified permit and~~
710 ~~the modified permit shall expire on the date when the original permit would have expired. When~~
711 ~~a permit is revoked and reissued under this section, the entire permit is reopened as if the permit~~
712 ~~has expired and is being reissued. During any revocation and reissuance proceeding, the~~
713 ~~permittee shall comply with all conditions of the existing permit until a new final permit is~~
714 ~~issued.~~

715
716 ~~_____ (xv) Permit modifications, revocations, or terminations shall be developed as a~~
717 ~~draft permit and are subject to the public notice and hearing requirements outlined in Section 20~~
718 ~~of this chapter.~~

719
720 ~~_____ (xvi) Transfer of a permit is allowed only upon approval by the Administrator.~~
721 ~~When a permit transfer occurs pursuant to this section, the permit rights of the previous permittee~~
722 ~~will automatically terminate.~~

723
724 ~~_____ (A) The proposed permit holder shall apply in writing as though that~~
725 ~~person was the original applicant for the permit and shall further agree to be bound by all of the~~
726 ~~terms and conditions of the permit.~~

727

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

731
732 ~~_____ (C) When a permit transfer occurs, the Administrator may modify a~~
733 ~~permit pursuant to this section. The Administrator shall provide public notice pursuant to Section~~
734 ~~20 of this chapter for any modification other than a minor modification defined by this section.~~

735
736 ~~_____ (D) A permit may be transferred by the permittee to a new owner or~~
737 ~~operator only if the permit has been modified or revoked and reissued (under paragraph (xiii) of~~
738 ~~this subsection), or a minor modification made (under paragraph (xii) of this subsection), to~~
739 ~~identify the new permittee and incorporate such other requirements as may be necessary under~~
740 ~~the Safe Drinking Water Act.~~

741
742 ~~(formerly Section 4(b)(iv))~~(b) ~~At the end of any 60-day review period where an~~
743 ~~application is determined complete, If the Administrator Director intends to modify, terminate,~~
744 ~~revoke, or reissue a permit, the Administrator shall prepare a draft permit ~~for issuance or denial,~~~~
745 ~~prepare a fact sheet on the proposed operation, incorporating the proposed changes and provide~~
746 ~~public notice pursuant to Section ~~20~~ 27 of this ~~e~~Chapter.~~

747
748 ~~(A) If the Administrator tentatively decides to deny the permit~~
749 ~~application, he or she shall issue a notice of intent to deny. A notice of intent to deny the permit~~
750 ~~application is a type of draft permit that follows the same procedures as any draft permit~~
751 ~~prepared under this section.~~

752
753 ~~_____ (B) If the Administrator's final decision is that the tentative decision to~~
754 ~~deny the permit application was incorrect, he or she shall withdraw the notice of intent to deny~~
755 ~~and proceed to prepare a draft permit under Section 20(b) of this chapter.~~

756
757 (c) If the Director tentatively decides to deny the permit application, he or she shall
758 issue a notice of intent to deny. A notice of intent to deny the permit application is a type of
759 draft permit that follows the same procedure as any draft permit prepared under this section. If
760 the Director's final decision is that the tentative decision to deny the permit application was
761 incorrect, he or she shall withdraw the notice of intent and proceed to prepare a draft permit
762 under this section.

763
764 ~~(formerly Section 5(e))~~(d) ~~Prior to granting approval for the operation of issuing a~~
765 ~~permit for a Class VI well, the ~~Administrator~~ Director shall consider ~~the following information:~~~~

766
767 ~~(formerly Section 5(e)(i))~~(i) ~~The final area of review based on modeling, using~~
768 ~~data obtained during logging and testing of the well and the formation as required by~~
769 ~~subparagraphs ~~(b)(xv), (b)(xxiii), (b)(xxiv), and (e)(iii) of this section~~ (b)(xviii), (b)(xix),~~
770 ~~(b)(xxvii), and (b)(xxviii) of Section 10 of this Chapter;~~

771
772 ~~(formerly Section 5(e)(ii))~~(ii) ~~Any relevant updates, based on data obtained~~
773 ~~during logging and testing of the well and the formation as required by subparagraphs ~~(b)(xv),~~~~

774 ~~(b)(xxiii), (b)(xxiv), and (e)(iii) of this section,~~ (b)(xviii), (b)(xix), (b)(xxvii), and (b)(xxviii) of
775 Section 10 of this Chapter, to the information on the geologic structure and hydrogeologic
776 properties of the proposed storage site and overlying formations, submitted to satisfy the
777 requirements of subparagraph ~~(b)(ix) of this section~~ (b)(xi) of Section 10 of this Chapter;

778
779 ~~(formerly Section 5(e)(iii)(iii))~~ (iii) The results of the formation testing program
780 required by ~~paragraph (b)(xvii) of this section~~ subparagraph (b)(xix) of Section 10 of this
781 Chapter;

782
783 ~~(formerly Section 5(e)(iv)(iv))~~ (iv) Final injection well construction procedures
784 that meet the requirements of Section ~~9~~ 14 of this ~~e~~Chapter;

785
786 ~~(formerly Section 5(e)(v)(v))~~ (v) Any updates to the proposed area of review and
787 corrective action plan, testing and monitoring plan, injection well-plugging plan, post-injection
788 site care and site closure plan, or the emergency and remedial response plan submitted under
789 ~~paragraph (b)(xxx) of this section~~ Section 10(b) of this chapter, ~~which that~~ are necessary to
790 address new information collected during logging and testing of the well and the formation as
791 required by ~~all paragraphs of this section; and~~ Section 10 of this Chapter.

792
793 ~~(formerly Section 4(b)(vi)(e))~~ (e) Permits may be modified, revoked and reissued, or
794 terminated either in response to a petition from any interested person (including the permittee) or
795 upon the Administrator 's initiative. ~~However, permits may only be modified, revoked and~~
796 ~~reissued, or terminated for the reasons specified in Section 4(b) of this chapter.~~

797
798 ~~(formerly Section 4(b)(vi)(i))~~ (i) All ~~requests~~ petitions to modify, revoke and reissue,
799 or terminate a permit shall be in writing and shall contain facts or reasons supporting the request.

800
801 ~~(formerly Section 4(b)(vi)(A))~~ (ii) If the Administrator decides ~~the a~~ a petition to
802 modify, revoke and reissue, or terminate a permit is not justified, the Administrator shall send the
803 petitioner ~~shall be sent~~ a brief written response giving the reason for the decision. A ~~request~~
804 petition for modification, revocation and reissuance, or termination shall be considered denied if
805 the Administrator takes no action within sixty (60) days after receiving the written request.

806
807 ~~(formerly Section 4(b)(vi)(A))~~ (iii) Denials of ~~requests~~ petitions for
808 modification, revocation and reissuance, or termination are not subject to public notice and
809 comment. ~~Denials by the Administrator may be appealed for hearing to the Environmental~~
810 ~~Quality Council by a letter briefly setting forth the relevant facts.~~

811
812 ~~(formerly Section 4(a)(vii))~~ (f) ~~Each permit shall be reviewed by t~~ The Department
813 Administrator shall review each permit at least once every five (5) years to determine whether it
814 should be modified, revoked and reissued, or terminated ~~or a minor modification made pursuant~~
815 ~~to this chapter.~~

816
817 ~~(e)~~ — Permit conditions.

818

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

822
823 ~~_____ (A) A requirement that the permittee comply with all conditions of the~~
824 ~~permit, and any permit noncompliance constitutes a violation of these regulations and is grounds~~
825 ~~for enforcement action, permit termination, revocation and reissuance, or modification, or for~~
826 ~~denial of a permit renewal application;~~

827
828 ~~_____ (B) A requirement that if the permittee wishes to continue injection~~
829 ~~activity after the expiration date of the permit, the permittee must apply to the Administrator for,~~
830 ~~and obtain, a new permit prior to expiration of the existing permit;~~

831
832 ~~_____ (C) A stipulation that it shall not be a defense for a permittee in an~~
833 ~~enforcement action that it would have been necessary to halt or reduce the permitted activity in~~
834 ~~order to maintain compliance with the conditions of this permit;~~

835
836 ~~_____ (D) A requirement that the permittee shall take all reasonable steps to~~
837 ~~minimize or correct any adverse impact on the environment resulting from noncompliance with~~
838 ~~this permit;~~

839
840 ~~_____ (E) A requirement that the permittee properly operate and maintain all~~
841 ~~facilities and systems of treatment and control, and related appurtenances, that are installed or~~
842 ~~used by the permittee to achieve compliance with the conditions of this permit. Proper operation~~
843 ~~and maintenance includes effective performance, adequate funding and operator staffing and~~
844 ~~training, and adequate laboratory and process controls including appropriate quality assurance~~
845 ~~procedures. This provision requires the operation of back-up or auxiliary facilities or similar~~
846 ~~systems only when necessary to achieve compliance with the conditions of the permit;~~

847
848 ~~_____ (F) A stipulation that the filing of a request by the permittee, or at the~~
849 ~~instigation of the Administrator, for a permit modification, revocation, termination, or~~
850 ~~notification of planned changes or anticipated non-compliance, shall not stay any permit~~
851 ~~condition;~~

852
853 ~~_____ (G) A stipulation that this permit does not convey any property rights~~
854 ~~of any sort, or any exclusive privilege;~~

855
856 ~~_____ (H) A stipulation that the permittee shall furnish to the Administrator,~~
857 ~~within a specified time, any information that the Administrator may request to determine whether~~
858 ~~cause exists for modifying, revoking and reissuing, or terminating the permit, or to determine~~
859 ~~compliance with the permit. The permittee shall also furnish to the Administrator, upon request,~~
860 ~~copies of records required to be kept by the permit;~~

861
862 ~~_____ (I) A requirement that the permittee shall allow the Administrator, or~~
863 ~~an authorized representative of the Administrator, upon the presentation of credentials, during~~

864 ~~normal working hours, to enter the premises where a regulated facility is located, or where~~
865 ~~records are kept under the conditions of this permit, and~~

866
867 ~~_____ (I) _____ Inspect the discharge and related facilities, practices, or~~
868 ~~operations regulated or required under this permit;~~

869
870 ~~_____ (II) _____ Review and copy reports and records required by the~~
871 ~~permit;~~

872
873 ~~_____ (III) _____ Collect fluid samples for analysis for the purposes of~~
874 ~~assuring permit compliance or as otherwise authorized by the SDWA, any substances or~~
875 ~~parameters at any location;~~

876
877 ~~_____ (IV) _____ Measure and record water levels; and~~

878
879 ~~_____ (V) _____ Perform any other function authorized by law or regulation.~~

880
881 ~~_____ (J) _____ A requirement that the permittee furnish any information necessary~~
882 ~~to establish a monitoring program pursuant to Section 14 of this chapter. Conditions shall~~
883 ~~specify:~~

884
885 ~~_____ (I) _____ Required monitoring including type, intervals, and~~
886 ~~frequency sufficient to yield data that are representative of the monitored activity including when~~
887 ~~appropriate, continuous monitoring;~~

888
889 ~~_____ (II) _____ Requirements concerning the proper use, maintenance, and~~
890 ~~installation, when appropriate, of monitoring equipment or methods, including biological~~
891 ~~monitoring methods when appropriate; and~~

892
893 ~~_____ (III) _____ Applicable reporting requirements based upon the impact~~
894 ~~of the regulated activity and as specified in Section 15 of this chapter. Reporting shall be no less~~
895 ~~frequent than specified in the above regulations.~~

896
897 ~~_____ (K) _____ A requirement that all samples and measurements taken for the~~
898 ~~purpose of monitoring shall be representative of the monitored activity and records of all~~
899 ~~monitoring information be retained by the permittee. The monitoring information to be retained~~
900 ~~shall be that information stipulated in the monitoring program established pursuant to the criteria~~
901 ~~in Section 14 of this chapter;~~

902
903 ~~_____ (L) _____ A requirement that all applications, reports, and other information~~
904 ~~submitted to the Administrator contain certifications as required in Section 5(i) of this chapter,~~
905 ~~and be signed by a person who meets the requirements to sign permit applications found in~~
906 ~~Section 5(h), or for routine reports, a duly authorized representative;~~

907
908 ~~_____ (M) _____ A requirement that the permittee give advance notice to the~~
909 ~~Administrator as soon as possible of any planned physical alteration or additions, other than~~

910 ~~authorized operation and maintenance, to the permitted facility and receive authorization prior to~~
911 ~~implementing the proposed alteration or addition;~~

912
913 ~~_____ (N) _____ A requirement that any modification that may result in a violation~~
914 ~~of a permit condition shall be reported to the Administrator, and any modification that will result~~
915 ~~in a violation of a permit condition shall be reported to the Administrator through the submission~~
916 ~~of a new or amended permit application;~~

917
918 ~~_____ (O) _____ A requirement that any transfer of a permit must first be approved~~
919 ~~by the Administrator, and that no transfer will be approved if the facility is not in compliance~~
920 ~~with the existing permit unless the proposed permittee agrees to bring the facility into~~
921 ~~compliance;~~

922
923 ~~_____ (P) _____ A requirement that monitoring results shall be reported at the~~
924 ~~intervals specified elsewhere in the permit;~~

925
926 ~~_____ (Q) _____ A requirement that reports of compliance or non-compliance, or~~
927 ~~any progress reports on interim and final requirements contained in any compliance schedule, if~~
928 ~~one is required by the Administrator, shall be submitted no later than thirty (30) days following~~
929 ~~each schedule date;~~

930
931 ~~_____ (R) _____ A requirement that the permittee shall report:~~

932
933 ~~_____ (I) _____ Any monitoring or other information that indicates that any~~
934 ~~contaminant may cause an endangerment to a USDW or indicates that the injected carbon~~
935 ~~dioxide stream, displaced formation fluids, or associated pressure front may endanger a USDW~~
936 ~~or threaten human health, safety, or the environment. In addition, the owner or operator shall:~~

937
938 ~~_____ (1.) _____ Immediately cease injection;~~

939
940 ~~_____ (2.) _____ Take all steps reasonably necessary to identify and~~
941 ~~characterize any release; and~~

942
943 ~~_____ (3.) _____ Notify the Administrator within twenty-four (24)~~
944 ~~hours.~~

945
946 ~~_____ (II) _____ Any noncompliance with a permit condition or malfunction~~
947 ~~of the injection system that may cause fluid migration into or between USDWs or if an excursion~~
948 ~~is discovered. It shall be orally reported to the Administrator within twenty-four (24) hours from~~
949 ~~the time the permittee becomes aware of the circumstances, and a written submission shall be~~
950 ~~provided within five (5) days of the time the permittee becomes aware of any excursion or~~
951 ~~indication that a contaminant may cause an endangerment to a USDW. The written submission~~
952 ~~shall contain:~~

953
954 ~~_____ (1.) _____ A description of the noncompliance and its cause;~~

955

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

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

962 ~~;~~
963 ~~_____ (III) In addition, if an excursion is discovered the owner or~~
964 ~~operator shall provide written notice to all surface owners, mineral claimants, mineral owners,~~
965 ~~lessees and other owners of record of subsurface interests within thirty (30) days of discovery.~~

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

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

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

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

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

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

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

994 ~~_____ (X) A requirement that the owner or operator of a Class VI well~~
995 ~~permitted under this part shall establish mechanical integrity prior to commencing injection or on~~
1000

1001 ~~a schedule determined by the Administrator. Thereafter, the owner or operator of Class VI wells~~
1002 ~~must maintain mechanical integrity as defined in Section 13 of this chapter;~~
1003
1004 ~~_____ (Y) — A requirement that when the Administrator determines that a Class~~
1005 ~~VI well lacks mechanical integrity pursuant to Section 13 of this chapter, he/she shall give~~
1006 ~~written notice of his/her determination to the owner or operator.~~
1007
1008 ~~_____ (I) — Unless the Administrator requires immediate cessation, the~~
1009 ~~owner or operator shall cease injection into the well within forty-eight (48) hours of receipt of~~
1010 ~~the Administrator's determination.~~
1011
1012
1013 ~~_____ (II) — The Administrator may allow plugging of the well pursuant~~
1014 ~~to the requirements of Section 16 of this chapter or require the permittee to perform such~~
1015 ~~additional construction, operation, monitoring, reporting, and corrective action as is necessary to~~
1016 ~~prevent the movement of fluid into or between USDWs caused by the lack of mechanical~~
1017 ~~integrity. The owner or operator may resume injection upon written notification from the~~
1018 ~~Administrator that the owner or operator has demonstrated mechanical integrity pursuant to~~
1019 ~~Section 13 of this chapter.~~
1020
1021 ~~_____ (Z) — A requirement that, for any Class VI well that lacks mechanical~~
1022 ~~integrity, injection operations are prohibited until the permittee shows to the satisfaction of the~~
1023 ~~Administrator under Section 13 of this chapter that the well has mechanical integrity.~~
1024
1025 ~~_____ (AA) — A Class VI permit shall include conditions that meet the~~
1026 ~~requirements set forth in Section 16 of this chapter. Where the plan meets the requirements of~~
1027 ~~Section 16 of this chapter, the Administrator shall incorporate it into the permit as a permit~~
1028 ~~condition. Temporary or intermittent cessation of injection operations is not abandonment.~~
1029
1030 ~~_____ (BB) — Class VI injection well permits shall include conditions meeting~~
1031 ~~the requirements of Section 9 of this chapter. Permits shall contain the following requirements~~
1032 ~~when applicable:~~
1033
1034 ~~_____ (I) — All wells shall achieve compliance with such requirements~~
1035 ~~according to a compliance schedule established as a permit condition. The owner or operator of a~~
1036 ~~proposed new injection well shall submit plans for testing, drilling, and construction as part of~~
1037 ~~the permit application.~~
1038
1039 ~~_____ (II) — No construction may commence until a permit has been~~
1040 ~~issued containing construction requirements.~~
1041
1042 ~~_____ (III) — All wells shall be in compliance with these requirements~~
1043 ~~prior to commencing injection operations. Changes in construction plans during construction~~
1044 ~~may be approved by the Administrator as minor modifications. No such changes may be~~
1045 ~~physically incorporated into construction of the well prior to approval of the modification by the~~
1046 ~~Administrator.~~

1047
1048 ~~—————(IV)—————Corrective action as set forth in Section 8 of this chapter.~~

1049
1050 ~~—————(V)—————Operation requirements as set forth in Section 9 of this~~
1051 ~~chapter; the permit shall establish any maximum injection volumes and/or pressures necessary to~~
1052 ~~ensure that fractures are not initiated in the confining zone, that injected fluids do not migrate~~
1053 ~~into any underground source of drinking water, that formation fluids are not displaced into any~~
1054 ~~underground source of drinking water, and to ensure compliance with the operating~~
1055 ~~requirements.~~

1056
1057 ~~—————(VI)—————Monitoring and reporting requirements as set forth in~~
1058 ~~Sections 14 and 15 of this chapter. The permittee shall be required to identify types of tests and~~
1059 ~~methods used to generate the monitoring data.~~

1060
1061 ~~—————(VII)—————The owner or operator of a Class VI well must comply with~~
1062 ~~the financial responsibility requirements set forth in Section 19 of this chapter.~~

1063
1064 ~~—————(CC)—————The permit may, when appropriate, specify a schedule of~~
1065 ~~compliance leading to compliance with the SDWA and 40 CFR Parts 144, 145, 146, and 124.~~

1066
1067 ~~—————(I)—————Any schedules of compliance shall require compliance as~~
1068 ~~soon as possible, and in no case later than three (3) years after the effective date of the permit.~~

1069
1070 ~~—————(II)—————If a permit establishes a schedule of compliance that~~
1071 ~~exceeds one (1) year from the date of permit issuance, the schedule shall set forth interim~~
1072 ~~requirements and the dates for their achievement.~~

1073
1074 ~~—————(1.)—————The time between interim dates shall not exceed one~~
1075 ~~(1) year unless;~~

1076
1077 ~~—————(2.)—————The time necessary for completion of any interim~~
1078 ~~requirement is more than one (1) year and is not readily divisible into stages for completion, the~~
1079 ~~permit shall specify interim dates for the submission of reports of progress toward completion of~~
1080 ~~the interim requirements and indicate a projected completion date.~~

1081
1082 ~~—————(III)—————The permit shall be written to require that if paragraph~~
1083 ~~(e)(i)(CC)(I) of this section is applicable, progress reports be submitted no later than thirty (30)~~
1084 ~~days following each interim date and the final date of compliance.~~

1085
1086 ~~—————(ii)—————In addition to the conditions required of all permits, the Administrator~~
1087 ~~shall establish, on a case by case basis, conditions as required for monitoring, schedules of~~
1088 ~~compliance, and such additional conditions as are necessary to prevent the migration of fluids~~
1089 ~~into underground sources of drinking water. In the case of wells authorized by permit, these~~
1090 ~~additional requirements shall be imposed by modifying the permit in accordance with this~~
1091 ~~section, or the permit may be terminated under this section if cause exists, or appropriate~~
1092 ~~enforcement action may be taken if the permit has been violated.~~

1093
1094 ~~————— (iii) — In addition to conditions required in all permits the Administrator shall~~
1095 ~~establish conditions in permits as required on a case-by-case basis, to provide for and ensure~~
1096 ~~compliance with all applicable requirements of the SDWA and 40 CFR Parts 144, 145, 146, and~~
1097 ~~124.~~

1098
1099 ~~————— (iv) — New permits, and to the extent allowed under Section 4 modified or~~
1100 ~~revoked and reissued permits, shall incorporate each of the applicable requirements referenced in~~
1101 ~~this section. An applicable requirement is a State statutory or regulatory requirement that takes~~
1102 ~~effect prior to final administrative disposition of the permit. An applicable requirement is also~~
1103 ~~any requirement that takes effect prior to the modification or revocation and reissuance of a~~
1104 ~~permit, to the extent allowed in Section 4.~~

1105
1106 ~~————— (d) — The issuance of a permit does not authorize any injury to persons or property or~~
1107 ~~invasion of other private rights, or any infringement of State or local law or regulations.~~

1109 **Section 5. ~~Permit Application.~~ Denying Permits.**

1110
1111 ~~————— (a) — It is the operator's responsibility to make application for and obtain a permit in~~
1112 ~~accordance with these regulations. Each application must be submitted with all supporting data.~~

1113
1114 ~~————— (b) — A complete application for a Class VI well shall include:~~

1115
1116 ~~————— (i) — A brief description of the nature of the business and the activities to be~~
1117 ~~conducted that require the applicant to obtain a permit under this chapter.~~

1118
1119 ~~————— (ii) — The name, address and telephone number of the operator, and the~~
1120 ~~operator's ownership status and status as a Federal, State, private, public, or other entity.~~

1121
1122 ~~————— (iii) — Up to four SIC (Standard Industrial Classification) codes that best reflect~~
1123 ~~the principal products or services provided by the facility.~~

1124
1125 ~~————— (iv) — The name, address, and telephone number of the facility. Additionally, the~~
1126 ~~location of the geologic sequestration project shall be identified by section, township, range and~~
1127 ~~county, noting which, if any, sections include Indian lands.~~

1128
1129 ~~————— (v) — Within the area of review, a listing and status of all permits or construction~~
1130 ~~approvals associated with the geologic sequestration project received or applied for by the~~
1131 ~~applicant under any of the following programs:~~

1132
1133 ~~————— (A) — Hazardous Waste Management under the Resource Conservation~~
1134 ~~and Recovery Act (RCRA).~~

1135
1136 ~~————— (B) — UIC Program under the Safe Drinking Water Act.~~

1137

1138 ~~_____ (C) National Pollutant Discharge Elimination System (NPDES) under~~
1139 ~~the Clean Water Act.~~

1140
1141 ~~_____ (D) Prevention of Significant Deterioration (PSD) program under the~~
1142 ~~Clean Air Act.~~

1143
1144 ~~_____ (E) Nonattainment program under the Clean Air Act.~~

1145
1146 ~~_____ (F) National Emissions Standards for Hazardous Air Pollutants~~
1147 ~~(NESHAPs) pre-construction approval under the Clean Air Act.~~

1148
1149 ~~_____ (G) Dredge and fill permitting program under section 404 of~~
1150 ~~the Clean Water Act.~~

1151
1152 ~~_____ (vi) Within the area of review, a list of other relevant permits, whether federal~~
1153 ~~or state, associated with the geologic sequestration project that the applicant has been required to~~
1154 ~~obtain, such as construction permits. This includes a statement as to whether or not the facility is~~
1155 ~~within a state approved water quality management plan area, a state approved wellhead~~
1156 ~~protection area or a state approved source water protection area.~~

1157
1158 ~~_____ (vii) A map showing the injection well(s) for which a permit is sought and the~~
1159 ~~applicable area of review, consistent with Section 8 of this chapter.~~

1160
1161 ~~_____ (A) Within the area of review, the map must show the number, or name~~
1162 ~~and location of all known injection wells, producing wells, abandoned wells, plugged wells or~~
1163 ~~dry holes, deep stratigraphic boreholes, state or EPA approved subsurface cleanup sites, public~~
1164 ~~drinking water supply wellhead or source water protection areas, surface bodies of water,~~
1165 ~~springs, mines (surface and subsurface), quarries, water wells and other pertinent surface features~~
1166 ~~including structures intended for human occupancy, state, tribal, and territory boundaries, and~~
1167 ~~roads.~~

1168
1169 ~~_____ (B) Only information of public record is required to be included on this~~
1170 ~~map.~~

1171
1172 ~~_____ (C) The map should also show faults, if known or suspected.~~

1173
1174 ~~_____ (viii) A map delineating the area of review based upon modeling, using all~~
1175 ~~available data including data available from any logging and testing of wells within and adjacent~~
1176 ~~(within one (1) mile) to the area of review;~~

1177
1178 ~~_____ (A) A Class VI area of review shall never be less than the area of~~
1179 ~~potentially affected groundwater.~~

1180
1181 ~~_____ (B) All areas of review shall be legally described by township, range,~~
1182 ~~and section to the nearest ten (10) acres as described under the general land survey system.~~

1183

1184 ~~_____ (ix) — A description of the general geology of the area to be affected by the~~
1185 ~~injection of carbon dioxide including geochemistry, structure and faulting, fracturing and seals,~~
1186 ~~and stratigraphy and lithology including petrophysical attributes. The description shall also~~
1187 ~~include sufficient information on the geologic structure and reservoir properties of the proposed~~
1188 ~~storage site and overlying formations, including:~~

1189
1190 ~~_____ (A) — Isopach maps of the proposed injection and confining zone(s), a~~
1191 ~~structural contour map aligned with the top of the proposed injection zone, and at least two (2)~~
1192 ~~geologic cross-sections of the area of review reasonably perpendicular to each other and showing~~
1193 ~~the geologic formations from the surface to total depth;~~

1194
1195 ~~_____ (B) — Location, orientation, and properties of known or suspected faults~~
1196 ~~and fractures that may transect the confining zone(s) in the area of review and a determination~~
1197 ~~that they would not interfere with containment;~~

1198
1199 ~~_____ (C) — Information on seismic history that have affected the proposed area~~
1200 ~~of review including knowledge of previous seismic events and history of these events, the presence~~
1201 ~~and depth of seismic sources, and a determination that the seismicity would not compromise~~
1202 ~~containment;~~

1203
1204 ~~_____ (D) — Data sufficient to demonstrate the effectiveness of the injection and~~
1205 ~~confining zone(s), including data on the depth, areal extent, thickness, mineralogy, porosity,~~
1206 ~~vertical permeability, and capillary pressure of the injection and confining zone(s) within the area~~
1207 ~~of review, and geologic changes based on field data that may include geologic cores, outcrop data,~~
1208 ~~seismic surveys, well logs, and names and lithologic descriptions;~~

1209
1210 ~~_____ (E) — Geomechanical information on fractures, stress, ductility, rock~~
1211 ~~strength, and in situ fluid pressures within the confining zone; and~~

1212
1213 ~~_____ (F) — Geologic and topographic maps and cross-sections illustrating~~
1214 ~~regional geology, hydrogeology, and the geologic structure of the local area.~~

1215
1216 ~~_____ (x) — A compilation of all wells and other drill holes within, and adjacent~~
1217 ~~(within one (1) mile) to the area of review. Such data must include a description of each well and~~
1218 ~~drill hole type, construction, date drilled, location, depth, record of plugging and/or completion,~~
1219 ~~and any additional information the Administrator may require.~~

1220
1221 ~~_____ (A) — Applicants shall also identify the location of all known wells~~
1222 ~~within, and adjacent (within one (1) mile) to the area of review that penetrate the confining or~~
1223 ~~injection zone.~~

1224
1225 ~~_____ (B) — Applicants shall perform mapping with sufficient resolution as to~~
1226 ~~make a comprehensive effort to identify wells that are not in the public record using aerial~~
1227 ~~photography, aerial survey, physical traverse, or other methods acceptable to the Administrator.~~

1228

- 1229 ~~_____ (C) Applicants shall perform corrective action as specified in Section 8~~
1230 ~~of this chapter.~~
- 1231
- 1232 ~~_____ (xi) Maps and stratigraphic cross-sections indicating the general vertical and~~
1233 ~~lateral limits of all USDWs, the location of water wells and springs within the area of review,~~
1234 ~~their positions relative to the injection zone(s), and the direction of water movement, where~~
1235 ~~known;~~
- 1236
- 1237 ~~_____ (xii) A characterization of the injection zone and aquifers above and below the~~
1238 ~~injection zone that may be affected, including applicable pressure and fluid chemistry data to~~
1239 ~~describe the projected effects of injection activities, and background water quality data that will~~
1240 ~~facilitate the classification of any groundwaters that may be affected by the proposed discharge.~~
1241 ~~This must include information necessary for the Division to classify the receiver and any~~
1242 ~~secondarily affected aquifers under Water Quality Rules and Regulations Chapter 8;~~
- 1243
- 1244 ~~_____ (xiii) Baseline geochemical data on subsurface formations, including all~~
1245 ~~USDWs in the area of review;~~
- 1246
- 1247 ~~_____ (xiv) Proposed operating data:~~
- 1248
- 1249 ~~_____ (A) Average and maximum daily rate and volume and/or mass and~~
1250 ~~total anticipated volume and/or mass of the carbon dioxide stream;~~
- 1251
- 1252 ~~_____ (B) Average and maximum surface injection pressure;~~
- 1253
- 1254 ~~_____ (C) The source of the carbon dioxide stream; and~~
- 1255
- 1256 ~~_____ (D) An analysis of the chemical and physical characteristics of the~~
1257 ~~carbon dioxide stream and any other substance(s) proposed for inclusion in the injectate stream;~~
1258 ~~and~~
- 1259
- 1260 ~~_____ (E) Anticipated duration of the proposed injection period(s).~~
- 1261
- 1262 ~~_____ (xv) The compatibility of the carbon dioxide stream with fluids in the injection~~
1263 ~~zone and minerals in both the injection and the confining zone(s), based on the results of the~~
1264 ~~formation testing program, and with the materials used to construct the well;~~
- 1265
- 1266 ~~_____ (xvi) An assessment of the impact to fluid resources, on subsurface structures~~
1267 ~~and the surface of lands that may reasonably be expected to be impacted, and the measures~~
1268 ~~required to mitigate such impacts;~~
- 1269
- 1270 ~~_____ (xvii) Proposed formation testing program to obtain an analysis of the chemical~~
1271 ~~and physical characteristics of the injection zone and confining zone and that meets the~~
1272 ~~requirements of Section 11 of this chapter;~~
- 1273

- 1274 ~~—————(xviii) Proposed stimulation program, a description of stimulation fluids to be~~
1275 ~~used, and a determination that stimulation will not compromise containment. All stimulation~~
1276 ~~programs must be approved by the Administrator as part of the permit application and~~
1277 ~~incorporated into the permit;~~
- 1278
- 1279 ~~—————(xix) Proposed procedure that outlines steps to conduct injection operation;~~
1280
- 1281 ~~—————(xx) A wellbore schematic of the subsurface construction details and surface~~
1282 ~~wellhead construction of the injection and monitoring wells;~~
1283
- 1284 ~~—————(xxi) Injection well design and construction procedures that meet the~~
1285 ~~requirements of Section 9 of this chapter;~~
1286
- 1287 ~~—————(xxii) Proposed area of review and corrective action plan that meets the~~
1288 ~~requirements under Section 8 of this chapter;~~
1289
- 1290 ~~—————(xxiii) The status of corrective action on wells in the area of review;~~
1291
- 1292 ~~—————(xxiv) All available logging and testing program data on the well(s) required by~~
1293 ~~Section 11 of this chapter;~~
1294
- 1295 ~~—————(xxv) A demonstration of mechanical integrity pursuant to Section 13 of this~~
1296 ~~chapter;~~
1297
- 1298 ~~—————(xxvi) A demonstration, satisfactory to the Administrator, that the applicant has~~
1299 ~~met the financial responsibility requirements under Section 19 of this chapter;~~
1300
- 1301 ~~—————(xxvii) Proposed testing and monitoring plan required by Section 14 of this~~
1302 ~~chapter;~~
1303
- 1304 ~~—————(xxviii) Proposed injection and monitoring well(s) plugging plan required by~~
1305 ~~Section 16(b) of this chapter; where the plan meets the requirements of Section 16(b) of this~~
1306 ~~chapter, the Administrator shall incorporate it into the permit as a permit condition.~~
1307
- 1308 ~~—————(xxix) Proposed post-injection site care plan required by Section 17(a) of this~~
1309 ~~chapter;~~
1310
- 1311 ~~—————(xxx) Proposed emergency and remedial response plan required by Section 18 of~~
1312 ~~this chapter;~~
1313
- 1314 ~~—————(xxxii) A site and facilities description, including a description of the proposed~~
1315 ~~geologic sequestration facilities;~~
1316
- 1317 ~~—————(xxxii) Documentation sufficient to demonstrate that the applicant has all legal~~
1318 ~~rights, including but not limited to the right to surface use, necessary to sequester carbon dioxide~~
1319 ~~and associated constituents;~~

1320
1321 ~~—————(xxxiii)Proof of notice to surface owners, mineral claimants, mineral owners,~~
1322 ~~lessees, and other owners of record of subsurface interests as to the contents of such notice.~~
1323 ~~Notice requirements shall at a minimum require:~~
1324
1325 ~~—————(A)——The publishing of notice of the application in a newspaper~~
1326 ~~of general circulation in each county of the proposed operation at weekly intervals for four (4)~~
1327 ~~consecutive weeks; and~~
1328
1329 ~~—————(B)——A copy of the notice shall also be mailed to all surface~~
1330 ~~owners, mineral claimants, mineral owners, lessees and other owners of record of subsurface~~
1331 ~~interests that are located within one (1) mile of the proposed boundary of the geologic~~
1332 ~~sequestration site as defined by W.S. § 35-11-103(c)(xxi).~~
1333
1334 ~~—————(xxxiv)A list of contacts, submitted to the Administrator, for those Tribes~~
1335 ~~identified to be within the area of review of the geologic sequestration project based on~~
1336 ~~information provided in subparagraphs (b)(vii), (b)(vii)(A), (b)(vii)(B) of this section; and~~
1337
1338 ~~—————(xxxv) Any other information requested by the Administrator.~~
1339
1340 ~~———(c)——Expansion to the Areal Extent of Existing Class II Aquifer Exemptions for Class~~
1341 ~~VI Wells.~~
1342
1343 ~~—————(i)——The Administrator may consider a request from owners and/or operators~~
1344 ~~of permitted Class II injection well(s) that are seeking to convert their well(s) to a Class VI well~~
1345 ~~and are seeking an expansion to the areal extent of an existing Class II enhanced oil recovery or~~
1346 ~~enhanced gas recovery aquifer exemption for the exclusive purpose of Class VI injection for~~
1347 ~~geologic sequestration if the existing aquifer exemption and the affected wells meet the~~
1348 ~~following conditions:~~
1349
1350 ~~—————(A)——It does not currently serve as a source of drinking water; and~~
1351
1352 ~~—————(B)——The total dissolved solids content of the groundwater is more than~~
1353 ~~3,000 mg/L and less than 10,000 mg/L; and~~
1354
1355 ~~—————(C)——It is not reasonably expected to supply a public water system.~~
1356
1357 ~~—————(ii)——Such requests will not be final until the Administrator submits the request~~
1358 ~~as a revision to the applicable Federal UIC program under 40 CFR Part 147 or as a substantial~~
1359 ~~program revision to an approved State UIC program under 40 CFR § 145.32 and EPA approves~~
1360 ~~the request.~~
1361
1362 ~~—————(A)——The owner or operator of a Class II enhanced oil recovery or~~
1363 ~~enhanced gas recovery well that requests an expansion of the areal extent of an existing aquifer~~
1364 ~~exemption for the exclusive purpose of Class VI injection for geologic sequestration must define~~
1365 ~~(by narrative description, illustrations, maps, or other means) and describe in geographic and/or~~

1366 ~~geometric terms (such as vertical and lateral limits and gradient) that are clear and definite, all~~
1367 ~~aquifers or parts thereof that are requested to be designated as exempted using the criteria in~~
1368 ~~subparagraphs (d)(i)(A-C) of this section.~~

1369
1370 ~~_____ (B) _____ In evaluating a request to expand the areal extent of an aquifer~~
1371 ~~exemption of a Class II enhanced oil recovery or enhanced gas recovery well for the purpose of~~
1372 ~~Class VI injection, the Administrator must determine that the request meets the criteria for~~
1373 ~~exemptions in subparagraphs (d)(i)(A-C) of this section. In making the determination, the~~
1374 ~~Administrator shall consider:~~

1375
1376 ~~_____ (I) _____ Current and potential future use of the USDWs to be~~
1377 ~~exempted as drinking water resources;~~

1378
1379 ~~_____ (II) _____ The predicted extent of the injected carbon dioxide plume,~~
1380 ~~and any mobilized fluids that may result in degradation of water quality, over the lifetime of the~~
1381 ~~geologic sequestration project, as informed by computational modeling performed pursuant to~~
1382 ~~Section 8(c)(i) of this chapter, in order to ensure that the proposed injection operation will not at~~
1383 ~~any time endanger USDWs including non-exempted portions of the injection formation;~~

1384
1385 ~~_____ (III) _____ Whether the areal extent of the expanded aquifer exemption~~
1386 ~~is of sufficient size to account for any possible revisions to the computational model during~~
1387 ~~reevaluation of the area of review, pursuant to Section 8(d) of this chapter; and~~

1388
1389 ~~_____ (IV) _____ Any information submitted to support a waiver request~~
1390 ~~made by the owner or operator under Section 10 of this chapter, if appropriate.~~

1391
1392 ~~_____ (d) _____ The Administrator shall notify, in writing, any Tribes within the area of review of~~
1393 ~~the geologic sequestration project based on information provided in subparagraphs (b)(vii);~~
1394 ~~(b)(vii)(A), (b)(vii)(B), and (b)(xxxiv) of this section.~~

1395
1396 ~~_____ (e) _____ Prior to granting approval for the operation of a Class VI well, the Administrator~~
1397 ~~shall consider the following information:~~

1398
1399 ~~_____ (i) _____ The final area of review based on modeling, using data obtained during~~
1400 ~~logging and testing of the well and the formation as required by subparagraphs (b)(xv), (b)(xxiii),~~
1401 ~~(b)(xxiv), and (e)(iii) of this section;~~

1402
1403 ~~_____ (ii) _____ Any relevant updates, based on data obtained during logging and testing of~~
1404 ~~the well and the formation as required by subparagraphs (b)(xv), (b)(xxiii), (b)(xxiv), and (e)(iii)~~
1405 ~~of this section, to the information on the geologic structure and hydrogeologic properties of the~~
1406 ~~proposed storage site and overlying formations, submitted to satisfy the requirements of~~
1407 ~~subparagraph (b)(ix) of this section;~~

1408
1409 ~~_____ (iii) _____ The results of the formation testing program as required in paragraph~~
1410 ~~(b)(xvii) of this section;~~

1411

1412 ~~—————(iv) Final injection well construction procedures that meet the requirements of~~
1413 ~~Section 9 of this chapter;~~

1414
1415 ~~—————(v) Any updates to the proposed area of review and corrective action plan,~~
1416 ~~testing and monitoring plan, injection well plugging plan, post injection site care and site closure~~
1417 ~~plan, or the emergency and remedial response plan submitted under paragraph (b)(xxx) of this~~
1418 ~~sSection, which are necessary to address new information collected during logging and testing of~~
1419 ~~the well and the formation as required by all paragraphs of this section; and~~

1420
1421 ~~—————(f) Owners or operators seeking a waiver of the requirement to inject below the~~
1422 ~~lowermost USDW must also refer to Section 10 of this chapter and submit a supplemental report,~~
1423 ~~as required at Section 10(a). The supplemental report is not part of the permit application.~~

1424
1425 ~~—————(g) An applicant applying for a Class VI well permit must obtain public liability~~
1426 ~~insurance to cover the geologic sequestration activities for which a permit is sought.~~

1427
1428 ~~—————(i) The public liability insurance shall be in addition to the financial~~
1429 ~~assurance required in Section 19 of this chapter.~~

1430
1431 ~~—————(ii) The insurance policy shall provide for personal injury and property~~
1432 ~~damage protection and shall be in place until a completion and release certificate has been~~
1433 ~~obtained from the Administrator certifying that plume stabilization has been achieved.~~

1434
1435 ~~—————(iii) The minimum insurance coverage for public liability insurance as required~~
1436 ~~by W.S. § 35-11-313(f)(ii)(O) shall be five hundred thousand dollars (\$500,000) for each~~
1437 ~~occurrence of bodily injury or property damage, and one million dollars (\$1,000,000) aggregate.~~

1438
1439 ~~—————(iv) The public liability insurance shall include a rider requiring that the insurer~~
1440 ~~notify the Administrator whenever substantive changes are made to the policy, including any~~
1441 ~~termination or failure to renew.~~

1442
1443 ~~—————(v) Self insurance in lieu of public liability insurance must meet state or~~
1444 ~~federal requirements and be approved by the Administrator.~~

1445
1446 ~~—————(h) All applications for permits, reports, or information to be submitted to the~~
1447 ~~Administrator shall be signed by a responsible officer as follows:~~

1448
1449 ~~—————(i) For a corporation — a responsible corporate officer means:~~

1450
1451 ~~—————(A) A president, secretary, treasurer, or vice president of the~~
1452 ~~corporation in charge of a principal business function, or any other person who performs similar~~
1453 ~~policy or decision making functions for the corporation; or~~

1454

1455 ~~_____ (B) The manager of one (1) or more manufacturing, production, or~~
1456 ~~operating facilities employing more than 250 persons or having gross annual sales or expendi-~~
1457 ~~tures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has~~
1458 ~~been assigned or delegated to the manager in accordance with corporate procedures.~~

1459 ~~_____ (ii) For a partnership or sole proprietorship by a general partner or the~~
1460 ~~proprietor, respectively;~~

1461 ~~_____ (iii) For a municipality, state, federal or other public agency by either the~~
1462 ~~principal executive officer or ranking elected official. For the purposes of this section, a principal~~
1463 ~~executive officer of a Federal agency includes:~~

1464 ~~_____ (A) The chief executive officer of the agency, or~~
1465 ~~_____ (B) A senior executive officer having responsibility for the overall~~

1466 ~~operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).~~
1467 ~~_____ (iv) A person is authorized as a responsible officer only if:~~

1468 ~~_____ (A) The authorization is made in writing by a person described in~~
1469 ~~paragraphs (i) through (iii) in this subsection;~~

1470 ~~_____ (B) The authorization specifies either an individual or a position~~
1471 ~~having responsibility for the overall operation of the regulated facility or activity, such as the~~
1472 ~~position of plant manager, operator of a well or a well field, superintendent, or position of~~
1473 ~~equivalent responsibility. (A duly authorized representative may thus be either a named~~
1474 ~~individual or any individual occupying a named position); and~~

1475 ~~_____ (C) The written authorization is submitted to the Administrator.~~

1476 ~~_____ (v) If an authorization under paragraph (iv) of this subsection is no longer~~
1477 ~~accurate because a different individual or position has responsibility for the overall operation of~~
1478 ~~the facility, a new authorization satisfying the requirements of paragraph (iv) of this subsection~~
1479 ~~must be submitted to the Administrator prior to or together with any reports, information, or~~
1480 ~~applications to be signed by an authorized representative.~~

1481 ~~_____ (i) The application shall contain the following certification by the person signing the~~
1482 ~~application:~~

1483 ~~_____ "I certify under penalty of law that this document and all attachments were prepared~~
1484 ~~under my direction or supervision in accordance with a system designed to ensure that qualified~~
1485 ~~personnel properly gather and evaluate the information submitted. Based on my inquiry of the~~
1486 ~~person or persons who manage the system, or those persons directly responsible for gathering the~~
1487 ~~information, the information submitted is, to the best of my knowledge and belief, true, accurate,~~
1488 ~~and complete. I am aware that there are significant penalties for submitting false information,~~
1489 ~~including the possibility of fine and imprisonment for knowing violations."~~

1501
1502 ~~————(j)———— All data used to complete permit applications shall be kept by the applicant for the~~
1503 ~~life of the geologic sequestration project and for ten (10) years following site closure.~~

1504
1505 ~~(formerly Section 4(b)(v))(a)~~ The ~~Administrator~~ Director may deny an ~~individual~~ permit
1506 for any of the following reasons:

1507
1508 ~~(formerly Section 4(b)(v)(A))(i)~~ The application is incomplete;

1509
1510 ~~(formerly Section 4(b)(v)(B))(ii)~~ The project, if constructed or operated, will
1511 violate applicable state surface or groundwater standards;

1512
1513 ~~(formerly Section 4(b)(v)(C))(iii)~~ The application proposes the construction or
1514 operation of a project that does not meet the requirements of this ~~e~~Chapter;

1515
1516 ~~(formerly Section 4(b)(v)(a)(D))(iv)~~ The permitted facility would be in conflict
1517 with or is in conflict with a State-approved local wellhead protection plan, State-approved local
1518 source water protection plan, or State-approved water quality management plan; or

1519
1520 ~~(formerly Section 4(b)(v)(a)(E)(v))~~ Other justifiable reasons necessary to carry
1521 out the provisions of the Wyoming Environmental Quality Act.

1522
1523 **Section 6. ~~Prohibitions.~~ Modifying Permits.**

1524
1525 ~~(a)———— In addition to the requirements in W.S. § 35-11-301(a), no person shall:~~

1526
1527 ~~————(i)———— Discharge into, construct, operate, or modify any Class VI well unless~~
1528 ~~permitted pursuant to this chapter;~~

1529
1530 ~~————(ii)———— Discharge to any zone except the authorized discharge zone as described~~
1531 ~~in the permit;~~

1532
1533 ~~————(iii)———— Conduct any authorized injection activity in a manner that results in a~~
1534 ~~violation of any permit condition, representations made in the application, or the request for~~
1535 ~~coverage under the individual permit. A permit condition supersedes any application content.~~

1536
1537 ~~————(iv)———— Construct, operate, maintain, convert, plug, abandon, or conduct any other~~
1538 ~~injection activity in a manner that allows the movement of fluid containing any contaminant into~~
1539 ~~underground sources of drinking water, if the presence of that contaminant may cause a violation~~
1540 ~~of any primary drinking water regulation under 40 CFR Part 141 or may otherwise adversely~~
1541 ~~affect the health of persons. The applicant for a permit shall have the burden of showing that the~~
1542 ~~requirements of this paragraph are met.~~

1543
1544 ~~————(b)———— If any water quality monitoring of an underground source of drinking water~~
1545 ~~indicates the movement of any contaminant into the underground source of drinking water,~~
1546 ~~except as authorized under this chapter, the Administrator shall prescribe such additional~~

1547 requirements for construction, corrective action, operation, monitoring, or reporting (including
1548 closure of the injection well) as are necessary to prevent such movement. In the case of wells
1549 authorized by permit, these additional requirements shall be imposed by modifying the permit in
1550 accordance with Section 4 of this chapter, or the permit may be terminated under Section 4 of
1551 this chapter if cause exists, or appropriate enforcement action may be taken if the permit has
1552 been violated.

1553
1554 ~~———— (c) ——— No person shall inject any hazardous waste that has been banned from land~~
1555 ~~disposal pursuant to Wyoming Hazardous Waste Rules Chapter 1.~~

1556
1557 ~~———— (d) ——— The construction of new, or operation or maintenance of any existing Class V~~
1558 ~~wells for non-experimental geologic sequestration is prohibited.~~

1559
1560 ~~———— (e) ——— The Administrator may identify (by narrative description, illustrations, maps, or~~
1561 ~~other means) and shall protect as underground sources of drinking water, all aquifers and parts of~~
1562 ~~aquifers that meet the definition of “underground source of drinking water” in Section 2, except~~
1563 ~~to the extent there is expansion to the areal extent of an existing Class II enhanced oil recovery or~~
1564 ~~enhanced gas recovery aquifer exemption for the exclusive purpose of Class VI injection for~~
1565 ~~geologic sequestration under Section 5(e) of this chapter. Other than EPA approved aquifer~~
1566 ~~exemption expansions that meet the criteria set forth in Section 5(c) of this chapter, new aquifer~~
1567 ~~exemptions shall not be issued for Class VI injection wells. Even if an aquifer has not been~~
1568 ~~specifically identified by the Administrator, it is an underground source of drinking water if it~~
1569 ~~meets the definition in Section 2 of this chapter.~~

1570
1571 ~~(formerly Section 4(b)(vii))(a)~~ The ~~Administrator~~ Director may modify a permit
1572 when:

1573
1574 ~~(formerly Section 4(b)(vii)(A)(i)~~ Any material or substantial
1575 alterations or additions to the facility occur after permitting ~~or licensing~~ that justify the
1576 application of different permit conditions ~~that are different or absent in the existing permit;~~

1577
1578 ~~(formerly Section 4(b)(vii)(B)(ii)~~ Any modification in the operation of
1579 the facility is capable of causing or increasing pollution in excess of applicable standards or
1580 permit conditions;

1581
1582 ~~(formerly Section 4(b)(vii)(C)(iii)~~ Information warranting modification
1583 is discovered after the operation has begun that would have justified the application of different
1584 permit conditions at the time of permit issuance;

1585
1586 ~~(formerly Section 4(b)(vii)(D)(iv)~~ Regulations or standards upon which
1587 the permit was based ~~have changed by promulgation of amended standards or regulations or by~~
1588 ~~judicial decision~~ after the permit was issued;

1589
1590 ~~(formerly Section 4(b)(vii)(E)(v)~~ Cause exists for termination, as
1591 described in this ~~s~~Section, but the Department determines that modification is appropriate; ~~or~~

1592

1593 ~~(formerly Section 4(b)(vii)(F)(vi))~~ Modification is necessary to comply
1594 with applicable statutes, standards, or regulations;

1595
1596 ~~(formerly Section 4(b)(xvi)(vii))~~ Transfer of a permit is allowed only upon
1597 approval by the Administrator. When a permit transfer occurs pursuant to this section, the permit
1598 rights of the previous permittee will automatically terminate. The permit is transferred; or
1599

1600 ~~(formerly Section 4(b)(viii)(viii))~~ The Administrator ~~may modify a permit~~
1601 ~~whenever the Administrator~~ determines that permit changes are necessary based on:

1602
1603 ~~(formerly Section 4(b)(viii)(A)(A))~~ Area of review reevaluations under
1604 Section ~~8(d)(i)~~ 13(c)(i) of this ~~e~~Chapter;

1605
1606 ~~(formerly Section 4(b)(viii)(B)(B))~~ ~~Any a~~A amendments to the testing and
1607 monitoring plan under Section ~~14(b)(xii)~~ 20(b)(xi) of this ~~e~~Chapter;

1608
1609 ~~(formerly Section 4(b)(viii)(C)(C))~~ ~~Any a~~A amendments to the injection
1610 well-plugging plan under Section ~~16(e)~~ 23(c) of this ~~e~~Chapter;

1611
1612 ~~(formerly Section 4(b)(viii)(D)(D))~~ ~~Any a~~A amendments to the post-
1613 injection site care and site closure plan under Section ~~17(a)(iv)~~ 24(a)(iv) of this ~~e~~Chapter;

1614
1615 ~~(formerly Section 4(b)(viii)(E)(E))~~ ~~Any a~~A amendments to the emergency
1616 and remedial response plan under Section ~~18(a)(i)~~ 25(a) of this ~~e~~Chapter;

1617
1618 ~~(formerly Section 4(b)(viii)(F)(F))~~ A review of monitoring ~~and/or~~
1619 testing results ~~conducted in accordance with permit requirements~~; or

1620
1621 ~~(formerly Section 4(b)(viii)(G)(G))~~ A determination that the injectate is a
1622 hazardous waste as defined in 40 CFR § 261.3 ~~either because the definition has been revised, or~~
1623 ~~because a previous determination has been changed.~~

1624
1625 ~~formerly Section 4(b)(x)(b)~~ The Administrator may make Mminor modifications ~~of to~~
1626 permits ~~may occur~~ with the consent of the permittee, ~~without following the public notice~~
1627 ~~requirements.~~ The Administrator shall notify the permittee of Mminor modifications to its
1628 permit, and the modifications will shall become final twenty (20) days from the date of receipt of
1629 such notice. ~~For the purposes of this chapter, m~~Mminor modifications may only:

1630
1631 ~~formerly Section 4(b)(x)(A)(i)~~ Correct typographical errors;

1632
1633 ~~formerly Section 4(b)(x)(B)(ii)~~ Require more frequent monitoring or
1634 reporting by the permittee;

1635
1636 ~~formerly Section 4(b)(x)(C)(iii)~~ Change an interim compliance date in a
1637 schedule of compliance, provided the new date is not more than 120 days after the date specified

1638 in the existing permit and does not interfere with attainment of the final compliance date
1639 requirement;

1640
1641 ~~formerly Section 4(b)(x)(D)(iv)~~ Allow for a permit transfer and change in
1642 ownership or operational control of a facility where the Administrator determines that no other
1643 change in the permit is necessary, provided that a written agreement containing a specific date
1644 for transfer of permit responsibility, coverage, and liability between the current and new
1645 permittees ~~have~~ has been submitted to the Administrator;

1646
1647 ~~formerly Section 4(b)(x)(E)(v)~~ Change quantities or types of fluids injected
1648 that are within the capacity of the facility as permitted and, in the judgment of the Administrator,
1649 would not interfere with the operation of the facility or its ability to meet conditions described in
1650 the permit and would not change its classification;

1651
1652 ~~formerly Section 4(b)(x)(F)(vi)~~ Change construction requirements approved
1653 by the Administrator pursuant to ~~subparagraphs (e)(i)(BB)(I) through (III) of this section~~ Section
1654 9(b)(xxix)(A)-(C) of this Chapter, provided that ~~any such~~ the alteration ~~shall~~ complyes with the
1655 requirements of this ~~e~~Chapter;

1656
1657 ~~formerly Section 4(b)(x)(G)(vii)~~ Amend a well-plugging and abandonment
1658 plan that has been updated under Section ~~16~~ 23 of this ~~e~~Chapter; or

1659
1660 ~~formerly Section 4(b)(x)(H)(ix)~~ Amend a Class VI injection well testing and
1661 monitoring plan, well-plugging plan, post-injection site care and site closure plan, or emergency
1662 and remedial response plan where the modifications merely clarify or correct the plan, ~~as~~
1663 ~~determined by the Administrator.~~

1664
1665 ~~formerly Section 4(b)(xii)(c)~~ The ~~Administrator~~ Director may modify a permit to resolve
1666 issues that could lead to the revocation or termination of the permit under Section ~~4(b) 7(a)~~ of
1667 this ~~e~~Chapter. ~~The Administrator, as part of any notification of intent to terminate a permit, shall~~
1668 ~~order the permittee to proceed with reclamation on a reasonable time period.~~

1669
1670 ~~(formerly Section 4(b)(xiv)(d)~~ When the Administrator Director modifies a permit,
1671 ~~In a permit modification under Section 4(b) of this chapter,~~ only ~~those~~ the conditions ~~to be that~~
1672 are being modified shall be reopened when a new draft permit is prepared. All other aspects of
1673 the existing, unmodified permit shall remain in effect for the duration of the ~~un~~modified permit
1674 and the modified permit shall expire on the date when the original permit would have expired.
1675 ~~When a permit is revoked and reissued under this section, the entire permit is reopened as if the~~
1676 ~~permit has expired and is being reissued. During any revocation and reissuance proceeding, the~~
1677 ~~permittee shall comply with all conditions of the existing permit until a new final permit is~~
1678 ~~issued. (formerly Section 4(b)(ix))~~ Suitability of the facility location ~~will~~ shall not be considered
1679 ~~at the time of permit modification or revocation and reissuance~~ unless new information or
1680 standards indicate that a threat to human health, safety, or the environment exists that was
1681 unknown at the time of permit issuance.

1682
1683 ~~formerly Section (4)(b)(xiii)(e)~~ ~~If the Administrator tentatively decides to modify or~~

1684 ~~revoke and reissue a permit, a draft permit incorporating the proposed changes shall be prepared.~~
1685 The Administrator ~~may request additional information and, in the case of a modified permit,~~ may
1686 require the submission of ~~an updated~~ a new application to modify a permit. ~~In the case of~~
1687 ~~revoked and reissued permits, the Administrator shall require the submission of a new~~
1688 ~~application.~~

1689
1690 **Section 7. ~~Minimum Criteria for Siting Class VI Wells.~~ Terminating, Revoking,**
1691 **and Reissuing Permits.**

1692
1693 (a) ~~Owners or operators of Class VI wells must demonstrate to the satisfaction of the~~
1694 ~~Administrator that the wells will be sited in areas with a suitable geologic system. The geologic~~
1695 ~~system must be comprised of:~~

1696
1697 (i) ~~An injection zone of sufficient areal extent, thickness, porosity, and~~
1698 ~~permeability to receive the total anticipated volume of the carbon dioxide stream; and~~

1699
1700 (ii) ~~A confining zone(s) that is free of transmissive faults or fractures and of~~
1701 ~~sufficient areal extent and integrity to contain the injected carbon dioxide stream and displaced~~
1702 ~~formation fluids and allow injection at proposed maximum pressures and volumes without~~
1703 ~~initiating or propagating fractures in the confining zone(s) or causing non-transmissive faults to~~
1704 ~~become transmissive.~~

1705
1706 (b) ~~Owners or operators of Class VI wells must identify and characterize additional~~
1707 ~~zones, if they exist, that will impede vertical fluid movement, allow for pressure dissipation, and~~
1708 ~~provide additional opportunities for monitoring, mitigation, and remediation. Vertical faults and~~
1709 ~~fractures that transect these zones must be identified.~~

1710
1711 ~~(formerly Section 4(b)(xi)(a))~~ The ~~Administrator~~ Director may terminate a permit or
1712 ~~revoke and reissue~~ ~~or terminate~~ a permit for any of the following reasons:

1713
1714 ~~(formerly Section 4(b)(xi)(A)(i))~~ Noncompliance with terms and conditions
1715 of the permit;

1716
1717 ~~(formerly Section 4(b)(xi)(B)(ii))~~ Failure in the application or during the
1718 issuance process to disclose fully all relevant facts, or misrepresentation of any relevant facts at
1719 any time; or

1720
1721 ~~(formerly Section 4(b)(xi)(C)(iii))~~ A determination that the activity ~~endangers~~
1722 threatens human health, safety, or the environment and can only be regulated to acceptable levels
1723 by a permit modification or termination.

1724
1725 ~~(formerly Section 4(b)(xii)(b))~~ The ~~Administrator~~ may modify a permit to resolve issues
1726 ~~that could lead to the revocation of the permit under Section 4(b) of this chapter. The~~
1727 ~~Administrator,~~ aAs part of any ~~notification~~ notice of intent to terminate a permit, the Director
1728 shall order the permittee to proceed with reclamation ~~on~~ within a reasonable time period.
1729

1730 ~~(formerly Section 4(b)(xiii))(c)~~ If the Administrator tentatively decides to modify or
1731 revoke and reissue a permit, a draft permit incorporating the proposed changes shall be prepared.
1732 The Administrator may request additional information and, in the case of a modified permit, may
1733 require the submission of an updated application. In the case of revoked and reissued permits, the
1734 Administrator shall require the submission of A revoked permit may be reissued only if a new
1735 application is submitted.

1736
1737 ~~(formerly Section 4(b)(xiv))(d)~~ In a permit modification under Section 4(b) of this
1738 eChapter, only those conditions to be modified shall be reopened when a new draft permit is
1739 prepared. All other aspects of the existing permit shall remain in effect for the duration of the
1740 unmodified permit and the modified permit shall expire on the date when the original permit
1741 would have expired. When a permit is revoked and reissued ~~under this section~~, the entire permit
1742 is reopened as if the permit has expired and is being reissued, except that suitability of the
1743 facility location shall not be considered unless new information or standards indicate that a threat
1744 to human health, safety, or the environment exists that was unknown at the time of permit
1745 issuance. During any revocation and reissuance proceeding, the permittee shall comply with all
1746 conditions of the existing permit until a new final permit is issued.

1747
1748 **Section 8. ~~Area of Review Delineation and Corrective Action.~~ Transferring**
1749 **Permits.**

1750
1751 (a) ~~—The area of review is based on computational modeling that accounts for the~~
1752 ~~physical and chemical properties of all phases of the injected carbon dioxide stream. The owner~~
1753 ~~or operator will re-evaluate the area of review at least every two (2) years during the operational~~
1754 ~~life of the facility, and then no less frequently than every five (5) years through the post-injection~~
1755 ~~site care period until the geologic sequestration project is closed in accordance with department~~
1756 ~~rules and regulations.~~

1757
1758 (b) ~~—The owner or operator of a Class VI well must prepare, maintain, and comply~~
1759 ~~with a plan to delineate the area of review for a proposed geologic sequestration project, re-~~
1760 ~~evaluate the delineation, and perform corrective action that meets the requirements of this section~~
1761 ~~and is acceptable to the Administrator. As a part of the permit application for approval by the~~
1762 ~~Administrator, the owner or operator must submit an area of review and corrective action plan~~
1763 ~~that includes the following information:~~

1764
1765 (i) ~~—The method for delineating the area of review that meets the requirements~~
1766 ~~of paragraph (c) of this section, including the name, version and availability of the model to be~~
1767 ~~used, assumptions that will be made, and the site characterization data on which the model will~~
1768 ~~be based;~~

1769
1770 (ii) ~~—A description of:~~

1771
1772 (A) ~~—The monitoring and operational conditions that would warrant a re-~~
1773 ~~evaluation of the area of review prior to the next scheduled re-evaluation as determined by the~~
1774 ~~minimum fixed frequency established in paragraph (a) of this section.~~

1776 ~~(B) — How monitoring and operational data (e.g., injection rate and~~
1777 ~~pressure) will be used to evaluate the area of review; and~~
1778
1779 ~~(C) — How corrective action will be conducted to meet the requirements~~
1780 ~~of paragraph (c)(v) of this section, including:~~
1781
1782 ~~(I) — What corrective action will be performed prior to injection;~~
1783
1784 ~~(II) — What, if any, portions of the area of review will have~~
1785 ~~corrective action addressed on a phased basis, and how the phasing will be determined;~~
1786
1787 ~~(III) — How corrective action will be adjusted if there are changes~~
1788 ~~in the area of review; and~~
1789
1790 ~~(IV) — How site access will be ensured for future corrective action.~~
1791
1792 ~~(e) — Owners or operators of Class VI wells must perform the following actions to~~
1793 ~~delineate the area of review, identify all wells that require corrective action, and perform~~
1794 ~~corrective action on those wells:~~
1795
1796 ~~(i) — Predict, using existing computational modeling:~~
1797
1798 ~~(A) — The projected lateral and vertical migration of the carbon dioxide~~
1799 ~~plume and formation fluids in the subsurface from the commencement of injection activities until~~
1800 ~~the plume movement ceases;~~
1801
1802 ~~(B) — The pressure differentials, and demonstrate that pressure~~
1803 ~~differentials sufficient to cause the movement of injected fluids or formation fluids into a USDW~~
1804 ~~or to otherwise threaten human health, safety, or the environment will not be present (or for a~~
1805 ~~fixed time period as determined by the Administrator);~~
1806
1807 ~~(C) — The potential need for brine removal, and;~~
1808
1809 ~~(D) — The long term effects of pressure buildup if brine is not removed.~~
1810
1811 ~~(ii) — The modeling must:~~
1812
1813 ~~(A) — Be based on:~~
1814
1815 ~~(I) — Detailed geologic data available or collected to characterize~~
1816 ~~the injection zone, confining zone and any additional zones; and~~
1817
1818 ~~(II) — Anticipated operating data, including injection pressures,~~
1819 ~~rates and total volumes over the proposed operational life of the facility.~~
1820

- 1821 ~~(B) — Take into account any relevant geologic heterogeneities, other~~
1822 ~~discontinuities, data quality, and their possible impact on model predictions; and~~
1823
- 1824 ~~(C) — Consider potential migration through faults, fractures, and artificial~~
1825 ~~penetrations.~~
1826
- 1827 ~~(iii) — Using methods approved by the Administrator, identify all penetrations,~~
1828 ~~including active and abandoned wells and underground mines, in the area of review that may~~
1829 ~~penetrate the confining zone. Provide a description of each well's type, construction, date drilled,~~
1830 ~~location, depth, record of plugging and/or completion, and any additional information the~~
1831 ~~Administrator may require; and~~
1832
- 1833 ~~(iv) — Determine which abandoned wells in the area of review have been~~
1834 ~~plugged in a manner that prevents the movement of:~~
1835
- 1836 ~~(A) — Carbon dioxide that may endanger USDWs or otherwise threaten~~
1837 ~~human health, safety, or the environment; or~~
1838
- 1839 ~~(B) — Displaced formation fluids, or other fluids, including the use of~~
1840 ~~materials compatible with the carbon dioxide stream, that may endanger USDWs or otherwise~~
1841 ~~threaten human health, safety, or the environment.~~
1842
- 1843 ~~(v) — Owners or operators of Class VI wells that are determined to need~~
1844 ~~corrective action using methods that are approved by the Administrator, must perform corrective~~
1845 ~~action on all wells in the area of review to prevent the movement of fluid into or between~~
1846 ~~USDWs including use of materials compatible with the carbon dioxide stream, where~~
1847 ~~appropriate.~~
1848
- 1849 ~~(d) — At a fixed frequency, not to exceed two (2) years during the operational life of the~~
1850 ~~facility, or five (5) years during the post-injection site care period (until site closure) as specified~~
1851 ~~in the area of review and corrective action plan, or when monitoring and operational conditions~~
1852 ~~warrant, owners or operators must:~~
1853
- 1854 ~~(i) — Re-evaluate the area of review in the same manner specified in paragraph~~
1855 ~~(c)(i) of this section;~~
1856
- 1857 ~~(ii) — Identify all wells in the re-evaluated area of review that require corrective~~
1858 ~~action in the same manner specified in paragraph (c)(iv) of this section;~~
1859
- 1860 ~~(iii) — Perform corrective action on wells requiring corrective action in the~~
1861 ~~reevaluated area of review in the same manner specified in paragraph (c)(v) of this section; and~~
1862
- 1863 ~~(iv) — Submit an amended area of review and corrective action plan or~~
1864 ~~demonstrate to the Administrator through monitoring data and modeling results that no change to~~
1865 ~~the area of review and corrective action plan is needed.~~
1866

1867 (A) ~~Any amendments to the area of review and corrective action plan~~
1868 ~~must be approved by the Administrator;~~

1869
1870 (B) ~~Any amendments to the area of review must be incorporated into~~
1871 ~~the permit; and~~

1872
1873 (C) ~~Any amendments to the area of review are subject to the permit~~
1874 ~~modification requirements of Section 4 of this chapter, as appropriate.~~

1875
1876 (e) ~~The emergency and remedial response plan (as required by Section 18 of this~~
1877 ~~chapter) and a demonstration of financial responsibility (as described by Section 19 of this~~
1878 ~~chapter) must account for the entire area of review (as modified), regardless of whether or not~~
1879 ~~corrective action in the area of review is phased.~~

1880
1881 (f) ~~All modeling inputs and data used to support area of review reevaluations under~~
1882 ~~paragraph (d) of this section shall be retained for ten (10) years.~~

1883
1884 (a) To transfer a permit:

1885
1886 ~~(formerly Section 4(b)(xvi))(A)(i)~~ The proposed permit ~~holder~~ transferee shall
1887 apply in writing as though that person ~~was~~ were the original applicant for the permit; and

1888
1889 ~~(formerly Section 4(b)(xvi))(A)(ii)~~ The proposed permit transferee shall ~~further~~
1890 agree to be bound by all of the terms and conditions of the permit.

1891
1892 ~~(formerly Section 4(b)(xvi))(b)~~ Transfer of a permit is allowed only upon approval
1893 by the ~~Administrator~~ Director.

1894
1895 ~~(formerly Section 4(b)(xvi))(c)~~ When a permit transfer occurs pursuant to this
1896 section, the permit rights of the previous permittee ~~will~~ automatically terminate.

1897
1898 ~~(formerly Section 4(b)(xvi))(B)(d)~~ Transfer ~~will~~ shall not be allowed if the permittee is
1899 in noncompliance with any term and conditions of the permit; unless the transferee agrees to
1900 bring the facility back into compliance with the permit.

1901
1902 ~~(formerly Section 4(b)(xvi))(D)(e)~~ A permit may be transferred by modifying the
1903 permit or by revoking and reissuing the permit ~~the permittee to a new owner or operator only if~~
1904 ~~the permit has been modified or revoked and reissued (under paragraph (xiii) of this subsection),~~
1905 ~~or a minor modification made (under paragraph (xii) of this subsection);~~ to identify the new
1906 permittee and incorporate ~~such other requirements as may be necessary under the Safe Drinking~~
1907 ~~Water Act~~ the requirements of this Chapter and the Wyoming Environmental Quality Act, W.S.
1908 § 35-11-101 et seq.

1909
1910 **Section 9. ~~Construction and Operation Standards for Class VI Wells.~~ Permit**
1911 **Conditions.**

1913 (a) ~~—The owner or operator must ensure that all Class VI wells are designed, at a~~
1914 ~~minimum, to the construction standards set forth by the Department and the Wyoming Oil and~~
1915 ~~Gas Conservation Commission, as applicable, and constructed and completed to:~~

1916
1917 (i) ~~—Prevent the movement of fluids into or between USDWs or into any~~
1918 ~~unauthorized zones;~~

1919
1920 (ii) ~~—Permit the use of appropriate testing devices and workover tools; and~~

1921
1922 (iii) ~~—Permit continuous monitoring of the annulus space between the injection~~
1923 ~~tubing and long string casing.~~

1924
1925 (b) ~~—Casing and cement or other materials used in the construction of each Class VI~~
1926 ~~well must have sufficient structural strength and be designed for the life of the well.~~

1927
1928 (i) ~~—All well materials must be compatible with fluids with which the materials~~
1929 ~~may be expected to come into contact, and meet or exceed standards developed for such~~
1930 ~~materials by the American Petroleum Institute, ASTM International, or comparable standards~~
1931 ~~acceptable to the Administrator.~~

1932
1933 (ii) ~~—The casing and cementing program must be designed to prevent the~~
1934 ~~movement of fluids into or between USDWs.~~

1935
1936 (iii) ~~—In order to allow the Administrator to determine and specify casing and~~
1937 ~~cementing requirements, the owner or operator must provide the following information:~~

1938
1939 (A) ~~—Depth to the injection zone;~~

1940
1941 (B) ~~—Injection pressure, external pressure, internal pressure, and axial~~
1942 ~~loading;~~

1943
1944 (C) ~~—Hole size;~~

1945
1946 (D) ~~—Size and grade of all casing strings (wall thickness, external~~
1947 ~~diameter, nominal weight, length, joint specification and construction material), including~~
1948 ~~whether the casing is new, or used;~~

1949
1950 (E) ~~—Corrosiveness of the carbon dioxide stream and formation fluids;~~

1951
1952 (F) ~~—Down-hole temperatures and pressures;~~

1953
1954 (G) ~~—Lithology of injection and confining zones;~~

1955
1956 (H) ~~—Type or grade of cement and additives; and~~

1957

1958 (I) ~~Quantity, chemical composition, and temperature of the carbon~~
1959 ~~dioxide stream.~~

1960
1961 (iv) ~~Casing must extend through the base of the lowermost USDW above the~~
1962 ~~injection zone and be cemented to the surface through the use of a single or multiple strings of~~
1963 ~~casing and cement.~~

1964
1965 (v) ~~At least one (1) long string casing, using a sufficient number of~~
1966 ~~centralizers, must be set in a manner so as to create a cement bond through the overlying and/or~~
1967 ~~underlying confining zones(s). The long string casing must extend to the injection zone, must be~~
1968 ~~cemented by circulating cement to the surface in one (1) or more stages, and must be isolated by~~
1969 ~~placing cement and/or other isolation techniques as necessary to provide adequate isolation of~~
1970 ~~the injection zone and provide for protection of USDWs, human health, safety, and the~~
1971 ~~environment.~~

1972
1973 (A) ~~Circulation of cement may be accomplished by staging. The~~
1974 ~~Administrator may approve an alternative method of cementing in cases where the cement~~
1975 ~~cannot be recirculated to the surface, provided the owner or operator can demonstrate by using~~
1976 ~~logs that the cement does not allow fluid movement behind the wellbore.~~

1977
1978 (vi) ~~Cement and cement additives must be suitable for use with the carbon~~
1979 ~~dioxide stream and formation fluids and of sufficient quality and quantity to maintain integrity~~
1980 ~~over the operating life of the well.~~

1981
1982 (vii) ~~The integrity and location of the cement shall be verified using technology~~
1983 ~~capable of evaluating cement quality radially with sufficient resolution to identify the location of~~
1984 ~~channels, voids, or other areas of missing cement to ensure that USDWs are not endangered and~~
1985 ~~that human health, safety, and the environment are protected.~~

1986
1987 (e) ~~All owners and operators of Class VI wells must inject fluids through tubing with~~
1988 ~~a packer set at a depth opposite a cemented interval at the location approved by the~~
1989 ~~Administrator.~~

1990
1991 (i) ~~Tubing and packer materials used in the construction of each Class VI~~
1992 ~~well must be compatible with fluids with which the materials may be expected to come into~~
1993 ~~contact and must meet or exceed standards developed for such materials by the American~~
1994 ~~Petroleum Institute, ASTM International, or comparable standards acceptable to the~~
1995 ~~Administrator.~~

1996
1997 (ii) ~~In order for the Administrator to determine and specify requirements for~~
1998 ~~tubing and packer, the owner or operator must submit the following information:~~

1999
2000 (A) ~~Depth of setting;~~

2001
2002 (B) ~~Characteristics of the carbon dioxide stream (e.g., chemical~~
2003 ~~content, corrosiveness, temperature, and density) and formation fluids;~~

- 2004
2005 ~~(C) — Maximum proposed injection pressure;~~
2006
2007 ~~(D) — Maximum proposed annular pressure;~~
2008
2009 ~~(E) — Maximum proposed injection rate (intermittent or continuous) and~~
2010 ~~volume of the carbon dioxide stream;~~
2011
2012 ~~(F) — Size of tubing and casing; and~~
2013
2014 ~~(G) — Tubing tensile, burst, and collapse strengths.~~
2015

2016 ~~(formerly Section 4(e)(i))~~(a) Permit conditions shall be incorporated either expressly or
2017 by reference. If incorporated by reference, a specific citation to the incorporated conditions ~~must~~
2018 shall be given in the permit.
2019

2020 ~~(formerly Section 4(e)(i))~~(b) All ~~individual~~ permits issued under this ~~e~~Chapter shall
2021 contain the following conditions:
2022

2023 ~~(formerly Section 4(e)(i)(A))~~(i) A requirement that the permittee ~~comply~~
2024 complies with all conditions of the permit, and a statement that any permit noncompliance
2025 constitutes a violation of these regulations and is grounds for enforcement action, permit
2026 termination, revocation and reissuance, or modification, or for denial of a permit renewal
2027 application;
2028

2029 ~~(formerly Section 4(e)(i)(B))~~ ~~A requirement that if the permittee wishes to~~
2030 ~~continue injection activity after the expiration date of the permit, the permittee must apply to the~~
2031 ~~Administrator for, and obtain, a new permit prior to expiration of the existing permit;~~
2032

2033 ~~(formerly Section 4(e)(i)(C))~~(ii) A stipulation that it shall not be a defense
2034 for a permittee in an enforcement action that it would have been necessary to halt or reduce the
2035 permitted activity in order to maintain compliance with the conditions of this permit;
2036

2037 ~~(formerly Section 4(e)(i)(D))~~(iii) A requirement that the permittee shall take
2038 all reasonable steps to minimize or correct any adverse impact on the environment resulting from
2039 noncompliance with this permit;
2040

2041 ~~(formerly Section 4(e)(i)(E))~~(iv) A requirement that the permittee properly
2042 operates and maintains all facilities and systems of treatment and control, and related
2043 appurtenances, that are installed or used by the permittee to achieve compliance with the
2044 conditions of this permit. Proper operation and maintenance includes effective performance,
2045 adequate funding and operator staffing and training, and adequate laboratory and process
2046 controls including appropriate quality assurance procedures. This provision requires the
2047 operation of back-up or auxiliary facilities or similar systems only when necessary to achieve
2048 compliance with the conditions of the permit;
2049

2050 ~~(formerly Section 4(e)(i)(F))(v)~~ A stipulation that the filing of a request by
2051 the permittee, or at the instigation of the Administrator, for a permit modification, revocation,
2052 termination, or notification of planned changes or anticipated non-compliance, shall not stay any
2053 permit condition;

2054
2055 ~~(formerly Section 4(e)(i)(G))(vi)~~ A stipulation that ~~this~~ the permit does not
2056 convey any property rights of any sort, or any exclusive privilege;

2057
2058 ~~(formerly Section 4(e)(i)(H))(vii)~~ A stipulation that the permittee shall furnish
2059 to the Administrator, within a specified time, any information that the Administrator ~~may~~
2060 requests to determine whether cause exists for modifying, revoking and reissuing, or terminating
2061 the permit, or to determine compliance with the permit. The permittee shall also furnish to the
2062 Administrator, upon request, copies of records required to be kept by the permit;

2063
2064 ~~(formerly Section 4(e)(i)(I))(viii)~~ A requirement that the permittee shall allow
2065 the Administrator, or an authorized representative of the Administrator, upon the presentation of
2066 credentials, during normal working hours, to enter the premises where a regulated facility is
2067 located, or where records are kept under the conditions of this permit, and;

2068
2069 ~~(formerly Section 4(e)(i)(I)(I))(A)~~ Inspect the discharge and related
2070 facilities, practices, or operations regulated or required under this permit;

2071
2072 ~~(formerly Section 4(e)(i)(I)(II))(B)~~ Review and copy reports and records
2073 required by the permit;

2074
2075 ~~(formerly Section 4(e)(i)(I)(III))(C)~~ Collect fluid samples for analysis for
2076 the purposes of ~~assuring~~ ensuring permit compliance or as otherwise authorized by the ~~SDWA,~~
2077 Wyoming Environmental Quality Act of any substances or parameters at any location;

2078
2079 ~~(formerly Section 4(e)(i)(I)(IV))(D)~~ Measure and record water levels; ~~and~~

2080
2081 (E) Collect resource data as defined by W.S. § 6-3-414; and

2082
2083 ~~(formerly Section 4(e)(i)(I)(V))(F)~~ Perform any other function
2084 authorized by law or regulation.

2085
2086 (ix) A requirement that:

2087
2088 (A) If the facility is located on property not owned by the permittee,
2089 the permittee shall also secure from the landowner upon whose property the facility is located
2090 permission for Department personnel and their invitees to enter the premises where the facility is
2091 located, or where records are kept under the conditions of this permit, and collect resource data
2092 as defined by W.S. § 6-3-414, inspect and photograph the facility, collect samples for analysis,
2093 review records, and perform any other function authorized by law or regulation. The permittee
2094 shall secure and maintain such access for the duration of the permit and the post-injection site
2095 care and site closure period; and

2096
2097 (B) If the facility cannot be directly accessed using public roads, the
2098 permittee shall also secure permission for Department personnel and their invitees to enter and
2099 cross all properties necessary to access the facility. The permittee shall secure and maintain such
2100 access for the duration of the permit and the post-injection site care and site closure period;

2101
2102 ~~(formerly Section 4(e)(i)(J))(x)~~ A requirement that the permittee furnishes
2103 any information necessary to establish a testing and monitoring ~~program~~ pursuant to Section ~~14~~
2104 20 of this ~~e~~Chapter. Conditions shall specify:

2105
2106 ~~(formerly Section 4(e)(i)(J)(I))(A)~~ Required monitoring including type,
2107 intervals, and frequency sufficient to yield data that are representative of the monitored activity
2108 including when appropriate, continuous monitoring;

2109
2110 ~~(formerly Section 4(e)(i)(J)(II))(B)~~ Requirements concerning the proper
2111 use, maintenance, and installation, ~~when appropriate,~~ of monitoring equipment or methods,
2112 including biological monitoring methods ~~when appropriate;~~ and

2113
2114 ~~(formerly Section 4(e)(i)(J)(III))(C)~~ Applicable ~~r~~Reporting and notice
2115 requirements based upon the impact of the regulated activity and as specified in Section ~~15~~ 22 of
2116 this ~~e~~Chapter. Reporting shall be no less frequent than specified in ~~the above regulations.~~ Section
2117 22 of this Chapter;

2118
2119 ~~(formerly Section 4(e)(i)(K))(xi)~~ A requirement that all samples and
2120 measurements taken for the purpose of monitoring shall be representative of the monitored
2121 activity and that records of all monitoring information be retained by the permittee. ~~The~~
2122 ~~monitoring information to be retained shall be that information stipulated in the monitoring~~
2123 ~~program established pursuant to the criteria in Section 14 of this chapter;~~

2124
2125 ~~(formerly Section 4(e)(i)(L))(xii)~~ A requirement that all applications, reports,
2126 and other information submitted to the Administrator contain the certifications ~~as~~ required in
2127 Section ~~5(i)~~ 10(d) of this ~~e~~Chapter ~~by a responsible corporate officer, and be signed by a person~~
2128 ~~who meets the requirements to sign permit applications found in Section 5(h), or for routine~~
2129 ~~reports, a duly authorized representative;~~

2130
2131 (A) A responsible corporate officer, as defined in Section 2(mm) of
2132 this Chapter, may authorize an individual or a position that does not meet the requirements of
2133 subparagraphs (i), (ii), (iii), or (iv) of Section 2(mm) to act as a “duly authorized representative.”
2134 ~~(formerly located at Section 5(h)(iv)) A person is authorized~~ To authorize as a responsible officer
2135 duly authorized representative only if:

2136
2137 ~~(formerly located at Section 5(h)(iv)(A))(I)~~ The authorization is
2138 ~~made in writing by a person described in paragraphs (i) through (iii) in this subsection~~ A person
2139 who meets the requirements of subparagraph (i), (ii), (iii), or (iv) of Section 2(mm) shall
2140 authorize the duly authorized representative in writing;

2141

2142 ~~(formerly located at Section 5(h)(iv)(B))~~(II) The authorization
2143 ~~shall specifies specify either~~ an individual or a position having responsibility for the overall
2144 operation of the regulated facility or activity, such as the position of plant manager, operator of a
2145 well or a well field, superintendent, or position of equivalent responsibility. ~~(A duly authorized~~
2146 ~~representative may thus be either a named individual or any individual occupying a named~~
2147 ~~position);~~ and

2148
2149 ~~(formerly located at Section 5(h)(iv)(B))~~(III) _____ The
2150 responsible corporate officer shall submit the written authorization ~~is submitted~~ to the
2151 Administrator.

2152
2153 ~~(formerly located at Section 5(h)(v))~~(B) _____ If an authorization under
2154 ~~paragraph (iv) of this subsection~~ subparagraph (A) of this subparagraph is no longer accurate
2155 because a different individual or position has responsibility for the overall operation of the
2156 facility, ~~a new authorization satisfying the requirements of paragraph (iv) of this subsection must~~
2157 ~~be submitted to the responsible corporate official shall notify~~ the Administrator that the
2158 authorization is no longer accurate or shall submit to the Administrator a new authorization
2159 satisfying the requirements of subparagraph (A) of this subparagraph prior to or together with
2160 any reports, or information, ~~or applications~~ to be signed by ~~an~~ duly authorized representative.

2161
2162 ~~(formerly Section 4(e)(i)(M))~~(xiii) A requirement that the permittee give
2163 advance notice to the Administrator as soon as possible of any planned physical alteration or
2164 additions, other than authorized operation and maintenance, to the permitted facility and receive
2165 authorization from the Administrator prior to implementing the proposed alteration or addition;

2166
2167 ~~(formerly Section 4(e)(i)(N))~~(xiv) A requirement that any modification that
2168 may result in a violation of a permit condition shall be reported to the Administrator, and any
2169 modification that will result in a violation of a permit condition shall be reported to the
2170 Administrator through the submission of a new or amended permit application;

2171
2172 ~~(formerly Section 4(e)(i)(O))~~(xv) A requirement that any transfer of a permit
2173 ~~must shall~~ first be approved by the ~~Administrator~~ Director, and that no transfer will be approved
2174 if the facility is not in compliance with the existing permit unless the proposed permittee agrees
2175 to bring the facility into compliance;

2176
2177 ~~(formerly Section 4(e)(i)(P))~~(xvi) A requirement that monitoring results shall
2178 be reported at the intervals specified ~~elsewhere~~ in the permit;

2179
2180 ~~(formerly Section 4(e)(i)(Q))~~(xvii) A requirement that reports of compliance or
2181 non-compliance, or any progress reports on interim and final requirements contained in any
2182 compliance schedule, ~~(if one is required by the Administrator,)~~ shall be submitted no later than
2183 thirty (30) days following each schedule date;

2184
2185 ~~(formerly Section 4(e)(i)(R))~~(xviii) ~~A requirement that the permittee shall report~~
2186 The following reporting and mitigation requirements:

2187

2188 ~~(formerly Section 4(e)(i)(R)(I))(A)~~ If Any monitoring or other
2189 information ~~that~~ indicates that any contaminant ~~may cause an endangerment to a USDW or~~
2190 ~~indicates that~~ the injected carbon dioxide stream, displaced formation fluids, or associated
2191 pressure front may endanger a USDW or threaten human health, safety, or the environment. ~~In~~
2192 ~~addition,~~ the ~~owner or operator~~ permittee shall:

2193
2194 ~~(formerly Section 4(e)(i)(R)(I)(1.))~~(I) Immediately cease injection;

2195
2196 ~~(formerly Section 4(e)(i)(R)(I)(2.))~~(II) Take all steps
2197 reasonably necessary to identify and characterize any release; ~~and~~

2198
2199 ~~(formerly Section 4(e)(i)(R)(I)(3.))~~(III) Orally Notify the
2200 Administrator within twenty-four (24) hours: of discovering the condition; and

2201
2202 ~~formerly Section 4(e)(i)(R)(II))~~(IV) Provide a written submission
2203 report shall be provided to the Administrator within five (5) days of ~~the time the permittee~~
2204 ~~becomes aware of discovering any excursion or indication that a contaminant may cause an~~
2205 ~~endangerment to a USDW~~ the condition. The written submission report shall contain:

2206
2207 ~~formerly Section 4(e)(i)(R)(II)(1.))~~(1.) _____ A description
2208 of the ~~noncompliance~~ endangerment and its cause;

2209
2210 ~~formerly Section 4(e)(i)(R)(II)(2.))~~(2.) _____ The period of
2211 ~~noncompliance~~ endangerment, including exact dates and times, and, if the ~~noncompliance~~
2212 endangerment has not been controlled, the anticipated time it is expected to continue; and

2213
2214 ~~formerly Section 4(e)(i)(R)(II)(3.))~~(3.) _____ The Steps taken or
2215 planned to reduce, eliminate, and prevent reoccurrence of the ~~noncompliance~~ endangerment;

2216
2217 ~~formerly Section 4(e)(i)(R)(II))~~(B) If the permittee discovers Any
2218 noncompliance with a permit condition or a requirement of this Chapter that may cause fluid
2219 migration into or between USDWs, or any malfunction of the injection system that may cause
2220 fluid migration into or between USDWs, ~~or if any excursion, is discovered~~ the permittee shall:

2221
2222 ~~formerly Section 4(e)(i)(R)(II))~~(I) ~~It shall be o~~Orally reported to
2223 notify the Administrator within twenty-four (24) hours ~~from the time the permittee becomes~~
2224 ~~aware of the circumstances,~~ of discovering the condition;

2225
2226 ~~formerly Section 4(e)(i)(R)(II))~~(II) ~~and~~ Provide a written
2227 submission report to the Administrator shall be provided within five (5) days of ~~the time the~~
2228 ~~permittee becomes aware of any excursion or indication that a contaminant may cause an~~
2229 ~~endangerment to a USDW.~~ discovering the condition, which ~~The written submission~~ shall
2230 contain:

2231
2232 ~~formerly Section 4(e)(i)(R)(II)(1.))~~(1.) _____ A description of the
2233 noncompliance, malfunction, or excursion and its cause;

2234
2235 ~~formerly Section 4(e)(i)(R)(II)(2.))(2.)~~ The period of
2236 noncompliance, malfunction, or excursion, including exact dates and times, and, if the
2237 noncompliance, malfunction, or excursion has not been controlled, the anticipated time it is
2238 expected to continue; and

2239
2240 ~~formerly Section 4(e)(i)(R)(II)(3.))(3.)~~ The Ssteps taken or
2241 planned to reduce, eliminate, and prevent reoccurrence of the noncompliance, malfunction, or
2242 excursion.

2243 .
2244 ~~formerly Section 4(e)(i)(R)(III))(III)~~ ~~In addition, i~~ If an excursion is
2245 discovered, ~~the owner or operator shall~~ provide written notice to all surface owners, mineral
2246 claimants, mineral owners, lessees, and other owners of record of subsurface interests within
2247 thirty (30) days of ~~discovery~~; discovering the excursion; and

2248
2249 ~~formerly Section 18(b)(v)(IV)~~ Implement the emergency and
2250 remedial response plan approved by the Administrator;

2251
2252 ~~(formerly Section 4(e)(i)(S))(xix)~~ A requirement that the permittee report all
2253 instances of noncompliance not already required to be reported under ~~paragraphs (e)(i)(Q)~~
2254 ~~through (R)~~ subparagraph (b)(xix)(B) of this ~~s~~SSection, at the time monitoring reports are
2255 submitted. The reports shall contain the information listed in ~~paragraph (e)(i)(R)~~ subparagraph
2256 (b)(xix)(B)(II) of this ~~s~~SSection;

2257
2258 ~~(formerly Section 4(e)(i)(T))(xx)~~ A requirement that if the permittee becomes
2259 aware that it failed to submit any relevant facts in a permit application, or submitted incorrect
2260 information in a permit application or in any report to the Administrator, the permittee shall
2261 promptly submit such facts or information;

2262
2263 ~~(formerly Section 4(e)(i)(U))(xxi)~~ A requirement that the injection facility
2264 meet construction requirements outlined in Section 9 14 of this ~~e~~Chapter, ~~and~~ that the permittee
2265 submit a notice of completion of construction to the Administrator; ~~and~~ that the permittee allows
2266 ~~for the Administrator to~~ inspection of the facility upon completion of construction; ~~and~~ prior to
2267 commencing any underground injection activity;

2268
2269 ~~(formerly Section 4(e)(i)(V))(xxii)~~ A requirement that the permittee ~~notify~~
2270 notifies the Administrator ~~at such times as the permit requires~~ before conversion or abandonment
2271 of the facility; ~~Conversion refers to converting a Class VI well to a Class I, II or V well. The~~
2272 permittee shall apply for a permit for Class I and V as specified in WQR Chapter 27 or Class II
2273 through the Wyoming Oil and Gas Conservation Commission. Upon receipt of the Class I, II or
2274 V permit, the permittee shall request the permit be terminated as outlined in Section 4(d);

2275
2276 ~~(formerly Section 4(e)(i)(W))(xxiii)~~ A requirement that injection ~~may~~ shall not
2277 commence until construction is complete; ~~and that~~ Construction is complete when:
2278

2279 ~~(formerly Section 4(e)(i)(W)(I))(A)~~ The permittee has submitted a notice
2280 of completion of construction to the Administrator; and

2281
2282 ~~(formerly Section 4(e)(i)(W)(H))(B)~~ The Administrator has inspected or
2283 ~~otherwise~~ reviewed the injection well and ~~finds~~ found it is in compliance with the conditions of
2284 the permit;

2285
2286 ~~(formerly Section 4(e)(i)(W)(H))(I)~~ Within thirteen (13) days of
2287 the date of the notice in subparagraph (xxii) of this paragraph, the Administrator shall provide
2288 notice to the permittee of the ~~or the permittee has not received notice from the Administrator of~~
2289 ~~their~~ intent to inspect or ~~otherwise~~ review the injection well, ~~within thirteen (13) days of the date~~
2290 ~~of the notice in subparagraph (U) of this paragraph,~~ The notice shall include a reasonable time
2291 period in which the Administrator shall inspect or review the well; but

2292
2293 ~~(formerly Section 4(e)(i)(W)(H))(II)~~ If the Administrator does not
2294 provide the notice required by subparagraph (I) of this subparagraph, the requirement for ~~in~~
2295 ~~which case~~ prior inspection or review is waived, and the permittee may commence injection;
2296 ~~The Administrator shall include in his notice a reasonable time period in which they shall inspect~~
2297 ~~the well.~~

2298
2299 ~~(formerly Section 4(e)(i)(X))(xxiv)~~ A requirement that the ~~owner or~~
2300 ~~operator of a Class VI well permitted under this part~~ permittee shall establish mechanical
2301 integrity prior to commencing injection or on a schedule determined by the Administrator; and
2302 that ~~T~~ thereafter, the ~~owner or operator of a Class VI wells~~ permittee must shall maintain
2303 mechanical integrity as defined in Section ~~13~~ 19 of this ~~e~~Chapter;

2304
2305 ~~(formerly Section 4(e)(i)(Y))(xxv)~~ A requirement that ~~when if~~ the
2306 Administrator determines that a Class VI well lacks mechanical integrity ~~pursuant to Section 13~~
2307 ~~of this chapter, he/she shall~~ and gives written notice of ~~his/her~~ the determination to the ~~owner or~~
2308 ~~operator permittee, the permittee shall:~~

2309
2310 ~~(formerly Section 4(e)(i)(Y)(I))(A)~~ ~~Unless the Administrator~~
2311 ~~requires immediate cessation, the owner or operator shall~~ cease injection into the well within
2312 forty-eight (48) hours of receipt of the Administrator's determination; ~~unless the Administrator~~
2313 requires immediate cessation;

2314
2315 ~~(formerly Section 4(e)(i)(Y)(II))(B)~~ ~~The Administrator may allow~~
2316 ~~plugging of the well pursuant to the requirements of Section 16 of this chapter or require the~~
2317 ~~permittee to p~~ Perform such additional any construction, operation, monitoring, reporting, and
2318 corrective action ~~as is necessary~~ that the Administrator requires to prevent the movement of fluid
2319 into or between USDWs caused by the lack of mechanical integrity; ~~or plug the well pursuant to~~
2320 the requirements of Section 23 of this Chapter if allowed by the Administrator; and

2321
2322 ~~(formerly Section 4(e)(i)(Y)(II))(C)~~ ~~The owner or operator may~~
2323 ~~resume injection upon written notification from the Administrator~~ Not resume injection into the

2324 well until the Administrator provides written notice that the ~~owner or operator permittee~~ has
2325 demonstrated mechanical integrity pursuant to Section ~~13~~ 19 of this ~~e~~Chapter.

2326
2327 ~~(formerly Section 4(e)(i)(Z))(xxvi)~~ A requirement that, for any Class VI
2328 well that lacks mechanical integrity, injection operations are prohibited until the permittee shows
2329 to the satisfaction of the Administrator under Section ~~13~~ 19 of this ~~e~~Chapter that the well has
2330 mechanical integrity-;

2331
2332 ~~(formerly Section 4(e)(i)(AA))(xxvii)~~ ~~A Class VI permit shall~~
2333 ~~include conditions that meet the requirements set forth in Section 16 of this chapter. Where the~~
2334 ~~plan meets the requirements of Section 16 of this chapter, A requirement that the permittee~~
2335 ~~comply with a well-plugging plan that meets the requirements of Section 23 of this Chapter,~~
2336 ~~which the Administrator shall be incorporated it into the permit as a permit condition-; and~~
2337 ~~Temporary or intermittent cessation of injection operations is not abandonment.~~

2338
2339 ~~(formerly Section 4(e)(i)(BB))(xxviii)~~ ~~Class VI injection well~~
2340 ~~permits shall include e~~Conditions ~~meeting that implement~~ the requirements of Section ~~9~~ 14 of
2341 this ~~e~~Chapter. ~~Permits shall contain the following requirements when applicable~~ The conditions
2342 shall;

2343
2344 ~~(formerly Section 4(e)(i)(BB)(I))(A)~~ Require ~~A~~all wells shall to
2345 achieve compliance with ~~such the~~ requirements of Section 14 of this Chapter according to a
2346 compliance schedule established as a permit condition-; ~~The owner or operator of a proposed~~
2347 ~~new injection well shall submit plans for testing, drilling, and construction as part of the permit~~
2348 ~~application-~~

2349
2350 ~~(formerly Section 4(e)(i)(BB)(II))(B)~~ ~~Prohibit~~ ~~No~~ construction may
2351 from commencing until a permit has been issued containing construction requirements-;

2352
2353 ~~(formerly Section 4(e)(i)(BB)(III))(C)~~ Require that ~~A~~all
2354 wells ~~shall be in compliance~~ comply with these construction requirements of Section 14 of this
2355 Chapter prior to commencing injection operations. Changes in construction plans during
2356 construction may be approved by the Administrator as minor modifications. No such changes
2357 may be physically incorporated into construction of the well prior to approval of the modification
2358 by the Administrator.

2359
2360 ~~(formerly Section 4(e)(i)(BB)(IV))(D)~~ Include a ~~C~~corrective
2361 action plan as set forth in Section ~~8~~ 13 of this ~~e~~Chapter-;

2362
2363 ~~(formerly Section 4(e)(i)(BB)(V))(E)~~ Require that all wells comply
2364 with the ~~O~~perational requirements ~~as set forth in of~~ Section ~~9~~ 14 of this ~~e~~Chapter;

2365
2366 ~~(formerly Section 4(e)(i)(BB)(V))(F)~~ ~~the permit shall e~~Establish
2367 any maximum injection volumes and ~~or~~ pressures necessary to ensure that fractures are not
2368 initiated in the confining zone, to ensure that injected fluids do not migrate into any underground

2369 source of drinking water, to ensure that formation fluids are not displaced into any underground
2370 source of drinking water, and to ensure compliance with the operating requirements;

2371
2372 ~~(formerly Section 4(e)(i)(BB)(VI))(G)~~ Establish
2373 Monitoring and reporting requirements ~~as~~ set forth in Sections ~~14-20~~ and ~~15-22~~ of this
2374 eChapter. The permittee shall be required to identify types of tests and methods used to generate
2375 the monitoring data; and

2376
2377 ~~(formerly Section 4(e)(i)(BB)(VII))(H)~~ The owner or operator
2378 ~~of a Class VI well must~~ Require the permittee to comply with the financial responsibility
2379 requirements set forth in Section ~~19-26~~ of this eChapter.

2380
2381 ~~(formerly Section 4(a)(v)(c)~~ Permits for Class VI wells shall be issued for the operating
2382 life of the facility and extend through the post-injection site care period until the ~~geologic~~
2383 ~~sequestration project is closed in accordance with Department rules and regulations~~
2384 Administrator certifies site closure pursuant to Section 24(b)(iii) of this Chapter.

2385
2386 ~~(formerly Section 4(a)(vi)(d)~~ Permits may be issued for individual Class VI wells and
2387 shall not be issued on an area basis for multiple points of discharge operated by the same person.

2388
2389 ~~(formerly Section 4(e)(i)(CC))(e)~~ The permits ~~may, when appropriate,~~ specify a
2390 schedule of compliance leading to compliance with ~~the SDWA and 40 CFR Parts 144, 145, 146,~~
2391 ~~and 124~~ permit conditions, this Chapter, and the Wyoming Environmental Quality Act, W.S. §
2392 35-11-101 et seq.

2393
2394 ~~(formerly Section 4(e)(i)(CC)(I))(i)~~ Any schedules of compliance shall require
2395 compliance as soon as possible, and in no case later than three (3) years after the effective date of
2396 the permit.

2397
2398 ~~(formerly Section 4(e)(i)(CC)(II))(ii)~~ If a permit establishes a schedule of
2399 compliance that exceeds one (1) year from the date of permit issuance, the schedule shall set
2400 forth interim requirements and the dates for their achievement. ~~(formerly Section~~
2401 ~~4(e)(i)(CC)(II)(1.))~~ The time between interim dates shall not exceed one (1) year unless,
2402 ~~(formerly Section 4(e)(i)(CC)(II)(2.))~~ The time necessary for completion of any interim
2403 requirement is more than one (1) year and is not readily divisible into stages for completion, and
2404 in that case, the permit shall specify interim dates for the submission of reports of progress
2405 toward completion of the interim requirements and indicate a projected completion date.

2406
2407 ~~(formerly Section 4(e)(i)(III))(iii)~~ The permit compliance schedule shall ~~be~~
2408 ~~written to~~ require ~~that if paragraph (e)(i)(CC)(I) of this section is applicable,~~ the permittee to
2409 submit progress reports ~~be submitted~~ no later than thirty (30) days following each interim date
2410 and the final date of compliance.

2411
2412 ~~(formerly Section 4(e)(ii))(f)~~ In addition to the conditions required of all permits, t
2413 Administrator Director shall ~~establish~~ include in permits, on a case-by-case basis;

2414

2415 ~~(formerly Section 4(e)(ii))(i)~~ eConditions ~~as required~~ for monitoring, schedules
2416 of compliance, and ~~such~~ any additional conditions ~~as are~~ necessary to prevent the migration of
2417 fluids into underground sources of drinking water. ~~In the case of wells authorized by permit,~~
2418 ~~these additional requirements shall be imposed by modifying the permit in accordance with this~~
2419 ~~section, or the permit may be terminated under this section if cause exists, or appropriate~~
2420 ~~enforcement action may be taken if the permit has been violated.~~ The Director shall evaluate what
2421 conditions are necessary and shall establish these conditions when issuing, modifying, or
2422 revoking and reissuing permits; and

2423
2424 ~~(formerly Section 4(e)(iii))(ii)~~ In addition to conditions required in all permits the
2425 Administrator shall establish eConditions ~~in permits as required on a case by case basis, to~~
2426 ~~provide for and~~ ensure compliance with all applicable requirements of ~~the SDWA and 40 CFR~~
2427 ~~Parts 144, 145, 146, and 124~~ this Chapter and the Wyoming Environmental Quality Act, W.S. §
2428 35-11-101 et seq.

2429
2430 ~~(formerly Section 4(e)(iv))(g)~~ New permits, and tTo the extent ~~allowed possible~~ under
2431 Section ~~4 9 of this Chapter,~~ modified or revoked and reissued permits, shall incorporate ~~each of~~
2432 ~~the applicable requirements referenced~~ all of the permit conditions required in by this ~~s~~Section.
2433 ~~An applicable requirement is a State statutory or regulatory requirement that takes effect prior to~~
2434 ~~final administrative disposition of the permit. An applicable requirement is also any requirement~~
2435 ~~that takes effect prior to the modification or revocation and reissuance of a permit, to the extent~~
2436 ~~allowed in Section 4.~~

2437
2438 (h) When they meet the requirements of this Chapter and are approved by the
2439 Administrator, all plans shall be incorporated into the permit.

2440
2441 ~~(formerly Section 5(b)(xviii))~~ Proposed stimulation program, a description of
2442 stimulation fluids to be used, and a determination that stimulation will not compromise
2443 containment. All stimulation programs must be approved by the Administrator as part of the
2444 permit application and incorporated into the permit;

2445
2446 ~~(formerly Section 5(b)(xxviii))~~ Proposed injection and monitoring well(s)
2447 plugging plan required by Section 16(b) of this chapter; where the plan meets the requirements
2448 of Section 16(b) of this chapter, the Administrator shall incorporate it into the permit as a permit
2449 condition.

2450
2451 **Section 10. ~~Class VI Injection Depth Waiver Requirements.~~ Permit Application.**

2452
2453 ~~(a) The owner and/or operator seeking a waiver of the requirement to inject below the~~
2454 ~~lowermost USDW shall submit a supplemental report concurrent with the permit application.~~
2455 ~~The report shall contain the following:~~

2456
2457 ~~(i) A demonstration that the injection zones are laterally continuous, is not a~~
2458 ~~USDW, and is not hydraulically connected to USDWs; does not outcrop within the area of~~
2459 ~~review; has adequate injectivity, volume, and sufficient porosity to safely contain the injected~~
2460 ~~carbon dioxide and formation fluids; and has appropriate geochemistry.~~

2461
2462 ~~—————(ii)———A demonstration that the injection zones are bounded by laterally~~
2463 ~~continuous, impermeable confining units above and below the injection zones adequate to~~
2464 ~~prevent fluid movement and pressure buildup outside of the injection zones; and that the~~
2465 ~~confining unit(s) is/are free of transmissive faults and fractures. The report shall further~~
2466 ~~characterize the regional fracture properties and contain a demonstration that the fractures will~~
2467 ~~not interfere with injection, serve as conduits, or endanger USDWs.~~
2468
2469 ~~—————(iii)———A computer model demonstrating that USDWs above and below the~~
2470 ~~injection zone will not be endangered as a result of fluid movement. The modeling shall be done~~
2471 ~~in conjunction with the area of review determination, as described in Section 8 of this chapter,~~
2472 ~~and is subject to requirements, as described in Section 8(e) of this chapter, and periodic~~
2473 ~~reevaluation, as described in Section 8(d) of this chapter.~~
2474
2475 ~~—————(iv)———A demonstration that well design and construction, in conjunction with the~~
2476 ~~waiver, will ensure isolation of the injectate in lieu of the requirements of Section 9(a)(i) of this~~
2477 ~~chapter and will meet the well construction requirements of paragraph (f) of this section.~~
2478
2479 ~~—————(v)———A description of how the monitoring and testing and any additional plans~~
2480 ~~will be tailored to this geologic sequestration project to ensure protection of USDWs above and~~
2481 ~~below the injection zone.~~
2482
2483 ~~—————(vi)———Information on the location of all public water supplies affected,~~
2484 ~~reasonably likely to be affected, or served by USDWs in the area of review.~~
2485
2486 ~~—————(vii)———Any other information requested by the Administrator.~~
2487
2488 ~~—————(b)———To inform the EPA Regional Administrator’s decision on whether to grant a~~
2489 ~~waiver of the injection depth requirements of 40 CFR §§ 144.6, 146.5(f), and 146.86(a)(1), the~~
2490 ~~Administrator must submit, to the EPA Regional Administrator, documentation of the following:~~
2491
2492 ~~—————(i)———An evaluation of the following information as it relates to siting,~~
2493 ~~construction, and operation of a geologic sequestration project with a waiver:~~
2494
2495 ~~—————(A)———The integrity of the upper and lower confining units;~~
2496
2497 ~~—————(B)———The suitability of the injection zone(s) (e.g., lateral continuity; lack~~
2498 ~~of transmissive faults and fractures; knowledge of current or planned artificial penetrations into~~
2499 ~~the injection zone(s) or formations below the injection zone);~~
2500
2501 ~~—————(C)———The potential capacity of the geologic formation(s) to sequester~~
2502 ~~carbon dioxide, accounting for the availability of alternative injection sites;~~
2503
2504 ~~—————(D)———All other site characterization data, the proposed emergency and~~
2505 ~~remedial response plan, and a demonstration of financial responsibility;~~
2506

- 2507 ~~_____ (E) Community needs, demands, and supply from drinking water~~
2508 ~~resources;~~
- 2509
- 2510 ~~_____ (F) Planned needs, potential and/or future use of USDWs and non-~~
2511 ~~USDWs in the area;~~
- 2512
- 2513 ~~_____ (G) Planned or permitted water, hydrocarbon, or mineral resource~~
2514 ~~exploitation potential of the proposed injection formation(s) and other formations both above and~~
2515 ~~below the injection zone to determine if there are any plans to drill through the formation to~~
2516 ~~access resources in or beneath the proposed injection zone(s)/formation(s);~~
- 2517
- 2518 ~~_____ (H) The proposed plan for securing alternative resources or treating~~
2519 ~~USDW formation waters in the event of contamination related to the Class VI injection activity;~~
2520 ~~and~~
- 2521 ~~_____ (I) Any other applicable considerations or information requested by~~
2522 ~~the Administrator.~~
- 2523
- 2524 ~~_____ (ii) Consultation with the Public Water System Supervision Directors of all~~
2525 ~~States and Tribes having jurisdiction over lands within the area of review of a well for which a~~
2526 ~~waiver is sought.~~
- 2527
- 2528 ~~_____ (iii) Any written waiver related information submitted by the Public Water~~
2529 ~~System Supervision Director(s) to the (UIC) Director.~~
- 2530
- 2531 ~~_____ (e) Concurrent with the Class VI permit application public notice process, the~~
2532 ~~Administrator shall give public notice that an injection depth waiver request has been submitted.~~
2533 ~~The notice shall clearly state:~~
- 2534
- 2535 ~~_____ (i) The depth of the proposed injection zone(s);~~
- 2536
- 2537 ~~_____ (ii) The location of the injection wells;~~
- 2538
- 2539 ~~_____ (iii) The name and depth of all USDWs within the area of review;~~
- 2540
- 2541 ~~_____ (iv) A map of the area of review;~~
- 2542
- 2543 ~~_____ (v) The names of any public water supplies affected, reasonably likely to be~~
2544 ~~affected, or served by the USDWs in the area of review; and~~
- 2545
- 2546 ~~_____ (vi) The results of any consultation between the UIC program and the Public~~
2547 ~~Water System Supervision program within the area of review.~~
- 2548
- 2549 ~~_____ (d) Following the injection depth waiver application public notice, the Administrator~~
2550 ~~of the Water Quality Division of the Department of Environmental Quality shall provide all the~~
2551 ~~information received through the waiver application process to the US EPA Regional~~

2552 ~~Administrator. Based on the information provided, the US EPA Regional Administrator shall~~
2553 ~~provide written concurrence or non-concurrence regarding waiver issuance.~~

2554
2555 ~~————— (i) ——— If the US EPA Regional Administrator requires additional information to~~
2556 ~~make a decision, the Administrator of the Water Quality Division of the Department of~~
2557 ~~Environmental Quality shall provide the information. The US EPA Regional Administrator may~~
2558 ~~require public notice of the new information.~~

2559
2560 ~~————— (ii) ——— The Administrator of the Water Quality Division of the Department of~~
2561 ~~Environmental Quality shall not issue a depth injection waiver without receipt of written~~
2562 ~~concurrence from the US EPA Regional Administrator.~~

2563
2564 ~~————— (e) ——— If an injection depth waiver is issued, within thirty (30) days of issuance, the EPA~~
2565 ~~shall post the following information on the Office of Water’s website:~~

2566
2567 ~~————— (i) ——— The depth of the proposed injection zone(s).~~

2568
2569 ~~————— (ii) ——— The location of the injection wells.~~

2570
2571 ~~————— (iii) ——— The name and depth of all USDWs within the area of review.~~

2572
2573 ~~————— (iv) ——— A map of the area of review.~~

2574
2575 ~~————— (v) ——— The names of any public water supplies affected, reasonably likely to be~~
2576 ~~affected, or served by the USDWs in the area of review.~~

2577
2578 ~~————— (vi) ——— The date of waiver issuance.~~

2579
2580 ~~————— (f) ——— Upon receipt of a waiver of the requirement to inject below the lowermost USDW~~
2581 ~~for geologic sequestration, the owner or operator of a Class VI well must comply with the~~
2582 ~~following:~~

2583
2584 ~~————— (i) ——— All requirements of Sections 8, 11, 12, 13, 15, 16, 18, and 19 of this~~
2585 ~~chapter.~~

2586
2587 ~~————— (ii) ——— All the requirements of Section 9 of this chapter with the following~~
2588 ~~modified requirements:~~

2589
2590 ~~————— (A) ——— The Class VI well shall be constructed and completed to prevent~~
2591 ~~the movement of fluids into any unauthorized zones including USDWs, in lieu of requirements~~
2592 ~~of Section 9(a)(i) of this chapter.~~

2593
2594 ~~————— (B) ——— The casing and cementing program shall be designed to prevent the~~
2595 ~~movement of fluids into any unauthorized zones including USDWs, in lieu of requirements of~~
2596 ~~Section 9(b) and 9(b)(i) of this chapter.~~

2597

2598 ~~————— (C) — The casing shall extend through the base of the nearest USDW~~
2599 ~~directly above the injection zone and shall be cemented to the surface; or at the Administrator's~~
2600 ~~discretion, another formation above the injection zone and below the nearest USDW above the~~
2601 ~~injection zone.~~

2602
2603 ~~————— (iii) — All the requirements of Section 14 of this chapter with the following~~
2604 ~~modified requirements:~~

2605
2606 ~~————— (A) — The owner or operator shall monitor the groundwater quality,~~
2607 ~~geochemical changes, and pressure in the first USDWs immediately above and below the~~
2608 ~~injection zone(s); and any other formation at the discretion of the Administrator.~~

2609
2610 ~~————— (B) — The owner or operator shall conduct testing and monitoring to~~
2611 ~~track the extent of the carbon dioxide plume and the presence or absence of elevated pressure~~
2612 ~~(e.g., the pressure front) by using direct methods to monitor for pressure changes in the injection~~
2613 ~~zone(s); and, indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys~~
2614 ~~and/or down hole carbon dioxide detection tools), unless the Administrator determines, based on~~
2615 ~~site specific geology, that such methods are not appropriate.~~

2616
2617 ~~————— (iv) — All requirements of Section 17 of this chapter with the following,~~
2618 ~~modified post injection site care monitoring requirements:~~

2619
2620 ~~————— (A) — The owner or operator shall monitor the groundwater quality,~~
2621 ~~geochemical changes and pressure in the first USDWs immediately above and below the~~
2622 ~~injection zone; and in any other formations at the discretion of the Administrator.~~

2623
2624 ~~————— (B) — Testing and monitoring to track the extent of the carbon dioxide~~
2625 ~~plume and the presence or absence of elevated pressure (e.g., the pressure front) by using direct~~
2626 ~~methods in the injection zone(s); and indirect methods (e.g., seismic, electrical, gravity, or~~
2627 ~~electromagnetic surveys and/or down hole carbon dioxide detection tools), unless the~~
2628 ~~Administrator determines based on site specific geology, that such methods are not appropriate;~~

2629
2630 ~~————— (v) — Any additional requirements requested by the Administrator to ensure~~
2631 ~~protection of USDWs above and below the injection zone(s).~~

2632
2633 ~~(formerly Section 5(a))(a)~~ It is the operator's responsibility to ~~make application~~ apply
2634 for and obtain a permit in accordance with these regulations. Each application ~~must~~ shall be
2635 submitted with all supporting data.

2636
2637 ~~(formerly Section 5(b))(b)~~ In addition to the requirements of W.S. § 35-11-313(f)(ii),
2638 A a complete application for a Class VI well shall include:

2639
2640 ~~(formerly Section 5(b)(i))(i)~~ (i) A brief description of the nature of the business and
2641 the activities to be conducted that require the applicant to obtain a permit under this ~~eChapter~~ Chapter;
2642

2643 ~~(formerly Section 5(b)(ii))~~(ii) The name, address, and telephone number of the
2644 operator, and the operator's ownership status and status as a ~~F~~federal, ~~S~~state, private, public, or
2645 other entity.;

2646
2647 ~~(formerly Section 5(b)(iii))~~(iii) Up to four ~~SIC~~(Standard Industrial
2648 Classification) codes that best reflect the principal products or services provided by the facility.;

2649
2650 ~~(formerly Section 5(b)(iv))~~(iv) The name, address, and telephone number of
2651 the facility.;

2652
2653 ~~(formerly Section 5(b)(iv))~~(v) ~~Additionally, t~~The location of the geologic
2654 sequestration project ~~shall be~~ identified by section, township, range, and county, noting which, ~~if~~
2655 ~~any~~, sections ~~(if any)~~ include Indian lands.;

2656
2657 ~~(formerly Section 5(b)(v))~~(vi) Within the area of review, a listing and status of all
2658 permits or construction approvals associated with the geologic sequestration project received or
2659 applied for ~~by the applicant~~ under any of the following programs or corresponding state
2660 programs:

2661
2662 ~~(formerly Section 5(b)(v)(A))~~(A) Hazardous Waste Management
2663 under the Resource Conservation and Recovery Act ~~(RCRA)~~, 42 U.S.C. § 6901 et seq.;

2664
2665 ~~(formerly Section 5(b)(v)(B))~~(B) UIC Program under the Safe
2666 Drinking Water Act, 42 U.S.C. § 300f et seq.;

2667
2668 ~~(formerly Section 5(b)(v)(C))~~(C) National Pollutant Discharge
2669 Elimination System ~~(NPDES)~~ under the Clean Water Act, 33 U.S.C. § 1251 et seq.;

2670
2671 ~~(formerly Section 5(b)(v)(D))~~(D) Prevention of Significant
2672 Deterioration ~~(PSD)~~ program under the Clean Air Act, 42 U.S.C. § 7401 et seq.;

2673
2674 ~~(formerly Section 5(b)(v)(E))~~(E) Nonattainment program under the
2675 Clean Air Act, 42 U.S.C. § 7401 et seq.;

2676
2677 ~~(formerly Section 5(b)(v)(F))~~(F) National Emissions Standards for
2678 Hazardous Air Pollutants ~~(NESHAPs)~~ pre-construction approval under the Clean Air Act, 42
2679 U.S.C. § 7401 et seq.;

2680
2681 ~~(formerly Section 5(b)(v)(G))~~(G) Dredge and fill permitting program
2682 under section 404 of the Clean Water Act, 33 U.S.C. § 1251 et seq.;

2683
2684 ~~(formerly Section 5(b)(vi))~~(vii) Within the area of review, a list of other
2685 relevant permits, ~~whether federal or state~~, associated with the geologic sequestration project that
2686 the applicant ~~has been~~ is required to obtain. ~~such as construction permits.~~

2687

2688 ~~(formerly Section 5(b)(vi))~~(viii) This includes a statement ~~as to of~~ whether
2689 ~~or not~~ the facility geologic sequestration project is within a state-approved water quality
2690 management plan area, a state-approved wellhead protection area or a state-approved source
2691 water protection area.;

2692
2693 ~~(formerly Section 5(b)(vii))~~(ix) A map showing the injection well(s) for
2694 which a permit is sought and the applicable area of review, consistent with Section ~~8~~ 13 of this
2695 ~~e~~Chapter.;

2696
2697 ~~(formerly Section 5(b)(vii)(A))~~(A) Within the area of review, the map
2698 ~~must shall show list~~ the number, or name and location of:

2699
2700 ~~(formerly Section 5(b)(vii)(A))~~(I) a ~~All known~~ injection wells,
2701 producing wells, abandoned wells, plugged wells, ~~or~~ dry holes, or deep stratigraphic boreholes.;

2702
2703 ~~(formerly Section 5(b)(vii)(A))~~(II) All state- or EPA-approved
2704 subsurface cleanup sites.;

2705
2706 ~~(formerly Section 5(b)(vii)(A))~~(III) All public drinking water
2707 supply water quality management plan areas, wellhead protection areas, or and source water
2708 protection areas.;

2709
2710 ~~(formerly Section 5(b)(vii)(A))~~(IV) All surface bodies of water,
2711 springs, mines (surface and subsurface), quarries, and water wells. ~~and~~

2712
2713 ~~(formerly Section 5(b)(vii)(A))~~(V) ~~o~~Other pertinent surface
2714 features, including structures intended for human occupancy.;

2715
2716 ~~(formerly Section 5(b)(vii)(A))~~(VI) Roads; and

2717
2718 ~~(formerly Section 5(b)(vii)(A))~~(VII) sState, tribal, and territory
2719 and Indian reservation boundaries, ~~and roads~~.;

2720
2721 ~~(formerly Section 5(b)(vii)(B))~~(B) ~~Only information~~ The applicant shall
2722 include on this map all relevant information of public record ~~is required to be included on this~~
2723 ~~map, or known to the applicant; and~~

2724
2725 ~~(formerly Section 5(b)(vii)(C))~~(C) The map ~~should shall~~ also show
2726 known or suspected faults, ~~if known or suspected~~.;

2727
2728 ~~(formerly Section 5(b)(viii))~~(x) A map delineating the area of review that:

2729
2730 (A) Meets the requirements of Section 13 of this Chapter;

2731
2732 ~~(formerly Section 5(b)(viii))~~(B) Is based upon modeling.;

2733

2734 ~~(formerly Section 5(b)(viii))(C)~~ using Uses all available data,
2735 including data available from any logging and testing of wells within and adjacent to (within one
2736 (1) mile of ~~to~~ the area of review; and

2737
2738 ~~(formerly Section 5(b)(viii)(B))(D)~~ All areas of review shall be legally
2739 described Describes the area of review by township, range, and section to the nearest ten (10)
2740 acres, as described under the general land survey system.;

2741
2742 ~~(formerly Section 5(b)(ix)(xi))~~ For the description required by W.S. 35-11-
2743 313(f)(ii)(A), A description of the general geology of the area to be affected by the injection of
2744 carbon dioxide including geochemistry, structure and faulting, fracturing and seals, and
2745 stratigraphy and lithology including petrophysical attributes. The description shall also include
2746 sufficient information on the geologic structure and reservoir properties of the proposed storage
2747 site and overlying formations, including:

2748
2749 ~~(formerly Section 5(b)(ix)(A))(A)~~ Isopach maps of the proposed
2750 injection and confining zone(s), a structural contour map aligned with the top of the proposed
2751 injection zone, and at least two (2) geologic cross-sections of the area of review reasonably
2752 perpendicular to each other and showing the geologic formations from the surface to total depth;

2753
2754 ~~(formerly Section 5(b)(ix)(B))(B)~~ Location, orientation, and properties
2755 of known or suspected faults and fractures that may transect the confining zone(s) in the area of
2756 review and a determination that they ~~would~~ will not ~~interfere with containment~~ allow fluid
2757 movement;

2758
2759 ~~(formerly Section 5(b)(ix)(C))(C)~~ Information on seismic history that
2760 have ~~has~~ has affected the proposed area of review including knowledge of previous seismic events
2761 and history of these events, the presence and depth of seismic sources, and a determination that
2762 the seismicity ~~would~~ will not ~~compromise containment~~ allow fluid movement out of the injection
2763 zone;

2764
2765 ~~(formerly Section 5(b)(ix)(D))(D)~~ Data sufficient to demonstrate the
2766 effectiveness of the injection and confining zone(s), including;

2767
2768 ~~(formerly Section 5(b)(ix)(D))(I)~~ Data on the depth, areal
2769 extent, thickness, mineralogy, porosity, vertical permeability, and capillary pressure of the
2770 injection and confining zone(s) within the area of review; and

2771
2772 ~~(formerly Section 5(b)(ix)(D))(II)~~ A description of geologic
2773 changes based on field data that may include geologic cores, outcrop data, seismic surveys, well
2774 logs, and names and lithologic descriptions;

2775
2776 ~~(formerly Section 5(b)(ix)(E))(E)~~ Geomechanical information on
2777 fractures, stress, ductility, rock strength, and in situ fluid pressures within the confining zone;
2778 and

2779

2780 ~~(formerly Section 5(b)(ix)(F))~~(F) Geologic and topographic maps and
2781 cross-sections illustrating regional geology, hydrogeology, and the geologic structure of the local
2782 area;

2783
2784 ~~(formerly Section 5(b)(x)(xii))~~(xii) A ~~compilation list~~ list of all wells and other drill holes
2785 within, and adjacent to (within one (1) mile) ~~to~~ the area of review. ~~Such data must~~ The list shall
2786 include a description of each well and drill hole type, construction, date drilled, location, depth,
2787 record of plugging and ~~or~~ completion, and any additional information the Administrator ~~may~~
2788 requires;

2789
2790 ~~(formerly Section 5(b)(x)(A)(xiii))~~ Applicants shall also identify A list
2791 of the identity and ~~the~~ location of all known wells within, and adjacent to (within one (1) mile) ~~to~~
2792 the area of review that penetrate the confining or injection zone;

2793
2794 ~~(formerly Section 5(b)(x)(B))~~ Applicants shall perform mapping with
2795 sufficient resolution as to make a comprehensive effort to identify wells that are not in the public
2796 record using aerial photography, aerial survey, physical traverse, or other methods acceptable to
2797 the Administrator.

2798
2799 ~~(formerly Section 5(b)(x)(C))~~ Applicants shall perform corrective action as
2800 specified in Section 8 of this chapter.

2801
2802 ~~(formerly Section 5(b)(xi))~~(xiv) Maps and stratigraphic cross-sections
2803 indicating the general vertical and lateral limits of all USDWs in the area of review; the location
2804 of water wells and springs ~~within~~ the area of review; ~~their~~ positions relative to the injection
2805 zone(s) of all USDWS, water wells, and springs in the area of review, and the direction of water
2806 movement, ~~where~~ (if known);

2807
2808 ~~(formerly Section 5(b)(xii))~~(xv) A For the characterization required by W.S.
2809 35-11-313(f)(ii)(B), ~~of the injection zone and aquifers above and below the injection zone that~~
2810 ~~may be affected, including applicable pressure and fluid chemistry data to describe the projected~~
2811 ~~effects of injection activities, and background water quality data that will facilitate the~~
2812 ~~classification of any groundwaters that may be affected by the proposed discharge. This must~~
2813 ~~include~~ information necessary for the Division to classify the receiver and any secondarily
2814 affected aquifers under Water Quality Rules and Regulations Chapter 8;

2815
2816 ~~(formerly Section 5(b)(xiii))~~(xvi) Baseline geochemical data on subsurface
2817 formations, including all USDWs in the area of review;

2818
2819 ~~(formerly Section 5(b)(xiv))~~(xvii) Proposed operating data, including:

2820
2821 ~~(formerly Section 5(b)(xiv)(A))~~(A) Average and maximum daily rate
2822 and volume and ~~or~~ mass and total anticipated volume and ~~or~~ mass of the carbon dioxide stream;

2823
2824 ~~(formerly Section 5(b)(xiv)(B))~~(B) Average and maximum surface
2825 injection pressure;

2826
2827 ~~(formerly Section 5(b)(xiv)(C))(C)~~ The source of the carbon dioxide
2828 stream; and
2829
2830 ~~(formerly Section 5(b)(xiv)(D))(D)~~ An analysis of the chemical and
2831 physical characteristics of the carbon dioxide stream and any other substance(s) proposed for
2832 inclusion in the injectate stream; and
2833
2834 ~~(formerly Section 5(b)(xiv)(E))(E)~~ Anticipated duration of the proposed
2835 injection period(s);
2836
2837 ~~(formerly Section 5(b)(xv))(xviii)~~ The compatibility of the carbon dioxide
2838 stream with fluids in the injection zone and minerals in both the injection and the confining
2839 zone(s), based on the results of the formation testing program, and with the materials used to
2840 construct the well;
2841
2842 ~~(formerly Section 5(b)(xvi))—An assessment of the impact to fluid resources, on~~
2843 ~~subsurface structures and the surface of lands that may reasonably be expected to be impacted,~~
2844 ~~and the measures required to mitigate such impacts;~~
2845
2846 ~~(formerly Section 5(b)(xvii))(xix)~~ Proposed formation testing program to
2847 obtain an analysis of the chemical and physical characteristics of the injection zone and
2848 confining zone and that meets the requirements of Section ~~H~~ 16 of this ~~e~~Chapter;
2849
2850 ~~(formerly Section 5(b)(xviii))(xx)~~ Proposed stimulation program, a description
2851 of stimulation fluids to be used, and a determination that stimulation will not ~~compromise~~
2852 ~~containment~~ allow fluid movement out of the injection zone. ~~All stimulation programs must be~~
2853 ~~approved by the Administrator as part of the permit application and incorporated into the permit;~~
2854
2855 ~~(formerly Section 5(b)(xix))(xxi)~~ Proposed procedure that outlines steps to
2856 conduct injection operations;
2857
2858 ~~(formerly Section 5(b)(xx))(xxii)~~ A wellbore schematic of the subsurface
2859 construction details and surface wellhead construction of the injection and monitoring wells;
2860
2861 ~~(formerly Section 7(a))(xxiii)~~ ~~Owners or operators of Class VI wells must~~
2862 A demonstrate ion, to the satisfaction of the Administrator, that the injection wells will be sited in
2863 areas with a suitable geologic system. ~~The geologic system must be comprised of that meets the~~
2864 requirements of Section 12(a) of this Chapter, including:
2865
2866 ~~(formerly Section 7(b))(A)~~ ~~Owners or operators of Class VI wells must~~
2867 identify and characterize ation of additional zones, if they exist, that will impede vertical
2868 fluid movement, allow for pressure dissipation, and provide additional opportunities for
2869 monitoring, mitigation, and remediation: and
2870

2871 ~~(formerly Section 7(b))(B)~~ Identification of ~~V~~vertical faults and
2872 fractures that transect these zones ~~must be identified~~: in subparagraph (A) of this subparagraph;

2873
2874 ~~(formerly Section 5(b)(xxi))(xxiv)~~ Injection well design and construction
2875 procedures that meet the requirements of Section ~~9~~ 14 of this ~~e~~Chapter, including the information
2876 listed in Section 14(c)(ii) of this Chapter;

2877
2878 ~~(formerly Section 5(b)(xxii))(xxv)~~ Proposed area of review and corrective
2879 action plan that meets the requirements under Section ~~8~~ 13 of this ~~e~~Chapter;

2880
2881 ~~(formerly Section 5(b)(xxiii))(xxvi)~~ The status of corrective action on wells in
2882 the area of review;

2883
2884 ~~(formerly Section 5(b)(xxiv))(xxvii)~~ All available logging and testing program
2885 data on the well(s) required by Section ~~11~~ 17 of this ~~e~~Chapter;

2886
2887 ~~(formerly Section 5(b)(xxv))(xxviii)~~ A demonstration of mechanical integrity
2888 ~~pursuant to~~ required by Section ~~13~~ 19 of this ~~e~~Chapter;

2889
2890 ~~(formerly Section 5(b)(xxvi))(xxix)~~ A demonstration, satisfactory to the
2891 Administrator, that the applicant has met the financial responsibility requirements ~~under of~~
2892 Section ~~19~~ 26 of this ~~e~~Chapter;

2893
2894 ~~(formerly Section 19(e)(i))(xxx)~~ The ~~A~~ written financial assurance cost
2895 estimate required by Section 26(b) of this Chapter; ~~for the various phases of the sequestration~~
2896 ~~project shall consider the following events:~~

2897
2898 ~~(formerly Section 5(g))(xxxi)~~ An applicant applying for a Class VI well permit must
2899 ~~obtain A~~ public liability insurance certificate ~~to cover the geologic sequestration activities for which~~
2900 ~~a permit is sought. that, in addition to meeting the requirements of W.S. § 35-11-313(f)(ii)(O),~~
2901 demonstrates that the public liability insurance policy meets the requirements of Section
2902 26(l)(i)(B) of this Chapter; identifies each facility by name, address, and EPA Identification
2903 Number; and identifies the amounts and types of coverage for each facility;

2904
2905 ~~(formerly Section 5(b)(xxvii))(xxxii)~~ Proposed testing and monitoring plan
2906 required by Section ~~14~~ 20 of this ~~e~~Chapter;

2907
2908 ~~(formerly Section 5(b)(xxviii))(xxxiii)~~ Proposed injection and monitoring
2909 well(s) plugging plan required by Section ~~16(b)~~ 23 of this ~~e~~Chapter; ~~where the plan meets the~~
2910 ~~requirements of Section 16(b) of this chapter, the Administrator shall incorporate it into the~~
2911 ~~permit as a permit condition.~~

2912
2913 ~~(formerly Section 5(b)(xxix))(xxxiv)~~ Proposed post-injection site care and site
2914 closure plan required by Section ~~17(a)~~ 24(a) of this ~~e~~Chapter;

2915

2916 ~~(formerly Section 5(b)(xxx)(xxxv))~~ Proposed emergency and remedial response
2917 plan required by Section ~~18~~ 25 of this ~~e~~Chapter;

2918
2919 ~~(formerly Section 5(b)(xxxiv)(xxxvi))~~ A list of contacts, ~~submitted to the~~
2920 ~~Administrator,~~ for those states or Tribes on Indian lands identified pursuant to be within the area
2921 ~~of review of the geologic sequestration project based on information provided in~~ subparagraphs
2922 ~~(b)(vii), (b)(vii)(A), (b)(vii)(B)~~ (b)(v) and (b)(ix)(A)(VII) of this ~~s~~Section; and

2923
2924 ~~(formerly Section 5(b)(xxxv)(xxxvii))~~ Any other information requested by the
2925 Administrator.

2926
2927 ~~(formerly Section 5(h))(c)~~ All applications for permits, reports, or information ~~to be~~
2928 submitted to the Administrator shall be signed by a responsible corporate officer ~~as follows:~~.

2929
2930 ~~(formerly Section 5(i))(d)~~ The application shall contain the following certification by
2931 the ~~person~~ responsible corporate officer signing the application:

2932
2933 “I certify under penalty of law that this document and all attachments were prepared
2934 under my direction or supervision in accordance with a system designed to ensure that qualified
2935 personnel properly gather and evaluate the information submitted. Based on my inquiry of the
2936 person or persons who manage the system, or those persons directly responsible for gathering the
2937 information, the information submitted is, to the best of my knowledge and belief, true, accurate,
2938 and complete. I am aware that there are significant penalties for submitting false information,
2939 including the possibility of fine and imprisonment for knowing violations.”

2940
2941 ~~(formerly Section 4(a)(viii))(e)~~ Sections of permit applications ~~filed under this~~
2942 ~~chapter~~ that represent engineering work shall be sealed, signed, and dated by a licensed
2943 professional engineer as required by W.S. § 33-29-601.

2944
2945 ~~(formerly Section 4(a)(ix))(f)~~ Sections of permit applications ~~filed under this chapter~~ that
2946 represent geologic work shall be sealed, signed, and dated by a licensed professional geologist as
2947 required by W.S. § 33-41-115.

2948
2949 **Section 11. ~~Logging, Sampling, and Testing Prior to Injection Well Operation.~~**
2950 **Prohibitions.**

2951
2952 ~~(a) — During the drilling and construction of a Class VI injection well, the owner or~~
2953 ~~operator must run appropriate logs, surveys and tests to determine or verify the depth, thickness,~~
2954 ~~porosity, permeability, and lithology of, and the salinity of any formation fluids in all relevant~~
2955 ~~geologic formations in order to ensure conformance with the injection well construction~~
2956 ~~requirements under Section 9 of this chapter, and to establish accurate baseline data against~~
2957 ~~which future measurements may be compared. The owner or operator must submit to the~~
2958 ~~Administrator a descriptive report prepared by a knowledgeable log analyst that includes an~~
2959 ~~interpretation of the results of such logs and tests. At a minimum, such logs and tests must~~
2960 ~~include:~~

2961

2962 (i) — ~~Deviation checks measured during drilling on all holes constructed by~~
2963 ~~drilling a pilot hole that is subsequently enlarged by reaming or another method. Such checks~~
2964 ~~must be at sufficiently frequent intervals to determine the location of the borehole and to ensure~~
2965 ~~that vertical avenues for fluid movement in the form of diverging holes are not created during~~
2966 ~~drilling; and~~

2967
2968 (ii) — ~~Before and upon installation of the surface casing;~~

2969
2970 (A) — ~~Resistivity, spontaneous potential, and caliper logs before the~~
2971 ~~casing is installed; and~~

2972
2973 (B) — ~~A cement bond and variable density log, or other approved device~~
2974 ~~to evaluate cement quality radially with sufficient resolution to identify channels, voids, or other~~
2975 ~~areas of missing cement, and a temperature log, after the casing is set and cemented.~~

2976
2977 (iii) — ~~Before and upon installation of the long string casing;~~

2978
2979 (A) — ~~Resistivity, spontaneous potential, porosity, caliper, gamma ray,~~
2980 ~~fracture finder logs, and any other logs the Administrator requires for the given geology before~~
2981 ~~the casing is installed; and~~

2982
2983 (B) — ~~A cement bond and variable density log, and a temperature log~~
2984 ~~after the casing is set and cemented.~~

2985
2986 (iv) — ~~Test(s) designed to demonstrate the internal and external mechanical~~
2987 ~~integrity of injection wells, which may include:~~

2988
2989 (A) — ~~A pressure test with liquid or gas;~~

2990
2991 (B) — ~~A tracer survey, such as oxygen activation logging;~~

2992
2993 (C) — ~~A temperature or noise log; and~~

2994
2995 (D) — ~~A casing inspection log.~~

2996
2997 (v) — ~~Any alternative methods that provide equivalent or better information and~~
2998 ~~that are required of, and/or approved by the Administrator.~~

2999
3000 (b) — ~~The owner or operator must take whole cores or sidewall cores of the injection~~
3001 ~~zone and confining system, and formation fluid samples from the injection zone(s), and submit to~~
3002 ~~the Administrator a detailed report prepared by a log analyst that includes:~~

3003
3004 (i) — ~~Well log analyses (including well logs);~~

3005
3006 (ii) — ~~Core analyses; and~~

3008 ~~(iii) Formation fluid sample information.~~

3009
3010 ~~(iv) The Administrator may accept data from cores and fluid samples from~~
3011 ~~nearby wells if the owner or operator can demonstrate that such data are representative of~~
3012 ~~conditions in the wellbore.~~

3013
3014 ~~(e) The owner or operator must record the formation fluid temperature, formation~~
3015 ~~fluid pH and conductivity, reservoir pressure, and static fluid level of the injection zone(s).~~

3016
3017 ~~(d) The owner or operator must determine fracture pressures of the injection and~~
3018 ~~confining zones and verify hydrogeologic and geo-mechanical characteristics of the injection~~
3019 ~~zone by conducting a pressure fall-off test, any other information requested by the Administrator;~~
3020 ~~and,~~

3021
3022 ~~(i) A pump test; or~~

3023
3024 ~~(ii) Injectivity tests.~~

3025
3026 ~~(e) The owner or operator must provide the Administrator with the opportunity to~~
3027 ~~witness all logging and testing by this section. The owner or operator must submit a schedule of~~
3028 ~~such activities to the Administrator prior to conducting the first test and notify the Administrator~~
3029 ~~of any changes to the schedule thirty (30) days prior to the next scheduled test.~~

3030
3031 ~~(formerly Section 6(a))(a)~~ In addition to the requirements in Pursuant to the
3032 provisions of W.S. § 35-11-301(a), no person shall:

3033
3034 ~~(formerly Section 6(a)(i))(i)~~ (i) Discharge into, construct, operate, or modify any
3035 Class VI well unless permitted pursuant to this eChapter;

3036
3037 ~~(formerly Section 6(a)(ii))(ii)~~ Discharge or inject to any zone except the
3038 authorized discharge injection zone as described in the permit;

3039
3040 ~~(formerly Section 6(a)(iii))(iii)~~ (iii) Conduct any authorized injection activity in
3041 a manner that results in a violation of any permit condition, or that conflicts with any
3042 representations made in the a permit application; ~~or the request for coverage under the~~
3043 ~~individual permit. A permit condition supersedes any application content.~~

3044
3045 ~~(formerly Section 6(a)(iv))(iv)~~ (iv) Construct, operate, maintain, convert, plug,
3046 abandon, or conduct any other injection activity in a manner that allows the movement of fluid
3047 containing any contaminant into underground sources of drinking water, if the presence of that
3048 contaminant may cause a violation of any primary drinking water regulation under contained in
3049 40 C.F.R. Part 141, Subparts E, F, and G, or may otherwise adversely affect the human health of
3050 persons, safety, or the environment. The applicant for a permit shall have the burden of showing
3051 that the requirements of this paragraph are met.

3052
3053 ~~(formerly Section 6(e))(v)~~ (v) No person shall iinject any hazardous waste that has been

3054 banned from land disposal pursuant to Wyoming Hazardous Waste Rules, Chapter 1;

3055

3056 ~~(formerly Section 6(d))(vi)~~ The ~~e~~Construction of a new, ~~or operation~~ an existing, or
3057 maintenance maintain of any an existing Class V wells for non-experimental geologic
3058 sequestration ~~is prohibited~~.

3059

3060 ~~(formerly Section 4(a)(iii))(b)~~ Injections from Class VI wells shall ~~be restricted~~
3061 inject only to ~~those~~ receivers ~~defined~~ classified by the Department pursuant to Water Quality
3062 Rules and Regulations, Chapter 8, as Class V (Hydrocarbon Commercial) or Class VI
3063 groundwaters ~~by the Department pursuant to Water Quality Rules and Regulations Chapter 8~~. No
3064 Class VI well shall inject to any Class I, Class II, Class III, Class IV, or unclassified
3065 groundwaters.

3066

3067 ~~(formerly Section 6(e))(c)~~ The Administrator ~~may identify (by narrative description,~~
3068 ~~illustrations, maps, or other means) and~~ shall designate and protect as underground sources of
3069 drinking water, all aquifers and parts of aquifers that meet the definition of “underground source
3070 of drinking water” in Section 2 of this Chapter, except to the extent there is expansion to the
3071 areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer
3072 exemption for the exclusive purpose of Class VI injection for geologic sequestration under
3073 Section 5(e) 16 of this ~~e~~Chapter. ~~Other than EPA-approved aquifer exemption expansions that~~
3074 ~~meet the criteria set forth in Section 5(e) of this chapter, new aquifer exemptions shall not be~~
3075 ~~issued for Class VI injection wells. Even if an aquifer has not been specifically identified by the~~
3076 ~~Administrator, it is an underground source of drinking water if it meets the definition in Section~~
3077 ~~2 of this chapter~~.

3078

3079 ~~(formerly Section 6(e))(i)~~ The Administrator may identify underground
3080 sources of drinking water ~~(by narrative description, illustrations, maps, or other means)~~.

3081

3082 ~~(formerly Section 6(e))(ii)~~ Other than EPA-approved aquifer exemption
3083 expansions that meet the ~~criteria set forth in~~ requirements of Section 5(e) 16 of this ~~e~~Chapter,
3084 new aquifer exemptions shall not be issued for Class VI injection wells. Even if an aquifer has
3085 not been specifically identified by the Administrator, it is an underground source of drinking
3086 water if it meets the definition in Section 2 of this ~~e~~Chapter.

3087

3088 **Section 12. ~~Injection Well Operating Requirements.~~ Minimum Criteria for Siting**
3089 **Class VI Wells.**

3090

3091 ~~(a) — The owner or operator must ensure that injection pressure does not exceed ninety~~
3092 ~~(90) percent of the fracture pressure of the injection zone(s) so as to ensure that the injection~~
3093 ~~does not initiate new fractures or propagate existing fractures in the injection zone(s).~~

3094

3095 ~~(i) — In no case may injection pressure cause movement of injection or~~
3096 ~~formation fluids in a manner that endangers a USDW, or otherwise threatens human health,~~
3097 ~~safety, or the environment.~~

3098

3099 (ii) — ~~In no case may injection pressure initiate fractures in the confining zone(s)~~
3100 ~~or cause the movement of injectate or formation fluids that endangers a USDW or otherwise~~
3101 ~~threatens human health, safety, or the environment.~~

3102
3103 (b) — ~~Injection of the carbon dioxide stream between the outermost casing protecting~~
3104 ~~USDWs and the wellbore is prohibited.~~

3105
3106 (c) — ~~The owner or operator must fill the annulus between the tubing and the long string~~
3107 ~~casing with a non-corrosive fluid approved by the Administrator. The owner or operator must~~
3108 ~~maintain on the annulus a pressure that exceeds the operating injection pressure, unless the~~
3109 ~~Administrator determines that such requirement might harm the integrity of the well or endanger~~
3110 ~~USDWs.~~

3111
3112 (d) — ~~Other than during periods of well workover or maintenance approved by the~~
3113 ~~Administrator in which the sealed tubing casing annulus is, by necessity, disassembled for~~
3114 ~~maintenance or corrective procedures, the owner or operator must maintain mechanical integrity~~
3115 ~~of the injection well at all times.~~

3116
3117 (e) — ~~The owner or operator must install and use continuous recording devices to~~
3118 ~~monitor:~~

3119
3120 (i) — ~~Injection pressure; and~~

3121
3122 (ii) — ~~Rate, volume, and temperature of the carbon dioxide stream.~~

3123
3124 (f) — ~~The owner or operator must install and use continuous recording devices to~~
3125 ~~monitor the pressure on the annulus between the tubing and the long string casing and annulus~~
3126 ~~fluid volume.~~

3127
3128 (g) — ~~The owner or operator must install, test, and use alarms and automatic surface~~
3129 ~~shut-off systems, or at the discretion of the Administrator use down-hole shut-off systems (e.g.,~~
3130 ~~automatic shut-off, check valves), or other mechanical devices that provide equivalent~~
3131 ~~protection, designed to alert the operator and shut-in the well when operating parameters such as~~
3132 ~~injection rate, injection pressure, or other parameters approved by the Administrator diverge~~
3133 ~~beyond ranges and/or gradients specified in the permit.~~

3134
3135 (h) — ~~If an automatic shutdown is triggered or a loss of mechanical integrity is~~
3136 ~~discovered, the owner or operator must immediately investigate and identify as expeditiously as~~
3137 ~~possible the cause. If, upon such investigation, the well appears to be lacking mechanical~~
3138 ~~integrity, or if monitoring required under paragraphs (e), (f), and (g) of this section otherwise~~
3139 ~~indicates that the well may be lacking mechanical integrity, the owner or operator must:~~

3140
3141 (i) — ~~Immediately cease injection;~~

3142

3143 ~~(ii) — Take all steps reasonably necessary to determine whether there may have~~
3144 ~~been a release of the injected carbon dioxide stream or formation fluids into any unauthorized~~
3145 ~~zone;~~

3146
3147 ~~(iii) — Notify the Administrator within twenty four (24) hours;~~

3148
3149 ~~(iv) — Restore and demonstrate mechanical integrity to the satisfaction of the~~
3150 ~~Administrator as soon as practicable and prior to resuming injection; and~~

3151
3152 ~~(v) — Notify the Administrator when injection can be expected to resume.~~

3153
3154 ~~(formerly Section 7(a))(a)~~ (a) Owners or operators of All Class VI wells ~~must~~ shall
3155 ~~demonstrate to the satisfaction of the Administrator that the wells will~~ be sited in areas with a
3156 suitable geologic system. The geologic system ~~must~~ shall be comprised of:

3157
3158 ~~(formerly Section 7(a)(i))(i)~~ (i) An injection zone of sufficient areal extent,
3159 thickness, porosity, and permeability to receive the total anticipated volume of the carbon
3160 dioxide stream; and

3161
3162 ~~(formerly Section 7(a)(ii))(ii)~~ (ii) A ~~c~~onfining zone(s) that ~~is~~ are free of transmissive
3163 faults or fractures and of sufficient areal extent and integrity to contain the injected carbon
3164 dioxide stream and displaced formation fluids and allow injection at proposed maximum
3165 pressures and volumes without initiating or propagating fractures in the confining zone(s) or
3166 causing non-transmissive faults to become transmissive.

3167
3168 ~~(formerly Section 7(a))(b)~~ (b) Owners or operators of Class VI wells ~~must~~ shall identify
3169 and characterize additional zones, if they exist, that will impede vertical fluid movement, allow
3170 for pressure dissipation, and provide additional opportunities for monitoring, mitigation, and
3171 remediation. ~~Vertical f~~vaults and fractures that transect these zones ~~must~~ shall be identified.

3172
3173 **Section 13. ~~Mechanical Integrity.~~ Area of Review Delineation and Corrective**
3174 **Action.**

3175
3176 ~~(a) — A Class VI well has mechanical integrity if:~~

3177
3178 ~~————— (i) — There is no significant leak in the casing, tubing, or packer; and~~

3179
3180 ~~————— (ii) — There is no significant fluid movement into a USDW through channels~~
3181 ~~adjacent to the injection wellbore.~~

3182
3183 ~~————— (b) — To evaluate the absence of significant leaks under paragraph (a)(i) of this section,~~
3184 ~~owners or operators must, following an initial annulus pressure test, continuously monitor~~
3185 ~~injection pressure, rate, injected volumes, and pressure on the annulus between tubing and long~~
3186 ~~string casing and annulus fluid volume as specified in Section 12 (e) and (f) of this chapter;~~

3187
3188 ~~————— (c) — At least once per year, the owner or operator must use one (1) of the following~~

3189 ~~methods to determine the absence of significant fluid movement under subparagraph (a)(ii) of this~~
3190 ~~section:~~

3191
3192 ~~————— (i) ——— An approved tracer survey such as an oxygen-activation log; or~~

3193
3194 ~~————— (ii) ——— A temperature or noise log.~~

3195
3196 ~~————— (d) ——— If required by the Administrator, at a frequency specified in the testing and~~
3197 ~~monitoring plan required in Section 14 of this chapter, the owner or operator must run a casing~~
3198 ~~inspection log to determine the presence or absence of corrosion in the long-string casing.~~

3199
3200 ~~————— (e) ——— The Administrator may require any other test to evaluate mechanical integrity~~
3201 ~~under paragraph (a)(i) or (a)(ii) of this section. Also, the Administrator may allow the use of a~~
3202 ~~test to demonstrate mechanical integrity other than those listed above, with the written approval~~
3203 ~~of the US EPA Administrator. To obtain approval, the Administrator must submit a written~~
3204 ~~request to the US EPA Administrator that must set forth the proposed test and all technical data~~
3205 ~~supporting its use.~~

3206
3207 ~~————— (f) ——— In conducting and evaluating the tests enumerated in this section or others to be~~
3208 ~~allowed by the Administrator, the owner or operator and the Administrator must apply methods~~
3209 ~~and standards generally accepted in the industry.~~

3210
3211 ~~————— (i) ——— When the owner or operator reports the results of mechanical integrity~~
3212 ~~tests to the Administrator, he/she shall include a description of the test(s) and the method(s) used.~~

3213
3214 ~~————— (ii) ——— In making his/her evaluation, the Administrator must review monitoring~~
3215 ~~and other test data submitted since the previous evaluation.~~

3216
3217 ~~————— (g) ——— The Administrator may require additional or alternative tests if the results~~
3218 ~~presented by the owner or operator under paragraph (e) of this section are not satisfactory to the~~
3219 ~~Administrator to demonstrate that there is no significant leak in the casing, tubing or packer, or~~
3220 ~~significant movement of fluid into or between USDWs resulting from the injection activity as~~
3221 ~~stated in paragraphs (a)(i) and (a)(ii) of this section.~~

3222
3223 ~~(formerly Section 8(b))~~(a) The owner or operator of a Class VI well ~~must~~ shall
3224 prepare, maintain, and comply with a plan to delineate the area of review for a proposed geologic
3225 sequestration project, re-evaluate the delineation, and perform corrective action that meets the
3226 requirements of this sSection and is acceptable to approved by the Administrator. ~~(formerly~~
3227 ~~Section 8(a))~~ The area of review is shall be based on computational modeling that accounts for
3228 the physical and chemical properties of all phases of the injected carbon dioxide stream.
3229 ~~(formerly Section 5(b)(viii)(A))~~ A Class VI ~~The~~ area of review shall never be less than the area
3230 of potentially affected groundwater. As a part of the permit application for approval by the
3231 Administrator, the owner or operator must submit aΔ an area of review and corrective action plan
3232 that shall ~~includes~~ the following information:

3233

3234 ~~(formerly Section 8(b)(i))~~(i) The method for delineating the area of review that
3235 meets the requirements of paragraph ~~(e)~~(b) of this ~~s~~sSection, including the name, version and
3236 availability of the model ~~to~~ that will be used, assumptions that will be made, and the site
3237 characterization data on which the model will be based;

3238
3239 ~~(formerly Section 8(b)(ii))~~(ii) A description of:

3240
3241 ~~(formerly Section 8(b)(ii)(A))~~(A) The monitoring and operational
3242 conditions that would warrant a re-evaluation of the area of review prior to the next scheduled re-
3243 evaluation as determined by the minimum fixed frequency established in paragraph ~~(a)~~(c) of this
3244 ~~s~~sSection.

3245
3246 ~~(formerly Section 8(b)(ii)(B))~~(B) How monitoring and operational data
3247 (e.g., injection rate and pressure) will be used to evaluate the area of review; and

3248
3249 ~~(formerly Section 8(b)(ii)(C))~~(C) How corrective action will be
3250 conducted to meet the requirements of paragraph ~~(e)~~(v) ~~(b)~~(v) of this ~~s~~sSection, including:

3251
3252 ~~(formerly Section 8(b)(ii)(C)(I))~~(I) What corrective action will be
3253 performed prior to injection;

3254
3255 ~~(formerly Section 8(b)(ii)(C)(II))~~(II) What, if any, portions of the
3256 area of review will have corrective action addressed on a phased basis; and how the phasing will
3257 be determined;

3258
3259 ~~(formerly Section 8(b)(ii)(C)(III))~~(III) How corrective action
3260 will be adjusted if there are changes in the area of review; and

3261
3262 ~~(formerly Section 8(b)(ii)(C)(IV))~~(IV) How site access will
3263 be ensured for future corrective action.

3264
3265 ~~(formerly Section 8(e))~~(b) Owners or operators of Class VI wells ~~must~~ shall perform
3266 the following actions to delineate the area of review, identify all wells that require corrective
3267 action, and perform corrective action on those wells:

3268
3269 ~~(formerly Section 8(e)(i))~~(i) Predict, using existing site characterization,
3270 monitoring and operational data, and computational modeling:

3271
3272 ~~(formerly Section 8(e)(i)(A))~~(A) The projected lateral and vertical
3273 migration of the carbon dioxide plume and formation fluids in the subsurface from the
3274 commencement of injection activities until the plume movement ceases;

3275
3276 ~~(formerly Section 8(e)(i)(B))~~(B) The pressure differentials, ~~and~~
3277 demonstrating that pressure differentials sufficient to cause the movement of injected fluids or
3278 formation fluids into a USDW or to otherwise threaten human health, safety, or the environment

3279 will not be present, ~~(or for~~ until the end of a fixed time period ~~as~~ determined by the
3280 Administrator);

3281

3282 ~~(formerly Section 8(e)(i)(C))(C)~~ The potential need for brine
3283 removal; and;

3284

3285 ~~(formerly Section 8(e)(i)(D))(D)~~ The long-term effects of pressure
3286 buildup if brine is not removed.

3287

3288 ~~(formerly Section 8(e)(ii))(ii)~~ The Use modeling ~~must~~ that:

3289

3290 ~~(formerly Section 8(e)(ii)(A))(A)~~ ~~Be~~ Is based on:

3291

3292 ~~(formerly Section 8(e)(ii)(A)(I))(I)~~ Detailed geologic data
3293 available or collected to characterize the injection zone, confining zone, and any additional
3294 zones; and

3295

3296 ~~(formerly Section 8(e)(ii)(A)(H))(H)~~ II Anticipated operating data,
3297 including injection pressures, rates and total volumes over the proposed operational life of the
3298 facility; and;

3299

3300 ~~(formerly Section 8(e)(ii)(B))(B)~~ Takes into account any relevant
3301 geologic heterogeneities, other discontinuities, data quality, and their possible impact on model
3302 predictions; and

3303

3304 ~~(formerly Section 8(e)(ii)(C))(C)~~ Considers potential migration
3305 through faults, fractures, and artificial penetrations.

3306

3307 ~~(formerly Section 8(e)(iii))(iii)~~ Using methods approved by the
3308 Administrator, identify all penetrations, including active and abandoned wells and underground
3309 mines, in the area of review that may penetrate the confining zone, and ~~P~~ provide a description of
3310 each well's type, construction, date drilled, location, depth, record of plugging and ~~or~~
3311 completion, and any additional information the Administrator may require; ~~and~~

3312

3313 ~~(formerly Section 8(e)(iv))(iv)~~ Determine which abandoned wells in the
3314 area of review have been plugged in a manner that prevents the movement of:

3315

3316 ~~(formerly Section 8(e)(iv)(A))(A)~~ Carbon dioxide that may endanger
3317 USDWs or otherwise threaten human health, safety, or the environment; or

3318

3319 ~~(formerly Section 8(e)(iv)(B))(B)~~ Displaced formation fluids, or other
3320 fluids, including the use of materials compatible with the carbon dioxide stream, that may
3321 endanger USDWs or otherwise threaten human health, safety, or the environment; and

3322

3323 ~~(formerly Section 8(e)(v))(v)~~ Owners or operators of Class VI wells must shall
3324 ~~that are determined to need corrective action using methods that are approved by the~~

3325 ~~Administrator, must~~ perform corrective action on all any wells in the area of review that are
3326 determined to need corrective action, using methods designed to prevent the movement of fluid
3327 into or between USDWs including use of materials compatible with the carbon dioxide stream,
3328 where appropriate.

3329
3330 ~~(formerly Section 8(d))(c)~~ At a fixed frequency, not to exceed two (2) years during the
3331 operational life of the facility; or five (5) years during the post-injection site care period (until
3332 site closure) as specified in the area of review and corrective action plan, or when monitoring
3333 and operational conditions warrant, owners or operators ~~must~~ shall:

3334
3335 ~~(formerly Section 8(d)(i))(i)~~ Re-evaluate the area of review in the same manner
3336 specified in ~~paragraph (e)(i)~~ subparagraph (b)(i) of this ~~s~~Section;

3337
3338 ~~(formerly Section 8(d)(i))(ii)~~ Identify all wells in the re-evaluated area of review
3339 that require corrective action in the same manner specified in ~~paragraph (e)(iv)~~ subparagraph
3340 (b)(iv) of this ~~s~~Section;

3341
3342 ~~(formerly Section 8(d)(iii))(iii)~~ Perform corrective action on wells requiring
3343 corrective action in the reevaluated area of review in the same manner specified in ~~paragraph~~
3344 ~~(e)(v)~~ subparagraph (b)(v) of this ~~s~~Section; and

3345
3346 ~~(formerly Section 8(d)(iv))(iv)~~ Submit an amended area of review and
3347 corrective action plan, or demonstrate to the Administrator through monitoring data and
3348 modeling results that no change to the area of review and corrective action plan is needed.

3349
3350 ~~(formerly Section 8(d)(iv)(A))(A)~~ ~~Any a~~Amendments to the area of
3351 review and corrective action plan ~~must~~ shall be subject to ~~approved~~ by of the Administrator;.

3352
3353 ~~(formerly Section 8(d)(iv)(B))(B)~~ ~~Any a~~Amendments to the area of
3354 review ~~must~~ shall be incorporated into the permit; ~~and~~

3355
3356 ~~(formerly Section 8(d)(iv)(C))(C)~~ ~~Any a~~Amendments to the area of
3357 review are subject to the permit modification requirements of Section 4 ~~6~~ of this ~~e~~Chapter, ~~as~~
3358 appropriate.

3359
3360 **Section 14. ~~Testing and Monitoring Requirements,~~Construction and Operation**
3361 **Standards for Class VI Wells.**

3362
3363 ~~(a) — The owner or operator of a Class VI well must prepare, maintain, and comply~~
3364 ~~with a testing and monitoring plan to verify that the geologic sequestration project is operating as~~
3365 ~~permitted and is not endangering USDWs. The testing and monitoring plan must be submitted~~
3366 ~~with the permit application, for Administrator approval, and must include a description of how~~
3367 ~~the owner or operator will meet the requirements of this section, including accessing sites for all~~
3368 ~~necessary monitoring and testing during the life of the project.~~

3369

- 3370 ~~(b) — Testing and monitoring associated with geologic sequestration projects must, at a~~
3371 ~~minimum, include:~~
3372
- 3373 ~~(i) — Plans and procedures for environmental surveillance and excursion~~
3374 ~~detection, prevention, and control programs, including a monitoring plan to:~~
3375
- 3376 ~~(A) — Assess the migration of the injected carbon dioxide; and~~
3377
- 3378 ~~(B) — Ensure the retention of the carbon dioxide in the geologic~~
3379 ~~sequestration site.~~
3380
- 3381 ~~(ii) — Analysis of the carbon dioxide stream with sufficient frequency to yield~~
3382 ~~data representative of its chemical and physical characteristics;~~
3383
- 3384 ~~(iii) — Installation and use, except during well workovers, of continuous~~
3385 ~~recording devices to monitor:~~
3386
- 3387 ~~(A) — Injection pressure;~~
3388
- 3389 ~~(B) — Rate and volume;~~
3390
- 3391 ~~(C) — Pressure on the annulus between the tubing and the long string~~
3392 ~~easing;~~
3393
- 3394 ~~(D) — The annulus fluid volume added; and~~
3395
- 3396 ~~(E) — The pressure on the annulus between the tubing and the long string~~
3397 ~~easing.~~
3398
- 3399 ~~(iv) — Corrosion monitoring of the well materials for loss of mass, thickness,~~
3400 ~~cracking, pitting, and other signs of corrosion must be performed and recorded at least quarterly~~
3401 ~~to ensure that the well components meet the minimum standards for material strength and~~
3402 ~~performance set forth in Section 9(b) of this chapter by:~~
3403
- 3404 ~~(A) — Analyzing coupons of the well construction materials placed in~~
3405 ~~contact with the carbon dioxide stream;~~
3406
- 3407 ~~(B) — Routing the carbon dioxide stream through a loop constructed with~~
3408 ~~the material used in the well and inspecting the materials in the loop; or~~
3409
- 3410 ~~(C) — Using an alternative method approved by the Administrator.~~
3411
- 3412 ~~(v) — Periodic monitoring of the groundwater quality and geochemical changes~~
3413 ~~above the confining zone(s) that may be a result of carbon dioxide movement or displaced~~
3414 ~~formation fluid movement through the confining zone(s) or additional identified zones including:~~
3415

3416 (A) — ~~The location and number of monitoring wells must be based on~~
3417 ~~specific information about the geologic sequestration project, including injection rate and~~
3418 ~~volume, geology, the presence of artificial penetrations and other relevant factors; and~~
3419

3420 (B) — ~~The monitoring frequency and spatial distribution of monitoring~~
3421 ~~wells based on baseline geochemical data that have been collected under Section 5(b)(xiii) of this~~
3422 ~~chapter and any modeling results in the area of review evaluation required by Section 8(c) of this~~
3423 ~~chapter.~~
3424

3425 (vi) — ~~A demonstration of external mechanical integrity pursuant to Section~~
3426 ~~13(c) at least once per year until the well is plugged; and if required by the Administrator, a~~
3427 ~~casing inspection log pursuant to requirements of Section 13(d) of this chapter at a frequency~~
3428 ~~established in the testing and monitoring plan;~~
3429

3430 (vii) — ~~A pressure fall-off test that identifies reservoir conditions with respect to~~
3431 ~~flow dynamics at least once every five (5) years unless more frequent testing is required by the~~
3432 ~~Administrator based on site-specific information; and~~
3433

3434 (viii) — ~~Testing and monitoring to track the extent of the carbon dioxide plume,~~
3435 ~~the position of the pressure front, and surface displacement using:~~
3436

3437 (A) — ~~Direct methods in the injection zone(s); and~~
3438

3439 (B) — ~~Indirect methods (e.g., seismic, electrical, gravity, or~~
3440 ~~electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the~~
3441 ~~Administrator determines, based on site-specific geology, that such methods are not appropriate;~~
3442

3443 (ix) — ~~At the Administrator's discretion, based on site-specific conditions,~~
3444 ~~surface air monitoring and/or soil gas monitoring to detect movement of carbon dioxide that~~
3445 ~~could endanger a USDW, or otherwise threaten human health, safety, or the environment.~~
3446

3447 (A) — ~~The surface air or soil gas monitoring plan must be based on~~
3448 ~~potential risks to USDWs, and modeling within the area of review;~~
3449

3450 (B) — ~~The monitoring frequency and spatial distribution of surface air~~
3451 ~~monitoring and/or soil gas monitoring must reflect baseline data. The monitoring plan must~~
3452 ~~specify how the proposed monitoring will yield useful information on the area of review~~
3453 ~~delineation and the potential movement of fluid containing any contaminant into USDWs in~~
3454 ~~exceedence of any primary drinking water regulation under 40 CFR Part 141, or which may~~
3455 ~~otherwise adversely affect human health, safety, or the environment.~~
3456

3457 (x) — ~~If an owner or operator demonstrates that monitoring employed under 40~~
3458 ~~CFR §§ 98.440 to 98.449 (Clean Air Act, 42 U.S.C. 7401 et seq.) accomplishes the goals of~~
3459 ~~(b)(ix)(A) and (B) of this section, and meets the requirements pursuant to 40 CFR § 146.91(c)(5),~~
3460 ~~the Administrator that requires surface air/soil gas monitoring must approve the use of~~

3461 ~~monitoring employed under 40 CFR §§ 98.440 to 98.449. Compliance with §§ 98.440 to 98.449~~
3462 ~~pursuant to this provision is considered a condition of the Class VI permit;~~

3463
3464 (xi) ~~—Any additional monitoring, as required by the Administrator, necessary to~~
3465 ~~support, upgrade, and improve computational modeling of the area of review re-evaluation~~
3466 ~~required under Section 8(d) of this chapter and as necessary to demonstrate that there is no~~
3467 ~~movement of fluid containing any contaminant into underground sources of drinking water in~~
3468 ~~exceedence of any primary drinking water regulation under 40 CFR Part 141, or which could~~
3469 ~~otherwise adversely affect human health, safety, or the environment;~~

3470
3471 (xii) ~~—The owner or operator shall periodically review the testing and monitoring~~
3472 ~~plan to incorporate monitoring data collected under this subpart, operational data collected under~~
3473 ~~Section 12 of this chapter, and the most recent area of review reevaluation performed under~~
3474 ~~Section 8 of this chapter. In no case shall the owner or operator review the testing and~~
3475 ~~monitoring plan less often than once every five (5) years. Based on this review, the owner or~~
3476 ~~operator shall submit an amended testing and monitoring plan or demonstrate to the~~
3477 ~~Administrator that no amendment to the testing and monitoring plan is needed. Any amendments~~
3478 ~~to the testing and monitoring plan must be approved by the Administrator, must be incorporated~~
3479 ~~into the permit, and are subject to the permit modification requirements of Section 4 of this~~
3480 ~~chapter, as appropriate. Amended plans or demonstrations shall be submitted to the~~
3481 ~~Administrator as follows:~~

3482
3483 (A) ~~—Within one (1) year of an area of review reevaluation;~~

3484
3485 (B) ~~—Following any significant changes to the facility, such as addition~~
3486 ~~of monitoring wells or newly permitted injection wells within the area of review, on a schedule~~
3487 ~~determined by the Administrator; or~~

3488
3489 (C) ~~—When required by the Administrator.~~

3490
3491 (xiii) ~~—A quality assurance and surveillance plan for all testing and monitoring~~
3492 ~~requirements.~~

3493
3494 (e) ~~—The permittee shall retain records of all monitoring information, including the~~
3495 ~~following:~~

3496
3497 (i) ~~—Calibration and maintenance records and all original strip chart recordings~~
3498 ~~for continuous monitoring instrumentation, copies of all reports required by this permit, and~~
3499 ~~records of all data used to complete the application for this permit, for a period of at least three~~
3500 ~~(3) years from the date of the sample, measurement, report, or application. This period may be~~
3501 ~~extended by request of the Administrator at any time; and~~

3502
3503 (ii) ~~—The nature and composition of all injected fluids until three (3) years after~~
3504 ~~the completion of any plugging and abandonment procedures specified under Section 16 of this~~
3505 ~~chapter. The Administrator may require the owner or operator to deliver the records to the~~
3506 ~~Administrator at the conclusion of the retention period.~~

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~~(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;

3553 (E) American Petroleum Institute RP 10D-2;

3554
3555 (F) American Petroleum Institute Specification 11D1;

3556
3557 (G) American Petroleum Institute RP 14B; and

3558
3559 (H) American Petroleum Institute RP 14C.

3560
3561 ~~(formerly Section 9(b)(ii))~~(ii) The casing and cementing program ~~must~~ shall be
3562 designed to prevent the movement of fluids into or between USDWs.

3563
3564 ~~(formerly Section 9(b)(iii))~~(iii) ~~In order to~~ To allow the Administrator to
3565 determine and specify casing and cementing requirements, the owner or operator ~~must~~ shall
3566 provide the following information in a construction design plan:

3567
3568 ~~(formerly Section 9(b)(iii)(A))~~(A) Depth to the injection zone;

3569
3570 ~~(formerly Section 9(b)(iii)(B))~~(B) Injection pressure, external pressure,
3571 internal pressure, and axial loading;

3572
3573 ~~(formerly Section 9(b)(iii)(C))~~(C) Hole size;

3574
3575 ~~(formerly Section 9(b)(iii)(D))~~(D) Size and grade of all casing strings
3576 (wall thickness, external diameter, nominal weight, length, joint specification and construction
3577 material), including whether the casing is new; or used;

3578
3579 ~~(formerly Section 9(b)(iii)(E))~~(E) Corrosiveness of the carbon dioxide
3580 stream and formation fluids;

3581
3582 ~~(formerly Section 9(b)(iii)(F))~~(F) Down-hole temperatures and
3583 pressures;

3584
3585 ~~(formerly Section 9(b)(iii)(G))~~(G) Lithology of injection and confining
3586 zones;

3587
3588 ~~(formerly Section 9(b)(iii)(H))~~(H) Type or grade of cement and
3589 additives; and

3590
3591 ~~(formerly Section 9(b)(iii)(I))~~(I) Quantity, chemical composition, and
3592 temperature of the carbon dioxide stream.

3593
3594 ~~(formerly Section 9(b)(iv))~~(iv) Casing ~~must~~ shall extend through the base of
3595 the lowermost USDW above the injection zone and be cemented to the surface through the use of
3596 a single or multiple strings of casing and cement.

3597

3598 ~~(formerly Section 9(b)(v))(v)~~ At least one (1) long string casing, using a sufficient
3599 number of centralizers, ~~must shall~~ be set ~~in a manner so as~~ to create a cement bond through the
3600 overlying and/or underlying confining zone(s).

3601
3602 ~~(formerly Section 9(b)(v))(A)~~ The long string casing ~~must shall: extend to~~
3603 ~~the injection zone, must be cemented by circulating cement to the surface in one (1) or more~~
3604 ~~stages, and must be isolated by placing cement and/or other isolation techniques as necessary to~~
3605 ~~provide adequate isolation of the injection zone and provide for protection of USDWs, human~~
3606 ~~health, safety, and the environment.~~

3607
3608 ~~(formerly Section 9(b)(v))(I)~~ ~~e~~Extend to the injection zone;

3609
3610 ~~(formerly Section 9(b)(v))(II)~~ ~~must b~~Be cemented by circulating
3611 cement to the surface in one (1) or more stages; and

3612
3613 ~~(formerly Section 9(b)(v))(III)~~ ~~must b~~Be isolated by placing
3614 cement ~~and/or~~ other isolation techniques as necessary to provide adequate isolation of the
3615 injection zone and provide for protection of USDWs, human health, safety, and the environment.

3616
3617 ~~(formerly Section 9(b)(v)(A))(B)~~ Circulation of cement may be
3618 accomplished by staging. The Administrator may approve an alternative method of cementing in
3619 cases where the cement cannot be recirculated to the surface, ~~provided if~~ if the owner or operator
3620 ~~can~~ demonstrates by using logs that the cement does not allow fluid movement behind the
3621 wellbore.

3622
3623 ~~(formerly Section 9(b)(vi))(vi)~~ Cement and cement additives ~~must shall~~ be
3624 suitable for use with the carbon dioxide stream and formation fluids, and be of sufficient quality
3625 and quantity to maintain integrity over the operating life of the well.

3626
3627 ~~(formerly Section 9(b)(vii))(vii)~~ The integrity and location of the cement
3628 shall be verified using technology capable of evaluating cement quality radially with sufficient
3629 resolution to identify the location of channels, voids, or other areas of missing cement to ensure
3630 that USDWs are not endangered and that human health, safety, and the environment are
3631 protected. The owner or operator shall provide a cement bond log (CBL) to the Administrator
3632 with an evaluation, certified by a licensed professional engineer or a licensed professional
3633 geologist, of the following:

3634
3635 (A) Quantitative estimations of the cement compressive strength;

3636
3637 (B) A bond index; and

3638
3639 (C) Qualitative interpretation of the cement-to-formation bond.

3640
3641 ~~(formerly Section 9(e))(c)~~ All owners and operators of Class VI wells ~~must shall~~
3642 inject fluids through tubing with a packer set at a depth opposite a cemented interval at the
3643 location approved by the Administrator.

3644
3645 ~~(formerly Section 9(e)(i))(i)~~ (i) Tubing and packer materials used in the
3646 construction of each Class VI well ~~must~~ shall be compatible with fluids with which the materials
3647 may be expected to come into contact and ~~must~~ shall meet or exceed the following standards
3648 ~~developed for such materials by the American Petroleum Institute, ASTM International, or~~
3649 ~~comparable standards acceptable to the Administrator.:~~

3650
3651 (A) American Petroleum Institute Specification 5CT;

3652
3653 (B) American Petroleum Institute RP 5C1;

3654
3655 (C) American Petroleum Institute RP 10B-2;

3656
3657 (D) American Petroleum Institute Specification 10A;

3658
3659 (E) American Petroleum Institute RP 10D-2;

3660
3661 (F) American Petroleum Institute Specification 11D1;

3662
3663 (G) American Petroleum Institute RP 14B; and

3664
3665 (H) American Petroleum Institute RP 14C.

3666
3667 ~~(formerly Section 9(e)(ii))(ii)~~ (ii) ~~In order for t~~The Administrator ~~to~~ shall determine
3668 and specify requirements for tubing and packer, ~~the owner or operator must submit~~ based on the
3669 following information:

3670
3671 ~~(formerly Section 9(e)(ii)(A))(A)~~ (A) Depth of setting;

3672
3673 ~~(formerly Section 9(e)(ii)(B))(B)~~ (B) Characteristics of the carbon dioxide
3674 stream (e.g., chemical content, corrosiveness, temperature, and density) and formation fluids;

3675
3676 ~~(formerly Section 9(e)(ii)(C))(C)~~ (C) Maximum proposed injection
3677 pressure;

3678
3679 ~~(formerly Section 9(e)(ii)(D))(D)~~ (D) Maximum proposed annular
3680 pressure;

3681
3682 ~~(formerly Section 9(e)(ii)(E))(E)~~ (E) Maximum proposed injection rate
3683 (intermittent or continuous) and volume of the carbon dioxide stream;

3684
3685 ~~(formerly Section 9(e)(ii)(F))(F)~~ (F) Size of tubing and casing; and

3686
3687 ~~(formerly Section 9(e)(ii)(G))(G)~~ (G) Tubing tensile, burst, and collapse
3688 strengths.
3689

3690 **Section 15. Reporting Requirements. Class VI Injection Depth Waiver**
3691 **Requirements.**

3692
3693 ~~(a) — The owner or operator must, at a minimum, provide the following reports to the~~
3694 ~~Administrator, for each permitted Class VI well:~~

3695
3696 ~~(i) — Semi-annual reports, which are required by the permit shall be submitted~~
3697 ~~to the Administrator within thirty (30) days following the end of the period covered in the report,~~
3698 ~~and shall contain:~~

3699
3700 ~~(A) — Any changes to the physical, chemical, and other relevant~~
3701 ~~characteristics of the carbon dioxide stream from the proposed operating data;~~

3702
3703 ~~(B) — Monthly average, maximum and minimum values for injection~~
3704 ~~pressure, flow rate and volume, and annular pressure;~~

3705
3706 ~~(C) — A description of any event that exceeds operating parameters for~~
3707 ~~annulus pressure or injection pressure as specified in the permit;~~

3708
3709 ~~(D) — A description of any event that triggers a shutdown device required~~
3710 ~~pursuant to Section 12(g) of this chapter, and the response taken;~~

3711
3712 ~~(E) — The monthly volume of the carbon dioxide stream injected over the~~
3713 ~~reporting period and project cumulatively;~~

3714
3715 ~~(F) — Monthly annulus fluid volume added; and~~

3716
3717 ~~(G) — The results of monitoring prescribed under Section 14 of this~~
3718 ~~chapter.~~

3719
3720 ~~(ii) — Report, within thirty (30) days the results of:~~

3721 ~~(A) — Periodic tests of mechanical integrity;~~

3722 ~~(B) — Any other test of the injection well conducted by the permittee if~~
3723 ~~required by the Administrator; and~~

3724
3725 ~~(C) — Any well workover.~~

3726
3727 ~~(iii) — Report, within twenty-four (24) hours:~~

3728
3729 ~~(A) — Any evidence that the injected carbon dioxide stream or associated~~
3730 ~~pressure front may cause an endangerment to a USDW;~~

3731 ~~(B) — Any noncompliance with a permit condition, or malfunction of the~~
3732 ~~injection system, which may cause fluid migration into or between USDWs;~~
3733
3734
3735

3736
3737 (C) — Any triggering of a shut-off system (i.e., down-hole or at the
3738 surface);

3739
3740 (D) — Pursuant to compliance with the requirement at Section 14(b)(x) of
3741 this chapter for surface air or soil gas monitoring or other monitoring technologies, if required by
3742 the Administrator, any release of carbon dioxide to the atmosphere or biosphere.

3743
3744 (iv) — Owners or operators must notify the Administrator in writing thirty (30)
3745 days in advance of:

3746
3747 (A) — Any planned well workover;

3748
3749 (B) — Any planned stimulation activities, other than stimulation for
3750 formation testing conducted under Section 5 of this chapter; and

3751
3752 (C) — Any other planned test of the injection well conducted by the
3753 permittee.

3754
3755 (b) — Owners or operators must submit all required reports, submittals, and notifications
3756 to both the Administrator and to EPA, in an electronic format acceptable to the EPA.

3757
3758 (e) — The permittee shall submit a written report to the Administrator of all remedial
3759 work concerning the failure of equipment or operational procedures that resulted in a violation of
3760 a permit condition, at the completion of the remedial work.

3761
3762 (d) — For any aborted or curtailed operation, a complete report shall be submitted
3763 within thirty (30) days of complete termination of the discharge or associated activity.

3764
3765 (e) — The permittee shall retain all monitoring records required by the permit for a
3766 period of ten (10) years following site closure. The Administrator may require the owner or
3767 operator to deliver the records to the Administrator at the conclusion of the retention period.

3768
3769 ~~formerly Section 10(a)(a)~~ (a) The An owner ~~and~~/or operator seeking a waiver of the
3770 requirement to inject below the lowermost USDW shall submit a supplemental report concurrent
3771 with the permit application. The report shall contain the following:

3772
3773 ~~formerly Section 10(a)(i)(i)~~ (i) A demonstration that the injection zones are
3774 laterally continuous, ~~is are~~ is are not a USDWs, and ~~is are~~ is are not hydraulically connected to USDWs;
3775 ~~does~~ do not outcrop within the area of review; ~~has have~~ has have adequate injectivity, volume, and sufficient
3776 porosity to safely contain the injected carbon dioxide and formation fluids; and ~~has have~~ has have
3777 appropriate geochemistry;

3778
3779 ~~formerly Section 10(a)(ii)(ii)~~ (ii) A demonstration that the injection zones are
3780 bounded by laterally continuous, impermeable confining units above and below the injection

3781 zones adequate to prevent fluid movement and pressure buildup outside of the injection zones;
3782 ~~and~~

3783
3784 ~~formerly Section 10(a)(ii))(iii)~~ A demonstration that the confining unit(s)
3785 ~~is/are~~ free of transmissive faults and fractures;

3786
3787 ~~formerly Section 10(a)(ii))(iv)~~ The report shall further A characterization
3788 of the regional fracture properties and ~~contain~~ a demonstration that the fractures will not interfere
3789 with injection, serve as conduits, or endanger USDWs;

3790
3791 ~~formerly Section 10(a)(iii))(v)~~ A computer model demonstrating that
3792 USDWs above and below the injection zone will not be endangered as a result of fluid
3793 movement. The modeling shall be done in conjunction with the area of review determination, ~~as~~
3794 described in Section ~~8~~ 13 of this ~~e~~Chapter, ~~and~~ is subject to the requirements; ~~as described in of~~
3795 Section ~~8(e)-13(b)~~ of this ~~e~~Chapter, and shall be periodically reevaluated; ~~as described in~~
3796 required by Section ~~8(d)~~ 13(c) of this ~~e~~Chapter;

3797
3798 ~~formerly Section 10(a)(iv))(vi)~~ A demonstration that well design and
3799 construction, in conjunction with the waiver, will ensure isolation of the injectate in lieu of the
3800 requirements of Section ~~9(a)(i)~~ 14(a)(i) of this ~~e~~Chapter and will meet the well construction
3801 requirements of paragraph (f) of this ~~s~~Section;

3802
3803 ~~formerly Section 10(a)(v))(vii)~~ A description of how the monitoring and
3804 testing and any additional plans will be tailored to this geologic sequestration project to ensure
3805 protection of USDWs above and below the injection zone;

3806
3807 ~~formerly Section 10(a)(vi))(viii)~~ Information on the location of all public
3808 water supplies affected, reasonably likely to be affected, or served by USDWs in the area of
3809 review; and

3810
3811 ~~formerly Section 10(a)(vii))(ix)~~ Any other information requested by the
3812 Administrator.

3813
3814 ~~formerly Section 10(b))(b)~~ To inform the US EPA Regional Administrator's decision
3815 on whether to grant a waiver of the injection depth requirements of 40 C.F.R. §§ 144.6, 146.5(f),
3816 and 146.86(a)(1), the Administrator ~~must~~ shall submit; to the US EPA Regional Administrator;
3817 documentation of the following:

3818
3819 ~~formerly Section 10(b)(i))(i)~~ An evaluation of the following information as it
3820 relates to siting, construction, and operation of a geologic sequestration project with a waiver:

3821
3822 ~~formerly Section 10(b)(i)(A))(A)~~ The integrity of the upper and lower
3823 confining units;

3824
3825 ~~formerly Section 10(b)(i)(B))(B)~~ The suitability of the injection
3826 zone(s) (e.g., including lateral continuity; lack of transmissive faults and fractures; and

3827 knowledge of current or planned artificial penetrations into the injection zone(s) or formations
3828 below the injection zone);

3829
3830 ~~formerly Section 10(b)(i)(C)~~(C) The potential capacity of the
3831 geologic formation(s) to sequester carbon dioxide, accounting for the availability of alternative
3832 injection sites;

3833
3834 ~~formerly Section 10(b)(i)(D)~~(D) All other site characterization data,
3835 the proposed emergency and remedial response plan, and a demonstration of financial
3836 responsibility;

3837
3838 ~~formerly Section 10(b)(i)(E)~~(E) Community needs, demands, and
3839 supply from drinking water resources;

3840
3841 ~~formerly Section 10(b)(i)(F)~~(F) Planned needs, and potential ~~and/or~~
3842 future use of USDWs and non-USDWs aquifers in the area;

3843
3844 ~~formerly Section 10(b)(i)(G)~~(G) Planned or permitted water,
3845 hydrocarbon, or mineral resource exploitation potential of the proposed injection formation(s)
3846 and other formations both above and below the injection zone to determine if there are any plans
3847 to drill through the formation to access resources in or beneath the proposed injection zone(s) ~~/ or~~
3848 formation(s);

3849
3850 ~~formerly Section 10(b)(i)(H)~~(H) The proposed plan for securing
3851 alternative resources or treating USDW formation waters in the event of contamination related to
3852 the Class VI injection activity; and

3853
3854 ~~formerly Section 10(b)(i)(I)~~(I) Any other applicable considerations
3855 or information requested by the Administrator.;

3856
3857 ~~formerly Section 10(b)(ii)~~(ii) Consultation with the ~~P~~Public ~~W~~Water ~~S~~System
3858 ~~S~~Supervision ~~D~~Directors of all ~~S~~States and Tribes having jurisdiction over lands within the area of
3859 review of a well for which a waiver is sought. ~~;~~ and

3860
3861 ~~formerly Section 10(b)(iii)~~(iii) Any written waiver-related information
3862 submitted by ~~the a P~~a Public ~~W~~Water ~~S~~System ~~S~~Supervision ~~D~~Director(s) to the ~~(UIC) Director~~
3863 Department.

3864
3865 ~~formerly Section 10(e)~~(c) Concurrent with the Class VI permit application public
3866 notice process pursuant to Section 27 of this Chapter, the Administrator shall give public notice
3867 that an injection depth waiver request has been submitted. The notice shall clearly state:

3868
3869 ~~(formerly Section 10(e)(i))~~(i) The depth of the proposed injection zone(s);

3870
3871 ~~(formerly Section 10(e)(ii))~~(ii) The location of the injection wells;

3872

3873 ~~(formerly Section 10(e)(iii))~~(iii) The name and depth of all USDWs within
3874 the area of review;

3875

3876 ~~(formerly Section 10(e)(iv))~~(iv) A map of the area of review;

3877

3878 ~~(formerly Section 10(e)(v))~~(v) The names of any public water supplies
3879 affected, reasonably likely to be affected, or served by the USDWs in the area of review; and

3880

3881 ~~(formerly Section 10(e)(vi))~~(vi) The results of any consultation between the
3882 UIC program and the Public Water System Supervision ~~program~~ Directors within the area of
3883 review.

3884

3885 ~~(formerly Section 10(d))~~(d) Following the injection depth waiver application public
3886 notice, the Administrator of the Water Quality Division of the Department of Environmental
3887 Quality shall provide all the information received through the waiver application process to the
3888 US EPA Regional Administrator. Based on the information provided, the US EPA Regional
3889 Administrator shall provide written concurrence or non-concurrence regarding waiver issuance.

3890

3891 ~~(formerly Section 10(d)(i))~~(i) If the US EPA Regional Administrator requires
3892 additional information to make a decision, the Administrator of the Water Quality Division of
3893 the Department of Environmental Quality shall provide the information. The US EPA Regional
3894 Administrator may require public notice of the new information.

3895

3896 ~~(formerly Section 10(d)(i))~~(ii) The Administrator of the Water Quality Division of
3897 the Department of Environmental Quality shall not issue a depth injection waiver without receipt
3898 of written concurrence from the US EPA Regional Administrator.

3899

3900 ~~(formerly Section 10(e))~~(e) If an injection depth waiver is issued, within thirty (30)
3901 days of issuance, the EPA shall post the following information on the Office of Water's website:

3902

3903 ~~(formerly Section 10(e)(i))~~(i) The depth of the proposed injection zone~~;~~;

3904

3905 ~~(formerly Section 10(e)(ii))~~(ii) The location of the injection wells~~;~~;

3906

3907 ~~(formerly Section 10(e)(iii))~~(iii) The name and depth of all USDWs within
3908 the area of review~~;~~;

3909

3910 ~~(formerly Section 10(e)(iv))~~(iv) A map of the area of review~~;~~;

3911

3912 ~~(formerly Section 10(e)(v))~~(v) The names of any public water supplies
3913 affected, reasonably likely to be affected, or served by the USDWs in the area of review~~;~~ ; and

3914

3915 ~~(formerly Section 10(e)(vi))~~(vi) The date of waiver issuance.

3916

3917 ~~(formerly Section 10(f))(f)~~ Upon receipt of a waiver of the requirement to inject below
3918 the lowermost USDW for geologic sequestration, the owner or operator of a Class VI well ~~must~~
3919 shall comply with the following:

3921 ~~(formerly Section 10(f)(i))(i)~~ All requirements of Sections ~~8-13, 11-17, 12-18, 13~~
3922 ~~19, 15-22, 16-23, 18-25~~, and ~~19-26~~ of this ~~e~~Chapter;

3924 ~~(formerly Section 10(f)(ii))(ii)~~ All the requirements of Section ~~9-14~~ of this
3925 ~~e~~Chapter with the following modified requirements:

3927 ~~(formerly Section 10(f)(ii)(A))(A)~~ In lieu of meeting the requirements
3928 of Section 14(a)(i) of this Chapter, ~~T~~he Class VI well shall be constructed and completed to
3929 prevent the movement of fluids into any unauthorized zones, including USDWs, ~~in lieu of~~
3930 ~~requirements of Section 9(a)(i) of this chapter.~~

3932 ~~(formerly Section 10(f)(ii)(B))(B)~~ In lieu of meeting the requirements
3933 of Section 14(b) and 14(b)(i) of this Chapter, ~~T~~he casing and cementing program shall ~~be~~
3934 ~~designed to~~ prevent the movement of fluids into any unauthorized zones including USDWs, ~~in~~
3935 ~~lieu of requirements of Section 9(b) and 9(b)(i) of this chapter.~~ and

3937 ~~(formerly Section 10(f)(ii)(C))(C)~~ The casing shall extend through the
3938 base of the nearest USDW directly above the injection zone and shall be cemented to the surface;
3939 or, at the Administrator's discretion, at another formation above the injection zone and below the
3940 nearest USDW above the injection zone.

3942 ~~(formerly Section 10(f)(iii))(iii)~~ All the requirements of Section ~~14-20~~ of this
3943 ~~e~~Chapter with the following modified requirements:

3945 ~~(formerly Section 10(f)(iii)(A))(A)~~ The owner or operator shall monitor
3946 the groundwater quality, geochemical changes, and pressure in the first USDWs immediately
3947 above and below the injection zone(s); and in any other formation at the discretion of the
3948 Administrator; and

3950 ~~(formerly Section 10(f)(iii)(B))(B)~~ The owner or operator shall conduct
3951 testing and monitoring to track the extent of the carbon dioxide plume and the presence or
3952 absence of elevated pressure (e.g., the pressure front) in the injection zone(s) by using: ~~direct~~
3953 ~~methods to monitor for pressure changes in the injection zone(s); and, indirect methods (e.g.,~~
3954 ~~seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide~~
3955 ~~detection tools), unless the Administrator determines, based on site-specific geology, that such~~
3956 ~~methods are not appropriate.~~

3958 ~~(formerly Section 10(f)(iii)(B))(I)~~ Direct methods, ~~to monitor~~
3959 ~~for pressure changes in the injection zone(s); and,~~

3961 ~~(formerly Section 10(f)(iii)(B))(II)~~ Indirect methods (e.g.,
3962 seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide

3963 detection tools), unless the Administrator determines, based on site-specific geology, that such
3964 methods are not appropriate.;

3965
3966 ~~(formerly Section 10(f)(iv))(iv)~~ All requirements of Section ~~17~~ 24 of this
3967 eChapter with the following, modified ~~post injection site care monitoring~~ requirements:

3968
3969 ~~(formerly Section 10(f)(iv)(A))(A)~~ The owner or operator shall monitor
3970 the groundwater quality, geochemical changes and pressure in the first USDWs immediately
3971 above and below the injection zone; and in any other formations at the discretion of the
3972 Administrator.;

3973 and
3974 ~~(formerly Section 10(f)(iv)(B))(B)~~ Testing and monitoring in the
3975 injection zone(s) to track the extent of the carbon dioxide plume and the presence or absence of
3976 elevated pressure (e.g., the pressure front) by using direct methods ~~in the injection zone(s)~~; and
3977 indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole
3978 carbon dioxide detection tools); unless the Administrator determines, based on site-specific
3979 geology, that such methods are not appropriate; and

3980
3981 ~~(formerly Section 10(f)(v))(v)~~ Any additional requirements ~~requested~~
3982 imposed by the Administrator to ensure protection of USDWs above and below the injection
3983 zone(s).

3984
3985 **Section 16. ~~Injection Well-plugging. Expansion to the Areal Extent of Existing~~**
3986 **Class II Injection Well Aquifer Exemptions for Class VI Injection Wells.**

3987
3988 ~~(a) — Prior to the well plugging, the owner or operator must flush each Class VI~~
3989 ~~injection well with a buffer fluid, determine bottom hole reservoir pressure, and perform a final~~
3990 ~~external mechanical integrity test in accordance with Section 13 of this chapter.~~

3991
3992 ~~(b) — The owner or operator of a Class VI well must prepare, maintain, update on the~~
3993 ~~same schedule as the update to the area of review delineation, and comply with a well plugging~~
3994 ~~plan that is acceptable to the Administrator. Temporary or intermittent cessation of injection~~
3995 ~~operations is not abandonment. The well plugging plan must include the following information:~~

3996
3997 ~~(i) — Appropriate test or measure to determine bottom hole reservoir pressure;~~
3998

3999 ~~(ii) — Appropriate testing methods to ensure final external mechanical integrity~~
4000 ~~as specified in Section 13 of this chapter;~~

4001
4002 ~~(iii) — The type and number of plugs to be used;~~

4003
4004 ~~(iv) — The placement of each plug including the elevation of the top and bottom~~
4005 ~~of each plug;~~

4006
4007 ~~(v) — The type and grade and quantity of material, suitable for use with the~~
4008 ~~carbon dioxide stream, to be used in plugging;~~

4009
4010 ~~(vi) — A description of the method of placement of the plugs.~~
4011
4012 ~~(e) — The owner or operator must notify the Administrator, in writing, at least sixty (60)~~
4013 ~~days before plugging a well.~~
4014
4015 ~~(i) — If any changes have been made to the original well-plugging plan, the~~
4016 ~~owner or operator must also provide the revised well-plugging plan.~~
4017
4018 ~~(ii) — At the discretion of the Administrator, a shorter notice period may be~~
4019 ~~allowed.~~
4020
4021 ~~(iii) — Any amendments to the injection well-plugging plan must be approved by~~
4022 ~~the Administrator, must be incorporated into the permit, and are subject to the permit~~
4023 ~~modification requirements of Section 4 of this chapter, as appropriate.~~
4024
4025 ~~(d) — Within sixty (60) days after completion of plugging and abandonment of a well or~~
4026 ~~well field the permittee shall submit to the Administrator a final report that includes:~~
4027
4028 ~~(i) — Certification of completion in accordance with approved plans and~~
4029 ~~specifications by a licensed professional engineer or a licensed professional geologist.~~
4030
4031 ~~(ii) — Certification of accuracy by the owner or operator and by the person who~~
4032 ~~performed the plugging operation (if other than the owner or operator).~~
4033
4034 ~~(iii) — The owner or operator shall retain the well-plugging report for ten (10)~~
4035 ~~years following site closure.~~
4036
4037 ~~(formerly Section 5(e)(i)(A))~~(a) The owner or operator of a Class II enhanced oil
4038 recovery or enhanced gas recovery well that requests an expansion of the areal extent of an
4039 existing aquifer exemption for the exclusive purpose of Class VI injection for geologic
4040 sequestration ~~must~~ shall define (by narrative description, illustrations, maps, or other means) and
4041 describe (in geographic and/or geometric terms (such as vertical and lateral limits and gradient)
4042 that are clear and definite); all aquifers or parts thereof that are requested to be designated as
4043 exempted using the criteria in subparagraphs ~~(d)(i)(A-C)~~(b)(i)(A)-(C) of this ~~s~~Section.
4044
4045 ~~(formerly Section 5(e)(i))~~(b) The Administrator may consider a request from an owners
4046 ~~and/or operators~~ of permitted Class II injection well~~(s) that are seeking~~ to convert ~~their~~ its well~~(s)~~
4047 to a Class VI well and ~~are seeking an expansion to~~ expand the areal extent of ~~an~~ the existing
4048 Class II enhanced oil recovery or enhanced gas recovery aquifer exemption for the exclusive
4049 purpose of Class VI injection for geologic sequestration.
4050
4051 ~~(formerly Section 5(e)(i))~~(i) The Administrator may approve the request if the
4052 existing aquifer exemption and the ~~affected~~ wells ~~s~~ meet the following conditions:
4053
4054 ~~(formerly Section 5(e)(i)(A))~~(A) It The groundwater does not

4055 currently serve as a source of drinking water; ~~and~~

4056

4057 ~~(formerly Section 5(e)(i)(B))(B)~~ The total dissolved solids content of
4058 the groundwater is more than 3,000 mg/L and less than 10,000 mg/L; and

4059

4060 ~~(formerly Section 5(e)(i)(C))(C)~~ ~~It~~ The groundwater is not reasonably
4061 expected to supply a public water system.

4062

4063 ~~(formerly Section 5(e)(ii)(B))(ii)~~ ~~In evaluating~~ The Administrator may
4064 evaluate a request to expand the areal extent of an aquifer exemption of a Class II enhanced oil
4065 recovery or enhanced gas recovery well for the purpose of Class VI injection; if the
4066 Administrator;

4067

4068 ~~(formerly Section 5(e)(ii)(B))(A)~~ ~~must~~ determines that the request
4069 meets the criteria for exemptions in subparagraphs ~~(d)(i)(A)-(C)~~ (b)(i)(A)-(C) of this ~~s~~Section;

4070

4071 ~~(formerly Section 5(e)(ii)(B)(II))(B)~~ ~~in order to ensure~~ Determines that
4072 the proposed injection operation will not at any time endanger USDWs including non-exempted
4073 portions of the injection formation; and

4074

4075 ~~(formerly Section 5(e)(ii)(B))(C)~~ ~~In making the determination, the~~
4076 ~~Administrator shall~~ considers, in making the determinations required by subparagraphs
4077 (b)(ii)(A)-(B) of this Section, the following:

4078

4079 ~~(formerly Section 5(e)(ii)(B)(I))(I)~~ Current and potential future
4080 use of the USDWs to be exempted as drinking water resources;

4081

4082 ~~(formerly Section 5(e)(ii)(B)(II))(II)~~ The predicted extent of the
4083 injected carbon dioxide plume, and any mobilized fluids that may result in degradation of water
4084 quality; over the lifetime of the geologic sequestration project, as informed by computational
4085 modeling performed pursuant to Section ~~8(e)(i)~~ 13(b)(i) of this ~~e~~Chapter; ~~in order to ensure that~~
4086 ~~the proposed injection operation will not at any time endanger USDWs including non-exempted~~
4087 ~~portions of the injection formation;~~

4088

4089 ~~(formerly Section 5(e)(ii)(B)(III))(III)~~ Whether the areal
4090 extent of the expanded aquifer exemption is of sufficient size to account for any possible
4091 revisions to the computational model during reevaluation of the area of review, pursuant to
4092 Section ~~8(d)~~ 13(c) of this ~~e~~Chapter; and

4093

4094 ~~(formerly Section 5(e)(ii)(B)(IV))(IV)~~ Any information
4095 submitted to support a an injection depth waiver request ~~made by the owner or operator under~~
4096 pursuant to Section ~~10~~ 15 of this ~~e~~Chapter; ~~if appropriate.~~

4097

4098 ~~(formerly Section 5(e)(ii))(c)~~ ~~Such requests will~~ Approvals under this Section are not ~~be~~
4099 final until;

4100

4101 ~~(formerly Section 5(e)(ii))(i)~~ The Administrator submits the request as a
4102 revision to the ~~applicable Federal UIC~~ state-administered program under 40 C.F.R. Part 147 or as
4103 a substantial ~~program~~ revision ~~to an approved~~ of a State UIC program under 40 C.F.R. § 145.32;
4104 and

4105
4106 ~~(formerly Section 5(e)(ii))(ii)~~ EPA approves the ~~request~~ revision.

4107
4108 **Section 17. ~~Post-injection Site Care and Site Closure.~~ Logging, Sampling, and**
4109 **Testing Prior to Injection Well Operation.**

4110
4111 ~~(a) — The owner or operator of a Class VI well must prepare, maintain, update on the~~
4112 ~~same schedule as the update to the area of review delineation, and comply with a plan for post-~~
4113 ~~injection site care and site closure that meets the requirements of paragraph (a)(ii) of this~~
4114 ~~sSection and is acceptable to the Administrator.~~

4115
4116 ~~————— (i) — The owner or operator must submit the post-injection site care and site~~
4117 ~~closure plan as a part of the permit application to be approved by the Administrator, in~~
4118 ~~consultation with EPA.~~

4119
4120 ~~————— (ii) — The post-injection site care and site closure plan must include the~~
4121 ~~following information:~~

4122
4123 ~~————— (A) — A demonstration containing substantial evidence that the geologic~~
4124 ~~sequestration project will no longer pose a risk of endangerment to USDWs or will not harm or~~
4125 ~~present a risk to human health, safety, or the environment at the end of the post-injection site~~
4126 ~~care timeframe. The demonstration must be based on significant, site-specific data and~~
4127 ~~information, including all data and information collected pursuant to Sections 4 and 7 of this~~
4128 ~~chapter.~~

4129
4130 ~~————— (B) — The site closure plan shall address all reclamation, required~~
4131 ~~monitoring, and remediation sufficient to show that the carbon dioxide injected into the geologic~~
4132 ~~sequestration site will not harm human health, safety, the environment, or drinking water~~
4133 ~~supplies.~~

4134
4135 ~~————— (C) — Detailed plans for post-injection monitoring, verification,~~
4136 ~~maintenance, and mitigation;~~

4137
4138 ~~————— (D) — The pressure differential between pre-injection and predicted post-~~
4139 ~~injection pressures in the injection zone;~~

4140
4141 ~~————— (E) — The predicted position of the carbon dioxide plume and associated~~
4142 ~~pressure front at the time when plume movement has ceased and pressure differentials sufficient~~
4143 ~~to cause the movement of injected fluids or formation fluids into a USDW are no longer present,~~
4144 ~~as demonstrated in the area of review evaluation required under Section 8(e)(i) of this chapter;~~

4145

- 4146 ~~_____ (F) — A description of post injection monitoring locations, methods, and~~
4147 ~~proposed frequency; and~~
- 4148
- 4149 ~~_____ (G) — A proposed schedule for submitting post injection site care~~
4150 ~~monitoring results pursuant to Section 15(b) of this chapter, as appropriate.~~
- 4151
- 4152 ~~_____ (H) — The duration of the post injection site care timeframe that ensures~~
4153 ~~compliance with subparagraph (A) of this subsection.~~
- 4154
- 4155 ~~_____ (I) — The results of computational modeling performed pursuant to~~
4156 ~~delineation of the area of review under Section 8 of this chapter;~~
- 4157
- 4158 ~~_____ (J) — The predicted timeframe for pressure decline within the injection~~
4159 ~~zone, and any other zones, such that formation fluids may not be forced into any USDWs; and/or~~
4160 ~~the timeframe for pressure decline to pre injection pressures;~~
- 4161
- 4162 ~~_____ (K) — The predicted rate of carbon dioxide plume migration within the~~
4163 ~~injection zone, and the predicted timeframe for the cessation of migration;~~
- 4164
- 4165 ~~_____ (L) — A description of the site specific processes that will result in~~
4166 ~~carbon dioxide trapping including immobilization by capillary trapping, dissolution, and~~
4167 ~~mineralization at the site;~~
- 4168
- 4169 ~~_____ (M) — The predicted rate of carbon dioxide trapping in the immobile~~
4170 ~~capillary phase, dissolved phase, and/or mineral phase;~~
- 4171
- 4172 ~~_____ (N) — The results of laboratory analyses, research studies, and/or field or~~
4173 ~~site specific studies to verify the information required in paragraphs (J) and (K) of this~~
4174 ~~subsection;~~
- 4175
- 4176 ~~_____ (O) — A characterization of the confining zone(s) including a~~
4177 ~~demonstration that it is free of transmissive faults, fractures, and micro fractures and of~~
4178 ~~appropriate thickness, permeability, and integrity to impede fluid (e.g., carbon dioxide, formation~~
4179 ~~fluids) movement;~~
- 4180
- 4181 ~~_____ (P) — The presence of potential conduits for fluid movement including~~
4182 ~~planned injection wells and project monitoring wells associated with the proposed geologic~~
4183 ~~sequestration project or any other projects in proximity to the predicted or modeled, final extent~~
4184 ~~of the carbon dioxide plume and area of elevated pressure;~~
- 4185
- 4186 ~~_____ (Q) — A description of the well construction and an assessment of the~~
4187 ~~quality of plugs of all abandoned wells within the area of review;~~
- 4188
- 4189 ~~_____ (R) — The distance between the injection zone and the nearest USDWs~~
4190 ~~above and/or below the injection zone; and~~
- 4191

4192 ~~_____ (S) Any additional site specific factors required by the Administrator.~~
4193
4194 ~~_____ (iii) Information submitted to support the demonstration in paragraph (a)(ii) of~~
4195 ~~this section must meet the following criteria:~~
4196
4197 ~~_____ (A) All analyses and tests performed to support the demonstration must~~
4198 ~~be accurate, reproducible, and performed in accordance with the established quality assurance~~
4199 ~~standards;~~
4200
4201 ~~_____ (B) Estimation techniques must be appropriate and EPA certified test~~
4202 ~~protocols must be used where available;~~
4203
4204 ~~_____ (C) Predictive models must be appropriate and tailored to the site~~
4205 ~~conditions, composition of the carbon dioxide stream and injection and site conditions over the~~
4206 ~~life of the geologic sequestration project;~~
4207
4208 ~~_____ (D) Predictive models must be calibrated using existing information~~
4209 ~~(e.g., at Class I, Class II, or Class V experimental technology well sites) where sufficient data are~~
4210 ~~available;~~
4211
4212 ~~_____ (E) Reasonably conservative values and modeling assumptions must~~
4213 ~~be used and disclosed to the Administrator whenever values are estimated on the basis of known,~~
4214 ~~historical information instead of site-specific measurements;~~
4215
4216 ~~_____ (F) An analysis must be performed to identify and assess aspects of the~~
4217 ~~post injection site care timeframe demonstration that contribute significantly to uncertainty. The~~
4218 ~~owner or operator must conduct sensitivity analyses to determine the effect that significant~~
4219 ~~uncertainty may contribute to the modeling demonstration.~~
4220
4221 ~~_____ (G) An approved quality assurance and quality control plan must~~
4222 ~~address all aspects of the demonstration; and,~~
4223
4224 ~~_____ (H) Any additional criteria required by the Administrator.~~
4225
4226 ~~_____ (iv) Upon cessation of injection, owners or operators of Class VI wells must~~
4227 ~~either submit an amended post injection site care and site closure plan or demonstrate to the~~
4228 ~~Administrator through monitoring data and modeling results that no amendment to the plan is~~
4229 ~~needed. Any amendments to the post injection site care and site closure plan must be:~~
4230
4231 ~~_____ (A) Approved by the Administrator.~~
4232
4233 ~~_____ (B) Incorporated into the permit.~~
4234
4235 ~~_____ (C) Subject to the permit modification requirements of Section 4 of~~
4236 ~~this chapter, as appropriate.~~
4237

4238 ~~_____ (v) The owner or operator may modify and resubmit the post injection site~~
4239 ~~care and site closure plan for the Administrator's approval within thirty (30) days of such~~
4240 ~~change.~~

4241 ~~_____ (b) The owner or operator shall monitor the site following the cessation of injection~~
4242 ~~to show the position of the carbon dioxide plume and pressure front and demonstrate that~~
4243 ~~USDWs are not being endangered.~~

4244 ~~_____ (i) The owner or operator shall continue to conduct monitoring as specified in~~
4245 ~~the Administrator approved post injection site care and site closure plan until closure is certified~~
4246 ~~by the Administrator.~~

4247 ~~_____ (ii) The owner or operator can request and demonstrate to the satisfaction of~~
4248 ~~the Administrator that the post injection site care and site closure plan should be revised to~~
4249 ~~reduce the frequency of monitoring.~~

4250 ~~_____ (iii) Prior to authorization for site closure, the owner or operator must~~
4251 ~~demonstrate to the Administrator, based on monitoring, other site specific data, and modeling~~
4252 ~~that is reasonably consistent with site performance, that no additional monitoring is needed to~~
4253 ~~ensure that the geologic sequestration project does not, and is not expected to pose an~~
4254 ~~endangerment to a USDW or otherwise threaten human health, safety, or the environment. In~~
4255 ~~addition, the owner or operator must demonstrate, based on the best available understanding of~~
4256 ~~the site, including monitoring data and/or modeling, that all other site closure standards and~~
4257 ~~requirements have been met.~~

4258 ~~_____ (iv) If such a demonstration cannot be made, the owner or operator must~~
4259 ~~continue post injection site care.~~

4260 ~~_____ (v) The owner or operator must notify the Administrator, in writing, at least~~
4261 ~~120 days before filing a request for site closure. At this time, if any changes have been made to~~
4262 ~~the original post injection site care and site closure plan, the owner or operator must also provide~~
4263 ~~the revised plan. At the discretion of the Administrator, a shorter notice period may be allowed.~~

4264 ~~_____ (vi) Post injection site care shall be for a period of not less than ten (10) years~~
4265 ~~after the date when all wells excluding monitoring wells have been appropriately plugged and~~
4266 ~~abandoned, all subsurface operations and activities have ceased and all surface equipment and~~
4267 ~~improvements have been removed or appropriately abandoned, or so long thereafter as necessary~~
4268 ~~to obtain a completion and release certificate from the Administrator certifying that plume~~
4269 ~~stabilization has been achieved without the use of control equipment based on a minimum of~~
4270 ~~three (3) consecutive years of monitoring data.~~

4271 ~~_____ (c) After the Administrator has certified site closure, the owner or operator must plug~~
4272 ~~monitoring wells, as determined by the Administrator, in a manner that will not allow movement~~
4273 ~~of injection or formation fluids.~~

4282

4283 ~~————— (d) ——— Once the Administrator has certified site closure, the owner or operator must~~
4284 ~~submit a site closure report within ninety (90) days after completion of all closure operations.~~
4285 ~~The report must thereafter be retained at a location designated by the Administrator for ten (10)~~
4286 ~~years. The report must include:~~

4287 ~~————— (i) ——— Documentation of appropriate injection and monitoring well plugging as~~
4288 ~~specified in Section 16 of this chapter and paragraph (c) of this section.~~

4290 ~~————— (ii) ——— The owner or operator must provide a copy of a survey plat that has been~~
4291 ~~submitted to the local zoning authority designated by the Administrator.~~

4293 ~~————— (A) ——— The plat must indicate the location of the injection well(s) and~~
4294 ~~monitoring wells relative to permanently surveyed benchmarks.~~

4296 ~~————— (B) ——— The owner or operator must also submit a copy of the plat to the~~
4297 ~~US EPA Regional Administrator.~~

4299 ~~————— (iii) ——— Documentation of appropriate notification and information to such State,~~
4300 ~~local and tribal authorities as have authority over drilling activities to enable such State and local~~
4301 ~~authorities to impose appropriate conditions on subsequent drilling activities that may penetrate~~
4302 ~~the injection and confining zone(s).~~

4304 ~~————— (iv) ——— Proof of providing notice to surface owners, mineral claimants, mineral~~
4305 ~~owners, lessees, and other owners of record of subsurface interests as to the proposed site~~
4306 ~~closure. Notice requirements at a minimum shall include:~~

4308 ~~————— (A) ——— The publishing of notice of the application in a newspaper of~~
4309 ~~general circulation in each county of the proposed operation at weekly intervals for four (4)~~
4310 ~~consecutive weeks;~~

4312 ~~————— (B) ——— The published notice shall provide a mechanism to request a public~~
4313 ~~hearing;~~

4315 ~~————— (C) ——— A copy of the notice shall also be mailed to all surface owners,~~
4316 ~~mineral claimants, mineral owners, lessees and other owners of record of subsurface interests~~
4317 ~~that are located within one (1) mile of the proposed boundary of the geologic sequestration site.~~

4319 ~~————— (v) ——— Records reflecting the nature, composition and volume of the carbon~~
4320 ~~dioxide stream.~~

4322 ~~————— (e) ——— Each owner or operator of a Class VI injection well must record a notation on the~~
4323 ~~deed to the facility property or any other document that is normally examined during title search~~
4324 ~~that will in perpetuity provide any potential purchaser of the property the following information:~~

4326 ~~————— (i) ——— The fact that land has been used to sequester carbon dioxide;~~
4327 ~~————— (ii) ——— The fact that the land is zoned for industrial use;~~
4328 ~~————— (iii) ——— The fact that the land is zoned for agricultural use;~~

4329 ~~_____ (ii) _____ The name of the State agency, local authority, and/or tribe with which the~~
4330 ~~survey plat was filed, as well as the address of the Regional Environmental Protection Agency~~
4331 ~~Office to which it was submitted; and~~

4332
4333 ~~_____ (iii) _____ The volume of fluid injected, the injection zone or zones into which it was~~
4334 ~~injected, and the period over which injection occurred.~~

4335
4336 ~~_____ (f) _____ Well plugging reports, post-injection site care data, including, if appropriate, data~~
4337 ~~and information used to develop the demonstration of the post-injection site care time frame, and~~
4338 ~~the site closure report collected pursuant to requirements of subsection (d) above shall be~~
4339 ~~retained for ten (10) years following site closure. The owner or operator must deliver the records~~
4340 ~~to the Administrator at the conclusion of the retention period, and the records must thereafter be~~
4341 ~~retained at a location designated by the Administrator for that purpose.~~

4342
4343 ~~(formerly Section 11(a))~~(a) During the drilling and construction of a Class VI injection
4344 well, the owner or operator ~~must~~ shall run appropriate logs, surveys, and tests to determine or
4345 verify the depth, thickness, porosity, permeability, ~~and~~ lithology ~~of~~, and ~~the~~ salinity of any
4346 formation fluids in all relevant geologic formations ~~in order~~ to ensure ~~conformance with the~~
4347 ~~injection~~ well meets the construction requirements ~~under of~~ Section 9 14 of this ~~e~~Chapter; and to
4348 establish accurate baseline data against which future measurements may be compared. The
4349 owner or operator ~~must~~ shall submit to the Administrator a descriptive report prepared by a
4350 knowledgeable log analyst that includes an interpretation of the results of ~~such~~ the logs and tests.
4351 At a minimum, ~~such~~ the logs and tests ~~must~~ shall include:

4352
4353 ~~(formerly Section 11(a)(i))~~(i) Deviation checks measured during drilling on all
4354 holes constructed by drilling a pilot hole that is subsequently enlarged by reaming or another
4355 method. ~~Such~~ Deviation checks ~~must~~ shall be at sufficiently frequent intervals to determine the
4356 location of the borehole and to ensure that vertical avenues for fluid movement in the form of
4357 diverging holes are not created during drilling; ~~and~~

4358
4359 ~~(formerly Section 11(a)(ii))~~(ii) Before and upon installation of the surface
4360 casing:

4361
4362 ~~(formerly Section 11(a)(ii)(A))~~(A) Resistivity, spontaneous potential,
4363 and caliper logs before the casing is installed; and

4364
4365 ~~(formerly Section 11(a)(ii)(B))~~(B) A cement bond and variable density
4366 log, or other approved device to evaluate cement quality radially with sufficient resolution to
4367 identify channels, voids, or other areas of missing cement; and a temperature log; after the casing
4368 is set and cemented;

4369
4370 ~~(formerly Section 11(a)(iii))~~(iii) Before and upon installation of the long
4371 string casing:

4372

4373 ~~(formerly Section 11(a)(iii)(A))~~(A) Resistivity, spontaneous potential,
4374 porosity, caliper, gamma ray, fracture finder logs, and any other logs the Administrator requires
4375 for the given geology before the casing is installed; and

4376
4377 ~~(formerly Section 11(a)(iii)(B))~~(B) A cement bond and variable density
4378 log, and a temperature log after the casing is set and cemented-;

4379
4380 ~~(formerly Section 11(a)(iv))~~(iv) Test(s) designed to demonstrate the internal
4381 and external mechanical integrity of injection wells, which may include:

4382
4383 ~~(formerly Section 11(a)(iv)(A))~~(A) A pressure test with liquid or gas;

4384
4385 ~~(formerly Section 11(a)(iv)(B))~~(B) A tracer survey, such as oxygen-
4386 activation logging;

4387
4388 ~~(formerly Section 11(a)(iv)(C))~~(C) A temperature or noise log; and

4389
4390 ~~(formerly Section 11(a)(iv)(D))~~(D) A casing inspection log-; and

4391
4392 ~~(formerly Section 11(a)(v))~~(v) Any alternative methods that provide
4393 equivalent or better information and that are required ~~of, and/or~~ approved by the Administrator.

4394
4395 ~~(formerly Section 11(b))~~(b) The owner or operator ~~must~~ shall take whole cores or
4396 sidewall cores of the injection zone and confining system, ~~and~~ as well as formation fluid samples
4397 from the injection zone(s)-;

4398
4399 ~~(formerly Section 11(b)(i))~~(i) The owner or operator shall ~~and~~ submit to the
4400 Administrator a detailed report prepared by a log analyst that includes:

4401
4402 ~~(formerly Section 11(b)(i)(A))~~(A) Well log analyses (including well logs);

4403
4404 ~~(formerly Section 11(b)(ii))~~(B) Core analyses; and

4405
4406 ~~(formerly Section 11(b)(iii))~~(C) Formation fluid sample information.

4407
4408 ~~(formerly Section 11(b)(iv))~~(ii) The Administrator may accept data from cores and
4409 fluid samples from nearby wells if the owner or operator can demonstrate that such data are
4410 representative of conditions in the wellbore.

4411
4412 ~~(formerly Section 11(e))~~(c) The owner or operator ~~must~~ shall record the formation fluid
4413 temperature, formation fluid pH and conductivity, reservoir pressure, and static fluid level of the
4414 injection zone(s).

4415
4416 ~~(formerly Section 11(d))~~(d) The owner or operator ~~must~~ shall determine fracture
4417 pressures of the injection and confining zones and verify hydrogeologic and geo-mechanical

4418 characteristics of the injection zone by conducting a pressure fall-off test, any other ~~information~~
4419 ~~test~~ requested by the Administrator; ~~;~~ and; ~~;~~

4420
4421 ~~(formerly Section 11(d)(i))~~(i) A pump test; or

4422
4423 ~~(formerly Section 11(d)(ii))~~(ii) Injectivity tests.

4424
4425 ~~(formerly Section 11(e))~~(e) The owner or operator ~~must~~ shall provide the Administrator
4426 with the opportunity to witness all logging and testing by this section. The owner or operator
4427 ~~must~~ shall submit a schedule of such activities to the Administrator prior to conducting the first
4428 test and shall notify the Administrator of any changes to the schedule thirty (30) days prior to the
4429 next scheduled test.

4430
4431 **Section 18. ~~Emergency and Remedial Response.~~ Injection Well Operating**
4432 **Requirements.**

4433
4434 ~~(a) — As part of the permit application, the owner or operator must provide the~~
4435 ~~Administrator with an emergency and remedial response plan that describes actions to be taken~~
4436 ~~to address movement of the injectate or formation fluids that may cause an endangerment to a~~
4437 ~~USDW or threaten human health, safety, or the environment during construction, operation,~~
4438 ~~closure, and post-closure periods.~~

4439
4440 ~~(i) — The emergency and remedial response plan must be reviewed and~~
4441 ~~updated, as necessary, on the same schedule as the update to the area of review delineation.~~

4442
4443 ~~(ii) — Any amendments to the emergency and remedial response plan must be~~
4444 ~~approved by the Administrator, must be incorporated into the permit, and are subject to the~~
4445 ~~permit modification requirements of Section 4 of this chapter, as appropriate.~~

4446
4447 ~~(A) — Amended plans or demonstrations shall be submitted to the~~
4448 ~~Administrator as follows:~~

4449
4450 ~~(I) — Within one (1) year of an area of review reevaluation;~~

4451
4452 ~~(II) — Following any significant changes to the facility, such as~~
4453 ~~addition of injection or monitoring wells, on a schedule determined by the Administrator; or~~

4454
4455 ~~(III) — When required by the Administrator.~~

4456
4457 ~~(b) — If monitoring data, or other evidence obtained by the owner or operator indicate~~
4458 ~~that the injected carbon dioxide stream, displaced formation fluids or associated pressure front~~
4459 ~~may endanger a USDW or threatens human health, safety, or the environment, the owner or~~
4460 ~~operator must:~~

4461
4462 ~~(i) — Immediately cease injection;~~

4463

4464 (ii) ~~Take all steps reasonably necessary to identify and characterize any~~
4465 ~~release;~~

4466
4467 (iii) ~~Notify the Administrator within twenty-four (24) hours.~~

4468
4469 (iv) ~~In addition to paragraphs (i-iii) of this subsection, if an excursion is~~
4470 ~~discovered, the owner or operator shall provide verbal notice to the Department within twenty-~~
4471 ~~four (24) hours, followed by written notice to all surface owners, mineral claimants, mineral~~
4472 ~~owners, lessees and other owners of record of subsurface interests within thirty (30) days of~~
4473 ~~when the excursion is discovered; and~~

4474
4475 (v) ~~Implement the emergency and remedial response plan approved by the~~
4476 ~~Administrator.~~

4477
4478 (e) ~~The Administrator may allow the operator to resume injection prior to~~
4479 ~~remediation if the owner or operator demonstrates that the injection operation will not endanger~~
4480 ~~USDWs or otherwise threaten human health, safety, or the environment.~~

4481
4482 ~~(formerly Section 12(a))~~(a) The owner or operator ~~must~~ shall ensure that injection
4483 pressure does not exceed ninety percent (90%) ~~percent~~ of the fracture pressure of the injection
4484 zone(s) ~~so as~~ to ensure that the injection does not initiate new fractures or propagate existing
4485 fractures in the injection zone(s).

4486
4487 ~~(formerly Section 12(a)(i))~~(i) In no case may injection pressure cause movement
4488 of injection or formation fluids in a manner that endangers a USDW, or otherwise threatens
4489 human health, safety, or the environment.

4490
4491 ~~(formerly Section 12(a)(ii))~~(ii) In no case may injection pressure initiate
4492 fractures in the confining zone(s) or cause the movement of injectate or formation fluids that
4493 endangers a USDW or otherwise threatens human health, safety, or the environment.

4494
4495 ~~(formerly Section 12(b))~~(b) Injection of the carbon dioxide stream between the
4496 outermost casing protecting USDWs and the wellbore is prohibited.

4497
4498 ~~(formerly Section 12(e))~~(c) The owner or operator ~~must~~ shall fill the annulus between
4499 the tubing and the long string casing with a non-corrosive fluid approved by the Administrator.
4500 The owner or operator ~~must~~ shall maintain on the annulus a pressure that exceeds the operating
4501 injection pressure, unless the Administrator determines that such requirement might harm the
4502 integrity of the well or endanger USDWs.

4503
4504 ~~(formerly Section 12(d))~~(d) Other than during periods of well workover or maintenance
4505 approved by the Administrator in which the sealed tubing-casing annulus is, by necessity,
4506 disassembled for maintenance or corrective procedures, the owner or operator ~~must~~ shall
4507 maintain mechanical integrity of the injection well at all times.

4508

4509 ~~(formerly Section 12(e))~~(e) The owner or operator ~~must~~ shall install and use continuous
4510 recording devices to monitor:

4511
4512 ~~(formerly Section 12(e)(i))~~(i) Injection pressure; and

4513
4514 ~~(formerly Section 12(e)(ii))~~(ii) Injection Rate, volume, and temperature of
4515 the carbon dioxide stream.

4516
4517 ~~(formerly Section 12(f))~~(f) The owner or operator ~~must~~ shall install and use continuous
4518 recording devices to monitor the pressure on the annulus between the tubing and the long string
4519 casing and annulus fluid volume.

4520
4521 ~~(formerly Section 12(g))~~(g) The owner or operator ~~must~~ shall install, test, and use
4522 alarms and automatic surface shut-off systems; ~~or~~ at the discretion of the Administrator, use
4523 down-hole shut-off systems (e.g., automatic shut-off, check valves); ~~or~~ other mechanical devices
4524 that provide equivalent protection, designed to alert the operator and shut-in the well when
4525 operating parameters such as injection rate, injection pressure, or other parameters approved by
4526 the Administrator diverge beyond ranges ~~and~~/or gradients specified in the permit.

4527
4528 ~~(formerly Section 12(h))~~(h) If an automatic shutdown is triggered or a loss of
4529 mechanical integrity is discovered, the owner or operator ~~must~~ shall immediately investigate and
4530 identify as expeditiously as possible the cause. If, upon such investigation, the well appears to be
4531 lacking mechanical integrity, or if monitoring required under paragraphs (e), (f), and (g) of this
4532 ~~s~~Section otherwise indicates that the well may be lacking mechanical integrity, the owner or
4533 operator ~~must~~ shall:

4534
4535 ~~(formerly Section 12(h)(i))~~(i) Immediately cease injection;

4536
4537 ~~(formerly Section 12(h)(ii))~~(ii) Take all steps reasonably necessary to
4538 determine whether there may have been a release of the injected carbon dioxide stream or
4539 formation fluids into any unauthorized zone;

4540
4541 ~~(formerly Section 12(h)(iii))~~(iii) Notify the Administrator within twenty-four
4542 (24) hours;

4543
4544 ~~(formerly Section 12(h)(iv))~~(iv) Restore and demonstrate mechanical
4545 integrity to the satisfaction of the Administrator as soon as practicable and prior to resuming
4546 injection; and

4547
4548 ~~(formerly Section 12(h)(v))~~(v) Notify the Administrator when injection can
4549 be expected to resume.

4550
4551 **Section 19. ~~Financial Responsibility.~~ Mechanical Integrity.**
4552

4553 (a) ~~Financial responsibility requirements are to ensure that owners or operators have~~
4554 ~~the financial resources to carry out activities related to closing and remediating geologic~~
4555 ~~sequestration sites if needed so they do not endanger the environment or USDWs.~~

4556
4557 (b) ~~Owners or operators of Class VI wells must demonstrate and maintain financial~~
4558 ~~responsibility for all applicable phases of the geologic sequestration project including complete~~
4559 ~~site reclamation in the event of default. The phases of a geologic sequestration project are as~~
4560 ~~follows:~~

4561
4562 (i) ~~Permitting/Characterization.~~

4563
4564 (ii) ~~Monitoring and testing, including the requirements of Section 14 of this~~
4565 ~~chapter.~~

4566
4567 (iii) ~~Operations (injection and permanent well closure activities), including the~~
4568 ~~requirements of Section 16 of this chapter.~~

4569
4570 (iv) ~~Post injection site care (“plume stabilization” monitoring until certified~~
4571 ~~by the Administrator; above ground reclamation completed), including the requirements of~~
4572 ~~Section 17 of this chapter.~~

4573
4574 (v) ~~Emergency and remedial response (that meets the requirements of Section~~
4575 ~~18 of this chapter).~~

4576
4577 (c) ~~The owner or operator must submit a detailed written estimate, at the time of~~
4578 ~~permit application and updated annually in accordance with paragraph (j)(iii) below, in current~~
4579 ~~dollars, that includes the cost of performing corrective action on wells in the area of review that~~
4580 ~~meets the requirements of Section 8 of this chapter; plugging the injection well(s) that meets the~~
4581 ~~requirements of Section 16 of this chapter; post injection site care and site closure that meets the~~
4582 ~~requirements of Section 17 of this chapter; monitoring activities that meets the requirements of~~
4583 ~~Section 14 of this chapter; and emergency and remedial response that meets the requirements of~~
4584 ~~Section 18 of this chapter.~~

4585
4586 (i) ~~The financial assurance cost estimate for the various phases of the~~
4587 ~~sequestration project shall consider the following events:~~

4588
4589 (A) ~~Contamination of underground sources of water including drinking~~
4590 ~~water supplies.~~

4591 (B) ~~Mineral rights infringement.~~

4592
4593 (C) ~~Single large volume release of carbon dioxide that impacts human~~
4594 ~~health and safety and/or causes ecological damage.~~

4595
4596 (D) ~~Low level leakage of carbon dioxide to the surface that impacts~~
4597 ~~human health and safety and/or causes ecological damage.~~

- 4600 ~~(E) — Storage rights infringement.~~
- 4601
- 4602 ~~(F) — Property and infrastructure damage including changes to surface~~
- 4603 ~~topography and structures.~~
- 4604
- 4605 ~~(G) — Entrained contaminant releases (non-CO2).~~
- 4606
- 4607 ~~(H) — Accidents/unplanned events.~~
- 4608
- 4609 ~~(I) — Well capping and permitted abandonment.~~
- 4610
- 4611 ~~_____~~
- 4612
- 4613 ~~(ii) — The Risk Activity matrix in Appendix A of this chapter shall be~~
- 4614 ~~considered during the risk assessment process.~~
- 4615
- 4616 ~~(iii) — The cost estimate shall be based upon a multi-disciplinary analytical~~
- 4617 ~~framework such as Monte Carlo or other commonly accepted stochastic modeling tools.~~
- 4618
- 4619 ~~(A) — Cost curves shall combine risk probabilities, event outcomes, and~~
- 4620 ~~damages assessment to calculate expected losses under a series of events.~~
- 4621
- 4622 ~~(B) — For all cases of potential damages, the probability distributions~~
- 4623 ~~should be identified for 50 percent, 95 percent, and 99 percent probabilities of occurrence.~~
- 4624
- 4625 ~~(d) — The owner or operator must also submit a proposed cost estimate for~~
- 4626 ~~measurement, monitoring, and verification of plume stabilization following post-closure~~
- 4627 ~~certification and release of all other financial assurance instruments.~~
- 4628
- 4629 ~~(e) — The cost estimate must be performed for each phase separately and must be based~~
- 4630 ~~on the costs to the regulatory agency of hiring a third party to perform the required activities. A~~
- 4631 ~~third party is a party who is not within the corporate structure of the owner or operator.~~
- 4632
- 4633 ~~(f) — The owner or operator must demonstrate and maintain financial responsibility as~~
- 4634 ~~determined by the Administrator that meets the conditions of this section.~~
- 4635
- 4636 ~~(g) — The financial responsibility instrument(s) used shall be from the following list of~~
- 4637 ~~qualifying instruments:~~
- 4638
- 4639 ~~(i) — Trust Funds;~~
- 4640
- 4641 ~~(ii) — Surety Bonds;~~
- 4642
- 4643 ~~(iii) — Letter of Credit;~~
- 4644
- 4645 ~~(iv) — Insurance.~~
- 4646

4647 (A) — ~~Any insurance instruments submitted for financial assurance~~
4648 ~~purposes shall include State of Wyoming as an additional insured.~~

4649
4650 (B) — ~~Inclusion of the State of Wyoming as an additional insured shall~~
4651 ~~not be deemed a waiver of sovereign immunity.~~

4652
4653 (v) — ~~Self insurance (i.e., Financial Test and Corporate Guarantee);~~

4654
4655 (vi) — ~~Escrow account;~~

4656
4657 (vii) — ~~Any other instrument(s) satisfactory to the Administrator.~~

4658
4659 (h) — ~~The qualifying instrument(s) must be sufficient to cover the cost of the estimate~~
4660 ~~required in subsection (d) of this section.~~

4661
4662 (i) — ~~The qualifying financial responsibility instrument(s) must comprise protective~~
4663 ~~conditions of coverage that include at a minimum cancellation, renewal, continuation provisions,~~
4664 ~~specifications on when the provider becomes liable following a notice of cancellation, and~~
4665 ~~requirements for the provider to meet a minimum rating, minimum capitalization, and the ability~~
4666 ~~to pass the bond rating test when applicable.~~

4667
4668 (i) — ~~Cancellation — An owner or operator must provide that their financial~~
4669 ~~mechanism may not cancel, terminate or fail to renew except for failure to pay such financial~~
4670 ~~instrument. If there is a failure to pay the financial instrument, the financial institution may elect~~
4671 ~~to cancel, terminate, or fail to renew the instrument by sending notice by certified mail to the~~
4672 ~~owner or operator and the Administrator. The cancellation must not be final for 120 days after~~
4673 ~~receipt of cancellation notice. The owner or operator must provide an alternate financial~~
4674 ~~responsibility demonstration within sixty (60) days of notice of cancellation, and if an alternate~~
4675 ~~financial responsibility demonstration is not acceptable (or possible), any funds from the~~
4676 ~~instrument being cancelled must be released within sixty (60) days of notification by the~~
4677 ~~Administrator.~~

4678
4679 (ii) — ~~Renewal — Owners or operators must renew all financial instruments, if an~~
4680 ~~instrument expires, for the entire term of the geologic sequestration project. The instrument may~~
4681 ~~be automatically renewed as long as, at a minimum, the owner or operator has the option of~~
4682 ~~renewal at the face amount of the expiring instrument.~~

4683
4684 (iii) — ~~Continuation — Cancellation, termination, or failure to renew may not~~
4685 ~~occur and the financial instrument shall remain in full force and effect in the event that on or~~
4686 ~~before the date of expiration.~~

4687
4688 (A) — ~~The Administrator deems the facility abandoned.~~

4689
4690 (B) — ~~The permit is terminated, revoked, or a new permit is denied.~~

4691
4692 (C) — ~~Closure is ordered by the Administrator, a U.S. district court, or~~
4693 ~~other court of competent jurisdiction.~~

4694
4695 ~~(D) — The owner or operator is named as debtor in a voluntary or~~
4696 ~~involuntary proceeding under Title 11 (Bankruptcy), U.S. Code.~~

4697
4698 ~~(E) — The amount due is paid.~~
4699

4700 ~~(j) — The qualifying financial responsibility instrument(s) must be approved by the~~
4701 ~~Administrator. The Administrator shall also approve the use and length of pay-in periods for~~
4702 ~~trust funds and escrow accounts.~~

4703
4704 ~~(i) — The Administrator shall consider and approve the financial responsibility~~
4705 ~~demonstration for all the phases of the geologic sequestration project prior to issuing a Class VI~~
4706 ~~permit.~~

4707
4708 ~~(ii) — The Administrator may find that the financial responsibility demonstration~~
4709 ~~is unsatisfactory for any reason, as long as that reason is not arbitrary or capricious. The~~
4710 ~~Administrator may exercise discretion in negotiating a satisfactory financial responsibility~~
4711 ~~demonstration or to deny a demonstration.~~

4712
4713 ~~(iii) — The owner or operator must provide any updated information related to~~
4714 ~~their financial responsibility instrument(s) on an annual basis and if there are any changes, the~~
4715 ~~Administrator must evaluate the financial responsibility demonstration to confirm that the~~
4716 ~~instrument(s) used remain adequate for use. The owner or operator must maintain financial~~
4717 ~~responsibility requirements regardless of the status of the Administrator's review of the financial~~
4718 ~~responsibility demonstration.~~

4719
4720 ~~(iv) — The owner or operator must provide an adjustment of the cost estimate to~~
4721 ~~the Administrator within sixty (60) days of notification by the Administrator, if the~~
4722 ~~Administrator determines during the annual evaluation of the qualifying financial responsibility~~
4723 ~~instrument(s) that the most recent demonstration is no longer adequate to cover the cost of~~
4724 ~~corrective action (as required by Section 8 of this chapter), injection well plugging (as required~~
4725 ~~by Section 16 of this chapter), post injection site care and site closure (as required by Section 17~~
4726 ~~of this chapter), and emergency and remedial response (as required by Section 18 of this~~
4727 ~~chapter).~~

4728
4729 ~~(v) — During the active life of the geologic sequestration project, the owner or~~
4730 ~~operator must adjust the cost estimate for inflation within sixty (60) days prior to the anniversary~~
4731 ~~date of the establishment of the financial instrument(s) used to comply with paragraph (g) of this~~
4732 ~~section and provide this adjustment to the Administrator. The owner or operator must also~~
4733 ~~provide to the Administrator written updates of adjustments to the cost estimate within sixty (60)~~
4734 ~~days of any amendments to the area of review and corrective action plan (Section 8 of this~~
4735 ~~chapter), the injection well plugging plan (Section 16 of this chapter), the post injection site care~~
4736 ~~and site closure plan (Section 17 of this chapter), the emergency and remedial response plan~~
4737 ~~(Section 18 of this chapter), and mitigation or reclamation costs that State may incur as a result~~
4738 ~~of any default by the permit holder.~~
4739

4740 ~~(vi) — The Administrator must approve any decrease or increase to the initial~~
4741 ~~cost estimate. During the active life of the geologic sequestration project, the owner or operator~~
4742 ~~must revise the cost estimate no later than sixty (60) days after the Administrator has approved~~
4743 ~~the request to modify the area of review and corrective action plan (Section 8 of this chapter), the~~
4744 ~~injection well plugging plan (Section 16 of this chapter), the post injection site care and site~~
4745 ~~closure plan (Section 17 of this chapter), and the emergency and response plan (Section 18 of~~
4746 ~~this chapter), if the change in the plan increases the cost. If the change to the plans decreases the~~
4747 ~~cost, any withdrawal of funds must be approved by the Administrator. Any decrease to the value~~
4748 ~~of the financial assurance instrument must first be approved by the Administrator. The revised~~
4749 ~~cost estimate must be adjusted for inflation as specified in paragraph (k)(v) of this section.~~

4750
4751 ~~(vii) — Whenever the current cost estimate increases to an amount greater than the~~
4752 ~~face amount of a financial instrument currently in use, the owner or operator, within sixty (60)~~
4753 ~~days after the increase, must either cause the face amount to be increased to an amount at least~~
4754 ~~equal to the current cost estimate and submit evidence of such increase to the Administrator, or~~
4755 ~~obtain other financial responsibility instruments to cover the increase. Whenever the current cost~~
4756 ~~estimate decreases, the face amount of the financial assurance instrument may be reduced to the~~
4757 ~~amount of the current cost estimate only after the owner or operator has received written~~
4758 ~~approval from the Administrator.~~

4759
4760 ~~(k) — The owner or operator may demonstrate financial responsibility by using one (1)~~
4761 ~~or multiple qualifying financial instruments for specific phases of the geologic sequestration~~
4762 ~~project.~~

4763
4764 ~~(i) — In the event that the owner or operator combines more than one (1)~~
4765 ~~instrument for a specific geologic sequestration phase (e.g., well plugging), such combination~~
4766 ~~must be limited to instruments that are not based on financial strength or performance (i.e., self-~~
4767 ~~insurance or performance bond). For example trust funds, surety bonds guaranteeing payment~~
4768 ~~into a trust fund, letters of credit, escrow account, and insurance.~~

4769
4770 ~~(ii) — When using a third party instrument to demonstrate financial~~
4771 ~~responsibility, the owner or operator must provide proof that the third party providers either have~~
4772 ~~passed financial strength requirements based on credit ratings; or has met a minimum rating,~~
4773 ~~minimum capitalization, and ability to pass the bond rating test when applicable.~~

4774
4775 ~~(iii) — An owner or operator using certain types of third party instruments must~~
4776 ~~establish a standby trust to enable the State of Wyoming to be party to the financial responsibility~~
4777 ~~agreement without the State of Wyoming being the beneficiary of any funds. The standby trust~~
4778 ~~fund must be used along with other financial responsibility instruments (e.g., surety bonds,~~
4779 ~~letters of credit, or escrow accounts) to provide a location to place funds if needed.~~

4780
4781 ~~(iv) — An owner or operator may deposit money into an escrow account to cover~~
4782 ~~financial responsibility requirements; this account must segregate funds sufficient to cover~~
4783 ~~estimated costs for Class VI (geologic sequestration) financial responsibility from other accounts~~
4784 ~~and uses.~~

4786 (v) — ~~An owner or operator or its guarantor may use self insurance to~~
4787 ~~demonstrate financial responsibility for certain phases of geologic sequestration projects. In~~
4788 ~~order to satisfy this requirement the owner or operator must meet a tangible net worth of an~~
4789 ~~amount approved by the Administrator, have a net working capital and tangible net worth each at~~
4790 ~~least six times the sum of the current well plugging, post injection site care and site closure cost,~~
4791 ~~have assets located in the United States amounting to at least 90 percent of total assets or at least~~
4792 ~~six (6) times the sum of the current well plugging, post injection site care and site closure cost,~~
4793 ~~and must submit a report of its bond rating and financial information annually. In addition the~~
4794 ~~owner or operator must either: have a bond rating test of AAA, AA, A, or BBB as issued by~~
4795 ~~Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or meet all of the following five~~
4796 ~~financial ratio thresholds: a ratio of total liabilities to net worth less than 2.0; a ratio of current~~
4797 ~~assets to current liabilities greater than 1.5; a ratio of the sum of net income plus depreciation,~~
4798 ~~depletion, and amortization to total liabilities greater than 0.1; a ratio of current assets minus~~
4799 ~~current liabilities to total assets greater than 0.1; and a net profit (revenues minus expenses)~~
4800 ~~greater than 0.~~

4801
4802 (vi) — ~~An owner or operator who is not able to meet corporate financial test~~
4803 ~~criteria may arrange a corporate guarantee by demonstrating that its corporate parent meets the~~
4804 ~~financial test requirements on its behalf. The parent's demonstration that it meets the financial~~
4805 ~~test requirement is insufficient if it has not also guaranteed to fulfill the obligations for the owner~~
4806 ~~or operator.~~

4807
4808 (vii) — ~~An owner or operator may obtain an insurance policy to cover the~~
4809 ~~estimated costs of geologic sequestration activities requiring financial responsibility. This~~
4810 ~~insurance policy must be obtained from a third party provider.~~

4811
4812 (l) — ~~The owner or operator must maintain financial responsibility and resources until~~
4813 ~~the administrator receives and approves the completed post injection site care and site closure~~
4814 ~~plan and the administrator approves site closure.~~

4815
4816 (m) — ~~The owner or operator must notify the Administrator by certified mail of adverse~~
4817 ~~financial conditions such as bankruptcy that may affect the ability to carry out injection well~~
4818 ~~plugging and post injection site care and site closure.~~

4819
4820 (i) — ~~In the event that the owner or operator or the third party provider of a~~
4821 ~~financial responsibility instrument is going through a bankruptcy, the owner or operator must~~
4822 ~~notify the Administrator by certified mail of the commencement of a voluntary or involuntary~~
4823 ~~proceeding under Title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor,~~
4824 ~~within ten (10) days after commencement of the proceeding.~~

4825
4826 (ii) — ~~A guarantor of a corporate guarantee must make such a notification to the~~
4827 ~~Administrator if he/she is named as debtor, as required under the terms of the corporate~~
4828 ~~guarantee.~~

4829
4830 (iii) — ~~An owner or operator who fulfills the requirements of paragraph (g) of this~~
4831 ~~section by obtaining a trust fund, surety bond, letter of credit, escrow account, or insurance~~

4832 ~~policy will be deemed to be without the required financial assurance in the event of bankruptcy~~
4833 ~~of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee~~
4834 ~~institution to act as trustee of the institution issuing the trust fund, surety bond, letter of credit,~~
4835 ~~escrow account, or insurance policy. The owner or operator must establish other financial~~
4836 ~~assurance within sixty (60) days after such an event.~~

4837
4838 (n) ~~—The owner or operator may be released from a financial instrument in the~~
4839 ~~following circumstances:~~

4840
4841 (i) ~~—The owner or operator has completed the phase of the geologic~~
4842 ~~sequestration project for which the financial instrument was required and has fulfilled all its~~
4843 ~~financial obligations as determined by the Administrator, including obtaining financial~~
4844 ~~responsibility for the next phase of the geologic sequestration project, if required.~~

4845
4846 (ii) ~~—The owner or operator has submitted a replacement financial instrument~~
4847 ~~and received written approval from the Administrator accepting the new financial instrument and~~
4848 ~~releasing the owner or operator from the previous financial instrument.~~

4849
4850 (iii) ~~—The owner or operator has submitted a revised cost estimate for the~~
4851 ~~remaining phases of the geologic sequestration project. The revised cost estimate may~~
4852 ~~demonstrate that a partial release of the financial instrument is warranted and can still provide~~
4853 ~~adequate financial assurance for the remainder of the project. Partial release of the financial~~
4854 ~~instrument is at the discretion of the Administrator.~~

4855
4856 (o) ~~—Following the release of all financial assurance and receipt of a site closure~~
4857 ~~certificate, the Administrator must approve the cost estimate prepared for the post closure~~
4858 ~~measurement, monitoring and verification of a geologic sequestration site. The cost estimate~~
4859 ~~shall only be provided after plume stabilization and all remediation work has been completed.~~

4860
4861 ~~(formerly Section 13(a))~~(a) A Class VI well has mechanical integrity if:

4862
4863 ~~(formerly Section 13(a)(i))~~(i) There is no significant leak in the casing, tubing, or
4864 packer; and

4865
4866 ~~(formerly Section 13(a)(ii))~~(ii) There is no significant fluid movement into
4867 a USDW through channels adjacent to the injection wellbore.

4868
4869 ~~(formerly Section 13(b))~~(b) To evaluate the absence of significant leaks under
4870 ~~subparagraph (a)(i) of this s~~Section, owners or operators ~~must shall~~, following an initial annulus
4871 pressure test, continuously monitor injection pressure, rate, injected volumes, and pressure on the
4872 annulus between tubing, ~~and~~ long string casing, and annulus fluid volume as specified in Section
4873 ~~12 18~~(e) ~~and~~ -(f) of this ~~e~~Chapter;

4874
4875 ~~(formerly Section 13(e))~~(c) At least once per year, the owner or operator ~~must shall~~ use
4876 one (1) of the following methods to determine the absence of significant fluid movement under
4877 subparagraph (a)(ii) of this ~~s~~Section:

4878
4879 ~~(formerly Section 13(e)(i))~~(i) An approved tracer survey such as an oxygen-
4880 activation log; or

4881
4882 ~~(formerly Section 13(e)(ii))~~(ii) A temperature or noise log.
4883

4884 ~~(formerly Section 13(d))~~(d) If required by the Administrator, at a frequency specified in
4885 the testing and monitoring plan required in Section ~~14~~ 20 of this ~~e~~Chapter, the owner or operator
4886 ~~must~~ shall run a casing inspection log to determine the presence or absence of corrosion in the
4887 long-string casing.
4888

4889 ~~(formerly Section 13(e))~~(e) The Administrator may require any other test to evaluate
4890 mechanical integrity under ~~paragraph (a)(i) or (a)(ii) of this s~~Section. ~~Also, t~~The Administrator
4891 may allow the use of a test to demonstrate mechanical integrity other than those listed ~~above, in~~
4892 paragraph (c) of this Section with the written approval of the US EPA Administrator. To obtain
4893 approval, the Administrator ~~must~~ shall submit a written request to the US EPA Administrator
4894 that ~~must~~ shall set forth the proposed test and all technical data supporting its use.
4895

4896 ~~(formerly Section 13(f))~~(f) In conducting and evaluating the tests enumerated in this
4897 section or others to be allowed by the Administrator, the owner or operator and the Administrator
4898 ~~must~~ shall apply methods and standards generally accepted in the industry.
4899

4900 ~~(formerly Section 13(f)(i))~~(i) When the owner or operator reports the results of
4901 mechanical integrity tests to the Administrator, ~~he/she~~ the owner or operator shall include a
4902 description of the test~~(s)~~ and the method~~(s)~~ used.
4903

4904 ~~(formerly Section 13(f)(ii))~~(ii) In making ~~his/her~~ an evaluation, the
4905 Administrator ~~must~~ shall review monitoring and other test data submitted since the previous
4906 evaluation.
4907

4908 ~~(formerly Section 13(g))~~(g) The Administrator may require additional or alternative
4909 tests if the results presented by the owner or operator under paragraph (e) of this ~~s~~Section are not
4910 satisfactory to the Administrator to demonstrate that there is no significant leak in the casing,
4911 tubing or packer; ~~or and that there is no~~ significant movement of fluid into or between USDWs
4912 resulting from the injection activity ~~as stated in paragraphs (a)(i) and (a)(ii) of this section.~~
4913

4914 **Section 20. ~~Public Participation, Public Notice and Public Hearing Requirements.~~**
4915 **Testing and Monitoring Requirements.**

4916
4917 ~~(a) — The Administrator shall give public notice if a draft permit has been prepared or a~~
4918 ~~hearing has been scheduled.~~

4919
4920 ~~(b) — Public notice of the preparation of a draft permit shall allow at least sixty (60)~~
4921 ~~days for public comment. Public notice of a public hearing shall be given at least thirty (30) days~~
4922 ~~before the hearing. Public notice of the hearing may be given at the same time as public notice of~~
4923 ~~the draft permit and the two notices may be combined.~~

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~~(e) — 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~~

4970 ~~(iii) — At the discretion of the Administrator, any other method reasonably~~
4971 ~~expected to give actual notice of the action in question to the persons potentially affected by it,~~
4972 ~~including press releases or any other forum or medium to elicit public participation.~~

4973
4974 ~~(d) — All public notices issued under this chapter shall contain the following minimum~~
4975 ~~information:~~

4976 ~~(i) — Name and address of the Department;~~

4977
4978 ~~(ii) — Name and address of permittee or permit applicant, and, if different, of the~~
4979 ~~facility or activity regulated by the permit;~~

4980
4981 ~~(iii) — A brief description of the business conducted at the facility or activity~~
4982 ~~described in the permit application or the draft permit;~~

4983
4984 ~~(iv) — The type and quantity of wastes, fluids, or pollutants that are proposed to~~
4985 ~~be or are being treated, stored, disposed of, injected, emitted, or discharged.~~

4986
4987 ~~(v) — A brief summary of the basis for the draft permit conditions including~~
4988 ~~references to applicable statutory or regulatory provisions;~~

4989
4990 ~~(vi) — Reasons why any requested variances or alternatives to required standards~~
4991 ~~do or do not appear justified;~~

4992
4993 ~~(vii) — Name, address and telephone number of a person from whom interested~~
4994 ~~persons may obtain further information, including copies of the draft permit, as the case may be,~~
4995 ~~statement of basis or fact sheet, and the application;~~

4996
4997 ~~(viii) — A brief description of comment procedures including,~~

4998 ~~(A) — Procedures to request a hearing;~~

4999 ~~(B) — The beginning and ending dates of the comment period;~~

5000 ~~(C) — The address where comments will be received; and~~

5001 ~~(D) — Other procedures that the public may use to participate in the final~~
5002 ~~permit decision; and~~

5003
5004 ~~(ix) — Any additional information considered necessary and proper.~~

5005
5006 ~~(e) — In addition to the information required in paragraph (d) of this section, any notice~~
5007 ~~for public hearing shall contain the following:~~

5008 ~~(i) — Reference to the date of previous public notices relating to the permit;~~

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5015

5016 ~~(ii) — Date, time and place of hearing; and~~

5017
5018 ~~(iii) — A brief description of the nature and purpose of the hearing, including~~
5019 ~~applicable rules and procedures.~~

5020
5021 ~~(f) — The Department shall provide an opportunity for the applicant, permittee, or any~~
5022 ~~interested person to submit written comments regarding any aspect of a permit or to request a~~
5023 ~~public hearing.~~

5024
5025 ~~(g) — During the public comment period, any interested person may submit written~~
5026 ~~comments on the draft permit and may request a public hearing. Requests for public hearings~~
5027 ~~must be made in writing to the Administrator and shall state the reasons for the request.~~

5028
5029 ~~(h) — The Administrator shall hold a hearing whenever the Administrator finds, on the~~
5030 ~~basis of requests, a significant degree of public interest in a draft permit. The Administrator has~~
5031 ~~the discretion to hold a hearing whenever such a hearing may clarify issues involved in a permit~~
5032 ~~decision.~~

5033
5034 ~~(i) — The public comment period shall automatically extend to the close of any public~~
5035 ~~hearing. The Administrator may also extend the comment period by so stating at the public~~
5036 ~~hearing.~~

5037
5038 ~~(j) — The Administrator shall render a decision on the draft permit within sixty (60)~~
5039 ~~days after the completion of the comment period if no hearing is requested. If a hearing is held,~~
5040 ~~the Administrator shall make a decision on any Department hearing as soon as practicable after~~
5041 ~~receipt of the transcript or after the expiration of the time set to receive written comments.~~

5042
5043 ~~(k) — At the time a final decision is issued, the Department shall respond, in writing, to~~
5044 ~~those comments received during the public comment period or comments received during the~~
5045 ~~allotted time for a hearing held by the Department. This response shall:~~

5046
5047 ~~(i) — Specify any changes that have been made to the permit; and~~

5048
5049 ~~(ii) — Briefly describe and respond to all comments voicing a technical or~~
5050 ~~regulatory concern that is within the authority of the Department to regulate.~~

5051
5052 ~~(l) — The response to comments shall also be available to the public.~~

5053
5054 ~~(m) — Requests for a contested case hearing on a permit issuance, denial, revocation,~~
5055 ~~termination, or any other final Department action appealable to the Council shall be in~~
5056 ~~accordance with the Department of Environmental Quality Rules of Practice and Procedure.~~

5057
5058 ~~(formerly Section 14(a))~~(a) The owner or operator of a Class VI well ~~must~~ shall
5059 prepare, maintain, and comply with a testing and monitoring plan to verify that the geologic
5060 sequestration project is operating as permitted and is not endangering USDWs. The testing and
5061 monitoring plan ~~must~~ shall be submitted with the permit application, ~~for~~ shall be subject to

5062 Administrator approval, and ~~must~~ shall include a description of how the owner or operator will
5063 meet the requirements of this ~~s~~Section, including accessing sites for all necessary monitoring and
5064 testing during the life of the project.

5065
5066 ~~(formerly Section 14(b))(b)~~ In addition to the requirements of W.S. § 35-11-313,
5067 ~~T~~esting and monitoring associated with geologic sequestration projects ~~must shall, at a~~
5068 ~~minimum,~~ include:

5069
5070 ~~(i) Plans and procedures for environmental surveillance and excursion~~
5071 ~~detection, prevention, and control programs, including a monitoring plan to:~~

5072
5073 ~~_____ (A) Assess the migration of the injected carbon dioxide; and~~

5074
5075 ~~_____ (B) Ensure the retention of the carbon dioxide in the geologic~~
5076 ~~sequestration site.~~

5077
5078 ~~(formerly Section 14(b)(ii))(i)~~ Analysis of the carbon dioxide stream with
5079 sufficient frequency to yield data representative of its chemical and physical characteristics;

5080
5081 ~~(formerly Section 14(b)(iii))(ii)~~ Installation and use, except during well
5082 workovers, of continuous recording devices to monitor:

5083
5084 ~~(formerly Section 14(b)(iii)(A))(A)~~ Injection pressure;

5085
5086 ~~(formerly Section 14(b)(iii)(B))(B)~~ Injection Rate and volume;

5087
5088 ~~(formerly Section 14(b)(iii)(C))(C)~~ Pressure on the annulus between the
5089 tubing and the long string casing;

5090
5091 ~~(formerly Section 14(b)(iii)(D))(D)~~ The annulus fluid volume added; and

5092
5093 ~~(formerly Section 14(b)(iii)(E))(E)~~ The pressure on the annulus between
5094 the tubing and the long string casing.;

5095
5096 ~~(formerly Section 14(b)(iv))(iii)~~ Corrosion monitoring of the well materials
5097 for loss of mass, loss of thickness, cracking, pitting, and other signs of corrosion, ~~which must~~
5098 shall be performed and recorded at least quarterly to ensure that the well components meet the
5099 minimum standards for material strength and performance set forth in Section ~~9(b)~~ 14(b) of this
5100 eChapter by:

5101
5102 ~~(formerly Section 14(b)(iv)(A))(A)~~ Analyzing coupons of the well
5103 construction materials placed in contact with the carbon dioxide stream;

5104
5105 ~~(formerly Section 14(b)(iv)(B))(B)~~ Routing the carbon dioxide stream
5106 through a loop constructed with the material used in the well and inspecting the materials in the
5107 loop; or

5108
5109 ~~(formerly Section 14(b)(iv)(C))(C)~~ Using an alternative method
5110 approved by the Administrator;

5111
5112 ~~(formerly Section 14(b)(v))(iv)~~ Periodic monitoring of the groundwater
5113 quality and geochemical changes above the confining zone(s) that may be a result of carbon
5114 dioxide movement or displaced formation fluid movement through the confining zone(s) or
5115 additional ~~identified~~ zones, including The monitoring wells shall:

5116
5117 ~~(formerly Section 14(b)(v)(A))(A)~~ ~~The location and number of~~
5118 ~~monitoring wells must be based on~~ Use specific information about the geologic sequestration
5119 project, including injection rate and volume, geology, the presence of artificial penetrations, and
5120 other relevant factors to establish the location and number of monitoring wells; and

5121
5122 ~~(formerly Section 14(b)(v)(B))(B)~~ ~~The monitoring frequency and~~
5123 ~~spatial distribution of monitoring wells based on~~ Use baseline geochemical data that have been
5124 collected under Section ~~5(b)(xiii)~~ 10(b)(xvi) of this eChapter and any modeling results in the area
5125 of review evaluation required by Section ~~8(e)~~ 13(b) of this eChapter: to establish the monitoring
5126 frequency and spatial distribution of monitoring wells;

5127
5128 ~~(formerly Section 14(b)(vi))(v)~~ A demonstration of external mechanical
5129 integrity pursuant to Section ~~13(e)~~ 19(c) at least once per year until the well is plugged;

5130
5131 ~~(formerly Section 14(b)(vi))(vi)~~ _____ and ~~if~~ required by the Administrator, a
5132 casing inspection log pursuant to requirements of Section ~~13(d)~~ 19(d) of this eChapter at a
5133 frequency established in the testing and monitoring plan;

5134
5135 ~~(formerly Section 14(b)(vii))(vii)~~ A pressure fall-off test that identifies
5136 reservoir conditions with respect to flow dynamics at least once every five (5) years, unless more
5137 frequent testing is required by the Administrator based on site-specific information; ~~and~~

5138
5139 ~~(formerly Section 14(b)(viii))(viii)~~ Testing and monitoring to track the extent of
5140 the carbon dioxide plume, the position of the pressure front, and surface displacement using:

5141
5142 ~~(formerly Section 14(b)(viii)(A))(A)~~ Direct methods in the injection
5143 zone(s); and

5144
5145 ~~(formerly Section 14(b)(viii)(B))(B)~~ Indirect methods in the injection
5146 zone (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon
5147 dioxide detection tools); unless the Administrator determines, based on site-specific geology, that
5148 such methods are not appropriate;

5149
5150 ~~(formerly Section 14(b)(ix))(ix)~~ ~~At the Administrator's discretion, b~~Based on
5151 site-specific conditions, surface air monitoring ~~and/or~~ soil gas monitoring to detect movement of
5152 carbon dioxide that could endanger a USDW; or otherwise threaten human health, safety, or the
5153 environment;

5154
5155 ~~(formerly Section 14(b)(ix)(A))(A)~~ The surface air or soil gas
5156 monitoring plan ~~must~~ shall:
5157
5158 ~~(formerly Section 14(b)(ix)(A))(I)~~ bBe based on potential risks
5159 to USDWs, and modeling within the area of review;
5160
5161 ~~(formerly Section 14(b)(ix)(B))(II)~~ Use baseline data to establish
5162 ~~T~~he monitoring frequency and spatial distribution of surface air monitoring ~~and/~~ or soil gas
5163 monitoring ~~must reflect baseline data;~~ and
5164
5165 ~~(formerly Section 14(b)(ix)(B))(III)~~ The monitoring plan must
5166 sSpecify how the proposed monitoring will yield useful information ~~on~~ for the area of review
5167 delineation and the potential movement of fluid:
5168
5169 ~~(formerly Section 14(b)(ix)(B))(1.)~~ eContaining any
5170 contaminant into USDWs in ~~exceedence~~ exceedance of any primary drinking water regulation
5171 under 40 C.F.R. Part 141; ~~;~~
5172
5173 ~~(formerly Section 14(b)(ix)(B))(2.)~~ wWhich may
5174 otherwise adversely affect human health, safety, or the environment; ~~;~~
5175
5176 ~~(formerly Section 14(b)(x))(B)~~ If an owner or operator demonstrates
5177 that monitoring employed under 40 C.F.R. §§ 98.440 to 98.449 ~~(Clean Air Act, 42 U.S.C. 7401~~
5178 ~~et seq.)~~ accomplishes the goals of subparagraph (b)(ix)(A) ~~and (B)~~ of this sSection, ~~and meets~~
5179 ~~the requirements pursuant to 40 CFR § 146.91(e)(5), the Administrator that requires surface~~
5180 ~~air/soil gas monitoring must shall~~ approve the use of monitoring employed under 40 C.F.R. §§
5181 98.440 to 98.449. ~~Compliance with §§ 98.440 to 98.449 pursuant to this provision is considered~~
5182 ~~a condition of the Class VI permit~~ An owner or operator who uses monitoring employed under
5183 40 C.F.R. §§ 98.440 to 98.449 to meet the requirements of this Section shall comply with 40
5184 C.F.R. §§ 98.440 to 98.449;
5185
5186 ~~(formerly Section 14(b)(xi))(x)~~ Any additional monitoring, as required by
5187 the Administrator, necessary to support, upgrade, and improve computational modeling of the
5188 area of review re-evaluation required under Section ~~8(d)~~ 13(c) of this eChapter and as necessary
5189 to demonstrate that there is no movement of fluid containing any contaminant into ~~underground~~
5190 ~~sources of drinking water~~ USDWs in ~~exceedence~~ exceedance of any primary drinking water
5191 regulation under 40 C.F.R. Part 141, Subparts E, F, and G, or which could otherwise adversely
5192 affect human health, safety, or the environment;
5193
5194 ~~(formerly Section 14(b)(xii))(xi)~~ The owner or operator shall periodically
5195 review the testing and monitoring plan to incorporate monitoring data collected under this
5196 ~~subpart~~ Section, operational data collected under Section ~~12~~ 18 of this eChapter, and the most
5197 recent area of review reevaluation performed under Section ~~8~~ 13 of this eChapter. ~~In no case~~
5198 ~~shall~~ TThe owner or operator shall review the testing and monitoring plan ~~less often than~~ at least
5199 once every five (5) years. Based on this review, the owner or operator shall submit an amended

5200 testing and monitoring plan or demonstrate to the Administrator that no amendment to the testing
5201 and monitoring plan is needed. Any amendments to the testing and monitoring plan ~~must be~~
5202 ~~approved~~ are subject to approval by the Administrator, ~~must~~ shall be incorporated into the
5203 permit, and are subject to the permit modification requirements of Section ~~4-6~~ of this ~~e~~Chapter;
5204 ~~as appropriate~~. Amended plans or demonstrations shall be submitted to the Administrator as
5205 follows:

5206
5207 ~~(formerly Section 14(b)(xii)(A))(A)~~ (A) Within one (1) year of an area of
5208 review reevaluation;

5209
5210 ~~(formerly Section 14(b)(xii)(B))(B)~~ (B) Following any significant changes to
5211 the facility, such as addition of monitoring wells or newly permitted injection wells within the
5212 area of review, ~~on a schedule determined by the Administrator~~; or

5213
5214 ~~(formerly Section 14(b)(xii)(C))(C)~~ (C) When required by the
5215 Administrator; and

5216
5217 ~~(formerly Section 14(b)(xiii))(xii)~~ (xii) A quality assurance and surveillance plan
5218 for all testing and monitoring requirements.

5219
5220 ~~(formerly Section 14(d))(c)~~ The owner or operator shall create and retain R records of
5221 all monitoring information ~~shall~~ that include:

5222
5223 ~~(formerly Section 14(d)(i))(i)~~ (i) The date, time, and exact place, ~~and time~~ of
5224 sampling or measurements;

5225
5226 ~~(formerly Section 14(d)(ii))(ii)~~ (ii) The individual(s) who performed the
5227 sampling or measurements;

5228
5229 ~~(formerly Section 14(d)(iii))(iii)~~ (iii) The date(s) analyses were performed;

5230
5231 ~~(formerly Section 14(d)(iv))(iv)~~ (iv) The individual(s) who performed the
5232 analyses;

5233
5234 ~~(formerly Section 14(d)(v))(v)~~ (v) The analytical techniques or methods used;
5235 and

5236
5237 ~~(formerly Section 14(d)(vi))(vi)~~ (vi) The results of such analyses.

5238
5239 **Section 21. Record Retention.**

5240
5241 ~~(formerly Section 14(e))(a)~~ The permittee ~~An owner or operator of a Class VI well~~
5242 shall ~~retain~~ maintain records ~~of all monitoring information, including~~ according to the following
5243 schedules;

5244

5245 ~~(formerly Section 14(e)(i))~~(i) Calibration and maintenance records and all original
5246 strip chart recordings for continuous monitoring instrumentation, copies of all reports required
5247 by this permit, and records of all data used to complete the application for this permit, for a
5248 period of at least three (3) years from the date of the sample, measurement, report, or application.
5249 This period may be extended by request of the Administrator at any time; ~~and~~

5250
5251 ~~(formerly Section 14(e)(ii))~~(ii) The nature and composition of all injected
5252 fluids until ~~three (3)~~ ten (10) years after the completion of any plugging and abandonment
5253 procedures ~~specified~~ under Section ~~16~~ 23 of this ~~e~~Chapter.;

5254
5255 ~~(formerly Section 8(f))~~(iii) All modeling inputs and data used to support area of
5256 review reevaluations under ~~paragraph (d)~~ Section 13 of this ~~section~~ Chapter shall be retained for
5257 ten (10) years.;

5258
5259 ~~(formerly Section 17(f))~~(iv) ~~The W~~well-plugging reports, required by Section 23
5260 of this Chapter, the site closure report required by Section 24 of this Chapter, and any post-
5261 injection site care data, (including, if appropriate, data and information used to develop establish
5262 the demonstration of the post-injection site care time frame,) ~~and the site closure report collected~~
5263 ~~pursuant to requirements of subsection (d) above~~ shall be retained for ten (10) years following
5264 site closure. ~~The owner or operator must deliver the records to the Administrator at the~~
5265 ~~conclusion of the retention period, and the records must thereafter be retained at a location~~
5266 ~~designated by the Administrator for that purpose.~~

5267
5268 ~~(formerly Section 5(j))~~(v) All data used to complete permit applications shall
5269 be ~~kept retained~~ by the applicant for the life of the geologic sequestration project and for ten (10)
5270 years following site closure. ~~;~~ and

5271
5272 ~~(formerly Section 15(e))~~(vi) ~~The permittee shall retain a~~All other monitoring
5273 records required by ~~the a~~ permit shall be retained for a period of ten (10) years following site
5274 closure. ~~The Administrator may require the owner or operator to deliver the records to the~~
5275 ~~Administrator at the conclusion of the retention period.~~

5276
5277 ~~(formerly Section 14(e)(ii))~~(b) ~~The Administrator may require the owner or~~
5278 ~~operator to deliver the records to the Administrator at the conclusion of the retention period.~~ The
5279 owner or operator must deliver the records to the Administrator at the conclusion of the retention
5280 period, and the records must thereafter be retained at a location designated by the Administrator
5281 for that purpose.

5282 Section 22. Reporting and Notice Requirements.

5283
5284
5285 ~~(formerly Section 15(a))~~(a) The owner or operator ~~must shall, at a minimum,~~ provide
5286 the following reports to the Administrator, for each ~~permitted~~ Class VI well:

5287
5288 ~~(formerly Section 15(a)(i))~~(i) Semi-annual reports, ~~which~~ Semi-annual reports
5289 are required by the permit shall be submitted to the Administrator within thirty (30) days
5290 following the end of the period covered in the report, and shall contain:

5291
5292 ~~(formerly Section 15(a)(i)(A))~~(A) Any changes to the physical,
5293 chemical, and other relevant characteristics of the carbon dioxide stream from the proposed
5294 operating data;
5295
5296 ~~(formerly Section 15(a)(i)(B))~~(B) Monthly average, maximum, and
5297 minimum values for injection pressure, flow rate and volume, and annular pressure;
5298
5299 ~~(formerly Section 15(a)(i)(C))~~(C) A description of any event that
5300 exceeds operating parameters for annulus pressure or injection pressure as specified in the
5301 permit;
5302
5303 ~~(formerly Section 15(a)(i)(D))~~(D) A description of any event that
5304 triggers a shutdown device required pursuant to Section ~~12(g)~~ 18(g) of this ~~e~~Chapter, and the
5305 response taken;
5306
5307 ~~(formerly Section 15(a)(i)(E))~~(E) The monthly volume of the carbon
5308 dioxide stream injected over the reporting period and project cumulatively;
5309
5310 ~~(formerly Section 15(a)(i)(F))~~(F) Monthly annulus fluid volume
5311 added; and
5312
5313 ~~(formerly Section 15(a)(i)(G))~~(G) The results of monitoring ~~prescribed~~
5314 ~~under required by~~ Section ~~14~~ 20 of this ~~e~~Chapter;
5315
5316 ~~(formerly Section 15(a)(ii))~~(ii) Reports, within thirty (30) days, the results
5317 of:
5318
5319 ~~(formerly Section 15(a)(ii)(A))~~(A) Periodic tests of mechanical
5320 integrity;
5321
5322 ~~(formerly Section 15(a)(ii)(B))~~(B) Any other test of the injection well
5323 conducted by the ~~permittee~~ owner or operator if required by the Administrator; and
5324
5325 ~~(formerly Section 15(a)(ii)(C))~~(C) Any well workover; and
5326
5327 ~~(formerly Section 15(a)(iii))~~(iii) Reports, within twenty-four (24) hours, of:
5328
5329 ~~(formerly Section 15(a)(iii)(A))~~(A) Any evidence that the injected
5330 carbon dioxide stream or associated pressure front may cause an endangerment to a USDW;
5331
5332 ~~(formerly Section 15(a)(iii)(B))~~(B) Any noncompliance with a permit
5333 condition, or malfunction of the injection system, which may cause fluid migration into or
5334 between USDWs;
5335

5336 ~~(formerly Section 15(a)(iii)(C))(C)~~ Any triggering of a shut-off system,
5337 either (i.e., down-hole or at the surface);

5338
5339 ~~(formerly Section 15(a)(iii)(D))(D) Pursuant to compliance with the~~
5340 ~~requirement at Section 14(b)(x) of this chapter for surface air or soil gas monitoring or other~~
5341 ~~monitoring technologies, if required by the Administrator, a~~Any release of carbon dioxide to the
5342 atmosphere or biosphere indicated by the surface air or soil gas monitoring or other monitoring
5343 technologies required by Section 14(b)(ix) of this Chapter; and

5344
5345 (E) Any failure to maintain mechanical integrity.

5346
5347 ~~(formerly Section 15(a)(iv))(b)~~ Owners or operators ~~must~~ shall notify the
5348 Administrator in writing thirty (30) days in advance of:

5349
5350 ~~(formerly Section 15(a)(iv)(A))(i)~~ Any planned well workover;

5351
5352 ~~(formerly Section 15(a)(iv)(B))(ii)~~ Any planned stimulation activities, other
5353 than stimulation for formation testing conducted under Section ~~5~~ 10 of this ~~e~~Chapter; and

5354
5355 ~~(formerly Section 15(a)(iv)(C))(iii)~~ Any other planned test of the injection well
5356 conducted by the ~~permittee~~ owner or operator.

5357
5358 ~~(formerly Section 15(b))(c)~~ Owners or operators ~~must~~ shall submit all required reports,
5359 submittals, and notifications to both the Administrator and to EPA; ~~(in an electronic format~~
5360 ~~acceptable to the EPA).~~

5361
5362 ~~(formerly Section 15(e))(d)~~ ~~The permittee~~ Owners or operators shall submit a written
5363 report to the Administrator of all remedial work concerning the failure of equipment or
5364 operational procedures that resulted in a violation of a permit condition; ~~at the completion of the~~
5365 ~~remedial work.~~

5366
5367 ~~(formerly Section 15(d))(e)~~ For any aborted or curtailed operation, the owner or
5368 operator shall submit to the Administrator a complete report ~~shall be submitted~~ within thirty (30)
5369 days of complete termination of the discharge or associated activity.

5370
5371 Section 23. Injection Well-plugging.

5372
5373 ~~(formerly Section 16(a))(a)~~ Prior to ~~the~~ well-plugging, the owner or operator ~~must~~ shall
5374 flush each Class VI injection well with a buffer fluid, determine bottom hole reservoir pressure,
5375 and perform a final external mechanical integrity test in accordance with Section ~~13~~ 19 of this
5376 ~~e~~Chapter.

5377
5378 ~~(formerly Section 16(b))(b)~~ The owner or operator of a Class VI well ~~must~~ shall
5379 prepare, maintain, update on the same schedule as the update to the area of review delineation,
5380 and comply with a well-plugging plan that is ~~acceptable to~~ approved by the Administrator.

5381 ~~Temporary or intermittent cessation of injection operations is not abandonment.~~ The well-
5382 plugging plan ~~must~~ shall include the following information:

5383
5384 ~~(formerly Section 16(b)(i))~~(i) Appropriate test or measure to determine bottom
5385 hole reservoir pressure;

5386
5387 ~~(formerly Section 16(b)(ii))~~(ii) Appropriate testing methods to ensure final
5388 external mechanical integrity as specified in Section ~~13~~ 19 of this ~~e~~Chapter;

5389
5390 ~~(formerly Section 16(b)(iii))~~(iii) The type and number of plugs to be used;

5391
5392 ~~(formerly Section 16(b)(iv))~~(iv) The placement of each plug including the
5393 elevation of the top and bottom of each plug;

5394
5395 ~~(formerly Section 16(b)(v))~~(v) The type and grade and quantity of material,
5396 suitable for use with the carbon dioxide stream, to be used in plugging; and

5397
5398 ~~(formerly Section 16(b)(vi))~~(vi) A description of the method of placement of
5399 the plugs.

5400
5401 ~~(formerly Section 16(e)(iii))~~(c) Any amendments to the injection well-plugging
5402 plan ~~must be approved~~ are subject to approval by the Administrator, ~~must~~ shall be incorporated
5403 into the permit if approved, and are subject to the permit modification requirements of Section ~~4~~
5404 6 of this ~~e~~Chapter, ~~as appropriate~~.

5405
5406 ~~(formerly Section 16(e))~~(d) The owner or operator ~~must~~ shall notify the Administrator,
5407 in writing, at least sixty (60) days before plugging a well.

5408
5409 ~~(formerly Section 16(e)(i))~~(i) If any changes have been made to the original well-
5410 plugging plan, the owner or operator ~~must~~ shall also provide the revised well-plugging plan with
5411 notice of its intent to plug the well.

5412
5413 ~~(formerly Section 16(e)(ii))~~(ii) ~~At the discretion of t~~The Administrator, may
5414 allow a shorter notice period ~~may be allowed~~.

5415
5416 ~~(formerly Section 16(d))~~(e) Within sixty (60) days after completion of plugging and
5417 abandonment of a well or well field, the ~~permittee~~ owner or operator shall submit to the
5418 Administrator a final report that includes:

5419
5420 ~~(formerly Section 16(d)(i))~~(i) Certification of completion in accordance with
5421 approved plans and specifications by a licensed professional engineer or a licensed professional
5422 geologist; and

5423
5424 ~~(formerly Section 16(d)(ii))~~(ii) Certification of accuracy by the owner or
5425 operator and by the person who performed the plugging operation (if other than the owner or
5426 operator).

5427 Section 24. Post-injection Site Care and Site Closure.
5428

5429
5430 ~~(formerly Section 17(a))(a)~~ (a) The owner or operator of a Class VI well ~~must~~ shall
5431 prepare, maintain, update on the same schedule as the update to the area of review delineation,
5432 and comply with a plan for post-injection site care and site closure that meets the requirements of
5433 subparagraph (a)(ii) of this sSection and is ~~acceptable to~~ approved by the Administrator.
5434

5435 ~~(formerly Section 17(a)(i))(i)~~ (i) The ~~owner or operator must submit the~~ post-
5436 injection site care and site closure plan ~~as a part of the permit application to be~~ is subject to
5437 ~~approval~~ ed by the Administrator, ~~;~~ in consultation with EPA.
5438

5439 ~~(formerly Section 17(a)(ii))(ii)~~ (ii) The post-injection site care and site closure
5440 plan ~~must~~ shall include the following information:
5441

5442 ~~(formerly Section 17(a)(ii)(A))(A)~~ (A) A demonstration containing
5443 substantial evidence that the geologic sequestration project will no longer pose a risk of
5444 endangerment to USDWs ~~or~~ and will not harm or present a risk to human health, safety, or the
5445 environment at the end of the post-injection site care timeframe. The demonstration ~~must~~ shall be
5446 based on significant, site-specific data and information, including all data and information
5447 collected pursuant to Sections ~~4~~ 10 and ~~7~~ 12 of this ~~eChapter~~ ;
5448

5449 ~~(formerly Section 17(a)(ii)(B))(B)~~ (B) The site closure plan shall address all
5450 reclamation, ~~required~~ monitoring, and remediation sufficient to show that the carbon dioxide
5451 stream injected into the geologic sequestration site will not harm human health, safety, the
5452 environment, or drinking water supplies ~~;~~
5453

5454 ~~(formerly Section 17(a)(ii)(C))(C)~~ (C) Detailed plans for post-injection
5455 monitoring, verification, maintenance, and mitigation;
5456

5457 ~~(formerly Section 17(a)(ii)(D))(D)~~ (D) The pressure differential between
5458 pre-injection and predicted post-injection pressures in the injection zone;
5459

5460 ~~(formerly Section 17(a)(ii)(E))(E)~~ (E) The predicted position of the carbon
5461 dioxide plume and associated pressure front at the time when plume movement has ceased and
5462 pressure differentials sufficient to cause the movement of injected fluids or formation fluids into
5463 a USDW are no longer present, as demonstrated in the area of review evaluation required under
5464 Section ~~8(e)(i)~~ 13(b)(i) of this ~~eChapter~~ ;
5465

5466 ~~(formerly Section 17(a)(ii)(F))(F)~~ (F) A description of post-injection
5467 monitoring locations, methods, and proposed frequency; ~~and~~
5468

5469 ~~(formerly Section 17(a)(ii)(G))(G)~~ (G) A proposed schedule for submitting
5470 post-injection site care monitoring results pursuant to Section ~~15(b)~~ 22(c) of this ~~eChapter~~ ; ~~as~~
5471 ~~appropriate~~ ;
5472

5473 ~~(formerly Section 17(a)(ii)(H))(H)~~ (H) The duration of the post-injection
5474 site care timeframe that ensures compliance with subparagraph (A) of this ~~subsection~~ paragraph;

5475
5476 ~~(formerly Section 17(a)(ii)(I))(I)~~ (I) The results of computational
5477 modeling performed pursuant to delineation of the area of review under Section 8 13 of this
5478 Chapter;

5479
5480 ~~(formerly Section 17(a)(ii)(J))(J)~~ (J) The predicted timeframe for pressure
5481 decline;

5482
5483 ~~(formerly Section 17(a)(ii)(J))(I)~~ (I) ~~w~~ W Within the injection zone,
5484 and any other zones, such that formation fluids may not be forced into any USDWs; ~~and/or~~

5485
5486 ~~(formerly Section 17(a)(ii)(J))(II)~~ (II) ~~the timeframe for pressure~~
5487 ~~decline~~ to pre-injection pressures;

5488
5489 ~~(formerly Section 17(a)(ii)(K))(K)~~ (K) The predicted rate of carbon dioxide
5490 plume migration within the injection zone, and the predicted timeframe for the cessation of
5491 migration;

5492
5493 ~~(formerly Section 17(a)(ii)(L))(L)~~ (L) A description of the site-specific
5494 processes that will result in carbon dioxide trapping including immobilization by capillary
5495 trapping, dissolution, and mineralization at the site;

5496
5497 ~~(formerly Section 17(a)(ii)(M))(M)~~ (M) The predicted rate of carbon dioxide
5498 trapping in the immobile capillary phase, dissolved phase, and ~~or~~ mineral phase;

5499
5500 ~~(formerly Section 17(a)(ii)(N))(N)~~ (N) The results of laboratory analyses,
5501 research studies, and ~~or~~ field or site-specific studies to verify the information required in
5502 subparagraphs (J) and (K) of this subsection paragraph;

5503
5504 ~~(formerly Section 17(a)(ii)(O))(O)~~ (O) A characterization of the confining
5505 zone(s) including a demonstration that ~~it is~~ they are free of transmissive faults, fractures, and
5506 micro-fractures and of appropriate thickness, permeability, and integrity to impede fluid (~~e.g.,~~
5507 including carbon dioxide, ~~and~~ formation fluids) movement;

5508
5509 ~~(formerly Section 17(a)(ii)(P))(P)~~ (P) The presence of potential conduits
5510 for fluid movement, including planned injection wells and project monitoring wells associated
5511 with the proposed geologic sequestration project or any other projects in proximity to the
5512 predicted or modeled, final extent of the carbon dioxide plume and area of elevated pressure;

5513
5514 ~~(formerly Section 17(a)(ii)(Q))(Q)~~ (Q) A description of the well
5515 construction and an assessment of the quality of plugs of all abandoned wells within the area of
5516 review;

5517

- 5518 ~~(formerly Section 17(a)(ii)(R))~~(R) The distance between the injection
5519 zone and the nearest USDWs above and/or below the injection zone; and
5520
- 5521 ~~(formerly Section 17(a)(ii)(S))~~(S) Any additional site-specific factors
5522 required by the Administrator.
5523
- 5524 ~~(formerly Section 17(a)(iii))~~(iii) Information submitted to support the
5525 demonstration in subparagraph (a)(ii) of this ~~s~~Section ~~must~~ shall meet the following criteria:
5526
- 5527 ~~(formerly Section 17(a)(iii)(A))~~(A) All analyses and tests performed ~~to~~
5528 ~~support the demonstration must~~ shall be accurate, reproducible, and performed in accordance
5529 with ~~the established quality assurance~~ industry standards;
5530
- 5531 ~~(formerly Section 17(a)(iii)(B))~~(B) Estimation techniques ~~must~~ shall be
5532 appropriate; ~~and~~
5533
- 5534 ~~(formerly Section 17(a)(iii)(B))~~(C) EPA-certified test protocols ~~must~~
5535 shall be used where available;
5536
- 5537 ~~(formerly Section 17(a)(iii)(C))~~(D) Predictive models ~~must~~ shall be
5538 appropriate and tailored to the site conditions, composition of the carbon dioxide stream and
5539 injection, and site conditions over the life of the geologic sequestration project;
5540
- 5541 ~~(formerly Section 17(a)(iii)(D))~~(E) Predictive models ~~must~~ shall be
5542 calibrated using existing information (~~e.g., at which may be obtained from~~ Class I, Class II, ~~or~~
5543 Class V experimental technology, ~~or Class VI well sites~~) where sufficient data are available;
5544
- 5545 ~~(formerly Section 17(a)(iii)(E))~~(F) Reasonably conservative values and
5546 modeling assumptions ~~must~~ shall be used and disclosed to the Administrator whenever values
5547 are estimated on the basis of known, historical information instead of site-specific
5548 measurements;
5549
- 5550 ~~(formerly Section 17(a)(iii)(F))~~(G) An analysis ~~must~~ shall be performed
5551 to identify and assess aspects of the post-injection site care timeframe demonstration that
5552 contribute significantly to uncertainty. The owner or operator ~~must~~ shall conduct sensitivity
5553 analyses to determine the effect that significant uncertainty may contribute to the modeling
5554 demonstration;
5555
- 5556 ~~(formerly Section 17(a)(iii)(G))~~(H) An approved quality assurance and
5557 quality control plan ~~must~~ shall address all aspects of the demonstration; ~~and~~;
5558
- 5559 ~~(formerly Section 17(a)(iii)(H))~~(I) Any additional criteria required by
5560 the Administrator shall be met.
5561
- 5562 ~~(formerly Section 17(a)(iv))~~(iv) Upon cessation of injection, owners or
5563 operators of Class VI wells ~~must~~ shall either submit an amended post-injection site care and site

5564 closure plan or demonstrate to the Administrator through monitoring data and modeling results
5565 that no amendment to the plan is needed. Any amendments to the post-injection site care and site
5566 closure plan ~~must~~ shall be:

5567
5568 ~~(formerly Section 17(a)(iv)(A))(A)~~ Subject to Aapprovedal by the
5569 Administrator;

5570
5571 ~~(formerly Section 17(a)(iv)(B))(B)~~ Incorporated into the permit; and

5572
5573 ~~(formerly Section 17(a)(iv)(C))(C)~~ Subject to the permit modification
5574 requirements of Section 4 6 of this ~~e~~Chapter, ~~as appropriate~~.

5575
5576 ~~(formerly Section 17(a)(v))(v)~~ The owner or operator may ~~modify~~ amend
5577 ~~and resubmit~~ the post-injection site care and site closure plan, ~~for the Administrator's approval~~
5578 ~~within thirty (30) days of such change~~. The owner or operator shall re-submit the post-injection
5579 site care and closure plan for the Administrator's approval within thirty (30) days of amending
5580 the plan.

5581
5582 (vi) Upon receipt of the Administrator's approval of the post-injection site care
5583 and site closure plan, the owner or operator shall submit the proposed cost estimate for
5584 measurement, monitoring, and verification of plume stabilization required by Section 26(i) of
5585 this Chapter.

5586
5587 ~~(formerly Section 17(b))(b)~~ The owner or operator shall monitor the site following the
5588 cessation of injection to ~~show~~ ascertain the position of the carbon dioxide plume and pressure
5589 front and demonstrate that USDWs are not being endangered.

5590
5591 ~~(formerly Section 17(b)(i))(i)~~ The owner or operator shall continue to conduct
5592 monitoring as specified in the Administrator-approved post-injection site care and site closure
5593 plan until the Administrator certifies site closure ~~is certified by the Administrator~~ pursuant to
5594 Section 24(b)(iii) of this Chapter.

5595
5596 ~~(formerly Section 17(b)(ii))(ii)~~ The owner or operator ~~can~~ may request ~~and~~
5597 ~~demonstrate to the satisfaction of the Administrator~~ that the post-injection site care and site
5598 closure plan ~~should~~ be revised to reduce the frequency of monitoring, and the Administrator
5599 may approve the request if the owner or operator demonstrates that the plan should be revised.

5600
5601 ~~(formerly Section 17(b)(iii))(iii)~~ Prior to ~~authorization for~~ certification of site
5602 closure, the owner or operator ~~must~~ shall demonstrate to the Administrator, based on monitoring,
5603 other site-specific data, and modeling that is reasonably consistent with site performance, that no
5604 additional monitoring is needed to ensure that the geologic sequestration project does not, and is
5605 not expected to ~~pose an~~ endangerment to a USDW or otherwise threaten human health, safety, or
5606 the environment. In addition, the owner or operator ~~must~~ shall demonstrate, based on the best
5607 available understanding of the site, including monitoring data and ~~or~~ modeling, that all other site
5608 closure standards and requirements have been met.

5609

5610 ~~(formerly Section 17(b)(iv))~~(iv) If ~~such a demonstration cannot be made~~ the
5611 owner or operator does not demonstrate that the requirements of subparagraph (b)(iii) of this
5612 Section have been met, the owner or operator ~~must~~ shall continue post-injection site care.

5613
5614 ~~(formerly Section 17(b)(v))~~(v) The owner or operator ~~must~~ shall notify the
5615 Administrator, in writing, at least 120 days before filing a request for site closure. At this time, if
5616 any changes have been made to the original post-injection site care and site closure plan, the
5617 owner or operator ~~must~~ shall also provide the revised plan. ~~At the discretion of t~~The
5618 Administrator; may allow a shorter notice period ~~may be allowed~~.

5619
5620 ~~(formerly Section 17(b)(vi))~~(vi) Post-injection site care shall ~~be~~ continue for
5621 a period ~~of not less than ten (10) years after the date when all wells excluding monitoring wells~~
5622 ~~have been appropriately plugged and abandoned, all subsurface operations and activities have~~
5623 ~~ceased and all surface equipment and improvements have been removed or appropriately~~
5624 ~~abandoned, or so long thereafter as necessary to obtain a completion and release certificate from~~
5625 ~~the Administrator certifying that plume stabilization has been achieved without the use of control~~
5626 ~~equipment based on a minimum of three (3) consecutive years of monitoring data~~ that meets the
5627 criteria of W.S. § 35-11-313(f)(vi)(F).

5628
5629 ~~(formerly Section 17(e))~~(c) After the Administrator has certified site closure, the owner
5630 or operator ~~must~~ shall plug monitoring wells, ~~as determined by the Administrator~~, in a manner
5631 approved by the Administrator that will not allow movement of injection or formation fluids.

5632
5633 ~~(formerly Section 17(d))~~(d) ~~Once the Administrator has certified site closure, t~~The
5634 owner or operator ~~must~~ shall submit a site closure report within ninety (90) days after completion
5635 of all closure operations. ~~The report must thereafter be retained at a location designated by the~~
5636 ~~Administrator for ten (10) years~~. The report ~~must~~ shall include:

5637
5638 ~~(formerly Section 17(d)(i))~~(i) Documentation of ~~appropriate~~ injection and
5639 monitoring well-plugging ~~as specified in that meets the requirements of~~ Section ~~16~~ 23 of this
5640 eChapter and paragraph (c) of this ~~s~~SSection;:

5641
5642 ~~(formerly Section 17(d)(ii))~~(ii) ~~The owner or operator must provide a~~ A
5643 copy of a survey plat that has been submitted to the local zoning authority designated by the
5644 Administrator; and:

5645
5646 ~~(formerly Section 17(d)(ii)(A))~~(A) The plat ~~must~~ shall indicate the
5647 location of the injection well(s) and monitoring wells relative to permanently surveyed
5648 benchmarks; and

5649
5650 ~~(formerly Section 17(d)(ii)(B))~~(B) The owner or operator ~~must~~ shall
5651 also submit a copy of the plat to the US EPA Regional Administrator;:

5652
5653 ~~(formerly Section 17(d)(iii))~~(iii) Documentation of appropriate notification
5654 and information to ~~such~~ the State, local and tribal authorities ~~as~~ that have authority over drilling

5655 activities to enable ~~such State and local authorities~~ them to impose appropriate conditions on
5656 subsequent drilling activities that may penetrate the injection and confining zone(s);
5657

5658 ~~(formerly Section 17(d)(iv))(iv)~~ (iv) Proof ~~of providing notice to surface owners,~~
5659 ~~mineral claimants, mineral owners, lessees, and other owners of record of subsurface interests as~~
5660 ~~to the proposed site closure. Notice requirements at a minimum shall include~~ that the owner or
5661 operator has:
5662

5663 ~~(formerly Section 17(d)(iv)(A))(A)~~ (A) The ~~p~~ublishing ~~of~~ notice of the
5664 application for site closure, including ~~(formerly Section 17(d)(iv)(B))~~ The published notice
5665 ~~shall provide~~ a mechanism to request a public hearing; ~~(formerly Section 17(d)(iv)(A))~~ in a
5666 newspaper of general circulation in each county of the proposed operation at weekly intervals for
5667 four (4) consecutive weeks; and
5668

5669 ~~(formerly Section 17(d)(iv)(C))(B)~~ (B) ~~A copy of the notice shall also be~~
5670 ~~m~~ailed notice of the application for site closure to all surface owners, mineral claimants,
5671 mineral owners, lessees, and other owners of record of subsurface interests that are located
5672 within one (1) mile of the proposed boundary of the geologic sequestration site; and
5673

5674 ~~(formerly Section 17(d)(v))(v)~~ (v) Records ~~reflecting~~ of the nature,
5675 composition, and volume of the carbon dioxide stream.
5676

5677 ~~(formerly Section 17(e))(e)~~ (e) Each owner or operator of a Class VI injection well ~~must~~
5678 shall record a notation on the deed to the facility property or any other document that is normally
5679 examined during title search that will in perpetuity provide notice to any potential purchaser of
5680 the property, and shall file an affidavit in accordance with W.S. § 35-11-313(f)(vi)(G), that
5681 includes the following information:
5682

5683 ~~(formerly Section 17(e)(i))(i)~~ (i) The fact that land has been used to sequester carbon
5684 dioxide;
5685

5686 ~~(formerly Section 17(e)(ii))(ii)~~ (ii) The name of the State agency, local
5687 authority, ~~and/or~~ and ~~t~~he Tribe with which the survey plat was filed, as well as the address of the
5688 ~~Regional Environmental Protection Agency~~ EPA regional ~~O~~ffice to which it was submitted; and
5689

5690 ~~(formerly Section 17(e)(iii))(iii)~~ (iii) The volume of fluid injected, the injection
5691 zone or zones into which it was injected, and the period over which injection occurred.
5692

5693 Section 25. Emergency and Remedial Response.

5694
5695 ~~(formerly Section 18(a))(a)~~ (a) ~~As part of the permit application, the~~ All owners or
5696 operators of a Class VI well shall develop, maintain, and comply ~~must provide the Administrator~~
5697 with an emergency and remedial response plan that describes actions to be taken to address
5698 movement of the injectate or formation fluids that ~~may cause an~~ endangerments ~~to~~ a USDW or
5699 threatens human health, safety, or the environment during construction, operation, closure, and
5700 post-closure periods.

5701 ~~(formerly Section 18(a)(i))~~(i) The emergency and remedial response plan ~~must~~
5702 shall be reviewed and updated, as necessary, on the same schedule as the update to the area of
5703 review delineation.

5704
5705 ~~(formerly Section 18(a)(ii))~~(ii) Any amendments to the emergency and
5706 remedial response plan ~~must shall~~ be subject to approveded by the Administrator, ~~must shall~~ be
5707 incorporated into the permit, and are subject to the permit modification requirements of Section 4
5708 6 of this ~~e~~Chapter, ~~as appropriate. (formerly Section 18(a)(ii)(A))~~ Amendedments plans or
5709 ~~demonstrations to the emergency and remedial response plan~~ shall be submitted to the
5710 Administrator as follows:

5711
5712 ~~(formerly Section 18(a)(ii)(A)(I))~~(A) Within one (1) year of an area of
5713 review reevaluation;

5714
5715 ~~(formerly Section 18(a)(ii)(A)(II))~~(B) Following any significant
5716 changes to the facility, such as addition of injection or monitoring wells, ~~on a schedule~~
5717 ~~determined by the Administrator~~; or

5718
5719 ~~(formerly Section 18(a)(ii)(A)(III))~~(C) When required by the
5720 Administrator.

5721
5722 ~~(formerly Section 18(e))~~(iii) The emergency and remedial response plan ~~(as~~
5723 ~~required by Section 18 of this chapter) and a demonstration of financial responsibility (as~~
5724 ~~described by Section 19 of this chapter) must shall~~ account for the entire area of review ~~(as~~
5725 ~~modified) delineated pursuant to Section 13 of this Chapter~~, regardless of whether ~~or not~~
5726 corrective action in the area of review is phased.

5727
5728 ~~(formerly Section 18(b))~~(b) If any monitoring data, or other ~~evidence obtained by the~~
5729 ~~owner or operator~~ information indicate that any contaminant, the injected carbon dioxide stream,
5730 displaced formation fluids, or associated pressure front may endanger a USDW or threatens
5731 human health, safety, or the environment, the owner or operator ~~must shall~~:

5732
5733 ~~(formerly Section 18(b)(i))~~(i) Immediately cease injection;

5734
5735 ~~(formerly Section 18(b)(ii))~~(ii) Take all steps reasonably necessary to
5736 identify and characterize any release;

5737
5738 ~~(formerly Section 18(b)(iii))~~(iii) Orally ~~N~~otify the Administrator within
5739 twenty-four (24) hours: of discovering the condition; and

5740
5741 ~~(formerly Section 4(c)(i)(R)(II))~~(iv) ~~Any noncompliance with a permit condition~~
5742 ~~or malfunction of the injection system that may cause fluid migration into or between USDWs or~~
5743 ~~if an excursion is discovered. It shall be orally reported to the Administrator within twenty four~~
5744 ~~(24) hours from the time the permittee becomes aware of the circumstances, and a written~~
5745 ~~submission shall be~~ Provided a written report to the Administrator within five (5) days of ~~the~~
5746 ~~time the permittee becomes aware of any excursion or indication that a contaminant may cause~~

5747 ~~an endangerment to a USDW~~ discovering the condition. The written ~~submission~~ report shall
5748 contain:

5749
5750 ~~(formerly Section 4(e)(i)(R)(II)(1.))~~ (A) A description of the
5751 noncompliance and its cause;

5752
5753 ~~(formerly Section 4(e)(i)(R)(II)(2.))~~ (B) The period of
5754 noncompliance, including exact dates and times, and, if the noncompliance has not been
5755 controlled, the anticipated time it is expected to continue; and

5756
5757 ~~(formerly Section 4(e)(i)(R)(II)(3.))~~ (C) Steps taken or planned to
5758 reduce, eliminate, and prevent reoccurrence of the noncompliance.

5759
5760 ~~(formerly Section 18(b)(iv))~~ (c) ~~In addition to paragraphs (i-iii) of this subsection, if~~
5761 ~~an~~ If an owner or operator discovers any noncompliance with a permit condition or a
5762 requirement of this Chapter that may cause fluid migration into or between USDWs, any
5763 malfunction of the injection system that may cause fluid migration into or between USDWs, or
5764 any excursion ~~is discovered~~, the owner or operator shall:

5765
5766 ~~(formerly Section 18(b)(iv))~~ (i) ~~provide verbal notice to the Department~~
5767 Orally notify the Administrator within twenty-four (24) hours, ~~of discovering the condition;~~

5768
5769 ~~(formerly Section 4(e)(i)(R)(II))~~ (ii) ~~Any noncompliance with a permit condition~~
5770 ~~or malfunction of the injection system that may cause fluid migration into or between USDWs or~~
5771 ~~if an excursion is discovered. It shall be orally reported to the Administrator within twenty-four~~
5772 ~~(24) hours from the time the permittee becomes aware of the circumstances, and~~ Provide a
5773 written submission report to the Administrator ~~shall be provided~~ within five (5) days of ~~the time~~
5774 ~~the permittee becomes aware of any excursion or indication that a contaminant may cause an~~
5775 ~~endangerment to a USDW.~~ discovering the condition. ~~The written submission~~ which shall
5776 contain:

5777
5778 ~~(formerly Section 4(e)(i)(R)(II)(1.))~~ (A) A description of the
5779 noncompliance, malfunction, or excursion and its cause;

5780
5781 ~~(formerly Section 4(e)(i)(R)(II)(2.))~~ (B) The period of
5782 noncompliance, malfunction, or excursion, including exact dates and times, and, if the
5783 noncompliance, malfunction, or excursion has not been controlled, the anticipated time it is
5784 expected to continue;

5785
5786 ~~(formerly Section 4(e)(i)(R)(II)(3.))~~ (C) Steps taken or planned to
5787 reduce, eliminate, and prevent reoccurrence of the noncompliance, malfunction, or excursion.

5788
5789 ~~(formerly Section 18(b)(iv))~~ (iii) ~~If an excursion is discovered, followed by~~
5790 provide written notice to all surface owners, mineral claimants, mineral owners, lessees, and
5791 other owners of record of subsurface interests within thirty (30) days of ~~when~~ discovering the
5792 excursion ~~is discovered~~; and

5793
5794 ~~(formerly Section 18(b)(v))(iv)~~ Implement the emergency and remedial
5795 response plan approved by the Administrator.
5796

5797 ~~(formerly Section 18(e))(d)~~ The Administrator may allow the owner or operator to
5798 resume injection prior to ~~remediation~~ implementing the emergency and remedial response plan if
5799 the owner or operator demonstrates that the injection operation will not endanger USDWs or
5800 otherwise threaten human health, safety, or the environment.
5801

5802 ~~(formerly Section 6(b))(e)~~ If any water quality monitoring of ~~an underground source~~
5803 ~~of drinking water~~ a USDW indicates the movement of any contaminant into the ~~underground~~
5804 ~~source of drinking water~~ USDW, except as authorized under this ~~e~~Chapter, the Administrator
5805 shall prescribe ~~such~~ any additional requirements for construction, corrective action, operation,
5806 monitoring, ~~or~~ reporting, ~~(including or~~ closure of the injection well) ~~as~~ that are necessary to
5807 prevent ~~such~~ further movement, ~~and~~:
5808

5809 ~~(formerly Section 6(b))(i)~~ ~~In~~ If the ~~case of~~ wells responsible for the movement
5810 is authorized by permit, these additional requirements shall be imposed by modifying the permit
5811 ~~in accordance with Section 4 of this chapter;~~ or
5812

5813 ~~(formerly Section 6(b))(ii)~~ ~~The Director~~ the permit may be terminated ~~or~~
5814 revoke and reissue the permit ~~under~~ pursuant to Section 4 ~~7~~ of this ~~e~~Chapter ~~if cause exists, or~~
5815 ~~appropriate enforcement action may be taken if the permit has been violated.~~
5816

5817 Section 26. Financial Responsibility.

5818
5819 ~~(formerly Section 19(b))(a)~~ Owners or operators of Class VI wells ~~must~~ shall establish,
5820 demonstrate, and maintain financial responsibility for all applicable phases of the geologic
5821 sequestration project, including complete site reclamation in the event of default. The phases of a
5822 geologic sequestration project are ~~as follows~~:
5823

5824 ~~(formerly Section 19(b)(i))(i)~~ ~~Permitting/~~Ccharacterization;
5825

5826 ~~(formerly Section 19(b)(ii))(ii)~~ Testing and mMonitoring ~~and testing,~~
5827 ~~including the requirements of~~ pursuant to Section 14 ~~20~~ of this ~~e~~Chapter;
5828

5829 ~~(formerly Section 19(b)(iii))(iii)~~ Operations, including (injection and
5830 ~~permanent well closure activities)~~well-plugging, including the requirements of pursuant to
5831 Sections ~~16~~ 18 and 23 of this ~~e~~Chapter;
5832

5833 ~~(formerly Section 19(b)(iv))(iv)~~ Post-injection site care, including (“plume
5834 stabilization”, monitoring, measurement, verification, corrective action, and other actions
5835 needed to ensure that underground sources of drinking water are not endangered from the time of
5836 well-plugging until site closure is certified by the Administrator; ~~and~~ above ground-reclamation
5837 is completed), ~~including the requirements of~~ pursuant to Section ~~17~~ 24 of this ~~e~~Chapter; ~~and~~
5838

5839 ~~(formerly Section 19(b)(v))(v)~~ Emergency and remedial response ~~(that~~
5840 ~~meets the requirements of pursuant to~~ Section ~~18-25~~ of this ~~e~~Chapter).

5841
5842 ~~(formerly Section 19(e))(b)~~ The owner or operator ~~must~~ shall develop ~~submit a detailed~~
5843 ~~written estimate, at the time of permit application~~ and annually updated ~~annually~~ in accordance
5844 with paragraph ~~(j)(iii) below~~ (f) of this Section, a written financial assurance cost estimate.;

5845
5846 ~~(formerly Section 19(e))(i)~~ ~~in current dollars,~~ The financial assurance cost
5847 estimate shall ~~that~~ includes the cost in current dollars of:

5848
5849 ~~(formerly Section 19(e))(A)~~ pPerforming corrective action on other wells
5850 in the area of review that require corrective action ~~meets the requirements of under~~ Section ~~8~~ 13
5851 of this ~~e~~Chapter;

5852
5853 ~~(formerly Section 19(e))(B)~~ pPlugging the injection well(s) ~~that meets~~
5854 ~~the requirements of under~~ Section ~~16~~ 23 of this ~~e~~Chapter;

5855
5856 ~~(formerly Section 19(e))(C)~~ pPost-injection site care and site closure ~~that~~
5857 ~~meets the requirements of under~~ Section ~~17~~ 24 of this ~~e~~Chapter;

5858
5859 ~~(formerly Section 19(e))(D)~~ Testing and monitoring ~~activities that meets~~
5860 ~~the requirements of under~~ Section ~~14~~ 20 of this ~~e~~Chapter; and

5861
5862 ~~(formerly Section 19(e))(E)~~ Emergency and remedial response ~~that~~
5863 ~~meets the requirements of under~~ Section ~~18~~ 25 of this ~~e~~Chapter.

5864
5865 ~~(formerly Section 19(e)(i))(ii)~~ (ii) The financial assurance cost estimate ~~for the various~~
5866 ~~phases of the sequestration project~~ shall consider the following events:

5867
5868 ~~(formerly Section 19(e)(i)(A))(A)~~ (A) Contamination of underground
5869 sources of water including, drinking water supplies;

5870
5871 ~~(formerly Section 19(e)(i)(B))(B)~~ (B) Mineral rights infringement;

5872
5873 ~~(formerly Section 19(e)(i)(C))(C)~~ (C) Single large-volume release of
5874 carbon dioxide that impacts human health and safety ~~and/or~~ that causes ecological damage;

5875
5876 ~~(formerly Section 19(e)(i)(D))(D)~~ (D) Low-level leakage of carbon dioxide
5877 to the surface that impacts human health and safety ~~and/or~~ that causes ecological damage;

5878
5879 ~~(formerly Section 19(e)(i)(E))(E)~~ (E) Storage rights infringement;

5880
5881 ~~(formerly Section 19(e)(i)(F))(F)~~ (F) Property and infrastructure damage,
5882 including changes to surface topography and structures;

5883
5884 ~~(formerly Section 19(e)(i)(G))(G)~~ (G) Entrained contaminant releases ~~(non-~~

5885 ~~CO₂~~ of contaminants other than carbon dioxide;

5886

5887 ~~(formerly Section 19(e)(i)(H))(H)~~ Accidents/ and unplanned events;

5888

5889 ~~(formerly Section 19(e)(i)(I))(I)~~ Well capping and permitted

5890 abandonment; and

5891

5892 ~~(formerly Section 19(e)(i)(J))(J)~~ Removal of above-ground facilities

5893 and site reclamation.

5894

5895 ~~(formerly Section 19(e)(ii))(iii)~~ The owner or operator shall consider the

5896 Risk Activity ~~m~~Matrix in Appendix A of this ~~e~~Chapter ~~shall be considered during the risk~~

5897 ~~assessment process~~ to develop the financial assurance cost estimate.

5898

5899 ~~(formerly Section 19(e)(iii))(iv)~~ The financial assurance cost estimate shall

5900 be based upon a multi-disciplinary analytical framework such as Monte Carlo or other

5901 commonly accepted stochastic modeling tools.

5902

5903 ~~(formerly Section 19(e)(iii)(A))(A)~~ Cost curves shall combine risk

5904 probabilities, event outcomes, and damages assessment to calculate expected losses under a

5905 series of events.

5906

5907 ~~(formerly Section 19(e)(iii)(B))(B)~~ For all cases of potential damages,

5908 the probability distributions should be identified for 50 percent, 95 percent, and 99 percent

5909 probabilities of occurrence.

5910

5911 ~~(formerly Section 19(e))(v)~~ The owner or operator shall perform the financial

5912 assurance cost estimate ~~must be performed~~ for each phase separately. ~~and~~

5913

5914 ~~(formerly Section 19(e))(vi)~~ ~~must be based~~ The owner or operator shall base the

5915 financial assurance cost estimate on the costs to the regulatory agency of hiring a third party ~~(that~~

5916 ~~is not within the corporate structure of the owner or operator)~~ to perform the required activities.

5917 ~~A third party is a party who is not within the corporate structure of the owner or operator.~~

5918

5919 ~~(formerly Section 8(e))(vii)~~ The ~~emergency and remedial response plan (as~~

5920 ~~required by Section 18 of this chapter) and a demonstration of~~ financial ~~responsibility~~ assurance

5921 cost estimate ~~(as described by Section 19 of this chapter) must~~ shall account for the entire area of

5922 review ~~(as modified), regardless of whether or not corrective action in the area of review is~~

5923 ~~phased~~ delineated pursuant to Section 13 of this Chapter.

5924

5925 ~~(viii)~~ The owner or operator shall submit an updated financial assurance cost

5926 estimate to the Administrator annually within thirty (30) days of the anniversary date when the

5927 original financial assurance cost estimate was submitted.

5928

5929 ~~(formerly Section 19(g))(c)~~ The financial responsibility instrument~~(s)~~ used shall be

5930 from the following list of qualifying instruments and shall be submitted on a Wyoming

5931 Department of Environmental Quality form:

5932

5933 ~~(formerly Section 19(g)(i))(i)~~ Irrevocable Trust Funds with government-backed
5934 securities;

5935

5936 ~~(formerly Section 19(g)(ii))(ii)~~ Surety Bonds;

5937

5938 ~~(formerly Section 19(g)(iii))(iii)~~ Irrevocable Letter of Credit;

5939

5940 ~~(iv) — Insurance.~~

5941

5942 ~~(A) — Any insurance instruments submitted for financial assurance~~
5943 ~~purposes shall include State of Wyoming as an additional insured.~~

5944

5945 ~~(B) — Inclusion of the State of Wyoming as an additional insured shall~~
5946 ~~not be deemed a waiver of sovereign immunity.~~

5947

5948 ~~(v) — Self insurance (i.e., Financial Test and Corporate Guarantee);~~

5949

5950 ~~(vi) — Escrow account;~~

5951

5952 ~~(vii) — Any other instrument(s) satisfactory to the Administrator.~~

5953

5954 (iv) Cash; or

5955

5956 (v) Federally Insured Certificates of Deposit.

5957

5958 ~~(formerly Section 19(h))(d)~~ The qualifying instrument(s) ~~must~~ shall be sufficient to
5959 cover the cost of the financial assurance cost estimate required in ~~subsection (d)~~ paragraph (b) of
5960 this ~~s~~Section.

5961

5962 ~~(formerly Section 19(i))(e)~~ The qualifying financial responsibility instrument(s) ~~must~~
5963 shall comprise protective conditions of coverage that include at a minimum cancellation,
5964 renewal, continuation provisions, specifications on when the provider becomes liable following a
5965 notice of cancellation, and requirements for the provider to meet a minimum rating, minimum
5966 capitalization, and the ability to pass the bond rating test when applicable.

5967

5968 ~~(formerly Section 19(i)(i))(i) Cancellation—~~ An owner or operator ~~must~~ shall
5969 provide that their financial mechanism may not cancel, terminate or fail to renew except for
5970 failure to pay such financial instrument. ~~If there is a failure to pay the financial instrument, the~~
5971 ~~financial institution may elect to cancel, terminate, or fail to renew the instrument by sending~~
5972 ~~notice by certified mail to the owner or operator and the Administrator. The cancellation must~~
5973 ~~not be final for 120 days after receipt of cancellation notice. The owner or operator must provide~~
5974 ~~an alternate financial responsibility demonstration within sixty (60) days of notice of~~
5975 ~~cancellation, and if an alternate financial responsibility demonstration is not acceptable (or~~
5976 ~~possible), any funds from the instrument being cancelled must be released within sixty (60) days~~

5977 ~~of notification by the Administrator.~~

5978

5979 ~~(formerly Section 19(i)(i))(A)~~ If there is a failure to pay the financial
5980 instrument, the financial institution may elect to cancel, terminate, or fail to renew the instrument
5981 by sending notice by certified mail to the owner or operator and the ~~Administrator~~ Director;

5982

5983 ~~(formerly Section 19(i)(i))(B)~~ The cancellation shall not be final for 120
5984 days after receipt of cancellation notice;

5985

5986 ~~(formerly Section 19(i)(i))(C)~~ ~~The owner or operator must provide an~~
5987 ~~alternate financial responsibility demonstration~~ W within sixty (60) days of notice of cancellation,
5988 the owner or operator shall provide to the Director an alternate financial responsibility
5989 demonstration that meets the requirements of paragraphs (c), (d), (e), (f), and (g) of this Section;
5990 and

5991

5992 ~~(formerly Section 19(i)(i))(D)~~ If an alternate financial responsibility
5993 demonstration is not acceptable (or possible), any funds from the instrument being cancelled
5994 ~~must~~ shall be released within sixty (60) days of notification by the ~~Administrator~~ Director.

5995

5996 ~~(formerly Section 19(i)(ii))(ii)~~ ~~Renewal~~— Owners or operators ~~must~~ shall
5997 renew all financial instruments, if an instrument expires, for the entire term of the geologic
5998 sequestration project. The instrument may be automatically renewed as long as, at a minimum,
5999 the owner or operator has the option of renewal at the face amount of the expiring instrument.

6000

6001 ~~(formerly Section 19(i)(iii))(iii)~~ ~~Continuation~~— Cancellation, termination, or
6002 failure to renew may not occur and the financial instrument shall remain in full force and effect
6003 in the event that on or before the date of expiration:

6004

6005 ~~(formerly Section 19(i)(iii)(A))(A)~~ (A) The Administrator deems the facility
6006 abandoned.

6007

6008 ~~(formerly Section 19(i)(iii)(B))(B)~~ (B) The permit is terminated, revoked, or
6009 a new permit is denied.

6010

6011 ~~(formerly Section 19(i)(iii)(C))(C)~~ (C) Closure is ordered by the
6012 ~~Administrator~~ Director, a U.S. district court, or other court of competent jurisdiction.

6013

6014 ~~(formerly Section 19(i)(iii)(D))(D)~~ (D) The owner or operator is named as
6015 debtor in a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code.

6016

6017 ~~(formerly Section 19(i)(iii)(E))(E)~~ (E) The amount due is paid.

6018

6019 ~~(formerly Section 19(j))(f)~~ The qualifying financial responsibility instrument(s) ~~must~~
6020 ~~be approved~~ are subject to approval by the ~~Administrator~~ Director. The ~~Administrator shall also~~
6021 ~~approve the~~ use and length of pay-in-periods for trust funds and escrow accounts are also subject
6022 to approval by the Director.

6023
6024 ~~(formerly Section 19(j)(i))~~(i) No Class VI permit shall be issued until and unless
6025 ~~T~~the ~~Administrator~~ Director shall ~~has~~ considered and ~~approved~~ approved the financial responsibility
6026 demonstration for all ~~the~~ phases of the geologic sequestration project ~~prior to issuing a Class VI~~
6027 ~~permit.~~

6028
6029 ~~(formerly Section 19(j)(ii))~~(ii) ~~The Administrator may find that the~~
6030 ~~financial responsibility demonstration is unsatisfactory for any reason, as long as that reason is~~
6031 ~~not arbitrary or capricious.~~ The ~~Administrator~~ Director may ~~exercise discretion in~~ negotiate a
6032 satisfactory financial responsibility demonstration or ~~to~~ deny a demonstration.

6033
6034 ~~(formerly Section 19(j)(iii))~~(iii) The owner or operator ~~must~~ shall provide
6035 any updated information related to ~~their~~ financial responsibility instrument(s) on an annual basis,
6036 and if there are any changes, the ~~Administrator~~ Director ~~must~~ shall evaluate the financial
6037 responsibility demonstration ~~to confirm that~~ and determine whether the instrument(s) used
6038 ~~remain~~ are adequate ~~for use~~. The owner or operator ~~must~~ shall maintain financial responsibility
6039 requirements regardless of the status of the ~~Administrator's~~ Director's review of the financial
6040 responsibility demonstration.

6041
6042 ~~(formerly Section 19(j)(iv))~~(iv) The owner or operator ~~must~~ shall provide an
6043 adjustment of the financial assurance cost estimate to the Administrator within sixty (60) days of
6044 ~~notification by the Administrator receiving notice, if that~~ the Administrator ~~has~~ determines
6045 ~~during the annual evaluation of the qualifying financial responsibility instrument(s) that the most~~
6046 ~~recent a~~ demonstration of financial assurance is ~~not~~ longer adequate to cover the cost of
6047 corrective action ~~(as required by Section 8 of this chapter)~~, injection well-plugging ~~(as required~~
6048 ~~by Section 16 of this chapter)~~, post-injection site care and site closure ~~(as required by Section 17~~
6049 ~~of this chapter)~~, and emergency and remedial response ~~(as required by Section 18 of this~~
6050 ~~chapter).~~

6051
6052 ~~(formerly Section 19(j)(v))~~(v) During ~~the active life~~ all phases of the geologic
6053 sequestration project, the owner or operator ~~must~~ shall adjust the financial assurance cost
6054 estimate for inflation within sixty (60) days prior to the anniversary date of the establishment of
6055 the financial instrument(s) used to comply with ~~paragraph (g) of this s~~Section and provide this
6056 adjustment to the Administrator. The owner or operator ~~must~~ shall also provide to the
6057 Administrator written updates of adjustments to the cost estimate within sixty (60) days of any
6058 amendments to the area of review and corrective action plan ~~(Section 8 of this chapter)~~, the
6059 injection well-plugging plan ~~(Section 16 of this chapter)~~, the post-injection site care and site
6060 closure plan ~~(Section 17 of this chapter)~~, the emergency and remedial response plan ~~(Section 18~~
6061 ~~of this chapter)~~, and mitigation or reclamation costs that the State may incur as a result of any
6062 default by the permit holder.

6063
6064 ~~(formerly Section 19(j)(vi))~~(vi) ~~The Administrator must approve~~
6065 ~~a~~Any decrease or increase to the ~~initial~~ financial assurance cost estimate ~~shall be subject to~~
6066 approval by the Administrator. During ~~the active life~~ all phases of the geologic sequestration
6067 project, the owner or operator ~~must~~ shall revise the cost estimate no later than sixty (60) days
6068 after the Administrator has approved ~~the~~ a request to modify the area of review and corrective

6069 action plan ~~(Section 8 of this chapter)~~, the injection well-plugging plan ~~(Section 16 of this~~
6070 ~~chapter)~~, the post-injection site care and site closure plan ~~(Section 17 of this chapter)~~, and or the
6071 emergency and response plan ~~(Section 18 of this chapter)~~, if the change in the plan increases the
6072 cost. If the change to the plans decreases the cost, any withdrawal of funds ~~must be~~ is subject to
6073 approval by the Administrator. Any decrease to the value of the financial assurance instrument
6074 ~~must first be~~ is subject to approval by the Administrator. ~~The revised cost estimate must be~~
6075 ~~adjusted for inflation as specified in paragraph (j)(v) of this section.~~

6076
6077 ~~(formerly Section 19(j)(vii))(vii)~~ Whenever the current financial assurance
6078 cost estimate increases to an amount greater than the face amount of a financial instrument
6079 currently in use, the owner or operator, within sixty (60) days after the increase, ~~must~~ shall either
6080 cause the face amount to be increased to an amount at least equal to the current financial
6081 assurance cost estimate and submit evidence of such increase to the Administrator, or the owner
6082 or operator shall obtain other financial responsibility instruments to cover the increase.
6083 Whenever the current financial assurance cost estimate decreases, the face amount of the
6084 financial assurance instrument may be reduced to the amount of the current financial assurance
6085 cost estimate only after the owner or operator has received written approval from the
6086 Administrator.

6087
6088 ~~(formerly Section 19(k))(g)~~ The owner or operator may demonstrate financial
6089 responsibility by using one (1) or multiple qualifying financial instruments ~~for specific phases of~~
6090 ~~the geologic sequestration project.~~ subject to the following requirements:

6091
6092 (i) Owners or operators that propose to demonstrate financial assurance with
6093 surety bonds shall meet the following requirements:

6094
6095 (A) A corporate surety shall not be considered good and sufficient
6096 unless:

6097
6098 (I) It is licensed to do business in the State;

6099
6100 (II) The estimated bond amount does not exceed the limit of
6101 risk as provided for in W.S. § 26-5-110, nor raise the total of all bonds held by the applicant
6102 under that surety above three (3) times the limit of risk; and

6103
6104 (III) The surety agrees:

6105
6106 (1.) Not to cancel bond unless the Department gives
6107 prior written approval of a good and sufficient replacement surety with transfer of the liability
6108 that has accrued against the operator on the permit area, site, or facility;

6109
6110 (2.) To be jointly and severally liable with the permittee,
6111 owner, or operator.

6112
6113 (3.) To provide immediate written notice to the
6114 Department and operator once it becomes unable or may become unable due to any action filed

6115 against it to fulfill its obligations under the bond.

6116

6117 (B) If for any reason the surety becomes unable to fulfill its obligations
6118 under the bond, the operator shall provide the required notice. Failure to comply with this
6119 provision shall result in suspension of the permit.

6120

6121 (C) The surety bond shall be submitted on a Wyoming Department of
6122 Environmental Quality form.

6123

6124 (ii) Owners or operators that propose to demonstrate financial assurance with
6125 cash, or government securities, or a combination of both, shall meet the following requirements:

6126

6127 (A) Securities that are unencumbered shall only include those that are
6128 United States government securities or state government securities that are acceptable to the
6129 Director. Government securities shall be endorsed to the order of the Department and placed in
6130 possession of the Department. Possession shall be in the form of the cash value of the irrevocable
6131 trust for the full amount of the reclamation obligation and payable to the Department and
6132 federally insured.

6133

6134 (B) An owner or operator shall satisfy the requirements of this
6135 subsection by establishing an irrevocable trust that conforms to the requirements below and
6136 submitting an originally signed duplicate of the trust agreement to the Director for consideration.

6137

6138 (I) The irrevocable trust shall be submitted to the Director on
6139 the Wyoming Department of Environmental Quality Irrevocable Trust Form and be signed by
6140 the owner, operator, or guarantor as principal and the financial institution as Trustee, and made
6141 payable to the Department;

6142

6143 (II) The Trustee shall be a bank organized to do business in the
6144 United States that has the authority to act as a trustee and whose trust operations is regulated and
6145 examined by a federal agency;

6146

6147 (III) The irrevocable trust shall be cash funded for the full
6148 amount of the financial assurance obligation to be provided in the irrevocable trust before it may
6149 be approved to satisfy the requirements of financial assurance in lieu of a bond. For purposes of
6150 this subsection, "the full amount of the financial assurance obligation to be provided" means the
6151 amount of coverage required to be provided by paragraphs (b) and (i) of this Section, less the
6152 amount of financial assurance obligation that is being provided by other financial assurance
6153 mechanisms being used to demonstrate financial assurance by the owner, operator, or guarantor;

6154

6155 (IV) Any bond may be canceled by the surety only after ninety
6156 (90) days written notice to the Director, and upon receipt of the Director's written consent, which
6157 may be granted only when the requirements of the irrevocable trust have been fulfilled; and

6158

6159 (V) Irrevocable trust forfeiture proceedings shall occur only
6160 after the Department provides notice to the owner or operator and trustee pursuant to W.S. 35-

6161 11-701 that a violation exists and the Environmental Quality Council has approved the request of
6162 the Director to begin forfeiture proceedings.

6163
6164 (iii) Owners or operators that propose to demonstrate financial assurance with
6165 irrevocable letters of credit shall meet the following conditions:

6166
6167 (A) The irrevocable letter of credit shall be payable to the Department
6168 in part or in full upon demand and receipt from the Director of a notice of forfeiture issued in
6169 accordance with paragraph (t) of this Section;

6170
6171 (B) The irrevocable letter of credit shall not be in excess of ten percent
6172 of the issuing or supporting bank's capital surplus account as shown on a balance sheet liabilities
6173 certified by a certified public accountant;

6174
6175 (C) The Director shall not accept standby letters of credit;

6176
6177 (D) The Director shall not accept letters of credit from a bank for any
6178 person, on all permits held by that person, in excess of the limitations imposed by W.S. §13-3-
6179 402; and

6180
6181 (E) The irrevocable letter of credit shall provide that:

6182
6183 (I) The bank will give prompt notice to the owner or operator
6184 and the Director of any notice received or action filed alleging the insolvency or bankruptcy of
6185 the bank or alleging any violations of regulatory requirements that could result in suspension or
6186 revocation of the bank's charter or license to do business;

6187
6188 (II) In the event the bank becomes unable to fulfill its
6189 obligations under the letter of credit for any reason, notice shall be given immediately to the
6190 owner or operator and the Director; and

6191
6192 (III) Upon the incapacity of a bank by reason of bankruptcy,
6193 insolvency, or suspension or revocation of its charter or license, the owner or operator shall be
6194 deemed to be without performance bond coverage in violation of the Act. The Director shall
6195 issue a notice of violation against any owner or operator who is without bond coverage,
6196 specifying a reasonable period to replace bond coverage, not to exceed ninety (90) days. During
6197 this period the Director or the Director's designated representative shall conduct weekly
6198 inspections to ensure continuing compliance with other permit requirements, the regulations and
6199 the Act. If the notice is not abated in accordance with the schedule, a cessation order shall be
6200 issued.

6201
6202 (IV) The irrevocable letter of credit may be cancelled by the
6203 surety only after ninety (90) days notice to the Director, and upon receipt of the Director's
6204 written consent, which may be granted only when the requirements of the bond have been
6205 fulfilled.

6206

6207 (F) The irrevocable letter may only be issued by a bank organized to
6208 do business in the U.S. that identifies by name, address, and telephone number an agent upon
6209 whom any process, notice or demand required or permitted by law to be served upon the bank
6210 may be served.

6211
6212 (I) If the bank fails to appoint or maintain an agent in this
6213 State, or whenever any such agent cannot be reasonably found, then the Director shall be an
6214 agent for such bank upon whom any process, notice or demand may be served for the purpose of
6215 this Chapter. In the event of any such process, the Director shall immediately cause one copy of
6216 such process, notice or demand to be forwarded by registered mail to the bank at its principal
6217 place of business. The Director shall keep a record of all processes, notices, or demands served
6218 upon him under this paragraph, and shall record therein the time of such service and his action
6219 with reference thereto.

6220
6221 (II) Nothing herein contained shall limit or affect the right to
6222 serve any process, notice or demand required or permitted by law to be served upon the bank in
6223 any other manner now or hereafter permitted by law.

6224
6225 ~~(formerly Section 19(f))(h)~~ (h) The owner or operator ~~must~~ shall maintain financial
6226 responsibility and resources until: ~~the administrator receives and approves the completed post-~~
6227 ~~injection site care and site closure plan and the administrator approves site closure.~~

6228
6229 (i) The Administrator receives the site closure report and certifies site
6230 closure.

6231
6232 (A) When the conditions of W.S. § 35-11-313(f)(vi)(F) have been met,
6233 the owner or operator may submit a written request to the Administrator to release the retained
6234 financial assurance instruments; and

6235
6236 (B) The Administrator shall evaluate the request within sixty (60) days
6237 of the receipt of the financial assurance release request.

6238
6239 (I) If the Administrator finds the owner or operator has
6240 demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met, the Administrator
6241 shall prepare a draft recommendation to the Director to approve the request and provide public
6242 notice pursuant to Section 27 of this Chapter.

6243
6244 (II) Re-submittal of information by an operator for an
6245 incomplete demonstration of the requirements of W.S. § 35-11-313(f)(vi)(F) will restart the
6246 process described in this subsection.

6247
6248 (III) If the Administrator finds the owner or operator has not
6249 demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met, the Administrator
6250 shall prepare a draft recommendation to the Director to deny the request.

6251
6252 (C) After receiving public comment and holding a hearing (if a hearing

6253 is held) pursuant to Section 27 of this Chapter, the Director shall determine whether the operator
6254 has demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met.

6255
6256 (I) If the Director finds the owner or operator has
6257 demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met, the Director shall
6258 notify the owner or operator and request the State Treasurer to release that portion of the final
6259 financial assurance instruments. The State Treasurer shall then return the financial assurance
6260 instruments constituting that portion of the financial assurance so retained.

6261
6262 (II) If the Director finds the owner or operator has not
6263 demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met, the Director shall
6264 notify the owner or operator by registered mail within a reasonable time after the request is filed.
6265 The notice shall state the reasons for denial and shall recommend corrective actions.

6266
6267 (ii) The well has been converted in compliance with the requirements of
6268 Section 9(b)(xxii) of this Chapter;

6269
6270 (iii) The transferor of a permit has received notice from the Director that the
6271 owner or operator receiving transfer of the permit, the new permittee, has demonstrated financial
6272 responsibility for the well; or

6273
6274 formerly Section 19(n)(iv) The owner or operator ~~may be~~ meets the requirements for
6275 released release from a financial instrument in the following circumstances:

6276
6277 formerly Section 19(n)(i)(A) The owner or operator has completed the
6278 phase of the geologic sequestration project for which the financial instrument was required and
6279 has fulfilled all its financial obligations as determined by the ~~Administrator~~ Director, including
6280 obtaining financial responsibility for the next phase of the geologic sequestration project, if
6281 required-;

6282
6283 formerly Section 19(n)(ii)(B) The owner or operator has submitted a
6284 replacement financial instrument and received written approval from the ~~Administrator~~ Director
6285 accepting the new financial instrument and releasing the owner or operator from the previous
6286 financial instrument-; or

6287
6288 formerly Section 19(n)(iii)(C) The owner or operator has submitted a
6289 revised financial assurance cost estimate for the remaining phases of the geologic sequestration
6290 project. The revised financial assurance cost estimate may demonstrate that a partial release of
6291 the financial instrument is warranted and ~~can~~ will still provide adequate financial assurance for
6292 the remainder of the geologic sequestration project. Partial release of the financial instrument is
6293 at the discretion of the ~~Administrator~~ Director.

6294
6295 formerly Section 19(e)(i) Within a reasonable time following certification of site
6296 closure by the Administrator, plume stabilization, the completion of all remediation work, and
6297 release of all other financial assurance instruments, the owner or operator shall submit a
6298 proposed cost estimate for measurement, monitoring, and verification of plume stabilization.

6299 ~~Following the release of all financial assurance and receipt of a site closure certificate, t~~The
6300 Administrator ~~must~~ shall ~~approve~~ evaluate and determine whether the proposed cost estimate
6301 ~~prepared for the post-closure measurement, monitoring and verification of a geologic~~
6302 ~~sequestration site is adequate. The cost estimate shall only be provided after plume stabilization~~
6303 ~~and all remediation work has been completed.~~

6304
6305 ~~formerly Section 19(m)(j)~~ The owner or operator ~~must~~ shall notify the ~~Administrator~~
6306 Director by certified mail of adverse financial conditions, such as bankruptcy, that may affect ~~the~~
6307 its ability to ~~carry out~~ complete injection well-plugging and post-injection site care and site
6308 closure.

6309
6310 ~~formerly Section 19(m)(i)(i)~~ (i) In the event that the owner or operator or the third
6311 party provider of a financial responsibility instrument is going through a bankruptcy, tThe owner
6312 or operator ~~must~~ shall notify the ~~Administrator~~ Director by certified mail of the commencement
6313 of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the
6314 owner or operator or the third-party provider of a financial responsibility instrument as debtor,
6315 within ten (10) days after commencement of the proceeding.

6316
6317 ~~formerly Section 19(m)(iii)(ii)~~ An owner or operator who fulfills the
6318 requirements of ~~paragraph (g) of this s~~Section by obtaining a an irrevocable trust fund, surety
6319 bond, or irrevocable letter of credit, ~~escrow account, or insurance policy will~~ shall be deemed to
6320 be without the required financial assurance in the event of: ~~bankruptcy of the trustee or issuing~~
6321 ~~institution, or a suspension or revocation of the authority of the trustee institution to act as trustee~~
6322 ~~of the institution issuing the trust fund, surety bond, letter of credit, escrow account, or insurance~~
6323 ~~policy. The owner or operator must establish other financial assurance within sixty (60) days~~
6324 ~~after such an event.~~

6325
6326 ~~formerly Section 19(m)(iii)(A)~~ bBankruptcy of the trustee or issuing
6327 institution;

6328
6329 ~~formerly Section 19(m)(iii)(B)~~ or a A suspension or revocation of
6330 the authority of the trustee institution to act as trustee of the institution issuing the irrevocable
6331 trust fund, surety bond, or irrevocable letter of credit; ~~escrow account, or insurance policy, or~~

6332
6333 ~~formerly Section 19(m)(iii)(C)~~ If the license to do business in
6334 Wyoming of the surety issuing financial assurance is suspended or revoked.

6335
6336 ~~formerly Section 19(m)(iii)(iii)~~ Within sixty (60) days after such an event
6337 ~~T~~the owner or operator ~~must~~ shall establish other financial assurance ~~within sixty (60) days after~~
6338 ~~such an event~~ that meets the requirements of paragraphs (c), (d), (e), (f), and (g) of this Section.

6339
6340 (k) The Department shall conduct bond forfeiture proceedings pursuant to W.S. § 35-
6341 11-421. If the forfeited financial assurance instrument is inadequate to cover the costs of the
6342 closure, mitigation, reclamation, measurement, monitoring, verification, and pollution control,
6343 the Department may request that the Attorney General bring suit to recover costs against the
6344 owner, operator, or permittee.

6345
6346 ~~(formerly Section 5(g))(l)~~ An applicant applying for a Class VI well permit must The
6347 owner or operator shall obtain and maintain public liability insurance ~~to cover the~~ for a geologic
6348 sequestration ~~activities for which a permit is sought~~ project.

6349
6350 ~~(formerly Section 5(g)(i))(i)~~ The public liability insurance policy shall ~~be in~~
6351 ~~addition to the financial assurance required in Section 19 of this chapter.;~~

6352
6353 ~~(formerly Section 5(g)(ii))(A)~~ ~~The insurance policy shall provide for~~
6354 ~~personal injury and property damage protection and shall be in place until a completion and~~
6355 ~~release certificate has been obtained from the Administrator certifying that plume stabilization~~
6356 ~~has been achieved.~~ Include coverage for the major risks identified in Appendix A to this Chapter;

6357
6358 (B) Provide minimum coverage that:

6359
6360 (I) Accounts for site-specific risk factor and bond adjustment
6361 factor calculations, based on the previous year's information; and

6362
6363 ~~(formerly Section 5(g)(iii))(II)~~ ~~The minimum insurance~~
6364 ~~coverage for public liability insurance as required by W.S. § 35-11-313(f)(ii)(O) shall be five~~
6365 ~~hundred thousand dollars (\$500,000) for each occurrence of bodily injury or property damage,~~
6366 ~~and one million dollars (\$1,000,000) aggregate. Is at least \$15 million per occurrence with an~~
6367 ~~annual aggregate of at least \$45 million, exclusive of legal defense costs; and~~

6368
6369 ~~(formerly Section 5(g)(iv))(C)~~ ~~The public liability insurance shall~~
6370 ~~include a rider that requires that the insurer to~~ notify the Administrator whenever substantive
6371 changes are made to the policy, including any termination or failure to renew.

6372
6373 (ii) The owner or operator shall recalculate the minimum coverage amount of
6374 the public liability insurance policy annually and at the same time that the owner or operator
6375 updates the financial assurance cost estimate pursuant to paragraph (b) of this Section. The
6376 owner or operator shall submit a copy of the current public liability insurance policy annually
6377 and at the same time that the owner or operator submits an updated financial assurance cost
6378 estimate pursuant to subparagraph (b)(viii) of this Section.

6379
6380 ~~(formerly Section 5(g)(ii))(iii)~~ ~~The owner or operator shall maintain the~~
6381 ~~public liability insurance policy shall provide for personal injury and property damage protection~~
6382 ~~and shall be in place until a completion and release certificate has been obtained from until the~~
6383 ~~Administrator certifying certifies~~ that plume stabilization has been achieved.

6384
6385 **Section 27. Public Participation, Public Notice and Public Hearing Requirements.**

6386
6387 ~~(formerly Section 20(a))(a)~~ The Administrator shall give public notice if a draft permit
6388 has been prepared, after receiving a financial assurance release request pursuant to Section
6389 26(h)(i)(A) of this Chapter and finding the operator has met the requirements of W.S. 35-11-
6390 313(f)(vi)(F), or if a hearing has been scheduled.

6391
6392 ~~(formerly Section 20(b))(i)~~ Public notice of the preparation of a draft permit
6393 shall allow at least sixty (60) days for public comment.

6394
6395 ~~(formerly Section 20(b))(ii)~~ Public notice of a **public** hearing or
6396 recommendation to release financial assurance after certifying site closure shall be given at least
6397 thirty (30) days before the hearing.

6398
6399 ~~(formerly Section 20(b))(iii)~~ Public notice of ~~the~~ a hearing may be given at the
6400 same time as public notice of the draft permit or of a draft recommendation to release financial
6401 assurance after certifying site closure, and the two notices may be combined.

6402
6403 ~~(formerly Section 20(e))(b)~~ Public notice shall be given by:

6404
6405 ~~(formerly Section 20(e)(i))(i)~~ ~~Mailing~~ Providing a copy of the notice, a copy of
6406 the fact sheet, the permit application (if any), and the draft permit (if any) to the following
6407 persons:

6408
6409 ~~(formerly Section 20(e)(i)(A))(A)~~ The applicant, by certified or
6410 registered mail;

6411
6412 ~~(formerly Section 20(e)(i)(B))(B)~~ The U.S. Environmental Protection
6413 Agency, Region 8 Drinking Water Program, by mail;

6414
6415 ~~(formerly Section 20(e)(i)(C))(C)~~ The U.S. Environmental Protection
6416 Agency, Underground Injection Control Program, by mail;

6417
6418 ~~(formerly Section 20(e)(i)(D))(D)~~ Wyoming Game and Fish
6419 Department;

6420
6421 ~~(formerly Section 20(e)(i)(E))(E)~~ Wyoming State Engineer;

6422
6423 ~~(formerly Section 20(e)(i)(F))(F)~~ State Historical Preservation Officer;

6424
6425 ~~(formerly Section 20(e)(i)(G))(G)~~ Wyoming Oil and Gas Conservation
6426 Commission;

6427
6428 ~~(formerly Section 20(e)(i)(H))(H)~~ Wyoming Department of
6429 Environmental Quality, Land Quality Division;

6430
6431 ~~(formerly Section 20(e)(i)(I))(I)~~ Wyoming State Geological Survey;

6432
6433 ~~(formerly Section 20(e)(i)(J))(J)~~ Wyoming Water Development
6434 Office;

6435

6436 ~~(formerly Section 20(e)(i)(K))~~(K) Wyoming Department of
6437 Environmental Quality, Air Quality Division;
6438
6439 ~~(formerly Section 20(e)(i)(L))~~(L) Wyoming Department of
6440 Environmental Quality, Solid and Hazardous Waste Division; and
6441
6442 ~~(formerly Section 20(e)(i)(M))~~(M) U.S. Army Corps of Engineers;
6443
6444 (N) Federal agencies with jurisdiction over fish, shellfish, and wildlife
6445 resources and over coastal zone management plans;
6446
6447 (O) The Advisory Council on Historic Preservation;
6448
6449 (P) Any Tribes with Indian reservations and Indian lands identified
6450 pursuant to Sections 10(b)(v) and 10(b)(ix)(A)(VII) of this Chapter;
6451
6452 ~~(formerly Section 20(e)(i)(N))~~(Q) Persons on the mailing list developed
6453 by the Department, including those who request in writing to be on the list and ~~by soliciting~~
6454 participants in ~~public~~ hearings in that area ~~for their interest in being included~~ who request to be
6455 on “area” mailing lists; and
6456
6457 ~~(formerly Section 20(e)(i)(O))~~(R) Any unit of state or local government
6458 having jurisdiction over the area where the facility is proposed to be located.
6459
6460 ~~(formerly Section 20(e)(ii))~~(ii) ~~Publication of~~ Publishing the notice in a
6461 newspaper of general circulation in the location of the facility or operation; and
6462
6463 ~~(formerly Section 20(e)(iii))~~(iii) At the discretion of the Administrator, any
6464 other method reasonably expected to give actual notice of the proposed action ~~in question~~ to the
6465 persons potentially affected by it, including press releases or any other forum or medium to elicit
6466 public participation.
6467
6468 ~~(formerly Section 20(d))~~(c) All public notices issued under this chapter shall contain
6469 the following minimum information:
6470
6471 ~~(formerly Section 20(d)(i))~~(i) Name and address of the Department;
6472
6473 ~~(formerly Section 20(d)(ii))~~(ii) Name and address of the owner, operator,
6474 permittee, or permit applicant, and, if different, of the facility or activity regulated by the permit;
6475
6476 ~~(formerly Section 20(d)(iii))~~(iii) A brief description of the business
6477 conducted at the facility or activity described in the permit application, ~~or~~ described in the draft
6478 permit, or subject to regulation under this Chapter;
6479

6480 ~~(formerly Section 20(d)(iv))~~(iv) The type and quantity of wastes, fluids, or
6481 pollutants that are proposed to be or are being treated, stored, disposed of, injected, emitted, or
6482 discharged;

6483
6484 ~~(formerly Section 20(d)(v))~~(v) A brief summary of the basis for the draft
6485 permit conditions, including references to applicable statutory or regulatory provisions;
6486

6487 ~~(formerly Section 20(d)(vi))~~(vi) Reasons why any requested variances or
6488 alternatives to required standards do or do not appear justified;
6489

6490 ~~(formerly Section 20(d)(vii))~~(vii) Name, address and telephone number of a
6491 person from whom interested persons may obtain further information, including copies of the
6492 draft permit, ~~as the case may be~~, statement of basis, ~~or~~ fact sheet, and the application; and
6493

6494 ~~(formerly Section 20(d)(viii))~~(viii) A brief description of comment procedures,
6495 including;

6496
6497 ~~(formerly Section 20(d)(viii)(A))~~(A) Procedures to request a hearing;

6498
6499 ~~(formerly Section 20(d)(viii)(B))~~(B) The beginning and ending dates of
6500 the comment period;

6501
6502 ~~(formerly Section 20(d)(viii)(C))~~(C) The address where comments ~~will be~~
6503 ~~received~~ may be submitted; and

6504
6505 ~~(formerly Section 20(d)(viii)(D))~~(D) Other procedures that the public may
6506 use to participate in the final permit decision; ~~and~~

6507
6508 ~~(formerly Section 20(e))~~(d) In addition to the information required in paragraph ~~(d))~~(c)
6509 of this ~~s~~Section, any notice for ~~public~~ a hearing shall contain the following:

6510
6511 ~~(formerly Section 20(e)(i))~~(i) Reference to the date of previous public notices
6512 relating to the permit;

6513
6514 ~~(formerly Section 20(e)(ii))~~(ii) Date, time, and place of hearing; and

6515
6516 ~~(formerly Section 20(e)(iii))~~(iii) A brief description of the nature and purpose
6517 of the hearing, including applicable rules and procedures.

6518
6519 ~~(formerly Section 20(f))~~(e) The Department shall provide an opportunity for the
6520 applicant, permittee, owner, operator, or any interested person to submit written comments
6521 regarding any aspect of a permit or to request a ~~public~~ hearing.

6522
6523 ~~(formerly Section 20(g))~~(i) During the public comment period, any interested
6524 person may submit written comments on the draft permit and may request a ~~public~~ hearing.

6525 Requests for ~~public~~ hearings ~~must~~ shall be made in writing to the Administrator and shall state
6526 the reasons for the request.

6527
6528 ~~(formerly Section 20(h))(ii)~~ (ii) The Administrator shall hold a hearing whenever
6529 the Administrator finds, on the basis of requests, a significant degree of public interest in a draft
6530 permit.

6531
6532 ~~(formerly Section 20(h))(iii)~~ (iii) The Administrator ~~has the discretion to~~ may hold a
6533 hearing whenever ~~such~~ a hearing may clarify issues involved in a permit decision.

6534
6535 ~~(formerly Section 20(i))(iv)~~ (iv) The public comment period shall automatically
6536 extend to the close of any ~~public~~ hearing. The Administrator may also extend the comment
6537 period by so stating at the ~~public~~ hearing.

6538
6539 ~~(formerly Section 20(j))(f)~~ (f) The ~~Administrator~~ Director shall render a decision on the
6540 draft permit within sixty (60) days after ~~the~~ completion of the public comment period if no
6541 hearing is ~~requested~~ held. If a hearing is held, the ~~Administrator~~ Director shall make a decision
6542 on any Department hearing as soon as practicable after receipt of the transcript or after the
6543 expiration of the time set to receive written comments.

6544
6545 ~~(formerly Section 20(k))(g)~~ (g) At the time a final decision is issued, the ~~Department~~
6546 Administrator shall respond, in writing, to ~~those~~ comments received during the public comment
6547 period or ~~comments received~~ during the ~~allotted time for a~~ hearing held by the Department. This
6548 response shall:

6549
6550 ~~(formerly Section 20(k)(i))(i)~~ (i) Specify any changes that have been made to the
6551 permit and the reasons for the changes; and

6552
6553 ~~(formerly Section 20(k)(ii))(ii)~~ (ii) Briefly describe and respond to all
6554 comments ~~voicing~~ stating a technical or regulatory concern that is within the authority of the
6555 Department to regulate.

6556
6557 **Section 28. Incorporation by Reference.**

6558
6559 (a) These rules incorporate by reference the following statutes, rules, and regulations
6560 in effect as of July 1, 2020:

6561
6562 (i) 10 C.F.R. Part 20, Appendix B, Table II, Column 2, available at
6563 <http://www.ecfr.gov>;

6564
6565 (ii) 40 C.F.R. §§ 98.440 to 98.449, available at <http://www.ecfr.gov>;

6566
6567 (iii) 40 C.F.R. § 141, Subparts E, F, and G, available at: <http://www.ecfr.gov>;

6568
6569 (iv) 40 C.F.R. § 261.3-available at: <http://www.ecfr.gov>;

6570

6571 (v) American Petroleum Institute Recommended Practice, API RP 14C,
6572 Recommended Practice for Analysis, Design, Installation and Testing of Safety Systems for
6573 Offshore Production Facilities, Recommended Practice 14C, (2018), referred to as “API RP
6574 14C”, available at [https://www.apiwebstore.org/publications/item.cgi?af9eaacd-f8b0-4d7c-bfa7-](https://www.apiwebstore.org/publications/item.cgi?af9eaacd-f8b0-4d7c-bfa7-2c39a409f892)
6575 [2c39a409f892](https://www.apiwebstore.org/publications/item.cgi?af9eaacd-f8b0-4d7c-bfa7-2c39a409f892);

6576 (vi) American Petroleum Institute Specification, API Spec 10A, Specification
6577 for Cements and Materials for Well Cementing. 25th Edition, (2019), referred to as “API
6578 Specification 10A”, available at [https://www.apiwebstore.org/publications/item.cgi?82493435-](https://www.apiwebstore.org/publications/item.cgi?82493435-f281-45d8-af82-07ad8131cb56)
6579 [f281-45d8-af82-07ad8131cb56](https://www.apiwebstore.org/publications/item.cgi?82493435-f281-45d8-af82-07ad8131cb56);

6580 (vii) American Petroleum Institute Recommended Practice, API RP 10D-2,
6581 Centralizer Placement and Stop-collar Testing, (2020), referred to as “API RP 10D-2”, available
6582 at <https://www.apiwebstore.org/publications/item.cgi?7ad6705a-954e-476c-b520-47cbbdce9f06>;
6583

6584 (viii) American Petroleum Institute Recommended Practice, API RP 10B-2,
6585 Recommended Practice for Testing Well Cements, (2019), referred to as “API RP 10B-2”,
6586 available at [https://www.apiwebstore.org/publications/item.cgi?3c1808c7-6312-4b8d-b3de-](https://www.apiwebstore.org/publications/item.cgi?3c1808c7-6312-4b8d-b3de-291ef79704c5)
6587 [291ef79704c5](https://www.apiwebstore.org/publications/item.cgi?3c1808c7-6312-4b8d-b3de-291ef79704c5);

6588 (ix) American Petroleum Institute Recommended Practice, API RP 14B,
6589 Design, Installation, Repair, and Operation of Subsurface Safety Valve Systems, (2012), referred
6590 to as “API RP 14 B”, available at [https://www.apiwebstore.org/publications/item.cgi?a1711f10-](https://www.apiwebstore.org/publications/item.cgi?a1711f10-0121-4c12-936c-471c97a19f93)
6591 [0121-4c12-936c-471c97a19f93](https://www.apiwebstore.org/publications/item.cgi?a1711f10-0121-4c12-936c-471c97a19f93);

6592 (x) American Petroleum Institute Specification, API Spec 5CT, Specification
6593 for Casing and Tubing, (2019), referred to as “API Specification 5CT”, available at
6594 <https://www.apiwebstore.org/publications/item.cgi?5b345884-5a3a-4889-8066-60f93e467f29>;
6595

6596 (xi) American Petroleum Institute Recommended Practice, API RP 5C1,
6597 Recommended Practices for Care and Use of Casing and Tubing, (2020), referred to as “API RP
6598 5C1”, available at [https://www.apiwebstore.org/publications/item.cgi?010058af-29b1-412c-](https://www.apiwebstore.org/publications/item.cgi?010058af-29b1-412c-b892-ec3e5583c534)
6599 [b892-ec3e5583c534](https://www.apiwebstore.org/publications/item.cgi?010058af-29b1-412c-b892-ec3e5583c534); and

6600 (xii) American Petroleum Institute Specification, API Spec 11D1, Packers and
6601 Bridge Plugs, (2015), referred to as “API Specification 11D1”, available at
6602 <https://www.apiwebstore.org/publications/item.cgi?4828a454-0fea-451b-a61b-18304836ea91>.
6603

6604 (b) For these rules incorporated by reference:

6605 (i) The Environmental Quality Council has determined that incorporation of
6606 the full text in these rules would be cumbersome or inefficient given the length or nature of the
6607 rules;
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6609 (ii) This Chapter does not incorporate later amendments or editions of
6610 incorporated codes, standards, rules, and regulations; and
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(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 CO₂ 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 CO₂ 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 (CO₂ 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-CO₂) 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.