1	CHAPTER 24					
2						
3	Class VI Injection Wells and Facilities					
4 5	Underground Injection Control Program					
6	Section 1. Authority .					
7	Section 1. Authority.					
8	These regulations are promulgated pursuant to Wyoming Statutes (W.S.) §§ 35-11-101 through					
9	2005, specifically § 313.					
10						
11	<b>Section 2. Definitions.</b> The following definitions supplement the definitions					
12	contained in Section § 35-11-103 of the Wyoming Environmental Quality Act.					
13						
14	(a) "Abandoned well" means a well whose use has been permanently discontinued or					
15	that is in a state of disrepair such that it cannot be used for its intended purpose or for					
16	observation purposes. Temporary or intermittent cessation of injection operations is not					
17	abandonment.					
18						
19 20	(b) "Aquifer" means a zone, stratum, or group of strata that can store and transmit					
20 21	water in sufficient quantities for a specific use.					
21	(c) "Area of review" means the subsurface three-dimensional extent of the carbon					
22	dioxide plume, associated pressure front, and displaced fluids, as well as the overlying					
23 24	formations, and surface area above that delineated region.					
25	tormations, and surface area above that defineated region.					
26	(d) "Background" means the constituents or parameters and the concentrations or					
27	measurements that describe water quality and water quality variability prior to the underground					
28	injection.					
29						
30	(e) "Bore/casing annulus" means the space between the wellbore and the well casing.					
31						
32	(f) "Carbon dioxide plume" means the underground extent, in three dimensions, of					
33	an injected carbon dioxide stream.					
34						
35	(g) "Carbon dioxide stream" means carbon dioxide, plus associated substances					
36	derived from the source materials and any processing, and any substances added to the stream to					
37	enable or improve the injection process. Within this Chapter, the term "carbon dioxide stream"					
38	does not include any carbon dioxide stream that meets the definition of a hazardous waste under					
39	40 C.F.R. § 261.3.					
40						
41	(h) "Casing" means a pipe or tubing of appropriate material, of varying diameter and					
42	weight, lowered into a borehole during or after drilling to support the sides of the hole to prevent the wells from equips to prevent loss of drilling mud into percess ground, or to prevent water					
43 44	the walls from caving, to prevent loss of drilling mud into porous ground, or to prevent water, gas, or other fluid from entering or leaving the hole.					
44 45	gas, or other fluid from entering of leaving the hole.					
43 46	(i) "Casing/tubing annulus" means the space between the well casing and the tubing.					

47 48 49 50 51 52	(j) "Cementing" means sealing the annular space around the outside of a casing string using a specially formulated mixture to hold the casing in place and prevent any movement of fluid in this annular space. Cementing also includes operations to seal the well at the time of abandonment.
53 54 55 56	(k) "Class I well" means a well used to inject hazardous or non-hazardous industrial, commercial, or municipal waste beneath the lowermost formation containing, within one-quarter (1/4) mile of the well bore, an underground source of drinking water.
57 58 59 60	(1) "Class II well" means any commercial or non-commercial well used to dispose of water or fluids directly associated with the production of oil or gas, any well used to inject fluids or gas for enhanced oil recovery, or any well used for the storage of liquid hydrocarbons.
61 62 63 64	(m) "Class V facility" means any property that contains an injection well, drywell, or subsurface fluid distribution system that is not defined as a Class I, II, III, IV, or VI well in these Regulations. A Class V facility includes all systems of collection, treatment, and control that are associated with the underground injection.
65 66 67 68	(n) "Class VI well" means a well that is used for injecting a carbon dioxide stream for geologic sequestration that:
69 70 71 72	(i) Is not experimental in nature and injects a carbon dioxide stream for geologic sequestration, beneath the lowermost formation containing an underground source of drinking water;
73 74 75	(ii) Has been granted a waiver of the injection depth requirements pursuant to requirements of Section 15 of this Chapter; or
76 77 78 79	(iii) Has received an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to Section 16 of this Chapter.
80 81 82 83 84 85	(o) "Confining zone" means a geological formation, group of formations, or part of a formation stratigraphically overlying the injection zone(s) that act(s) as a barrier to fluid movement. For Class VI wells operating under an injection depth waiver, confining zone means a geologic formation, group of formations, or part of a formation stratigraphically overlying and underlying the injection zone(s) that acts as a barrier to fluid movement.
86 87 88	(p) "Contaminant" means any pollution; wastes; or physical, chemical, biological, or radiological substance or matter in water.
89 90 91 92	(q) "Corrective action" means the use of Administrator-approved methods to ensure that wells within the area of review do not serve as conduits for the movement of fluids into geologic formations other than those authorized under the permit.

93 "Duly authorized representative" means a specific individual or a position having (r) 94 responsibility for the overall operation of the regulated facility or activity. The authorization 95 shall be made in writing by a responsible corporate officer and shall be submitted to the 96 Administrator. 97 98 "Endanger" means to expose to actions or activities that could pollute an (s) 99 underground source of drinking water. 100 101 "Exempted aquifer" means an aquifer or a portion thereof that meets the criteria (t) 102 in the definition of underground source of drinking water but that has been exempted according 103 to the procedures in Section 16 of this Chapter. 104 105 "Fact sheet" means a document briefly setting forth the principal facts and the (u) 106 significant factual, legal, methodological, and policy questions considered in preparing the draft 107 permit. 108 109 "Geologic sequestration project" means an injection well or wells used to emplace (v) 110 a carbon dioxide stream into an injection zone for geologic sequestration. It includes the subsurface 111 three-dimensional extent of the carbon dioxide plume, associated pressure front, and displaced 112 fluid, as well as the surface area above that delineated region. 113 114 (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. 115 116 117 "Groundwaters of the State" are all bodies of underground water that are wholly (x) 118 or partially within the boundaries of the State. 119 120 "Hazardous waste" means a hazardous waste as defined in 40 C.F.R. § 261.3. (y) 121 122 "Indian lands" and "Indian country" means: (z) 123 124 All land within the limits of any Indian reservation under the jurisdiction (i) 125 of the United States Government, notwithstanding the issuance of any patent, and, including 126 rights-of-way running through the reservation; 127 128 All dependent Indian communities within the borders of the United States (ii) 129 whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state; and 130 131 132 All Indian allotments, the Indian titles to which have not been (iii) 133 extinguished, including rights-of-way running through the same. 134 135 "Injectate" means the material injected through any underground injection (aa) 136 facility. 137

138 "Injection zone" means a geologic formation, group of formations, or part of a (bb)139 formation that is of sufficient areal extent, thickness, porosity, and permeability to receive carbon 140 dioxide through a well or wells associated with a geologic sequestration project. 141 142 "Log" means a written record progressively describing the strata and geologic and (cc)143 hydrologic character thereof to include electrical, radioactivity, radioactive tracer, temperature, 144 cement bond and similar surveys, a lithologic description of all cores, and test data. 145 146 (dd)"Long string casing" means a casing that is continuous from at least the top of the 147 injection interval to the surface and that is cemented in place. 148 149 "Packer" means a device lowered into a well to produce a fluid-tight seal. (ee) 150 151 "Plugging" means the act or process of stopping the flow of water, oil, or gas into (ff) 152 or out of a formation through a borehole or well penetrating that formation. 153 154 "Plugging record" means a systematic listing of permanent or temporary (gg)155 abandonment of water, oil, gas, test, exploration, and waste injection wells. A plugging record 156 may contain a well log, description of amounts and types of plugging material used, the method 157 employed for plugging, a description of formations that are sealed, and a graphic log of the well 158 showing formation location, formation thickness, and location of plugging structures. 159 160 "Plume stabilization" has been achieved when the carbon dioxide stream that has (hh) been injected subsurface essentially no longer expands vertically or horizontally and poses no 161 162 threat to underground sources of drinking water, human health, safety, or the environment, as 163 demonstrated by a minimum of three (3) consecutive years of monitoring data. 164 165 "Post-injection site care" means the monitoring, measurement, verification, and (ii) 166 other actions (including corrective action) needed to ensure that underground sources of drinking 167 water are not endangered following the cessation of injection, and plugging and abandonment of 168 injection wells until plume stabilization has been achieved and certified by the Administrator, as 169 required under Section 24 of this Chapter. 170 171 "Pressure front" means the zone of elevated pressure that is created by the (ii) 172 injection of the carbon dioxide stream into the subsurface. The pressure front of a carbon dioxide 173 plume refers to a zone where there is a pressure differential sufficient to cause movement of 174 injected fluids or formation fluid if a migration pathway or conduit existed. 175 176 (kk)"Radioactive waste" means any waste that contains radioactive material in 177 concentrations that exceed those listed in 10 C.F.R. Part 20, Appendix B, Table II, Column 2. 178 179 "Receiver" means any zone, interval, formation, or unit in the subsurface into (11)180 which a carbon dioxide stream is injected. 181

182 (mm) "Responsible corporate officer" means a president, secretary, treasurer, or vice 183 president of the corporation in charge of a principal business function, or any other person who 184 performs similar policy- or decision-making functions for the corporation. 185 186 (i) For a corporation, "responsible corporate officer" means: 187 188 A president, secretary, treasurer, or vice president of the (A) 189 corporation in charge of a principal business function, or any other person who performs similar 190 policy- or decision-making functions for the corporation; or 191 192 **(B)** The manager of one (1) or more manufacturing, production, or 193 operating facilities employing more than 250 persons or having gross annual sales or 194 expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign 195 documents has been assigned or delegated to the manager in accordance with corporate 196 procedures. 197 198 (ii) For a partnership, "responsible corporate officer" means a general partner. 199 200 For a sole proprietorship, "responsible corporate officer" means the (iii) 201 proprietor. 202 203 For a municipality, state, federal or other public agency, "responsible (iv) 204 corporate officer" means the principal executive officer or ranking elected official. For the 205 purposes of this definition, a principal executive officer of a federal agency includes: 206 207 (A) The chief executive officer of the agency; or 208 209 (B) A senior executive officer having responsibility for the overall 210 operations of a principal geographic unit of the agency, such as a Regional Administrator. 211 212 "Secondarily affected aquifer" means an aquifer affected by migration of fluids (nn) 213 from an injection facility that does not directly discharge into the secondarily affected aquifer. 214 215 "Site closure" occurs when a geologic sequestration project is released from post-(00)216 injection site care responsibilities and the Administrator certifies site closure pursuant to Section 217 24(b)(iii) of this Chapter. 218 219 "Surface casing" means the first string of well casing to be installed in the well. (pp)220 221 "Underground injection" means a well injection, a subsurface discharge, a (qq)222 discharge into a receiver, or the subsurface emplacement of fluids through a well. 223 224 "Underground source of drinking water" or "USDW" means an aquifer or (rr) 225 portions thereof that is not an exempted aquifer and: 226 227 (i) Supplies any public water system; or

228					
229		(ii)	Contains a sufficient quantity of groundwater to supply a public water		
230	system, and				
231					
232 233			(A) Currently supplies drinking water for human consumption; or		
234			(B) Contains fewer than 10,000 mg/L total dissolved solids.		
235					
236	(ss)		r quality management area" means the area delineated for the protection of		
237			Department-approved plan developed under Sections 303, 208, or 201 of		
238	the Clean Wa	ter Act,	33 U.S.C. § 1251 et seq. as amended.		
239					
240	(tt)	"Well"	'means :		
241					
242		(i)	An opening, excavation, shaft, or hole in the ground allowing or used for		
243	underground	injectior	n or monitoring;		
244					
245		(ii)	An improved sinkhole; or		
246					
247		(iii)	A subsurface fluid distribution system.		
248					
249	(uu)	"Well	plug" means a watertight and gastight seal installed in a borehole or well to		
250	prevent movement of fluids.				
251	-				
252	(vv)	"Well	stimulation" means any process used to clean the wellbore, enlarge		
253	channels, or increase pore space in the interval to be injected and includes surging, jetting,				
254	blasting, acidizing, and hydraulic fracturing.				
255	<u> </u>	0			
256	(ww)	"Work	over" means to pull the tubing, packer, or any downhole hardware from the		
257	well and inspect, replace, or refurbish it prior to placing that hardware back in service, or to enter				
258	the hole with	-			
259		5			
260	$(\mathbf{x}\mathbf{x})$	"Welll	nead protection area" means the area delineated for the protection of a		
261	, ,		tilizing a groundwater source under a Department-approved plan developed		
262	1		428 of the Safe Drinking Water Act, 42 U.S.C. § 300h-7, or Section 1453 of		
263	the Safe Drinking Water Act, 42 U.S.C. § 300j-13.				
264					
265	Sectio	n 3	Applicability.		
266	Sectio		rippicusiii,		
267	(a)	Constr	uction, installation, operation, monitoring, testing, plugging, post-injection		
268	site care, and modification of any Class VI well shall be allowed only in accordance with this				
269	Chapter.	1110 41110			
270	Chapter.				
270	(b)	This cl	hapter applies to all Class VI wells.		
271	(0)	1115 0			

273 274 275	wells.	(i) Th	s Chapter applies to owners, operators, and permittees of Class VI
275 276 277 278 279 280	experimental o well. A permit	or demonstr ted Class I	s Chapter applies to any Class I industrial, Class II, or Class V ation carbon dioxide injection project that is converted to a Class VI Class II, or Class V injection well may be converted to a Class VI well ermit pursuant to this Chapter.
280 281 282 283	to a Class VI w	(A) well, the ap	1 , , , 5
283 284 285			(I) Apply for a Class VI permit;
285 286 287 288	engineered and	l constructe	(II) Demonstrate to the Administrator that the well was d to meet the requirements of Section 14(a) of this Chapter; and
289 290 291	· · ·		(III) In lieu of meeting the requirements of Section 14(b) and ter, demonstrate to the Administrator that the well will ensure will not endanger any USDW.
292 293 294 295 296 297	technology we	lls no long	After December 10, 2011, owners or operators of Class I wells he purpose of geologic sequestration and Class V experimental er being used for experimental purposes that will continue injection of pose of geologic sequestration shall obtain a Class VI permit.
298 299 300	0		If the Administrator determines that a converted Class I, Class II, will not endanger any USDWs, the Administrator may exempt the well Section $14(b)(i) - (vii)$ and Section $17(a)(i)-(v)$ of this Chapter.
301 302 303 304 305 306	oil or other min subject to the p	nerals appr provisions of tion of oil a	on of carbon dioxide for purposes of a project for enhanced recovery of oved by the Wyoming Oil and Gas Conservation Commission is not of this Chapter unless the operator converts to geologic sequestration and gas recovery operations or as otherwise required by the
307 308 309	(d)	For owner	s or operators of Class II wells described in W.S. § 35-11-313(c):
310 311 312		• /	e Director's determination of primary purpose and increased risk to a minimum, an evaluation of the following criteria:
312 313 314		(A)	Increase in reservoir pressure within the injection zone(s).
315 316		(B)	Increase in carbon dioxide injection rates.
317 318		(C)	Decrease in reservoir production rates.

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319			(D)	Distance between the injection zone(s) and USDWs.		
320						
321			(E)	Suitability of the Class II area of review delineation.		
322						
323			(F)	Quality of abandoned well plugs within the area of review.		
324			$\langle \mathbf{C} \rangle$			
325	1	<b>c</b> • •	(G)	The owner's and/or operator's plan for recovery of carbon dioxide		
326	at the cessati	on of inj	jection.			
327 328			( <b>U</b> )	The course and properties of the injected carbon dioxide		
328 329			(H)	The source and properties of the injected carbon dioxide.		
329 330			$(\mathbf{I})$	Any additional site specific factors as determined by the		
330 331	Administrato	r	(I)	Any additional site-specific factors as determined by the		
332	Aummstrato	1.				
333		(ii)	An ou	vner or operator may apply for a Class VI permit upon		
334	recommenda	~ /		and Gas Conservation Commission supervisor, or by the		
335		•		of a Class II enhanced recovery operation be transferred to the		
336	Department.	, that reg	Suration	of a class if childheed recovery operation be transferred to the		
337	Department.					
338		(iii)	An ov	vner or operator of a Class II enhanced recovery operation shall		
339	apply for a C	~ /		within thirty (30) days of receipt of written notice from the Director		
340	that a Class V	-	-			
341		- p • • • •				
342	(e)	The re	eauirem	ments to maintain and implement approved plans, and maintain		
343			-	ility, are directly enforceable regardless of whether the requirements		
344	are condition					
345			1			
346	Section	o <b>n 4.</b>	Proce	ssing Permits.		
347				0		
348	(a)	The fo	ollowing	g permit processing procedures are applicable to all Class VI		
349	permits:					
350	-					
351		(i)	The a	pplicant shall submit the permit application to the Division in a		
352	format requir	ed by th	ne Admi	nistrator.		
353						
354		(ii)	Withi	n sixty (60) days of submission of an application, the Administrator		
355	shall make an	n initial	determi	nation of completeness. An application shall be determined		
356	complete when the Administrator receives an application and any supplemental information					
357	necessary to	determi	ne comp	bliance with this Chapter. The completeness of any application for a		
358	permit shall l	be judge	d indep	endently of the status of any other permit application or permit for		
359	the same faci	lity or a	ctivity.			
360						
361		(iii)	Re-su	bmittal of information by an applicant for an incomplete application		
362	will restart th	e proces	ss descr	ibed in this Section.		
363						

364 At the end of any 60-day review period where an application is determined (iv) 365 complete, the Administrator shall : 366 367 (A) Prepare a draft permit for issuance or denial; 368 369 (B) Prepare a fact sheet on the proposed operation; 370 371 (C) Provide public notice pursuant to Section 27 of this Chapter; and 372 373 (D) Notify in writing, the contacts, for any states or Tribes provided 374 pursuant to Section 10(b)(xxxvi) of this Chapter. 375 376 (b) If the Director intends to modify, terminate, revoke, or reissue a permit, the 377 Administrator shall prepare a draft permit incorporating the proposed changes and provide public 378 notice pursuant to Section 27 of this Chapter. 379 380 381 Prior to issuing a permit for a Class VI well, the Director shall consider : (c) 382 383 (i) The final area of review based on modeling, using data obtained during 384 logging and testing of the well and the formation as required by subparagraphs (b)(xviii), 385 (b)(xix), (b)(xxvii), and (b)(xxviii) of Section 10 of this Chapter; 386 387 Any relevant updates, based on data obtained during logging and testing (ii) 388 of the well and the formation as required by subparagraphs (b)(xviii), (b)(xix), (b)(xxvii), and 389 (b)(xxviii) of Section 10 of this Chapter, to the information on the geologic structure and 390 hydrogeologic properties of the proposed storage site and overlying formations, submitted to 391 satisfy the requirements of subparagraph (b)(xi) of Section 10 of this Chapter; 392 393 The results of the formation testing program required by subparagraph (iii) 394 (b)(xix) of Section 10 of this Chapter; 395 396 (iv) Final injection well construction procedures that meet the requirements of 397 Section 14 of this Chapter; 398 399 (v) Any updates to the proposed area of review and corrective action plan. 400 testing and monitoring plan, injection well-plugging plan, post-injection site care and site closure 401 plan, or the emergency and remedial response plan submitted under Section 10(b) of this chapter 402 that are necessary to address new information collected during logging and testing of the well 403 and the formation as required by Section 10 of this Chapter. 404 405 (d) Permits may be modified, revoked and reissued, or terminated either in response 406 to a petition from any interested person (including the permittee) or upon the Administrator's 407 initiative. 408 409 (i) All petitions to modify, revoke and reissue, or terminate a permit shall be

410 411	in writing and sl	hall co	ntain facts or reasons supporting the request.		
411 412 413 414 415 416 417	(ii) If the Administrator decides a petition to modify, revoke and reissue, or terminate a permit is not justified, the Administrator shall send the petitioner a brief written response giving the reason for the decision. A petition for modification, revocation and reissuance, or termination shall be considered denied if the Administrator takes no action within sixty (60) days after receiving the written request.				
418 419 420	`		ii) Denials of petitions for modification, revocation and reissuance, or not subject to public notice and comment.		
421 422 423			ministrator shall review each permit at least once every five (5) years to hould be modified, revoked and reissued, or terminated.		
424	Section	5.	Denying Permits.		
425 426 427	(a) T	The Di	rector may deny a permit for any of the following reasons:		
427 428 429	(1	i)	The application is incomplete;		
430 431	(i or groundwater	,	The project, if constructed or operated, will violate applicable state surface rds;		
432 433 434	`	(iii) The application proposes the construction or operation of a project that oes not meet the requirements of this Chapter;			
435 436 437 438	(iv) The permitted facility would be in conflict with or is in conflict with a State-approved local wellhead protection plan, State-approved local source water protection plan or State-approved water quality management plan; or				
439 440 441	(v) Other justifiable reasons necessary to carry out the provisions of the Wyoming Environmental Quality Act.				
442 443	Section	6.	Modifying Permits.		
444 445 446	(;	a)	The Director may modify a permit when:		
447 448 449	(i) Any material or substantial alterations or additions to the facility occur after permitting that justify the application of different permit conditions;				
450 451 452	(ii) Any modification in the operation of the facility is capable of causing or increasing pollution in excess of applicable standards or permit conditions;				
452 453 454 455	(iii) Information warranting modification is discovered after the operation has begun that would have justified the application of different permit conditions at the time of permit issuance;				

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456					
457		(iv)	Regulations or standards upon which the permit was based		
458	changed after the per	. ,	<b>o</b> 1 1		
459	changed after the per	mit was	, 135ucu,		
460		(v)	(v) Cause exists for termination, as described in this Section, but the		
461	Department determines that modification is appropriate;				
462	Department determin	Department determines that modification is appropriate,			
463		(vi)	Modification is necessary to comply with applicable statutes,		
464	standards, or regulati		Moundation is necessary to comply with applicable statutes,		
465	standards, or regulati	0115,			
466	(vii)	The n	ermit is transferred; or		
467	(*11)	ine p	erint is transferred, or		
468	(viii)	The A	dministrator determines that permit changes are necessary based on:		
469	(VIII)		commissibility determines that permit changes are necessary based on.		
470		(A)	Area of review reevaluations under Section 13(c)(i) of this		
471	Chapter;	(11)	Area of review reevaluations under Section 15(e)(f) of this		
472	Chapter,				
473		(B)	Amendments to the testing and monitoring plan under Section		
474	20(b)(xi) of this Cha	. ,	Amendments to the testing and monitoring plan ander section		
475	20(0)(XI) of this Chu	pter,			
476		(C)	Amendments to the injection well-plugging plan under Section		
477	23(c) of this Chapter;				
478	25(c) of this chapter	,			
479		(D)	Amendments to the post-injection site care and site closure plan		
480	under Section 24(a)(i		1 0 1		
481					
482		(E)	Amendments to the emergency and remedial response plan under		
483	Section 25(a) of this Chapter;				
484		r			
485		(F)	A review of monitoring or testing results; or		
486					
487		(G)	A determination that the injectate is a hazardous waste as defined		
488	in 40 CFR § 261.3.	~ /			
489					
490	(b) The A	dminis	trator may make minor modifications to permits with the consent of		
491	the permittee. The Administrator shall notify the permittee of minor modifications to its permit,				
492	and the modifications shall become final twenty (20) days from the date of receipt of such notice.				
493	Minor modifications may only:				
494		-	-		
495	(i)	Corre	ct typographical errors;		
496	• •				
497	(ii)	Require more frequent monitoring or reporting by the permittee;			
498					
499	(iii) Change an interim compliance date in a schedule of compliance, provided				
500	the new date is not more than 120 days after the date specified in the existing permit and does				
501	not interfere with attainment of the final compliance date requirement;				

502 503 504 505 506 507 508	(iv) Allow for a permit transfer and change in ownership or operational control of a facility where the Administrator determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Administrator;
509 510 511 512 513	(v) Change quantities or types of fluids injected that are within the capacity of the facility as permitted and, in the judgment of the Administrator, would not interfere with the operation of the facility or its ability to meet conditions described in the permit and would not change its classification;
513 514 515 516 517	(vi) Change construction requirements approved by the Administrator pursuant to Section 9(b)(xxix)(A)-(C) of this Chapter, provided that the alteration complies with the requirements of this Chapter;
518 519 520	(vii) Amend a well-plugging plan that has been updated under Section 23 of this Chapter; or
521 522 523 524	(ix) Amend a Class VI injection well testing and monitoring plan, well- plugging plan, post-injection site care and site closure plan, or emergency and remedial response plan where the modifications merely clarify or correct the plan.
524 525 526 527	(c) The Director may modify a permit to resolve issues that could lead to the revocation or termination of the permit under Section 7(a) of this Chapter.
527 528 529 530 531 532 533 534 535	(d) When the Director modifies a permit, only the conditions that are being modified shall be reopened when a new draft permit is prepared. All other aspects of the existing, unmodified permit shall remain in effect for the duration of the modified permit and the modified permit shall expire on the date when the original permit would have expired. Suitability of the facility location shall not be considered unless new information or standards indicate that a threat to human health, safety, or the environment exists that was unknown at the time of permit issuance.
536 537 538	(e) The Administrator may require the submission of a new application to modify a permit.
539 540	Section 7. Terminating, Revoking, and Reissuing Permits.
541 542	(a) The Director may terminate a permit or revoke and reissue a permit for any of the following reasons:
543 544 545	(i) Noncompliance with terms and conditions of the permit;
546 547	(ii) Failure in the application or during the issuance process to disclose fully all relevant facts, or misrepresentation of any relevant facts at any time; or

548						
549	(iii) A determination that the activity threatens human health, safety, or the					
550	environment	and car	n only be regulated to acceptable levels by a permit modification or			
551	termination.					
552						
553	(b)	As pa	art of any notice of intent to terminate a permit, the Director shall order the			
554	permittee to	-	l with reclamation within a reasonable time period.			
555	1	L	1			
556	(c)	A rev	oked permit may be reissued only if a new application is submitted.			
557	(0)	11100	oked pormit may be reissued omy if a new apprearion is submitted.			
558	(d)	Wher	n a permit is revoked and reissued, the entire permit is reopened as if the			
559			nd is being reissued, except that suitability of the facility location shall not			
560			s new information or standards indicate that a threat to human health, safety,			
561			exists that was unknown at the time of permit issuance. During any			
562			uance proceeding, the permittee shall comply with all conditions of the			
563	existing perm	nit until	a new final permit is issued.			
564		_				
565	Secti	on 8.	Transferring Permits.			
566						
567	(a)	To tra	ansfer a permit:			
568						
569		(i)	The proposed permit transferee shall apply in writing as though that			
570	person were	the orig	inal applicant for the permit; and			
571	•	C				
572		(ii)	The proposed permit transferee shall agree to be bound by all of the terms			
573	and condition	· /				
574			- F			
575	(b)	Trans	sfer of a permit is allowed only upon approval by the Director.			
576	(0)	Trans	ter of a permit is anowed only apon approval by the Director.			
577	(c)	When	n a permit transfer occurs pursuant to this section, the permit rights of the			
578			utomatically terminate.			
578 579	previous per	innuce a	atomatically terminate.			
580	<b>(b)</b>	Tropo	for shall not be allowed if the normittee is in noncompliance with any term			
	(d)		sfer shall not be allowed if the permittee is in noncompliance with any term			
581	and conditions of the permit unless the transferee agrees to bring the facility back into					
582	compliance v	with the	permit.			
583						
584	(e)	-	rmit may be transferred by modifying the permit or by revoking and			
585	•	+	to identify the new permittee and incorporate the requirements of this			
586	Chapter and	the Wy	oming Environmental Quality Act, W.S. § 35-11-101 et seq.			
587						
588	Secti	on 9.	Permit Conditions.			
589						
590	(a)	Perm	it conditions shall be incorporated either expressly or by reference. If			
591	incorporated by reference, a specific citation to the incorporated conditions shall be given in the					
592	permit.					
593	-					

594 595	(b)	All perm	ts issued under this Chapter shall contain the following conditions:
596 597 598		statement	requirement that the permittee complies with all conditions of the hat any permit noncompliance constitutes a violation of these ds for enforcement action, permit termination, revocation and reissuance,
599 600	or modificatio	n, or for d	enial of a permit renewal application;
601	_		stipulation that it shall not be a defense for a permittee in an
602 603			it would have been necessary to halt or reduce the permitted activity in ance with the conditions of this permit;
604		/···· \ .	
605 606	minimizo or o		requirement that the permittee shall take all reasonable steps to adverse impact on the environment resulting from noncompliance with
607 608	this permit;	Silect ally	adverse impact on the environment resulting from noncompliance with
609		(iv) A	requirement that the permittee properly operates and maintains all
610	facilities and s		treatment and control, and related appurtenances, that are installed or
611	• 1		achieve compliance with the conditions of this permit. Proper operation
612			es effective performance, adequate funding and operator staffing and
613			boratory and process controls including appropriate quality assurance
614			on requires the operation of back-up or auxiliary facilities or similar
615	systems only v	when nece	ssary to achieve compliance with the conditions of the permit;
616			
617			stipulation that the filing of a request by the permittee, or at the
618	•		istrator, for a permit modification, revocation, termination, or
619		planned c	hanges or anticipated non-compliance, shall not stay any permit
620	condition;		
621		()	stimulation that the normality does not consume on a momentum rights of any
622 623	cont on only or		stipulation that the permit does not convey any property rights of any
623 624	sort, or any ex	clusive pr	lvnege;
625		(vii) A	stipulation that the permittee shall furnish to the Administrator, within a
626	specified time		mation that the Administrator requests to determine whether cause exists
627	1		and reissuing, or terminating the permit, or to determine compliance
628		0	mittee shall also furnish to the Administrator, upon request, copies of
629			ept by the permit;
630	1		
631		(viii) A	requirement that the permittee shall allow the Administrator, or an
632	authorized rep	resentativ	e of the Administrator, upon the presentation of credentials, during
633	normal workin	ng hours, t	o enter the premises where a regulated facility is located, or where
634	records are key	pt under tl	e conditions of this permit, and:
635			
636		(4	
637	regulated or re	equired un	der this permit;
638		. <del>.</del>	
639		(I	B) Review and copy reports and records required by the permit;

640						
640 641	(C) Collect fluid samples for analysis for the purposes of ensuring					
642	permit compliance or as otherwise authorized by the Wyoming Environmental Quality Act of					
643	any substances or parameters at any location;					
644	any substances of parameters at any ideation,					
645	(D) Measure and record water levels;					
646						
647	(E) Collect resource data as defined by W.S. § 6-3-414; and					
648						
649	(F) Perform any other function authorized by law or regulation.					
650						
651	(ix) A requirement that:					
652						
653	(A) If the facility is located on property not owned by the permittee,					
654	the permittee shall also secure from the landowner upon whose property the facility is located					
655	permission for Department personnel and their invitees to enter the premises where the facility i	S				
656	located, or where records are kept under the conditions of this permit, and collect resource data					
657	as defined by W.S. § 6-3-414, inspect and photograph the facility, collect samples for analysis,					
658	review records, and perform any other function authorized by law or regulation. The permittee					
659	shall secure and maintain such access for the duration of the permit and the post-injection site					
660	care and site closure period; and					
661						
662	(B) If the facility cannot be directly accessed using public roads, the					
663	permittee shall also secure permission for Department personnel and their invitees to enter and					
664	cross all properties necessary to access the facility. The permittee shall secure and maintain such					
665	access for the duration of the permit and the post-injection site care and site closure period;					
666						
667	(x) A requirement that the permittee furnishes any information necessary to					
668	establish a testing and monitoring pursuant to Section 20 of this Chapter. Conditions shall					
669	specify:					
670						
671	(A) Required monitoring including type, intervals, and frequency					
672	sufficient to yield data that are representative of the monitored activity including when					
673	appropriate, continuous monitoring;					
674						
675	(B) Requirements concerning the proper use, maintenance, and					
676	installation, of monitoring equipment or methods, including biological monitoring methods; and					
677						
678	(C) Reporting and notice requirements based upon the impact of the					
679	regulated activity and as specified in Section 22 of this Chapter. Reporting shall be no less					
680	frequent than specified in Section 22 of this Chapter;					
681						
682	(xi) A requirement that all samples and measurements taken for the purpose o	f				
683	monitoring shall be representative of the monitored activity and that records of all monitoring					
684	information be retained by the permittee;					
685						

686 A requirement that all applications, reports, and other information (xii) 687 submitted to the Administrator contain the certifications required in Section 10(d) of this Chapter 688 by a responsible corporate officer; 689 690 A responsible corporate officer, as defined in Section 2(mm) of (A) 691 this Chapter, may authorize an individual or a position that does not meet the requirements of 692 subparagraphs (i), (ii), (iii), or (iv) of Section 2(mm) to act as a "duly authorized representative." 693 To authorize a duly authorized representative : 694 695 A person who meets the requirements of subparagraph (i), (I) 696 (ii), (iii), or (iv) of Section 2(mm) shall authorize the duly authorized representative in writing; 697 698 The authorization shall specify an individual or a position (II) 699 having responsibility for the overall operation of the regulated facility or activity, such as the 700 position of plant manager, operator of a well or a well field, superintendent, or position of 701 equivalent responsibility; and 702 703 (III) The responsible corporate officer shall submit the written 704 authorization to the Administrator. 705 706 **(B)** If an authorization under subparagraph (A) of this subparagraph is 707 no longer accurate because a different individual or position has responsibility for the overall 708 operation of the facility, the responsible corporate official shall notify the Administrator that the 709 authorization is no longer accurate or shall submit to the Administrator a new authorization 710 satisfying the requirements of subparagraph (A) of this subparagraph prior to or together with 711 any reports, or information to be signed by a duly authorized representative. 712 713 (xiii) A requirement that the permittee give advance notice to the Administrator 714 as soon as possible of any planned physical alteration or additions, other than authorized 715 operation and maintenance, to the permitted facility and receive authorization from the 716 Administrator prior to implementing the proposed alteration or addition; 717 718 (xiv) A requirement that any modification that may result in a violation of a 719 permit condition shall be reported to the Administrator, and any modification that will result in a 720 violation of a permit condition shall be reported to the Administrator through the submission of a 721 new or amended permit application; 722 723 A requirement that any transfer of a permit shall first be approved by the (xv)724 Director, and that no transfer will be approved if the facility is not in compliance with the 725 existing permit unless the proposed permittee agrees to bring the facility into compliance; 726 727 (xvi) A requirement that monitoring results shall be reported at the intervals 728 specified in the permit; 729 730 (xvii) A requirement that reports of compliance or non compliance, or any 731 progress reports on interim and final requirements contained in any compliance schedule (if one

732	<b>1 7</b>	hall be su	abmitted no later than thirty (30) days following each				
733	schedule date;						
734							
735	(xviii) The following reporting and mitigation requirements:						
736							
737	(A) If an	y monito	oring or other information indicates that any				
738	contaminant, the injected carbon d	ioxide st	ream, displaced formation fluids, or associated				
739	pressure front may endanger a US	DW or th	reaten human health, safety, or the environment, the				
740	permittee shall:						
741							
742	(I)	Imme	diately cease injection;				
743							
744	(II)	Take	all steps reasonably necessary to identify and				
745	characterize any release;						
746							
747	(III)	Orally	y notify the Administrator within twenty-four (24)				
748	hours of discovering the condition	; and					
749							
750	(IV)	Provi	de a written report to the Administrator within five (5)				
751	days of discovering the condition.	The writ	ten report shall contain:				
752							
753		(1.)	A description of the endangerment and its cause;				
754							
755		(2.)	The period of endangerment, including exact dates				
756	and times, and, if the endangermer	nt has not	been controlled, the anticipated time it is expected to				
757	continue; and						
758							
759	(3.)	The s	teps taken or planned to reduce, eliminate, and				
760	prevent reoccurrence of the endang	germent;					
761							
762	(B) If the	e permitt	ee discovers any noncompliance with a permit				
763	condition or a requirement of this	Chapter t	hat may cause fluid migration into or between				
764	USDWs, any malfunction of the in	jection s	ystem that may cause fluid migration into or between				
765	USDWs, or any excursion, the per	mittee sh	all:				
766							
767	(I)	Orally	y notify the Administrator within twenty-four (24)				
768	hours of discovering the condition	;	•				
769	C						
770	(II)	Provi	de a written report to the Administrator within five (5)				
771	days of discovering the condition,		<b>1</b>				
772							
773		(1.)	A description of the noncompliance, malfunction, or				
774	excursion and its cause;						
775	·						

776 (2.)The period of noncompliance, malfunction, or 777 excursion, including exact dates and times, and, if the noncompliance, malfunction, or excursion 778 has not been controlled, the anticipated time it is expected to continue; and 779 780 The steps taken or planned to reduce, eliminate, and (3.)781 prevent reoccurrence of the noncompliance, malfunction, or excursion. 782 783 If an excursion is discovered, provide written notice to all surface (III) owners, mineral claimants, mineral owners, lessees, and other owners of record of subsurface 784 785 interests within thirty (30) days of discovering the excursion; and 786 787 (IV) Implement the emergency and remedial response plan approved by 788 the Administrator; 789 790 A requirement that the permittee report all instances of noncompliance not (xix) 791 already required to be reported under subparagraph (b)(xix)(B)of this Section, at the time 792 monitoring reports are submitted. The reports shall contain the information listed in 793 subparagraph (b)(xix)(B)(II) of this Section; 794 795 (xx)A requirement that if the permittee becomes aware that it failed to submit 796 any relevant facts in a permit application, or submitted incorrect information in a permit 797 application or in any report to the Administrator, the permittee shall promptly submit such facts 798 or information; 799 800 (xxi) A requirement that the injection facility meet construction requirements 801 outlined in Section 14 of this Chapter, that the permittee submit a notice of completion of 802 construction to the Administrator, and that the permittee allows the Administrator to inspect the 803 facility upon completion of construction and prior to commencing any underground injection 804 activity; 805 806 (xxii) A requirement that the permittee notifies the Administrator before 807 abandonment of the facility; 808 809 (xxiii) A requirement that injection shall not commence until construction is 810 complete, and that construction is complete when: 811 812 The permittee has submitted a notice of completion of construction (A) 813 to the Administrator; and 814 815 **(B)** The Administrator has inspected or reviewed the injection well and 816 found it is in compliance with the conditions of the permit; 817 818 **(I)** Within thirteen (13) days of the date of the notice in 819 subparagraph (xxii) of this paragraph, the Administrator shall provide notice to the permittee of 820 the intent to inspect or review the injection well. The notice shall include a reasonable time 821 period in which the Administrator shall inspect or review the well; but

822	
823	(II) If the Administrator does not provide the notice required by
824	subparagraph (I) of this subparagraph, the requirement for prior inspection or review is waived,
825	and the permittee may commence injection;
826	
827	(xxiv) A requirement that the permittee shall establish mechanical
828	integrity prior to commencing injection or on a schedule determined by the Administrator and
829	that thereafter, the permittee shall maintain mechanical integrity as defined in Section 19 of this
830	Chapter;
830	Chapter,
832	(xxv) A requirement that if the Administrator determines that a Class VI
833	well lacks mechanical integrity and gives written notice of the determination to the permittee, the
834	permittee shall:
835	(A) $C_{1}$ contains the interval multiplication of the second state of the second st
836	(A) Cease injection into the well within forty-eight (48) hours
837	of receipt of the Administrator's determination unless the Administrator requires immediate
838	cessation;
839	
840	(B) Perform any construction, operation, monitoring, reporting,
841	and corrective action that the Administrator requires to prevent the movement of fluid into or
842	between USDWs caused by the lack of mechanical integrity, or plug the well pursuant to the
843	requirements of Section 23 of this Chapter if allowed by the Administrator; and
844	
845	(C) Not resume injection into the well until the Administrator
846	provides written notice that the permittee has demonstrated mechanical integrity pursuant to
847	Section 19 of this Chapter.
848	
849	(xxvi) A requirement that, for any Class VI well that lacks mechanical
850	integrity, injection operations are prohibited until the permittee shows to the satisfaction of the
851	Administrator under Section 19 of this Chapter that the well has mechanical integrity;
852	
853	(xxvii) A requirement that the permittee comply with a well-plugging plan
854	that meets the requirements of Section 23 of this Chapter, which shall be incorporated into the
855	permit; and
856	
857	(xxviii) Conditions that implement the requirements of Section 14
858	of this Chapter. The conditions shall:
859	
860	(A) Require all wells to achieve compliance with the
861	requirements of Section 14 of this Chapter according to a compliance schedule established as a
862	permit condition;
863	
864	(B) Prohibit construction from commencing until a permit has
865	been issued containing construction requirements;
866	

867 (C) Require that all wells comply with the construction 868 requirements of Section 14 of this Chapter prior to commencing injection operations. Changes in 869 construction plans during construction may be approved by the Administrator as minor 870 modifications. No such changes may be physically incorporated into construction of the well 871 prior to approval of the modification by the Administrator. 872 873 Include a corrective action plan as set forth in Section 13 of (D) 874 this Chapter; 875 876 (E) Require that all wells comply with the operational 877 requirements of Section 14 of this Chapter; 878 879 (F) Establish any maximum injection volumes and pressures 880 necessary to ensure that fractures are not initiated in the confining zone, to ensure that injected 881 fluids do not migrate into any underground source of drinking water, to ensure that formation 882 fluids are not displaced into any underground source of drinking water, and to ensure compliance 883 with the operating requirements; 884 885 (G) Establish monitoring and reporting requirements set forth 886 in Sections 20 and 22 of this Chapter. The permittee shall be required to identify types of tests 887 and methods used to generate the monitoring data; and 888 889 Require the permittee to comply with the financial (H) 890 responsibility requirements set forth in Section 26 of this Chapter. 891 892 (c) Permits for Class VI wells shall be issued for the operating life of the facility and 893 extend through the post-injection site care period until the Administrator certifies site closure 894 pursuant to Section 24(b)(iii) of this Chapter. 895 896 Permits may be issued for individual Class VI wells and shall not be issued on an (d) 897 area basis for multiple points of discharge operated by the same person. 898 899 (e) Permits may specify a schedule of compliance leading to compliance with permit 900 conditions, this Chapter, and the Wyoming Environmental Quality Act, W.S. § 35-11-101 et seq. 901 902 (i) Schedules of compliance shall require compliance as soon as possible, and 903 in no case later than three (3) years after the effective date of the permit. 904 905 (ii) If a permit establishes a schedule of compliance that exceeds one (1) year 906 from the date of permit issuance, the schedule shall set forth interim requirements and the dates 907 for their achievement. The time between interim dates shall not exceed one (1) year unless, the 908 time necessary for completion of any interim requirement is more than one (1) year and is not 909 readily divisible into stages for completion, and in that case, the permit shall specify interim 910 dates for the submission of reports of progress toward completion of the interim requirements 911 and indicate a projected completion date. 912

913	(iii) The compliance schedule shall require the permittee to submit progress
914	reports no later than thirty (30) days following each interim date and the final date of
915	compliance.
916	
917	(f) The Director shall include in permits, on a case-by-case basis:
918	
919	(i) Conditions for monitoring, schedules of compliance, and any additional
920	conditions necessary to prevent the migration of fluids into underground sources of drinking
921	water. The Director shall evaluate what conditions are necessary and shall establish these
922	conditions when issuing, modifying, or revoking and reissuing permits; and
923	
924	(ii) Conditions to ensure compliance with all applicable requirements of this
925	Chapter and the Wyoming Environmental Quality Act, W.S. § 35-11-101 et seq.
926	
927	(g) To the extent possible under Section 9 of this Chapter, modified or revoked and
928	reissued permits, shall incorporate all of the permit conditions required by this Section.
929	
930	(h) When they meet the requirements of this Chapter and are approved by the
931	Administrator, all plans shall be incorporated into the permit.
932	
933	Section 10. Permit Application.
934	
935	(a) It is the operator's responsibility to apply for and obtain a permit in accordance
936	with these regulations. Each application shall be submitted with all supporting data.
937	
938	(b) In addition to the requirements of W.S. § 35-11-313(f)(ii), a complete application
939	for a Class VI well shall include:
940	
941	(i) A brief description of the nature of the business and the activities to be
942	conducted that require the applicant to obtain a permit under this Chapter;
943	
944	(ii) The name, address, and telephone number of the operator, and the
945	operator's ownership status and status as a federal, state, private, public, or other entity;
946	
947	(iii) Up to four Standard Industrial Classification codes that best reflect the
948	principal products or services provided by the facility;
949	
950	(iv) The name, address, and telephone number of the facility;
951	
952	(v) The location of the geologic sequestration project identified by section,
953	township, range, and county, noting which sections (if any) include Indian lands;
954	
955	(vi) Within the area of review, a listing and status of all permits or construction
956	approvals associated with the geologic sequestration project received or applied for under any of
957	the following programs or corresponding state programs:
958	

959 Hazardous Waste Management under the Resource Conservation (A) 960 and Recovery Act, 42 U.S.C. § 6901 et seq.; 961 962 (B) UIC Program under the Safe Drinking Water Act, 42 U.S.C. § 300f 963 et seq.; 964 965 National Pollutant Discharge Elimination System under the Clean (C) 966 Water Act, 33 U.S.C. § 1251 et seq.; 967 968 (D) Prevention of Significant Deterioration program under the Clean 969 Air Act, 42 U.S.C. § 7401 et seq.; 970 971 Nonattainment program under the Clean Air Act, 42 U.S.C. § 7401 (E) 972 et seq.; 973 974 (F) National Emissions Standards for Hazardous Air Pollutants pre-975 construction approval under the Clean Air Act, 42 U.S.C. § 7401 et seq.; 976 977 Dredge and fill permitting program under section 404 of the Clean (G) 978 Water Act, 33 U.S.C. § 1251 et seq.; 979 980 (vii) Within the area of review, a list of other relevant permits associated with 981 the geologic sequestration project that the applicant is required to obtain; 982 983 (viii) A statement of whether the geologic sequestration project is within a state-984 approved water quality management plan area, a state-approved wellhead protection area or a 985 state-approved source water protection area; 986 987 A map showing the injection well(s) for which a permit is sought and the (ix) 988 applicable area of review, consistent with Section 13 of this Chapter; 989 990 (A) Within the area of review, the map shall list the number, or name 991 and location of: 992 993 **(I)** All injection wells, producing wells, abandoned wells, 994 plugged wells, dry holes, or deep stratigraphic boreholes; 995 996 (II) All state- or EPA-approved subsurface cleanup sites; 997 998 (III) All water quality management plan areas, wellhead 999 protection areas, and source water protection areas; 1000 1001 (IV) All surface bodies of water, springs, mines (surface and 1002 subsurface), quarries, and water wells; 1003

1004			(V)	Other pertinent surface features, including structures
1005	intended for human oc			
1006				
1007			(VI)	Roads; and
1008				
1009			(VII)	State and Indian reservation boundaries;
1010				
1011				plicant shall include on this map all relevant information of
1012	public record or know	n to the	applica	ant; and
1013				
1014		(C) '	The ma	ap shall also show known or suspected faults;
1015	()	<b>A</b>		ting the area of marian that
1016	(x)	A map o	delinea	ting the area of review that:
1017 1018		(A)	Maata	the requirements of Section 13 of this Chapter;
1018		(A) 1	Meets	the requirements of section 15 of this Chapter,
1019		(B)	Is hase	d upon modeling;
1020		(D)	15 0050	a upon modernig,
1021		(C)	Uses a	ll available data, including data available from any logging
1022	and testing of wells w	· /		ent to (within one (1) mile of) the area of review; and
1024	and testing of wens w		a aajae	
1025		(D)	Descri	bes the area of review by township, range, and section to the
1026	nearest ten (10) acres,	· /		nder the general land survey system;
1027	· · · · · · · · · · · · · · · · · · ·			
1028	(xi)	For the	descrip	otion required by W.S. 35-11-313(f)(ii)(A), sufficient
1029				and reservoir properties of the proposed storage site and
1030	overlying formations,	-		
1031				
1032		(A) 1	Isopac	h maps of the proposed injection and confining zones, a
1033	structural contour map	o aligned	d with t	the top of the proposed injection zone, and at least two (2)
1034				f review reasonably perpendicular to each other and showing
1035	the geologic formation	ns from t	the sur	face to total depth;
1036				
1037				on, orientation, and properties of known or suspected faults
1038	-			onfining zones in the area of review and a determination that
1039	they will not allow flu	id move	ement;	
1040			<b>T</b> 0	
1041				ation on seismic history that has affected the proposed area
1042		-	-	evious seismic events and history of these events, the
1043				es, and a determination that the seismicity will not allow
1044	fluid movement out of	the inje	ection z	zone;
1045		<b>(D)</b>	Data a	affinition to domanstrate the officiation and of the initiation
1046	and confining sonse i			ufficient to demonstrate the effectiveness of the injection
1047 1048	and confining zones, i	neruaing	5.	
1048			(I)	Data on the depth, areal extent, thickness, mineralogy,
1047			(1)	שמום טון עוב עבףנוו, מוכמו באוכוונ, עווכאווכזא, וווווכומוספץ,

1050	porosity, vertical permeability, and capillary pressure of the injection and confining zones within
1051	the area of review; and
1052	
1053	(II) A description of geologic changes based on field data that
1054	may include geologic cores, outcrop data, seismic surveys, well logs, and names and lithologic
1055	descriptions;
1056	
1057	(E) Geomechanical information on fractures, stress, ductility, rock
1058	strength, and in situ fluid pressures within the confining zone; and
1059	
1060	(F) Geologic and topographic maps and cross-sections illustrating
1061	regional geology, hydrogeology, and the geologic structure of the local area;
1062	
1063	(xii) A list of all wells and other drill holes within and adjacent to (within one
1064	(1) mile) the area of review. The list shall include a description of each well and drill hole type,
1065	construction, date drilled, location, depth, record of plugging and completion, and any additional
1066	information the Administrator requires;
1067	
1068	(xiii) A list of the identity and location of all known wells within and adjacent to
1069	(within one (1) mile) the area of review that penetrate the confining or injection zone;
1070	
1071	(xiv) Maps and stratigraphic cross-sections indicating the general vertical and
1072	lateral limits of all USDWs in the area of review; the location of water wells and springs in the
1073	area of review; the positions relative to the injection zones of all USDWS, water wells, and
1074	springs in the area of review, and the direction of water movement (if known);
1075	
1076	(xv) For the characterization required by W.S. 35-11-313(f)(ii)(B), information
1077	necessary for the Division to classify the receiver and any secondarily affected aquifers under
1078	Water Quality Rules and Regulations Chapter 8;
1079	
1080	(xvi) Baseline geochemical data on subsurface formations, including all
1080	USDWs in the area of review;
1082	
1082	(xvii) Proposed operating data, including:
1085	(xvii) Tioposed operating data, meruding.
1084	(A) Average and maximum daily rate and volume and mass and total
1085	anticipated volume and mass of the carbon dioxide stream;
1080	anticipated volume and mass of the carbon dioxide stream,
1087	$(\mathbf{P})$ A variage and maximum surface injection processing
	(B) Average and maximum surface injection pressure;
1089	(C) The service of the control distribution of the
1090	(C) The source of the carbon dioxide stream; and
1091	(D) An analysis of the share $1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 $
1092	(D) An analysis of the chemical and physical characteristics of the
1093	carbon dioxide stream and any other substances proposed for inclusion in the injectate stream;
1094	and
1095	

1096 1097	(E)	Anticipated duration of the proposed injection periods;
1098 1099 1100 1101	zone and minerals in both	compatibility of the carbon dioxide stream with fluids in the injection the injection and the confining zones, based on the results of the and with the materials used to construct the well;
1102 1103 1104 1105	· · · · ·	bosed formation testing program to obtain an analysis of the chemical s of the injection zone and confining zone and that meets the of this Chapter;
1106 1107 1108 1109		oosed stimulation program, a description of stimulation fluids to be hat stimulation will not allow fluid movement out of the injection
1110 1111	(xxi) Prop	posed procedure that outlines steps to conduct injection operations;
1112 1113 1114		ellbore schematic of the subsurface construction details and surface ne injection and monitoring wells;
1115 1116 1117 1118		emonstration, to the satisfaction of the Administrator, that the injection with a suitable geologic system that meets the requirements of Section ding:
1119 1120 1121 1122	· ·	Identification and characterization of additional zones, if they ical fluid movement, allow for pressure dissipation, and provide r monitoring, mitigation, and remediation; and
1122 1123 1124 1125	(B) identified in subparagraph	Identification of vertical faults and fractures that transect the zones (A) of this subparagraph;
1125 1126 1127 1128 1129	× / 3	ction well design and construction procedures that meet the of this Chapter, including the information listed in Section 14(c)(ii)
1130 1131 1132	(xxv) Prop requirements under Section	oosed area of review and corrective action plan that meets the n 13 of this Chapter;
1132 1133 1134	(xxvi) The	status of corrective action on wells in the area of review;
1135 1136 1137	(xxvii) All a Section 17 of this Chapter;	available logging and testing program data on the wells required by
1137 1138 1139 1140	(xxviii)A de Chapter;	emonstration of mechanical integrity required by Section 19 of this

1141 (xxix) A demonstration, satisfactory to the Administrator, that the applicant has 1142 met the financial responsibility requirements of Section 26 of this Chapter; 1143 1144 (xxx) A written financial assurance cost estimate required by Section 26(b) of 1145 this Chapter; 1146 1147 (xxxi) A public liability insurance certificate that, in addition to meeting the 1148 requirements of W.S. § 35-11-313(f)(ii)(O), demonstrates that the public liability insurance 1149 policy meets the requirements of Section 26(1)(i)(B) of this Chapter; identifies each facility by 1150 name, address, and EPA Identification Number; and identifies the amounts and types of coverage 1151 for each facility; 1152 1153 (xxxii) Proposed testing and monitoring plan required by Section 20 of this 1154 Chapter; 1155 1156 (xxxiii) Proposed injection and monitoring wells plugging plan required by 1157 Section 23 of this Chapter; 1158 1159 (xxxiv)Proposed post-injection site care and site closure plan required by Section 1160 24(a) of this Chapter; 1161 1162 (xxxy) Proposed emergency and remedial response plan required by Section 25 of 1163 this Chapter; 1164 1165 (xxxvi)A list of contacts for states or Tribes on Indian lands identified pursuant to subparagraphs (b)(v) and (b)(ix)(A)(VII) of this Section; and 1166 1167 1168 (xxxvii) Any other information requested by the Administrator. 1169 1170 All applications for permits, reports, or information submitted to the (c) 1171 Administrator shall be signed by a responsible corporate officer. 1172 1173 (d) The application shall contain the following certification by the responsible 1174 corporate officer signing the application: 1175 1176 "I certify under penalty of law that this document and all attachments were prepared 1177 under my direction or supervision in accordance with a system designed to ensure that qualified 1178 personnel properly gather and evaluate the information submitted. Based on my inquiry of the 1179 person or persons who manage the system, or those persons directly responsible for gathering the 1180 information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, 1181 1182 including the possibility of fine and imprisonment for knowing violations." 1183 1184 Sections of permit applications that represent engineering work shall be sealed, (e) 1185 signed, and dated by a licensed professional engineer as required by W.S. § 33-29-601. 1186

1187 (f) Sections of permit applications that represent geologic work shall be sealed, signed, and dated by a licensed professional geologist as required by W.S. § 33-41-115. 1188 1189 1190 Section 11. **Prohibitions.** 1191 1192 Pursuant to the provisions of W.S. § 35-11-301(a), no person shall: (a) 1193 1194 Discharge into, construct, operate, or modify any Class VI well unless (i) 1195 permitted pursuant to this Chapter; 1196 1197 Discharge or inject to any zone except the authorized injection zone as (ii) 1198 described in the permit; 1199 1200 (iii) Conduct any injection activity in a manner that results in a violation of any permit condition or that conflicts with any representations made in a permit application; 1201 1202 1203 (iv) Construct, operate, maintain, convert, plug, abandon, or conduct any other 1204 injection activity in a manner that allows the movement of fluid containing any contaminant into 1205 underground sources of drinking water, if the presence of that contaminant may cause a violation 1206 of any primary drinking water regulation contained in 40 C.F.R. Part 141, Subparts E, F, and G, 1207 or may otherwise adversely affect human health, safety, or the environment. The applicant for a 1208 permit shall have the burden of showing that the requirements of this paragraph are met. 1209 1210 Inject any hazardous waste that has been banned from land disposal (v) 1211 pursuant to Wyoming Hazardous Waste Rules, Chapter 1; 1212 1213 Construct a new, operate an existing, or maintain an existing Class V well (vi) 1214 for non-experimental geologic sequestration 1215 1216 Class VI wells shall inject only to receivers classified by the Department pursuant (b) 1217 to Water Quality Rules and Regulations, Chapter 8, as Class V (Hydrocarbon Commercial) or Class VI groundwaters. No Class VI well shall inject to any Class I, Class II, Class III, Class IV, 1218 1219 or unclassified groundwaters. 1220 1221 The Administrator shall designate and protect as underground sources of drinking (c)water, all aquifers and parts of aquifers that meet the definition of "underground source of 1222 1223 drinking water" in Section 2 of this Chapter, except to the extent there is expansion to the areal 1224 extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption 1225 for the exclusive purpose of Class VI injection for geologic sequestration under Section 16 of 1226 this Chapter. 1227 1228 (i) The Administrator may identify underground sources of drinking water by 1229 narrative description, illustrations, maps, or other means. 1230 1231 (ii) Other than EPA-approved aguifer exemption expansions that meet the requirements of Section 16 of this Chapter, new aquifer exemptions shall not be issued for Class 1232

1233 VI injection wells. Even if an aquifer has not been specifically identified by the Administrator, it is an underground source of drinking water if it meets the definition in Section 2 of this Chapter. 1234 1235 1236 Section 12. Minimum Criteria for Siting Class VI Wells. 1237 All Class VI wells shall be sited in areas with a suitable geologic system. The 1238 (a) 1239 geologic system shall be comprised of: 1240 1241 An injection zone of sufficient areal extent, thickness, porosity, and (i) 1242 permeability to receive the total anticipated volume of the carbon dioxide stream; and 1243 1244 Confining zones that are free of transmissive faults or fractures and of (ii) 1245 sufficient areal extent and integrity to contain the injected carbon dioxide stream and displaced 1246 formation fluids and allow injection at proposed maximum pressures and volumes without 1247 initiating or propagating fractures in the confining zones or causing non-transmissive faults to 1248 become transmissive. 1249 1250 Owners or operators of Class VI wells shall identify and characterize additional (b) 1251 zones, if they exist, that will impede vertical fluid movement, allow for pressure dissipation, and 1252 provide additional opportunities for monitoring, mitigation, and remediation. Faults and fractures 1253 that transect these zones shall be identified. 1254 1255 Section 13. Area of Review Delineation and Corrective Action. 1256 1257 The owner or operator of a Class VI well shall prepare, maintain, and comply (a) with a plan to delineate the area of review for a proposed geologic sequestration project, re-1258 1259 evaluate the delineation, and perform corrective action that meets the requirements of this Section and is approved by the Administrator. The area of review shall be based on 1260 1261 computational modeling that accounts for the physical and chemical properties of all phases of the injected carbon dioxide stream. The area of review shall never be less than the area of 1262 1263 potentially affected groundwater. An area of review and corrective action plan shall include the 1264 following information: 1265 1266 The method for delineating the area of review that meets the requirements (i) 1267 of paragraph (b) of this Section, including the name, version and availability of the model that will be used, assumptions that will be made, and the site characterization data on which the 1268 model will be based: 1269 1270 1271 (ii) A description of: 1272 1273 The monitoring and operational conditions that would warrant a re-(A) 1274 evaluation of the area of review prior to the next scheduled re-evaluation as determined by the 1275 minimum fixed frequency established in paragraph (c) of this Section.

1276
1277 (B) How monitoring and operational data (e.g., injection rate and pressure) will be used to evaluate the area of review; and

1050				
1279				
1280		(C)		corrective action will be conducted to meet the requirements
1281	of paragraph (b)(v) of	this S	ection, i	ncluding:
1282				
1283			(I)	What corrective action will be performed prior to injection;
1284				
1285			(II)	What, if any, portions of the area of review will have
1286	corrective action addr	ressed	on a pha	sed basis and how the phasing will be determined;
1287				
1288			(III)	How corrective action will be adjusted if there are changes
1289	in the area of review;	and		
1290				
1291			(IV)	How site access will be ensured for future corrective action.
1292				
1293	(b) Owner	s or op	perators	of Class VI wells shall perform the following actions to
1294	delineate the area of r	eview,	identify	all wells that require corrective action, and perform
1295	corrective action on th	nose w	ells:	
1296				
1297	(i)	Predie	ct, using	existing site characterization, monitoring and operational
1298	data, and computation			
1299	, I		U	
1300		(A)	The p	ojected lateral and vertical migration of the carbon dioxide
1301	plume and formation	· /	-	bsurface from the commencement of injection activities until
1302	the plume movement ceases;			
1303			,	
1304		(B)	The p	ressure differentials, demonstrating that pressure differentials
1305	sufficient to cause the	. ,	-	injected fluids or formation fluids into a USDW or to
1306	otherwise threaten human health, safety, or the environment will not be present, or until the end			
1307	of a fixed time period			-
1308	·· · · ···· · ··· · · · · · ·			
1309		(C)	The po	ptential need for brine removal; and
1310		(-)	· 1	
1311		(D)	The lo	ng-term effects of pressure buildup if brine is not removed.
1312		(- )		
1313	(ii)	Use n	nodeling	that:
1314	()	0.50		
1315		(A)	Is base	ed on:
1316		(11)	15 0 45	
1310			(I)	Detailed geologic data available or collected to characterize
1317	the injection zone co	nfining		nd any additional zones; and
1310			5 2011 <b>0</b> , a	ne uny additional zones, and
1317			(II)	Anticipated operating data, including injection pressures,
1320	rates and total volume	es over	. ,	posed operational life of the facility;
1321			ine proj	solution of the mental spectrum of the mental spectrum of the
1322		(B)	Takes	into account any relevant geologic heterogeneities, other
1323	discontinuities data o	· /		ir possible impact on model predictions; and
1041	and communications, durit y	[		- rossion impact on model predictions, and

1325	
1326	(C) Considers potential migration through faults, fractures, and
1327	artificial penetrations.
1328	
1328	(iii) Using methods approved by the Administrator, identify all penetrations,
1329	
	including active and abandoned wells and underground mines, in the area of review that may
1331	penetrate the confining zone, and provide a description of each well's type, construction, date
1332	drilled, location, depth, record of plugging and completion, and any additional information the
1333	Administrator may require;
1334	
1335	(iv) Determine which abandoned wells in the area of review have been
1336	plugged in a manner that prevents the movement of:
1337	
1338	(A) Carbon dioxide that may endanger USDWs or otherwise threaten
1339	human health, safety, or the environment; or
1340	
1341	(B) Displaced formation fluids, or other fluids, including the use of
1342	materials compatible with the carbon dioxide stream, that may endanger USDWs or otherwise
1343	threaten human health, safety, or the environment; and
1344	an outon mannan noutan, survey, or the on monnent, and
1345	(v) Owners or operators of Class VI wells shall perform corrective action on
1346	any wells in the area of review that are determined to need corrective action, using methods
1340	designed to prevent the movement of fluid into or between USDWs including use of materials
1348	
	compatible with the carbon dioxide stream, where appropriate.
1349	(a) At a fined for even as not to even addition $(2)$ we are during the event in all life of the
1350	(c) At a fixed frequency, not to exceed two (2) years during the operational life of the $(5)$
1351	facility or five (5) years during the post-injection site care period (until site closure) as specified
1352	in the area of review and corrective action plan, or when monitoring and operational conditions
1353	warrant, owners or operators shall:
1354	
1355	(i) Re-evaluate the area of review in the same manner specified in
1356	subparagraph (b)(i) of this Section;
1357	
1358	(ii) Identify all wells in the re-evaluated area of review that require corrective
1359	action in the same manner specified in subparagraph (b)(iv) of this Section;
1360	
1361	(iii) Perform corrective action on wells requiring corrective action in the
1362	reevaluated area of review in the same manner specified in subparagraph (b)(v) of this Section;
1363	and
1364	
1365	(iv) Submit an amended area of review and corrective action plan, or
1366	demonstrate to the Administrator through monitoring data and modeling results that no change to
1367	the area of review and corrective action plan is needed.
1368	the area of review and confective action plan is needed.
1369	(A) Amendments to the area of review and corrective action plan shall
1309	be subject to approval of the Administrator.
1370	be subject to approval of the Automnistrator.

1371 1372 1373 1374	permit.	(B)	Amendments to the area of review shall be incorporated into the
1374 1375 1376 1377	modification require	(C) ements of	Amendments to the area of review are subject to the permit f Section 6 of this Chapter.
1378	Section 14.	Const	ruction and Operation Standards for Class VI Wells.
1379			
1380			operator shall design, construct, and complete all Class VI wells to
1381	meet the constructio	n standa	rds in this Section and to:
1382			
1383	(i)	Preve	nt the movement of fluids into or between USDWs or into any
1384	unauthorized zones;		
1385			
1386	(ii)	Allow	the use of appropriate testing devices and workover tools; and
1387			
1388	(iii)	Allow	continuous monitoring of the annulus space between the injection
1389	tubing and long strir	ng casing	,
1390			
1391	(b) Casir	ng and ce	ement or other materials used in the construction of each Class VI
1392			uctural strength and be designed for the life of the well.
1393			
1394	(i)	All we	ell materials shall be compatible with fluids with which the materials
1395	may be expected to		to contact and shall meet or exceed the following standards:
1396	J 1		
1397		(A)	American Petroleum Institute Specification 5CT;
1398		~ /	1
1399		(B)	American Petroleum Institute RP 5C1;
1400			,
1401		(C)	American Petroleum Institute RP 10B-2;
1402			
1403		(D)	American Petroleum Institute Specification 10A;
1404		~ /	I ,
1405		(E)	American Petroleum Institute RP 10D-2;
1406			
1407		(F)	American Petroleum Institute Specification 11D1;
1408			I ,
1409		(G)	American Petroleum Institute RP 14B; and
1410		~ /	
1411		(H)	American Petroleum Institute RP 14C.
1412		. /	
1413	(ii)	The ca	asing and cementing program shall be designed to prevent the
1414	movement of fluids		
1415			

1416 1417 1418 1419	(iii) requirements, the ow design plan:		low the Administrator to determine and specify casing and cementing operator shall provide the following information in a construction
1420 1421		(A)	Depth to the injection zone;
1422 1423	loading;	(B)	Injection pressure, external pressure, internal pressure, and axial
1424 1425 1426		(C)	Hole size;
1427 1428 1429 1430	diameter, nominal w whether the casing is	-	Size and grade of all casing strings (wall thickness, external ength, joint specification and construction material), including r used;
1430 1431 1432		(E)	Corrosiveness of the carbon dioxide stream and formation fluids;
1432 1433 1434		(F)	Down-hole temperatures and pressures;
1434 1435 1436		(G)	Lithology of injection and confining zones;
1430 1437 1438		(H)	Type or grade of cement and additives; and
1439 1440	dioxide stream.	(I)	Quantity, chemical composition, and temperature of the carbon
1441 1442 1443 1444 1445	(iv) injection zone and b casing and cement.		g shall extend through the base of the lowermost USDW above the ated to the surface through the use of a single or multiple strings of
1443 1446 1447 1448 1449	(v) centralizers, shall be zones.		ast one (1) long string casing, using a sufficient number of reate a cement bond through the overlying and underlying confining
1450 1451		(A)	The long string casing shall:
1452 1453			(I) Extend to the injection zone;
1455 1455	or more stages; and		(II) Be cemented by circulating cement to the surface in one (1)
1456 1457 1458 1459 1460			(III) Be isolated by placing cement or other isolation techniques quate isolation of the injection zone and provide for protection of ety, and the environment.

1461	(B)	Circulation of cement may be accomplished by staging. The				
1462	Administrator may approve	an alternative method of cementing in cases where the cement				
1463	cannot be recirculated to the	e surface if the owner or operator demonstrates by using logs that the				
1464	cement does not allow fluid	movement behind the wellbore.				
1465						
1466	(vi) Cem	ent and cement additives shall be suitable for use with the carbon				
1467	dioxide stream and formation	on fluids, and be of sufficient quality and quantity to maintain				
1468	integrity over the operating					
1469						
1470	(vii) The i	ntegrity and location of the cement shall be verified using technology				
1471		nt quality radially with sufficient resolution to identify the location of				
1472	1 0	eas of missing cement to ensure that USDWs are not endangered and				
1473		nd the environment are protected. The owner or operator shall				
1474		(CBL) to the Administrator with an evaluation, certified by a licensed				
1475	1 0	icensed professional geologist, of the following:				
1476	I BAR BAR					
1477	(A)	Quantitative estimations of the cement compressive strength;				
1478		(				
1479	(B)	A bond index; and				
1480	· · · · · · · · · · · · · · · · · · ·					
1481	(C)	Qualitative interpretation of the cement-to-formation bond.				
1482						
1483	(c) All owners a	nd operators of Class VI wells shall inject fluids through tubing with				
1484		site a cemented interval at the location approved by the				
1485	Administrator.					
1486						
1487	(i) Tubi	ng and packer materials used in the construction of each Class VI				
1488	well shall be compatible with fluids with which the materials may be expected to come into					
1489		ceed the following standards:				
1490						
1491	(A)	American Petroleum Institute Specification 5CT;				
1492						
1493	(B)	American Petroleum Institute RP 5C1;				
1494						
1495	(C)	American Petroleum Institute RP 10B-2;				
1496						
1497	(D)	American Petroleum Institute Specification 10A;				
1498						
1499	(E)	American Petroleum Institute RP 10D-2;				
1500						
1501	(F)	American Petroleum Institute Specification 11D1;				
1502						
1503	(G)	American Petroleum Institute RP 14B; and				
1504						
1505	(H)	American Petroleum Institute RP 14C.				
1506						

1507 1508 1509	(ii) and packer based on		dministrator shall determine and specify requirements for tubing owing information:			
1509 1510 1511		(A)	Depth of setting;			
1512 1513 1514	content, corrosivenes	(B) ss, temp	Characteristics of the carbon dioxide stream (e.g., chemical erature, and density) and formation fluids;			
1514 1515 1516		(C)	Maximum proposed injection pressure;			
1510 1517 1518		(D)	Maximum proposed annular pressure;			
1519 1520	volume of the carbor	(E) n dioxid	Maximum proposed injection rate (intermittent or continuous) and e stream;			
1521 1522 1523		(F)	Size of tubing and casing; and			
1525 1524 1525		(G)	Tubing tensile, burst, and collapse strengths.			
1525 1526 1527	Section 15.	Class	VI Injection Depth Waiver Requirements.			
1528	(a) An ov	vner or o	operator seeking a waiver of the requirement to inject below the			
1529			nit a supplemental report concurrent with the permit application.			
1530	The report shall cont					
1531						
1532	(i)	A den	nonstration that the injection zones are laterally continuous, are not			
1533			lically connected to USDWs; do not outcrop within the area of			
1534	review; have adequate injectivity, volume, and sufficient porosity to safely contain the injected					
1535	carbon dioxide and formation fluids; and have appropriate geochemistry;					
1536	curbon choxide and h	ormano	in mulds, and have appropriate geoenemistry,			
1537	(ii)	A den	nonstration that the injection zones are bounded by laterally			
1538			nfining units above and below the injection zones adequate to			
1539	· •		pressure buildup outside of the injection zones;			
1540	prevent nulu movem	cint and	pressure bundup buiside of the injection zones,			
1541	(iii)	Δ den	nonstration that the confining units are free of transmissive faults and			
1542	fractures;	A uch	ionstration that the comming times are free of transmissive raties and			
1543	mactares,					
1544	(iv)	A cha	racterization of the regional fracture properties and a demonstration			
1545			erfere with injection, serve as conduits, or endanger USDWs;			
1546	that the fractures will	i not nit	enere with injection, serve as conducts, of endanger OSD ws,			
1540 1547	(v)	A com	puter model demonstrating that USDWs above and below the			
1548			dangered as a result of fluid movement. The modeling shall be done			
1549			•			
1549	in conjunction with the area of review determination described in Section 13 of this Chapter, is subject to the requirements of Section 13(b) of this Chapter, and shall be periodically reevaluated					
1550	as required by Sectio					
1551	as required by Sectio	11 13(C)	or this chapter,			
1552						

1553 A demonstration that well design and construction, in conjunction with the (vi) 1554 waiver, will ensure isolation of the injectate in lieu of the requirements of Section 14(a)(i) of this 1555 Chapter and will meet the well construction requirements of paragraph (f) of this Section; 1556 1557 A description of how the monitoring and testing and any additional plans (vii) 1558 will be tailored to this geologic sequestration project to ensure protection of USDWs above and 1559 below the injection zone; 1560 1561 (viii) Information on the location of all public water supplies affected, 1562 reasonably likely to be affected, or served by USDWs in the area of review; and 1563 1564 (ix) Any other information requested by the Administrator. 1565 1566 (b) To inform the US EPA Regional Administrator's decision on whether to grant a 1567 waiver of the injection depth requirements of 40 C.F.R. §§ 144.6, 146.5(f), and 146.86(a)(1), the 1568 Administrator shall submit to the US EPA Regional Administrator documentation of the 1569 following: 1570 1571 An evaluation of the following information as it relates to siting, (i) construction, and operation of a geologic sequestration project with a waiver: 1572 1573 1574 (A) The integrity of the upper and lower confining units; 1575 1576 **(B)** The suitability of the injection zone(s) (including lateral continuity, 1577 lack of transmissive faults and fractures, and knowledge of current or planned artificial 1578 penetrations into the injection zone(s) or formations below the injection zone); 1579 1580 The potential capacity of the geologic formation(s) to sequester (C) carbon dioxide, accounting for the availability of alternative injection sites; 1581 1582 1583 (D) All other site characterization data, the proposed emergency and remedial response plan, and a demonstration of financial responsibility; 1584 1585 1586 (E) Community needs, demands, and supply from drinking water 1587 resources: 1588 1589 Planned needs and potential and future use of USDWs and non-(F) 1590 USDW aquifers in the area; 1591 1592 (G) Planned or permitted water, hydrocarbon, or mineral resource 1593 exploitation potential of the proposed injection formation(s) and other formations both above and 1594 below the injection zone to determine if there are any plans to drill through the formation to 1595 access resources in or beneath the proposed injection zone(s) or formation(s); 1596

1597 (H) The proposed plan for securing alternative resources or treating 1598 USDW formation waters in the event of contamination related to the Class VI injection activity; 1599 and 1600 1601 **(I)** Any other applicable considerations or information requested by 1602 the Administrator; 1603 1604 Consultation with the public water system supervision directors of all (ii) 1605 states and Tribes having jurisdiction over lands within the area of review of a well for which a 1606 waiver is sought; and 1607 1608 Any written waiver-related information submitted by a public water (iii) 1609 system supervision director to the Department. 1610 1611 Concurrent with the Class VI permit application public notice process pursuant to (c) 1612 Section 27 of this Chapter, the Administrator shall give public notice that an injection depth waiver request has been submitted. The notice shall clearly state: 1613 1614 1615 The depth of the proposed injection zone(s); (i) 1616 The location of the injection wells; 1617 (ii) 1618 1619 (iii) The name and depth of all USDWs within the area of review; 1620 1621 (iv) A map of the area of review; 1622 1623 The names of any public water supplies affected, reasonably likely to be (v) 1624 affected, or served by the USDWs in the area of review; and 1625 1626 The results of any consultation between the UIC program and the Public (vi) 1627 Water System Supervision Directors within the area of review. 1628 1629 (d) Following the injection depth waiver application public notice, the Administrator 1630 of the Water Quality Division of the Department of Environmental Quality shall provide all the 1631 information received through the waiver application process to the US EPA Regional Administrator. Based on the information provided, the US EPA Regional Administrator shall 1632 1633 provide written concurrence or non-concurrence regarding waiver issuance. 1634 1635 (i) If the US EPA Regional Administrator requires additional information to make a decision, the Administrator of the Water Quality Division of the Department of 1636 Environmental Quality shall provide the information. The US EPA Regional Administrator may 1637 1638 require public notice of the new information. 1639 1640 The Administrator of the Water Quality Division of the Department of (ii) 1641 Environmental Quality shall not issue a depth injection waiver without receipt of written concurrence from the US EPA Regional Administrator. 1642

1642					
1643 1644	(a) If an injection donth waiven is issued within thirty (20) dows of issuence the EDA				
1644 1645	(e)		njection depth waiver is issued, within thirty (30) days of issuance, the EPA ing information on the Office of Water's website:		
	shan post the		ing information on the Office of water's website.		
1646 1647		$(\mathbf{i})$	The depth of the proposed injection zone(a).		
1647		(i)	The depth of the proposed injection zone(s);		
1648		<i>(</i> )			
1649		(ii)	The location of the injection wells;		
1650		/•••			
1651		(iii)	The name and depth of all USDWs within the area of review;		
1652		<i></i> .			
1653		(iv)	A map of the area of review;		
1654					
1655		(v)	The names of any public water supplies affected, reasonably likely to be		
1656	affected, or s	served by	y the USDWs in the area of review; and		
1657					
1658		(vi)	The date of waiver issuance.		
1659					
1660	(f)	-	receipt of a waiver of the requirement to inject below the lowermost USDW		
1661		sequestr	ation, the owner or operator of a Class VI well shall comply with the		
1662	following:				
1663					
1664		(i)	All requirements of Sections 13, 17, 18, 19, 22, 23, 25, and 26 of this		
1665	Chapter;				
1666					
1667		(ii)	All the requirements of Section 14 of this Chapter with the following		
1668	modified req	luiremen	ts:		
1669					
1670			(A) In lieu of meeting the requirements of Section 14(a)(i) of this		
1671	-		I well shall be constructed and completed to prevent the movement of fluids		
1672	into any una	uthorized	d zones, including USDWs;		
1673					
1674			(B) In lieu of meeting the requirements of Section 14(b) and 14(b)(i) of		
1675	-		ng and cementing program shall prevent the movement of fluids into any		
1676	unauthorized zones including USDWs; and				
1677					
1678			(C) The casing shall extend through the base of the nearest USDW		
1679	directly abov	ve the inj	ection zone and shall be cemented to the surface or, at the Administrator's		
1680	discretion, at another formation above the injection zone and below the nearest USDW above the				
1681	injection zone;				
1682					
1683		(iii)	All the requirements of Section 20 of this Chapter with the following		
1684	modified requirements:				
1685					
1686			(A) The owner or operator shall monitor the groundwater quality,		
1687	geochemical changes, and pressure in the first USDWs immediately above and below the				
1688	injection zon	injection zone(s) and in any other formation at the discretion of the Administrator; and			

1689					
1690	(B) The owner or operator shall conduct testing and monitoring to				
1691	track the extent of the carbon dioxide plume and the presence or absence of elevated pressure				
1692	(e.g., the pressure front) in the injection zone(s) by using:				
1693					
1694	(I) Direct methods, and,				
1695					
1696	(II) Indirect methods (e.g., seismic, electrical, gravity, or				
1697	electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the				
1698	Administrator determines, based on site-specific geology, that such methods are not appropriate;				
1699					
1700	(iv) All requirements of Section 24 of this Chapter with the following				
1701	modified requirements:				
1702	mounieu requirements.				
1702	(A) The owner or operator shall monitor the groundwater quality,				
1704	geochemical changes and pressure in the first USDWs immediately above and below the				
1705	injection zone and in any other formations at the discretion of the Administrator; and				
1705	injection zone and in any other formations at the discretion of the Administrator, and				
1700	(B) Testing and monitoring in the injection zone(s) to track the extent				
1707	of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure				
1708	front) by using direct methods and indirect methods (e.g., seismic, electrical, gravity, or				
1709	electromagnetic surveys and down-hole carbon dioxide detection tools) unless the Administrator				
1710	determines, based on site-specific geology, that such methods are not appropriate; and				
	determines, based on she-specific geology, that such methods are not appropriate, and				
1712 1713	(v) Any additional requirements imposed by the Administrator to				
1713	(v) Any additional requirements imposed by the Administrator to				
1714	ensure protection of USDWs above and below the injection zone(s).				
	Section 16 Europeien to the Aneal Entent of Emisting Class II Injection Well				
1716	Section 16. Expansion to the Areal Extent of Existing Class II Injection Well				
1717	Aquifer Exemptions for Class VI Injection Wells.				
1718	(a) The owner or operator of a Class II enhanced ail recovery or enhanced as				
1719 1720	(a) The owner or operator of a Class II enhanced oil recovery or enhanced gas				
	recovery well that requests an expansion of the areal extent of an existing aquifer exemption for the avaluation purpose of Class VI injection for geologic acquestration shall define (by permittive				
1721	the exclusive purpose of Class VI injection for geologic sequestration shall define (by narrative				
1722	description, illustrations, maps, or other means) and describe (in geographic and/or geometric				
1723	terms such as vertical and lateral limits and gradient that are clear and definite) all aquifers or				
1724	parts thereof that are requested to be designated as exempted using the criteria in subparagraphs $(h)(i)(A)$ (C) of this Section				
1725	(b)(i)(A)-(C) of this Section.				
1726					
1727	(b) The Administrator may consider a request from an owner or operator of permitted				
1728	Class II injection well to convert its well to a Class VI well and expand the areal extent of the				
1729	existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption for the				
1730	exclusive purpose of Class VI injection for geologic sequestration.				
1731					
1732	(i) The Administrator may approve the request if the existing aquifer				
1733	exemption and the well meet the following conditions:				
1734					

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1735	(A) The groundwater does not currently serve as a source of drinking
1736	water;
1737	
1738	(B) The total dissolved solids content of the groundwater is more than
1739	3,000 mg/L and less than 10,000 mg/L; and
1740	
1741	(C) The groundwater is not reasonably expected to supply a public
1742	water system.
1743	
1744	(ii) The Administrator may evaluate a request to expand the areal extent of an
1745	aquifer exemption of a Class II enhanced oil recovery or enhanced gas recovery well for the
1746	purpose of Class VI injection if the Administrator:
1747	
1748	(A) Determines that the request meets the criteria for exemptions in
1749	subparagraphs (b)(i)(A)-(C) of this Section;
1750	
1751	(B) Determines that the proposed injection operation will not at any
1752	time endanger USDWs including non-exempted portions of the injection formation; and
1753	time changer 05D ws merading non-exempted portions of the injection formation, and
1754	(C) Considers, in making the determinations required by
1755	subparagraphs (b)(ii)(A)-(B) of this Section, the following:
1756	subparagraphs (b)(h)(A)-(b) of this section, the following.
1750	(I) Current and potential future use of the USDWs to be
1757	
	exempted as drinking water resources;
1759 1760	(II) The predicted extent of the injected earbon dioxide plume
1760	(II) The predicted extent of the injected carbon dioxide plume,
1761	and any mobilized fluids that may result in degradation of water quality over the lifetime of the
1762	geologic sequestration project, as informed by computational modeling performed pursuant to
1763	Section 13(b)(i) of this Chapter;
1764	
1765	(III) Whether the areal extent of the expanded aquifer exemption
1766	is of sufficient size to account for any possible revisions to the computational model during
1767	reevaluation of the area of review, pursuant to Section 13(c) of this Chapter; and
1768	
1769	(IV) Any information submitted to support an injection depth
1770	waiver request pursuant to Section 15 of this Chapter.
1771	
1772	(c) Approvals under this Section are not final until:
1773	
1774	(i) The Administrator submits the request as a revision to the state-
1775	administered program under 40 C.F.R. Part 147 or as a substantial revision of a state program
1776	under 40 C.F.R. § 145.32; and
1777	
1778	(ii) EPA approves the revision.
1779	

1780 1781	Section	n 1 <b>7.</b>	Loggi	ing, Sampling, and Testing Prior to Injection Well Operation.
1781	(a)	Durin	o the dr	illing and construction of a Class VI injection well, the owner or
1783			0	te logs, surveys, and tests to determine or verify the depth, thickness,
1784	1			logy, and salinity of any formation fluids in all relevant geologic
1785	1 . 1		•	Il meets the construction requirements of Section 14 of this Chapter
1786				eline data against which future measurements may be compared.
1787	The owner or	operato	or shall	submit to the Administrator a descriptive report prepared by a
1788				hat includes an interpretation of the results of the logs and tests. At a
1789	minimum, the	logs an	nd tests	shall include:
1790				
1791		(i)		tion checks measured during drilling on all holes constructed by
1792	0 1			bsequently enlarged by reaming or another method. Deviation
1793				y frequent intervals to determine the location of the borehole and to
1794			venues	for fluid movement in the form of diverging holes are not created
1795 1796	during drilling	,		
1790		(ii)	Befor	e and upon installation of the surface casing:
1797		(11)	Deloi	e and upon instantion of the surface casing.
1799			(A)	Resistivity, spontaneous potential, and caliper logs before the
1800	casing is instal	lled: ar	. ,	resistivity, spontaneous potential, and earlier rogs cerere are
1801				
1802			(B)	A cement bond and variable density log, or other approved device
1803	to evaluate cer	ment q	· · /	adially with sufficient resolution to identify channels, voids, or other
1804	areas of missir	ng cem	ent and	a temperature log after the casing is set and cemented;
1805		-		
1806		(iii)	Befor	e and upon installation of the long string casing:
1807				
1808			(A)	Resistivity, spontaneous potential, porosity, caliper, gamma ray,
1809		-	-	other logs the Administrator requires for the given geology before
1810	the casing is ir	nstallec	i; and	
1811			$(\mathbf{D})$	A semant band and variable density last and a term evolution last
1812 1813	after the casing	a is act	(B)	A cement bond and variable density log, and a temperature log
1815 1814	arter the casing	g is set		וווכוווכע,
1814		(iv)	Tests	designed to demonstrate the internal and external mechanical
1815	integrity of ini	` '		which may include:
1817	integrity of hig		., 0115, 1	
1818			(A)	A pressure test with liquid or gas;
1819			<u>`-</u> /	1
1820			(B)	A tracer survey, such as oxygen-activation logging;
1821				
1822			(C)	A temperature or noise log; and
1823				
1824			(D)	A casing inspection log; and
1825				

1826		(v)	Any a	alternative methods that provide equivalent or better information and
1827	that are require	ed or a	•	d by the Administrator.
1828	1			5
1829	(b)	The o	wner or	r operator shall take whole cores or sidewall cores of the injection
1830	· · /			as well as formation fluid samples from the injection zone(s).
1831		0		I J V
1832		(i)	The o	owner or operator shall submit to the Administrator a detailed report
1833	prepared by a			-
1834	FF			
1835			(A)	Well log analyses (including well logs);
1836			()	······································
1837			(B)	Core analyses; and
1838			(2)	
1839			(C)	Formation fluid sample information.
1840			(0)	i officiation field sample information.
1841		(ii)	The A	Administrator may accept data from cores and fluid samples from
1842	nearby wells it			r operator can demonstrate that such data are representative of
1843	conditions in t			operator can demonstrate that such data are representative of
1844	conditions in t	ne wei	10010.	
1845	(c)	The o	wner oi	r operator shall record the formation fluid temperature, formation
1846				eservoir pressure, and static fluid level of the injection zone(s).
1847	fiuld pri and c	onduct	.1 v Ity, I	eservon pressure, and state find fever of the injection zone(s).
1848	(d)	The o	wner of	r operator shall determine fracture pressures of the injection and
1849				hydrogeologic and geo-mechanical characteristics of the injection
1850	0		•	are fall-off test, any other test requested by the Administrator, and:
1851	Zone by condu	cting a	i pressu	the ran-off test, any other test requested by the ranninstrator, and.
1852		(i)	Δ חוות	mp test; or
1853		(1)	71 pui	
1854		(ii)	Inject	tivity tests.
1855		(11)	inject	
1856	(e)	The o	wner of	r operator shall provide the Administrator with the opportunity to
1857				ng by this section. The owner or operator shall submit a schedule of
1858				istrator prior to conducting the first test and shall notify the
1859				es to the schedule thirty (30) days prior to the next scheduled test.
1860	Administrator	or any	change	es to the schedule unity (50) days prior to the next scheduled test.
1860	Section	n 18	Inioc	tion Well Operating Requirements.
1862	Section	1 10.	mjec	tion wen Operating Requirements.
1862	(a)	Theo	whar of	r operator shall ensure that injection pressure does not exceed ninety
1863				re pressure of the injection zone(s) to ensure that the injection does
1865				propagate existing fractures in the injection zone(s).
1865	not initiate nev	w mact	ules of	propagate existing fractures in the injection zone(s).
		$(\mathbf{i})$	In no	and may injection processing acres may among a finiaction or
1867 1868	formation flui	(i)		case may injection pressure cause movement of injection or r that and angers a USDW, or otherwise threatons human health
1868				r that endangers a USDW, or otherwise threatens human health,
1869	safety, or the e	nviron	iment.	
1870				

1871 In no case may injection pressure initiate fractures in the confining zones (ii) 1872 or cause the movement of injectate or formation fluids that endangers a USDW or otherwise 1873 threatens human health, safety, or the environment. 1874 1875 Injection of the carbon dioxide stream between the outermost casing protecting (b) 1876 USDWs and the wellbore is prohibited. 1877 1878 The owner or operator shall fill the annulus between the tubing and the long string (c) 1879 casing with a non-corrosive fluid approved by the Administrator. The owner or operator shall 1880 maintain on the annulus a pressure that exceeds the operating injection pressure, unless the 1881 Administrator determines that such requirement might harm the integrity of the well or endanger 1882 USDWs. 1883 1884 (d) Other than during periods of well workover or maintenance approved by the 1885 Administrator in which the sealed tubing-casing annulus is, by necessity, disassembled for 1886 maintenance or corrective procedures, the owner or operator shall maintain mechanical integrity 1887 of the injection well at all times. 1888 1889 The owner or operator shall install and use continuous recording devices to (e) 1890 monitor: 1891 1892 (i) Injection pressure; and 1893 1894 (ii) Injection rate, volume, and temperature of the carbon dioxide stream. 1895 1896 (f) The owner or operator shall install and use continuous recording devices to 1897 monitor the pressure on the annulus between the tubing and the long string casing and annulus fluid volume. 1898 1899 1900 The owner or operator shall install, test, and use alarms and automatic surface (g) 1901 shut-off systems or, at the discretion of the Administrator, use down-hole shut-off systems (e.g., 1902 automatic shut-off, check valves) or other mechanical devices that provide equivalent protection, 1903 designed to alert the operator and shut-in the well when operating parameters such as injection 1904 rate, injection pressure, or other parameters approved by the Administrator diverge beyond 1905 ranges or gradients specified in the permit. 1906 1907 (h) If an automatic shutdown is triggered or a loss of mechanical integrity is 1908 discovered, the owner or operator shall immediately investigate and identify as expeditiously as 1909 possible the cause. If, upon such investigation, the well appears to be lacking mechanical 1910 integrity, or if monitoring required under paragraphs (e), (f), and (g) of this Section otherwise 1911 indicates that the well may be lacking mechanical integrity, the owner or operator shall: 1912 1913 (i) Immediately cease injection; 1914

1915		(ii)	Take all steps reasonably necessary to determine whether there may l	have
1916	been a release	of the i	njected carbon dioxide stream or formation fluids into any unauthoriz	zed
1917	zone;		5 <b>.</b> .	
1918	,			
1919		(iii)	Notify the Administrator within twenty-four (24) hours;	
1920			5	
1921		(iv)	Restore and demonstrate mechanical integrity to the satisfaction of the	ne
1922	Administrator	· /	as practicable and prior to resuming injection; and	
1923				
1924		(v)	Notify the Administrator when injection can be expected to resume.	
1925			- · · · · · · · · · · · · · · · · · · ·	
1926		Section	19. Mechanical Integrity.	
1927		Beeno		
1928	(a)	A Clas	VI well has mechanical integrity if:	
1929	(u)		vi won has meenamear meesney n.	
1930		(i)	There is no significant leak in the casing, tubing, or packer; and	
1930		(1)	There is no significant reak in the easing, tability, or packer, and	
1932		(ii)	There is no significant fluid movement into a USDW through channe	ale
1932	adjacent to the	· /		215
1933	adjacent to the	injeen	n wendore.	
1935	(b)	Toeva	uate the absence of significant leaks under subparagraph (a)(i) of this	e
1936			erators shall, following an initial annulus pressure test, continuously	3
1930		1	sure, rate, injected volumes, and pressure on the annulus between tub	ina
1938			annulus fluid volume as specified in Section 18(e)-(f) of this Chapte	
1938	long sunig cas	sing, and	annulus nulu volume as specified in Section 18(e)-(1) of this Chapte	л.
1939 1940	(a)	At loo	t once per year, the owner or operator shall use one (1) of the following	owing
1940 1941	(c)		· · ·	-
1941	Section:	lemme	the absence of significant fluid movement under subparagraph (a)(ii)	oruns
	Section.			
1943 1944		$(\mathbf{i})$	An annexed tracer approximate as an express activation loss on	
1944 1945		(i)	An approved tracer survey such as an oxygen-activation log; or	
1945 1946		(;;)	A temperature or poice log	
		(ii)	A temperature or noise log.	
1947		<b>TC</b>	ind her the Administration of a function of a final in the testing	1
1948	(d)	-	ired by the Administrator, at a frequency specified in the testin	0
1949	01	1	red in Section 20 of this Chapter, the owner or operator shall run a d	casing
1950	inspection log	to dete	mine the presence or absence of corrosion in the long-string casing.	
1951				
1952	(e)		ministrator may require any other test to evaluate mechanical integrit	
1953			e Administrator may allow the use of a test to demonstrate mechanica	
1954			ose listed in paragraph (c) of this Section with the written approval of	
1955			r. To obtain approval, the Administrator shall submit a written reques	
1956		dminis	rator that shall set forth the proposed test and all technical data suppo	rting
1957	its use.			
1958				

1959 In conducting and evaluating the tests enumerated in this section or others to be (f) 1960 allowed by the Administrator, the owner or operator and the Administrator shall apply methods 1961 and standards generally accepted in the industry. 1962 1963 When the owner or operator reports the results of mechanical integrity (i) 1964 tests to the Administrator, the owner or operator shall include a description of the tests and the 1965 methods used. 1966 1967 In making an evaluation, the Administrator shall review monitoring and (ii) 1968 other test data submitted since the previous evaluation. 1969 1970 The Administrator may require additional or alternative tests if the results (g) 1971 presented by the owner or operator under paragraph (e) of this Section are not satisfactory to the 1972 Administrator to demonstrate that there is no significant leak in the casing, tubing or packer and 1973 that there is no significant movement of fluid into or between USDWs resulting from the 1974 injection activity. 1975 1976 Section 20. **Testing and Monitoring Requirements.** 1977 1978 (a) The owner or operator of a Class VI well shall prepare, maintain, and comply 1979 with a testing and monitoring plan to verify that the geologic sequestration project is operating as 1980 permitted and is not endangering USDWs. The testing and monitoring plan shall be submitted 1981 with the permit application, shall be subject to Administrator approval, and shall include a 1982 description of how the owner or operator will meet the requirements of this Section, including 1983 accessing sites for all necessary monitoring and testing during the life of the project. 1984 1985 In addition to the requirements of W.S. § 35-11-313, testing and monitoring (b) associated with geologic sequestration projects shall include: 1986 1987 1988 Analysis of the carbon dioxide stream with sufficient frequency to yield (i) 1989 data representative of its chemical and physical characteristics; 1990 1991 (ii) Installation and use, except during well workovers, of continuous 1992 recording devices to monitor: 1993 1994 (A) Injection pressure; 1995 1996 **(B)** Injection rate and volume; 1997 1998 (C) Pressure on the annulus between the tubing and the long string 1999 casing; 2000 2001 The annulus fluid volume added; and (D) 2002 2003 (E) The pressure on the annulus between the tubing and the long string 2004 casing;

2005	
2006	(iii) Corrosion monitoring of the well materials for loss of mass, loss of
2007	thickness, cracking, pitting, and other signs of corrosion, which shall be performed and recorded
2008	at least quarterly to ensure that the well components meet the minimum standards for material
2009	strength and performance set forth in Section 14(b) of this Chapter by:
2010	
2011	(A) Analyzing coupons of the well construction materials placed in
2012	contact with the carbon dioxide stream;
2012	
2013	(B) Routing the carbon dioxide stream through a loop constructed with
2014	the material used in the well and inspecting the materials in the loop; or
2015	the material used in the wen and inspecting the materials in the loop, of
2010	(C) Using an alternative method approved by the Administrator;
2017	(C) Using an alternative method approved by the Administrator,
2018	(iv) Periodic monitoring of the groundwater quality and geochemical changes
2020	above the confining zones that may be a result of carbon dioxide movement or displaced
2021	formation fluid movement through the confining zones or additional zones. The monitoring wells
2022	shall:
2023	
2024	(A) Use specific information about the geologic sequestration project,
2025	including injection rate and volume, geology, the presence of artificial penetrations, and other
2026	relevant factors to establish the location and number of monitoring wells; and
2027	
2028	(B) Use baseline geochemical data that have been collected under
2029	Section 10(b)(xvi) of this Chapter and any modeling results in the area of review evaluation
2030	required by Section 13(b) of this Chapter to establish the monitoring frequency and spatial
2031	distribution of monitoring wells;
2032	
2033	(v) A demonstration of external mechanical integrity pursuant to Section
2034	19(c) at least once per year until the well is plugged;
2035	
2036	(vi) If required by the Administrator, a casing inspection log pursuant to
2037	requirements of Section 19(d) of this Chapter at a frequency established in the testing and
2038	monitoring plan;
2039	
2040	(vii) A pressure fall-off test that identifies reservoir conditions with respect to
2041	flow dynamics at least once every five (5) years, unless more frequent testing is required by the
2042	Administrator based on site-specific information;
2043	
2044	(viii) Testing and monitoring to track the extent of the carbon dioxide plume,
2045	the position of the pressure front, and surface displacement using:
2046	
2047	(A) Direct methods in the injection zone(s); and
2048	

2049 **(B)** Indirect methods in the injection zone (e.g., seismic, electrical, 2050 gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools) unless the 2051 Administrator determines, based on site-specific geology, that such methods are not appropriate; 2052 2053 Based on site-specific conditions, surface air monitoring or soil gas (ix) 2054 monitoring to detect movement of carbon dioxide that could endanger a USDW or otherwise 2055 threaten human health, safety, or the environment; 2056 2057 (A) The surface air or soil gas monitoring plan shall: 2058 2059 (I) Be based on potential risks to USDWs, and modeling 2060 within the area of review; 2061 2062 (II) Use baseline data to establish the monitoring frequency and 2063 spatial distribution of surface air monitoring or soil gas monitoring; and 2064 2065 (III) Specify how the proposed monitoring will yield useful 2066 information for the area of review delineation and the potential movement of fluid: 2067 2068 (1.)Containing any contaminant into USDWs in 2069 exceedance of any primary drinking water regulation under 40 C.F.R. Part 141; or 2070 2071 (2.)Which may otherwise adversely affect human 2072 health, safety, or the environment; 2073 2074 **(B)** If an owner or operator demonstrates that monitoring employed 2075 under 40 C.F.R. §§ 98.440 to 98.449 accomplishes the goals of subparagraph (b)(ix)(A) of this 2076 Section, the Administrator shall approve the use of monitoring employed under 40 C.F.R. §§ 2077 98.440 to 98.449. An owner or operator who uses monitoring employed under 40 C.F.R. §§ 2078 98.440 to 98.449 to meet the requirements of this Section shall comply with 40 C.F.R. §§ 98.440 2079 to 98.449; 2080 2081 (x) Any additional monitoring, as required by the Administrator, necessary to 2082 support, upgrade, and improve computational modeling of the area of review re-evaluation 2083 required under Section 13(c) of this Chapter and as necessary to demonstrate that there is no 2084 movement of fluid containing any contaminant into USDWs in exceedance of any primary drinking water regulation under 40 C.F.R. Part 141, Subparts E, F, and G, or which could 2085 2086 otherwise adversely affect human health, safety, or the environment; 2087 2088 The owner or operator shall periodically review the testing and monitoring (xi) 2089 plan to incorporate monitoring data collected under this Section, operational data collected under 2090 Section 18 of this Chapter, and the most recent area of review reevaluation performed under 2091 Section 13 of this Chapter. The owner or operator shall review the testing and monitoring plan at 2092 least once every five (5) years. Based on this review, the owner or operator shall submit an 2093 amended testing and monitoring plan or demonstrate to the Administrator that no amendment to 2094 the testing and monitoring plan is needed. Any amendments to the testing and monitoring plan

2095 2096 2097 2098	are subject to approval by the Administrator, shall be incorporated into the permit, and are subject to the permit modification requirements of Section 6 of this Chapter. Amended plans or demonstrations shall be submitted to the Administrator as follows:
2099 2099 2100	(A) Within one (1) year of an area of review reevaluation;
2100 2101 2102 2103	(B) Following any significant changes to the facility, such as addition of monitoring wells or newly permitted injection wells within the area of review; or
2104	(C) When required by the Administrator; and
2105 2106 2107 2108	(xii) A quality assurance and surveillance plan for all testing and monitoring requirements.
2109 2110 2110 2111	(c) The owner or operator shall create and retain records of all monitoring information that include:
2112	(i) The date, time, and exact place, of sampling or measurements;
2113 2114	(ii) The individuals who performed the sampling or measurements;
2115 2116	(iii) The dates analyses were performed;
2117 2118	(iv) The individuals who performed the analyses;
2119 2120	(v) The analytical techniques or methods used; and
2121 2122	(vi) The results of such analyses.
2123 2124	Section 21. Record Retention.
2125 2126 2127 2128	(a) An owner or operator of a Class VI well shall maintain records according to the following schedules:
2128 2129 2130 2131 2132 2133 2134	(i) Calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three (3) years from the date of the sample, measurement, report, or application. This period may be extended by request of the Administrator at any time;
2135 2136	(ii) The nature and composition of all injected fluids until ten (10) years after the completion of any plugging and abandonment procedures under Section 23 of this Chapter;
2137 2138 2139 2140	(iii) All modeling inputs and data used to support area of review reevaluations under Section 13 of this Chapter shall be retained for ten (10) years;

2141	(iv)	The w	rell-plugging report required by Section 23 of this Chapter, the site		
2142	closure report requ	ired by Se	ection 24 of this Chapter, and any post-injection site care data,		
2143	(including data and information used to establish the post-injection site care time frame) shall be				
2144	· ·		llowing site closure;		
2145	(	·) j · ···· · · ·			
2146	(v)	Δ11 da	ta used to complete permit applications shall be retained for the life		
2140			project and for ten (10) years following site closure; and		
2147	of the geologic seq	lucsuation	project and for ten (10) years following site closure, and		
	(:)	A 11 a 41	has manifesting seconds seconds have second to hall be setained for a		
2149	(vi)		her monitoring records required by a permit shall be retained for a		
2150	period of ten (10)	years tono	wing site closure.		
2151					
2152			operator must deliver the records to the Administrator at the		
2153		-	eriod, and the records must thereafter be retained at a location		
2154	designated by the	Administra	ator for that purpose.		
2155					
2156	Section 22	. Repor	rting and Notice Requirements.		
2157					
2158	(a) The	e owner or	operator shall provide the following reports to the Administrator,		
2159	for each Class VI v	well:			
2160					
2161	(i)	Semi-	annual reports. Semi-annual reports required by the permit shall be		
2162			or within thirty (30) days following the end of the period covered in		
2163	the report and shal				
2164	the report and shar	i contain.			
2165		(A)	Any changes to the physical, chemical, and other relevant		
2165	characteristics of t		dioxide stream from the proposed operating data;		
2160			dioxide sitean from the proposed operating data,		
2167		(B)	Monthly average, maximum, and minimum values for injection		
2168	processo flow roto	· · ·	ne, and annular pressure;		
	pressure, now rate		ne, and annular pressure,		
2170		$(\mathbf{C})$	A description of any event that even do an artime normations for		
2171	1	(C)	A description of any event that exceeds operating parameters for		
2172	annulus pressure o	r injection	pressure as specified in the permit;		
2173					
2174		(D)	A description of any event that triggers a shutdown device required		
2175	pursuant to Section	n 18(g) of	this Chapter, and the response taken;		
2176					
2177		(E)	The monthly volume of the carbon dioxide stream injected over the		
2178	reporting period ar	nd project	cumulatively;		
2179					
2180		(F)	Monthly annulus fluid volume added; and		
2181					
2182		(G)	The results of monitoring required by Section 20 of this Chapter;		
2183					
2184	(ii)	Repor	ts, within thirty (30) days, the results of:		
2185	(11)	10por	,		
2186		(A)	Periodic tests of mechanical integrity;		
2100		(11)	remotio tosto or moonumour moorny,		

2188       (B) Any other test of the injection well conducted by the owner or         2189       operator if required by the Administrator; and         2191       (C) Any well workover; and         2192       (iii) Reports, within twenty-four (24) hours, of:         2193       (iii) Reports, within twenty-four (24) hours, of:         2194       (A) Any evidence that the injected carbon dioxide stream or associated         2195       (A) Any evidence that the injected carbon dioxide stream or associated         2196       pressure front may cause an endangerment to a USDW;         2197       (B) Any noncompliance with a permit condition, or malfunction of the         2198       (B) Any triggering of a shut-off system, either down-hole or at the         2201       (C) Any triggering of a shut-off system, either down-hole or at the         2203       urface;         2204       (D) Any release of carbon dioxide to the atmosphere or biosphere         2205       indicated by the surface air or soil gas monitoring or other monitoring technologies required by         2208       (E) Any failure to maintain mechanical integrity.         2209       (b) Owners or operators shall notify the Administrator in writing thirty (30) days in         2111       advance of:         2122       (i) Any planned stimulation activities, other than stimulation for formation         2111 <th>2187</th> <th></th>	2187	
2189       operator if required by the Administrator; and         2191       (C) Any well workover; and         2193       (iii) Reports, within twenty-four (24) hours, of:         2194       (iii) Reports, within twenty-four (24) hours, of:         2195       (A) Any evidence that the injected carbon dioxide stream or associated         2196       (B) Any noncompliance with a permit condition, or malfunction of the         2197       (B) Any noncompliance with a permit condition, or malfunction of the         2198       (B) Any noncompliance with a permit condition, or malfunction of the         2199       (C) Any triggering of a shut-off system, either down-hole or at the         2201       (C) Any release of carbon dioxide to the atmosphere or biosphere         2203       indicated by the surface air or soil gas monitoring or other monitoring technologies required by         2206       Section 14(b)(ix) of this Chapter; and         2207       (b) Owners or operators shall notify the Administrator in writing thirty (30) days in         2211       (i) Any planned well workover;         2212       (i) Any planned stimulation activities, other than stimulation for formation         2213       (i) Any planned stimulation activities, other than stimulation for formation         2211       (ii) Any planned stimulation activities, other than stimulation for formation         2213       (i) Any		(B) Any other test of the injection well conducted by the owner or
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<ul> <li>2227</li> <li>2228 (e) For any aborted or curtailed operation, the owner or operator shall submit to the</li> <li>2229 Administrator a complete report within thirty (30) days of complete termination of the discharge</li> </ul>		
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Administrator a complete report within thirty (30) days of complete termination of the discharge		
2230 or associated activity.		
		or associated activity.
2231	2231	

2232 2233	Section 23.	Injection Well-plugging.
2233 2234 2235 2236 2237	well with a buffer flu	to well-plugging, the owner or operator shall flush each Class VI injection aid, determine bottom hole reservoir pressure, and perform a final external test in accordance with Section 19 of this Chapter.
2238 2239 2240 2241 2242	same schedule as the	owner or operator of a Class VI well shall prepare, maintain, update on the e update to the area of review delineation, and comply with a well-plugging l by the Administrator. The well-plugging plan shall include the following
2242 2243 2244	(i)	Appropriate test or measure to determine bottom hole reservoir pressure;
2245 2246 2247	(ii) as specified in Section	Appropriate testing methods to ensure final external mechanical integrity on 19 of this Chapter;
2248 2249	(iii)	The type and number of plugs to be used;
2250 2251 2252	(iv) of each plug;	The placement of each plug including the elevation of the top and bottom
2252 2253 2254 2255	(v) carbon dioxide strea	The type and grade and quantity of material, suitable for use with the m, to be used in plugging; and
2255 2256 2257	(vi)	A description of the method of placement of the plugs.
2258 2259 2260 2261	the Administrator, sl	amendments to the injection well-plugging plan are subject to approval by nall be incorporated into the permit if approved, and are subject to the permit ments of Section 6 of this Chapter.
2261 2262 2263 2264	(d) The o days before plugging	owner or operator shall notify the Administrator, in writing, at least sixty (60) g a well.
2265 2266 2267 2268	(i) owner or operator sh plug the well.	If any changes have been made to the original well-plugging plan, the all also provide the revised well-plugging plan with notice of its intent to
2269 2270	(ii)	The Administrator may allow a shorter notice period.
2271 2272 2273		in sixty (60) days after completion of plugging and abandonment of a well or or operator shall submit to the Administrator a final report that includes:
2274 2275 2276	(i) specifications by a li	Certification of completion in accordance with approved plans and censed professional engineer or a licensed professional geologist; and

2277	(ii)	Certification of accuracy by the owner or operator and by the person who
2278	performed the pluggi	ng operation (if other than the owner or operator).
2279	1 1 00	
2280	Section 24.	Post-injection Site Care and Site Closure.
2281		·
2282		wner or operator of a Class VI well shall prepare, maintain, update on the
2283		update to the area of review delineation, and comply with a plan for post-
2284	5	d site closure that meets the requirements of subparagraph (a)(ii) of this
2285 2286	Section and is approv	ved by the Administrator.
2287	(i)	The post-injection site care and site closure plan is subject to approval by
2288		consultation with EPA.
2289		
2290	(ii)	The post-injection site care and site closure plan shall include the
2291	following informatio	1 5 1
2292	iono wing informatio	
2293		(A) A demonstration containing substantial evidence that the geologic
2293	sequestration project	will no longer pose a risk of endangerment to USDWs and will not harm or
2295		an health, safety, or the environment at the end of the post-injection site
2295	1	demonstration shall be based on significant, site-specific data and
2290		• •
		ag all data and information collected pursuant to Sections 10 and 12 of this
2298	Chapter;	
2299		
2300		(B) The site closure plan shall address all reclamation, monitoring, and
2301		at to show that the carbon dioxide stream injected into the geologic
2302	-	ll not harm human health, safety, the environment, or drinking water
2303	supplies;	
2304		
2305		(C) Detailed plans for post-injection monitoring, verification,
2306	maintenance, and mi	tigation;
2307		
2308		(D) The pressure differential between pre-injection and predicted post-
2309	injection pressures in	the injection zone;
2310		
2311		(E) The predicted position of the carbon dioxide plume and associated
2312	pressure front at the	time when plume movement has ceased and pressure differentials sufficient
2313	to cause the moveme	nt of injected fluids or formation fluids into a USDW are no longer present,
2314	as demonstrated in th	he area of review evaluation required under Section 13(b)(i) of this Chapter;
2315		
2316		(F) A description of post-injection monitoring locations, methods, and
2317	proposed frequency;	
2318		
2319		(G) A proposed schedule for submitting post-injection site care
2320	monitoring results p	ursuant to Section 22(c) of this Chapter;
2320	Position pr	

2322 2323 2324	(H) The duration of the post-injection site care timeframe that ensures compliance with subparagraph (A) of this paragraph;
2325 2326 2327	(I) The results of computational modeling performed pursuant to delineation of the area of review under Section 13 of this Chapter;
2328 2329	(J) The predicted timeframe for pressure decline:
2330	(I) Within the injection zone and any other zones such that
2331	formation fluids may not be forced into any USDWs; or
2332	
2333	(II) To pre-injection pressures;
2334	
2335	(K) The predicted rate of carbon dioxide plume migration within the
2336	injection zone, and the predicted timeframe for the cessation of migration;
2337	
2338	(L) A description of the site-specific processes that will result in
2339	carbon dioxide trapping including immobilization by capillary trapping, dissolution, and
2340	mineralization at the site;
2341	
2342	(M) The predicted rate of carbon dioxide trapping in the immobile
2343	capillary phase, dissolved phase, and mineral phase;
2344	
2345	(N) The results of laboratory analyses, research studies, and field or
2346	site-specific studies to verify the information required in subparagraphs (J) and (K) of this
2347	paragraph;
2348	
2349	(O) A characterization of the confining zones including a
2350	demonstration that they are free of transmissive faults, fractures, and micro-fractures and of
2351	appropriate thickness, permeability, and integrity to impede fluid (including carbon dioxide and
2352	formation fluids) movement;
2353	
2354	(P) The presence of potential conduits for fluid movement, including
2355	planned injection wells and project monitoring wells associated with the proposed geologic
2356	sequestration project or any other projects in proximity to the predicted or modeled final extent
2357	of the carbon dioxide plume and area of elevated pressure;
2358	
2359	(Q) A description of the well construction and an assessment of the
2360	quality of plugs of all abandoned wells within the area of review;
2361	
2362	(R) The distance between the injection zone and the nearest USDWs
2363	above and below the injection zone; and
2364	
2365	(S) Any additional site-specific factors required by the Administrator.
2366	

2367 Information submitted to support the demonstration in subparagraph (a)(ii) (iii) of this Section shall meet the following criteria: 2368 2369 2370 (A) All analyses and tests performed shall be accurate, reproducible, and performed in accordance with industry standards; 2371 2372 2373 **(B)** Estimation techniques shall be appropriate; 2374 2375 (C) EPA-certified test protocols shall be used where available; 2376 2377 (D) Predictive models shall be appropriate and tailored to the site 2378 conditions, composition of the carbon dioxide stream and injection, and site conditions over the 2379 life of the geologic sequestration project; 2380 2381 Predictive models shall be calibrated using existing information (E) 2382 (which may be obtained from Class I, Class II, Class V experimental technology, or Class VI well sites) where sufficient data are available; 2383 2384 2385 Reasonably conservative values and modeling assumptions shall (F) 2386 be used and disclosed to the Administrator whenever values are estimated on the basis of known, 2387 historical information instead of site-specific measurements; 2388 2389 (G) An analysis shall be performed to identify and assess aspects of the 2390 post-injection site care timeframe demonstration that contribute significantly to uncertainty. The 2391 owner or operator shall conduct sensitivity analyses to determine the effect that significant 2392 uncertainty may contribute to the modeling demonstration; 2393 2394 An approved quality assurance and quality control plan shall (H) 2395 address all aspects of the demonstration; and 2396 2397 **(I)** Any additional criteria required by the Administrator shall be met. 2398 2399 (iv) Upon cessation of injection, owners or operators of Class VI wells shall 2400 either submit an amended post-injection site care and site closure plan or demonstrate to the 2401 Administrator through monitoring data and modeling results that no amendment to the plan is needed. Any amendments to the post-injection site care and site closure plan shall be: 2402 2403 2404 (A) Subject to approval by the Administrator; 2405 2406 **(B)** Incorporated into the permit; and 2407 2408 (C) Subject to the permit modification requirements of Section 6 of 2409 this Chapter. 2410

2411 The owner or operator may amend the post-injection site care and site  $(\mathbf{v})$ 2412 closure plan. The owner or operator shall re-submit the post-injection site care and closure plan 2413 for the Administrator's approval within thirty (30) days of amending the plan. 2414 2415 Upon receipt of the Administrator's approval of the post-injection site care (vi) 2416 and site closure plan, the owner or operator shall submit the proposed cost estimate for 2417 measurement, monitoring, and verification of plume stabilization required by Section 26(i) of 2418 this Chapter. 2419 2420 (b) The owner or operator shall monitor the site following the cessation of injection 2421 to ascertain the position of the carbon dioxide plume and pressure front and demonstrate that 2422 USDWs are not being endangered. 2423 2424 (i) The owner or operator shall continue to conduct monitoring as specified in 2425 the Administrator-approved post-injection site care and site closure plan until the Administrator 2426 certifies site closure pursuant to Section 24(b)(iii) of this Chapter. 2427 2428 (ii) The owner or operator may request that the post-injection site care and site 2429 closure plan be revised to reduce the frequency of monitoring, and the Administrator may 2430 approve the request if the owner or operator demonstrates that the plan should be revised. 2431 2432 Prior to certification of site closure, the owner or operator shall (iii) 2433 demonstrate to the Administrator, based on monitoring, other site-specific data, and modeling 2434 that is reasonably consistent with site performance, that no additional monitoring is needed to 2435 ensure that the geologic sequestration project does not, and is not expected to endanger a USDW or otherwise threaten human health, safety, or the environment. In addition, the owner or 2436 2437 operator shall demonstrate, based on the best available understanding of the site including 2438 monitoring data and modeling, that all other site closure standards and requirements have been 2439 met. 2440 2441 If the owner or operator does not demonstrate that the requirements of (iv) 2442 subparagraph (b)(iii) of this Section have been met, the owner or operator shall continue post-2443 injection site care. 2444 2445 The owner or operator shall notify the Administrator, in writing, at least (v) 2446 120 days before filing a request for site closure. At this time, if any changes have been made to the original post-injection site care and site closure plan, the owner or operator shall also provide 2447 2448 the revised plan. The Administrator may allow a shorter notice period. 2449 2450 Post-injection site care shall continue for a period that meets the criteria of (vi) W.S. § 35-11-313(f)(vi)(F). 2451 2452 2453 (c) After the Administrator has certified site closure, the owner or operator shall plug 2454 monitoring wells in a manner approved by the Administrator that will not allow movement of 2455 injection or formation fluids. 2456

2457 The owner or operator shall submit a site closure report within ninety (90) days (d) 2458 after completion of all closure operations. The report shall include: 2459 2460 Documentation of injection and monitoring well-plugging that meets the (i) 2461 requirements of Section 23 of this Chapter and paragraph (c) of this Section; 2462 2463 A copy of a survey plat that has been submitted to the local zoning (ii) 2464 authority designated by the Administrator, and: 2465 2466 (A) The plat shall indicate the location of the injection well(s) and monitoring wells relative to permanently surveyed benchmarks; and 2467 2468 2469 **(B)** The owner or operator shall also submit a copy of the plat to the 2470 US EPA Regional Administrator; 2471 2472 Documentation of appropriate notification and information to the State, (iii) 2473 local and tribal authorities that have authority over drilling activities to enable them to impose 2474 appropriate conditions on subsequent drilling activities that may penetrate the injection and 2475 confining zones; 2476 2477 Proof that the owner or operator has: (iv) 2478 2479 (A) Published notice of the application for site closure, including a 2480 mechanism to request a public hearing, in a newspaper of general circulation in each county of 2481 the proposed operation at weekly intervals for four (4) consecutive weeks; and 2482 2483 **(B)** Mailed notice of the application for site closure to all surface 2484 owners, mineral claimants, mineral owners, lessees, and other owners of record of subsurface 2485 interests that are located within one (1) mile of the proposed boundary of the geologic 2486 sequestration site; and 2487 2488 (v) Records of the nature, composition, and volume of the carbon dioxide 2489 stream. 2490 2491 Each owner or operator of a Class VI injection well shall record a notation on the (e) 2492 deed to the facility property or any other document that is normally examined during title search 2493 that will in perpetuity provide notice to any potential purchaser of the property, and shall file an 2494 affidavit in accordance with W.S. § 35-11-313(f)(vi)(G), that includes the following information: 2495 2496 (i) The fact that land has been used to sequester carbon dioxide; 2497 2498 (ii) The name of the State agency, local authority, or Tribe with which the 2499 survey plat was filed, as well as the address of the EPA regional office to which it was 2500 submitted: and 2501

2502		(iii)	The vo	lume of fluid injected, the injection zone or zones into which it was
2503	injected, and t	he perio	od over	which injection occurred.
2504		-		•
2505	Section	n 25.	Emerg	gency and Remedial Response.
2506				-
2507	(a)	All ow	vners or	operators of a Class VI well shall develop, maintain, and comply
2508	with an emerg	ency ar	nd remed	dial response plan that describes actions to be taken to address
2509				formation fluids that endangers a USDW or threatens human
2510				nent during construction, operation, closure, and post-closure
2511	periods.			
2512	1	(i)	The en	nergency and remedial response plan shall be reviewed and updated,
2513	as necessary.			edule as the update to the area of review delineation.
2514	··~ · · · · · · · · · · · · · · · ·			
2515		(ii)	Anv ar	nendments to the emergency and remedial response plan shall be
2516	subject to appr	· /		ministrator, shall be incorporated into the permit, and are subject to
2517		•		rements of Section 6 of this Chapter. Amendments to the
2518	-		-	onse plan shall be submitted to the Administrator as follows:
2519	ennergeney and		indi resp	onse plan shari de suchinice to the Hammistrator as fonows:
2520			(A)	Within one (1) year of an area of review reevaluation;
2520			(11)	(i) fuill one (i) your of an area of review reevaluation,
2522			(B)	Following any significant changes to the facility, such as addition
2523	of injection or	monite	· /	
2524	or injection of	monne	ing we	
2525			(C)	When required by the Administrator.
2526			(0)	when required by the raministrator.
2520		(iii)	The en	nergency and remedial response plan shall account for the entire
2528	area of review	· /		suant to Section 13 of this Chapter, regardless of whether corrective
2529	action in the a		-	1 0
2530	detion in the d			, phased.
2530	(b)	If any	monitor	ing data or other information indicate that any contaminant, the
2532	· · ·	•		n, displaced formation fluids, or associated pressure front may
2532				n human health, safety, or the environment, the owner or operator
2534	shall:		uncuto	in numum neurun, surety, or the environment, the owner or operator
2535	siluii.			
2536		(i)	Immed	liately cease injection;
2530		(1)	mmea	hatery cease injection,
2538		(ii)	Take a	ll steps reasonably necessary to identify and characterize any
2539	release;	(11)	Take a	in steps reasonably necessary to ruentify and characterize any
2540	Telease,			
2540		(iii)	Orally	notify the Administrator within twenty-four (24) hours of
2542	discovering th	· /	•	
2543	uiscovering th	e condi	uon, and	u
2543		(iv)	Drovid	e a written report to the Administrator within five (5) days of
2545	discovering th			e written report to the Administrator within rive (3) days of
2545 2546	uiscovering th	c condi	uon. 111	e which report shan contain.
2540 2547			(A)	A description of the noncompliance and its cause;
2JT1			(11)	r description of the noncompliance and its cause,

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2548	
2549	(B) The period of noncompliance, including exact dates and times,
2550	and, if the noncompliance has not been controlled, the anticipated time it is expected to continue;
2551	and
2552	
2553	(C) Steps taken or planned to reduce, eliminate, and prevent
2554	reoccurrence of the noncompliance.
2555	
2556	(c) If an owner or operator discovers any noncompliance with a permit condition or a
2557	requirement of this Chapter that may cause fluid migration into or between USDWs, any
2558	malfunction of the injection system that may cause fluid migration into or between USDWs, or
2559	any excursion, the owner or operator shall:
2560	
2561	(i) Orally notify the Administrator within twenty-four (24) hours of
2562	discovering the condition;
2563	discovering the condition;
2565 2564	(ii) Provide a written report to the Administrator within five (5) days of
2565	discovering the condition, which shall contain:
2565 2566	discovering the condition, which shan contain.
2567	(A) A description of the noncompliance, malfunction, or excursion and
2568	its cause;
2568 2569	its cause,
2570	(B) The period of noncompliance, malfunction, or excursion, including
2571	exact dates and times, and, if the noncompliance, malfunction, or excursion has not been
2572	controlled, the anticipated time it is expected to continue;
2573	$(\mathbf{C})$ . Stars taken an alarma data wakaza aliminata and maranat
2574	(C) Steps taken or planned to reduce, eliminate, and prevent
2575	reoccurrence of the noncompliance, malfunction, or excursion.
2576	
2577	(iii) If an excursion is discovered, provide written notice to all surface owners,
2578	mineral claimants, mineral owners, lessees, and other owners of record of subsurface interests
2579	within thirty (30) days of discovering the excursion; and
2580	
2581	(iv) Implement the emergency and remedial response plan approved by the
2582	Administrator.
2583	
2584	(d) The Administrator may allow the owner or operator to resume injection prior to
2585	implementing the emergency and remedial response plan if the owner or operator demonstrates
2586	that the injection operation will not endanger USDWs or otherwise threaten human health,
2587	safety, or the environment.
2588	
2589	(e) If any water quality monitoring of a USDW indicates the movement of any
2590	contaminant into the USDW, except as authorized under this Chapter, the Administrator shall
2591	prescribe any additional requirements for construction, corrective action, operation, monitoring,
2592	reporting, or closure of the injection well that are necessary to prevent further movement, and:
2593	

2594 If the well responsible for the movement is authorized by permit, these (i) additional requirements shall be imposed by modifying the permit; or 2595 2596 2597 The Director may terminate or revoke and reissue the permit pursuant to (ii) 2598 Section 7 of this Chapter. 2599 2600 Section 26. **Financial Responsibility.** 2601 2602 Owners or operators of Class VI wells shall establish, demonstrate, and maintain (a) 2603 financial responsibility for all applicable phases of the geologic sequestration project, including complete site reclamation in the event of default. The phases of a geologic sequestration project 2604 2605 are : 2606 2607 (i) Permitting/characterization; 2608 2609 Testing and monitoring, pursuant to Section 20 of this Chapter; (ii) 2610 2611 Operations, including injection and well-plugging, pursuant to Sections 18 (iii) 2612 and 23 of this Chapter; 2613 2614 Post-injection site care, including plume stabilization, monitoring, (iv) 2615 measurement, verification, corrective action, and other actions needed to ensure that 2616 underground sources of drinking water are not endangered from the time of well-plugging until 2617 site closure is certified by the Administrator and above ground-reclamation is completed, 2618 pursuant to Section 24 of this Chapter; and 2619 2620 (v) Emergency and remedial response pursuant to Section 25 of this Chapter. 2621 2622 (b) The owner or operator shall develop and annually update in accordance with 2623 paragraph (f) of this Section, a written financial assurance cost estimate. 2624 2625 (i) The financial assurance cost estimate shall include the cost in current dollars of: 2626 2627 2628 (A) Performing corrective action on other wells in the area of review 2629 that require corrective action under Section 13 of this Chapter; 2630 2631 **(B)** Plugging the injection wells under Section 23 of this Chapter; 2632 2633 (C) Post-injection site care and site closure under Section 24 of this 2634 Chapter; 2635 2636 (D) Testing and monitoring under Section 20 of this Chapter; and 2637 2638 (E) Emergency and remedial response under Section 25 of this 2639 Chapter.

2640			
2641	(ii)	The fi	nancial assurance cost estimate shall consider the following events:
2642			
2643		(A)	Contamination of underground sources of water including,
2644	drinking water supp	. ,	
2645	0 11	,	
2646		(B)	Mineral rights infringement;
2647			
2648		(C)	Single large-volume release of carbon dioxide that impacts human
2649	health and safety or	· · ·	ses ecological damage;
2650	5		
2651		(D)	Low-level leakage of carbon dioxide to the surface that impacts
2652	human health and sa	< <i>'</i>	hat causes ecological damage;
2653			
2654		(E)	Storage rights infringement;
2655		(—)	
2656		(F)	Property and infrastructure damage, including changes to surface
2657	topography and stru		
2658	topographij and sere	••••••••••	
2659		(G)	Entrained contaminant releases of contaminants other than carbon
2660	dioxide;	(0)	
2661	diomae,		
2662		(H)	Accidents and unplanned events;
2663		(11)	recidentes una unprumied eventes,
2664		(I)	Well capping and permitted abandonment; and
2665		(-)	i on cupping and permitted acandomicin, and
2666		(J)	Removal of above-ground facilities and site reclamation.
2667		(0)	
2668	(iii)	The o	wner or operator shall consider the Risk Activity Matrix in
2669			to develop the financial assurance cost estimate.
2670	rependix r or uns	Chapter	to develop the finalicial assurance cost estimate.
2671	(iv)	The fi	nancial assurance cost estimate shall be based upon a multi-
2672			work such as Monte Carlo or other commonly accepted stochastic
2673	modeling tools.	ai muine	work such as monte carlo of other commonly accepted stochastic
2674	modeling tools.		
2675		(A)	Cost curves shall combine risk probabilities, event outcomes, and
2676	damages assessment	. ,	late expected losses under a series of events.
2677	damages assessment		nuce expected rosses under a series of events.
2678		(B)	For all cases of potential damages, the probability distributions
2679	should be identified	· ·	ercent, 95 percent, and 99 percent probabilities of occurrence.
2680	should be identified	101 J0 p	ereent, 95 percent, and 99 percent probabilities of occurrence.
2681	(v)	The o	wner or operator shall perform the financial assurance cost estimate
2682	for each phase separ		when or operator shart perform the infancial assurance cost estimate
2683	ior caen phase separ	atery.	
2684	(vi)	The o	wner or operator shall base the financial assurance cost estimate on
2685			gency of hiring a third party (that is not within the corporate structure
2005	the costs to the regu		sency of mining a unite party (mains not writing the corporate structure

2686	of the owner or operator) to perform the required activities.				
2687					
2688	(1	(vii) The financial assurance cost estimate shall account for the entire area of			
2689	review delineated pursuant to Section 13 of this Chapter.				
2690		1	Ĩ		
2691	(1	viii) The	owner or operator shall submit an updated financial assurance cost		
2692	estimate to the A	Administra	tor annually within thirty (30) days of the anniversary date when the		
2693			e cost estimate was submitted.		
2694	8				
2695	(c) T	he financi	al responsibility instruments used shall be from the following list of		
2696	• •		I shall be submitted on a Wyoming Department of Environmental		
	1	intents and	i shan be sublinited on a wyonning Department of Environmental		
2697	Quality form:				
2698		х т			
2699	(i	) Irre	vocable Trust Funds with government-backed securities;		
2700					
2701	(i	i) Sur	ety Bonds;		
2702					
2703	(i	ii) Irre	vocable Letter of Credit;		
2704					
2705	(i	v) Cas	h; or		
2706					
2707	(1	v) Fed	erally Insured Certificates of Deposit.		
2708	× ×	,			
2709	(d) T	he qualify	ving instruments shall be sufficient to cover the cost of the financial		
2710	assurance cost estimate required in paragraph (b) of this Section.				
2711		Stilliate 10	quirea în purugruph (6) or this section.		
2712	(e) T	he qualify	ving financial responsibility instruments shall comprise protective		
2712			it include at a minimum cancellation, renewal, continuation provisions,		
2713		-	provider becomes liable following a notice of cancellation, and		
2714	requirements for the provider to meet a minimum rating, minimum capitalization, and the ability				
	to pass the bond rating test when applicable.				
2716	to pass the bolid	rating tes	t when applicable.		
2717		× •			
2718	(i		owner or operator shall provide that their financial mechanism may not		
2719	cancel, terminate	e or fail to	renew except for failure to pay such financial instrument.		
2720					
2721		(A)	1 2		
2722	institution may elect to cancel, terminate, or fail to renew the instrument by sending notice by				
2723	certified mail to the owner or operator and the Director;				
2724					
2725		(B)	The cancellation shall not be final for 120 days after receipt of		
2726	cancellation noti	. ,			
2727					
2728		(C)	Within sixty (60) days of notice of cancellation, the owner or		
2729	operator shall pr	· · ·	he Director an alternate financial responsibility demonstration that		
2730	meets the requirements of paragraphs (c), (d), (e), (f), and (g) of this Section; and				
2731			r		

2732	(D) If an alternate financial responsibility demonstration is not			
2733	acceptable (or possible), any funds from the instrument being cancelled shall be released within			
2734	sixty (60) days of notification by the Director.			
2735				
2736	(ii) Owners or operators shall renew all financial instruments, if an instrument			
2737	expires, for the entire term of the geologic sequestration project. The instrument may be			
2738	automatically renewed as long as, at a minimum, the owner or operator has the option of renewal			
2739	at the face amount of the expiring instrument.			
2740	at the face amount of the exprining monument.			
2741	(iii) Cancellation, termination, or failure to renew may not occur and the			
2742	financial instrument shall remain in full force and effect in the event that on or before the date of			
2743	expiration:			
2744	explution.			
2745	(A) The Administrator deems the facility abandoned.			
2745	(A) The Administrator deems the factify abandoned.			
2740	(B) The permit is terminated, revoked, or a new permit is denied.			
2748	(b) The permit is terminated, revoked, of a new permit is defined.			
2748	(C) Closure is ordered by the Director, a U.S. district court, or other			
2749	court of competent jurisdiction.			
2750	court of competent jurisdiction.			
2751	(D) The owner or operator is named as debtor in a voluntary or			
2752	involuntary proceeding under Title 11 (Bankruptcy), U.S. Code.			
	involuntary proceeding under The TT (Bankrupicy), U.S. Code.			
2754	(E) The encount due is resid			
2755	(E) The amount due is paid.			
2756	(f) The qualifying financial regrangibility instruments are subject to approval by the			
2757	(f) The qualifying financial responsibility instruments are subject to approval by the			
2758	Director. The use and length of pay-in-periods for trust funds and escrow accounts are also			
2759	subject to approval by the Director.			
2760				
2761	(i) No Class VI permit shall be issued until and unless the Director has			
2762	considered and approved the financial responsibility demonstration for all phases of the geologic			
2763	sequestration project.			
2764				
2765	(ii) The Director may negotiate a satisfactory financial responsibility			
2766	demonstration or deny a demonstration.			
2767				
2768	(iii) The owner or operator shall provide any updated information related to			
2769	financial responsibility instruments on an annual basis, and if there are any changes, the Director			
2770	shall evaluate the financial responsibility demonstration and determine whether the instruments			
2771	used are adequate. The owner or operator shall maintain financial responsibility requirements			
2772	regardless of the status of the Director's review of the financial responsibility demonstration.			
2773				
2774	(iv) The owner or operator shall provide an adjustment of the financial			
2775	assurance cost estimate to the Administrator within sixty (60) days of receiving notice that the			
2776	Administrator has determined that a demonstration of financial assurance is not adequate to			
2777	cover the cost of corrective action, injection well-plugging, post-injection site care and site			

2778 closure, and emergency and remedial response.

2780 During all phases of the geologic sequestration project, the owner or (v) 2781 operator shall adjust the financial assurance cost estimate for inflation within sixty (60) days prior to the anniversary date of the establishment of the financial instruments used to comply 2782 2783 with this Section and provide this adjustment to the Administrator. The owner or operator shall 2784 also provide to the Administrator written updates of adjustments to the cost estimate within sixty 2785 (60) days of any amendments to the area of review and corrective action plan, the injection well-2786 plugging plan, the post-injection site care and site closure plan, the emergency and remedial 2787 response plan, and mitigation or reclamation costs that the State may incur as a result of any default by the permit holder. 2788

2790 Any decrease or increase to the financial assurance cost estimate shall be (vi)2791 subject to approval by the Administrator. During all phases of the geologic sequestration project, 2792 the owner or operator shall revise the cost estimate no later than sixty (60) days after the 2793 Administrator has approved a request to modify the area of review and corrective action plan, the 2794 injection well-plugging plan, the post-injection site care and site closure plan, or the emergency 2795 and response plan, if the change in the plan increases the cost. If the change to the plan decreases 2796 the cost, any withdrawal of funds is subject to approval by the Administrator. Any decrease to 2797 the value of the financial assurance instrument is subject to approval by the Administrator. 2798

2799 Whenever the current financial assurance cost estimate increases to an (vii) 2800 amount greater than the face amount of a financial instrument currently in use, the owner or 2801 operator, within sixty (60) days after the increase, shall either cause the face amount to be 2802 increased to an amount at least equal to the current financial assurance cost estimate and submit 2803 evidence of such increase to the Administrator, or the owner or operator shall obtain other 2804 financial responsibility instruments to cover the increase. Whenever the current financial 2805 assurance cost estimate decreases, the face amount of the financial assurance instrument may be 2806 reduced to the amount of the current financial assurance cost estimate only after the owner or 2807 operator has received written approval from the Administrator. 2808

(g) The owner or operator may demonstrate financial responsibility by using one (1)
or multiple qualifying financial instruments subject to the following requirements:

(i) Owners or operators that propose to demonstrate financial assurance with
surety bonds shall meet the following requirements:

- 2815 (A) A corporate surety shall not be considered good and sufficient 2816 unless: 2817 2818 (I) It is licensed to do business in the State; 2819 2820 (II) The estimated bond amount does not exceed the limit of 2821 risk as provided for in W.S. § 26-5-110, nor raise the total of all bonds held by the applicant 2822 under that surety above three (3) times the limit of risk; and
- 2823

2779

2789

2824	(III) The surety agrees:
2825	(III) The surery agrees.
2826	(1.) Not to cancel bond unless the Department gives
2827	prior written approval of a good and sufficient replacement surety with transfer of the liability
2828	that has accrued against the operator on the permit area, site, or facility;
2829	
2830	(2.) To be jointly and severally liable with the permittee,
2831	owner, or operator.
2832	
2833	(3.) To provide immediate written notice to the
2834	Department and operator once it becomes unable or may become unable due to any action filed
2835	against it to fulfill its obligations under the bond.
2836	
2837	(B) If for any reason the surety becomes unable to fulfill its obligations
2838	under the bond, the operator shall provide the required notice. Failure to comply with this
2839	provision shall result in suspension of the permit.
2840	
2841	(C) The surety bond shall be submitted on a Wyoming Department of
2842	Environmental Quality form.
2843	
2844	(ii) Owners or operators that propose to demonstrate financial assurance with
2845	cash, or government securities, or a combination of both, shall meet the following requirements:
2846	
2847	(A) Securities that are unencumbered shall only include those that are
2848	United States government securities or state government securities that are acceptable to the
2849	Director. Government securities shall be endorsed to the order of the Department and placed in
2850	possession of the Department. Possession shall be in the form of the cash value of the irrevocable
2851	trust for the full amount of the reclamation obligation and payable to the Department and
2852	federally insured.
2853	
2854	(B) An owner or operator shall satisfy the requirements of this
2855	subsection by establishing an irrevocable trust that conforms to the requirements below and
2856	submitting an originally signed duplicate of the trust agreement to the Director for consideration.
2857	
2858	(I) The irrevocable trust shall be submitted to the Director on
2859	the Wyoming Department of Environmental Quality Irrevocable Trust Form and be signed by
2860	the owner, operator, or guarantor as principal and the financial institution as Trustee, and made
2861	payable to the Department;
2862	
2863	(II) The Trustee shall be a bank organized to do business in the
2864	United States that has the authority to act as a trustee and whose trust operations is regulated and
2865	examined by a federal agency;
2866	
2867	(III) The irrevocable trust shall be cash funded for the full
2868	amount of the financial assurance obligation to be provided in the irrevocable trust before it may
2869	be approved to satisfy the requirements of financial assurance in lieu of a bond. For purposes of

2870 this subsection, "the full amount of the financial assurance obligation to be provided" means the 2871 amount of coverage required to be provided by paragraphs (b) and (i) of this Section, less the 2872 amount of financial assurance obligation that is being provided by other financial assurance 2873 mechanisms being used to demonstrate financial assurance by the owner, operator, or guarantor; 2874 2875 Any bond may be canceled by the surety only after ninety (IV) 2876 (90) days written notice to the Director, and upon receipt of the Director's written consent, which 2877 may be granted only when the requirements of the irrevocable trust have been fulfilled; and 2878 2879 Irrevocable trust forfeiture proceedings shall occur only (V) 2880 after the Department provides notice to the owner or operator and trustee pursuant to W.S. 35-2881 11-701 that a violation exists and the Environmental Quality Council has approved the request of 2882 the Director to begin forfeiture proceedings. 2883 2884 Owners or operators that propose to demonstrate financial assurance with (iii) 2885 irrevocable letters of credit shall meet the following conditions: 2886 2887 (A) The irrevocable letter of credit shall be payable to the Department 2888 in part or in full upon demand and receipt from the Director of a notice of forfeiture issued in 2889 accordance with paragraph (t) of this Section; 2890 2891 The irrevocable letter of credit shall not be in excess of ten percent **(B)** 2892 of the issuing or supporting bank's capital surplus account as shown on a balance sheet liabilities 2893 certified by a certified public accountant; 2894 2895 (C) The Director shall not accept standby letters of credit; 2896 2897 (D) The Director shall not accept letters of credit from a bank for any 2898 person, on all permits held by that person, in excess of the limitations imposed by W.S. §13-3-2899 402; and 2900 2901 (E) The irrevocable letter of credit shall provide that: 2902 2903 (I) The bank will give prompt notice to the owner or operator 2904 and the Director of any notice received or action filed alleging the insolvency or bankruptcy of 2905 the bank or alleging any violations of regulatory requirements that could result in suspension or 2906 revocation of the bank's charter or license to do business: 2907 2908 (II) In the event the bank becomes unable to fulfill its 2909 obligations under the letter of credit for any reason, notice shall be given immediately to the 2910 owner or operator and the Director; and 2911 2912 (III) Upon the incapacity of a bank by reason of bankruptcy, 2913 insolvency, or suspension or revocation of its charter or license, the owner or operator shall be 2914 deemed to be without performance bond coverage in violation of the Act. The Director shall 2915 issue a notice of violation against any owner or operator who is without bond coverage,

2916 specifying a reasonable period to replace bond coverage, not to exceed ninety (90) days. During 2917 this period the Director or the Director's designated representative shall conduct weekly 2918 inspections to ensure continuing compliance with other permit requirements, the regulations and 2919 the Act. If the notice is not abated in accordance with the schedule, a cessation order shall be 2920 issued. 2921 2922 The irrevocable letter of credit may be cancelled by the (IV)2923 surety only after ninety (90) days notice to the Director, and upon receipt of the Director's 2924 written consent, which may be granted only when the requirements of the bond have been 2925 fulfilled. 2926 2927 (F) The irrevocable letter may only be issued by a bank organized to 2928 do business in the U.S. that identifies by name, address, and telephone number an agent upon 2929 whom any process, notice or demand required or permitted by law to be served upon the bank 2930 may be served. 2931 2932 (I) If the bank fails to appoint or maintain an agent in this 2933 State, or whenever any such agent cannot be reasonably found, then the Director shall be an 2934 agent for such bank upon whom any process, notice or demand may be served for the purpose of 2935 this Chapter. In the event of any such process, the Director shall immediately cause one copy of 2936 such process, notice or demand to be forwarded by registered mail to the bank at its principal 2937 place of business. The Director shall keep a record of all processes, notices, or demands served upon him under this paragraph, and shall record therein the time of such service and his action 2938 2939 with reference thereto. 2940 2941 (II) Nothing herein contained shall limit or affect the right to 2942 serve any process, notice or demand required or permitted by law to be served upon the bank in 2943 any other manner now or hereafter permitted by law. 2944 2945 The owner or operator shall maintain financial responsibility and resources until: (h) 2946 2947 (i) The Administrator receives the site closure report and certifies site 2948 closure. 2949 2950 (A) When the conditions of W.S. § 35-11-313(f)(vi)(F) have been met, 2951 the owner or operator may submit a written request to the Administrator to release the retained 2952 financial assurance instruments: and 2953 2954 **(B)** The Administrator shall evaluate the request within sixty (60) days 2955 of the receipt of the financial assurance release request. 2956 2957 (I) If the Administrator finds the owner or operator has 2958 demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met, the Administrator 2959 shall prepare a draft recommendation to the Director to approve the request and provide public 2960 notice pursuant to Section 27 of this Chapter. 2961

2962 (II)Re-submittal of information by an operator for an 2963 incomplete demonstration of the requirements of W.S. § 35-11-313(f)(vi)(F) will restart the 2964 process described in this subsection. 2965 2966 If the Administrator finds the owner or operator has not (III) 2967 demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met, the Administrator 2968 shall prepare a draft recommendation to the Director to deny the request. 2969 2970 After receiving public comment and holding a hearing (if a hearing (C) 2971 is held) pursuant to Section 27 of this Chapter, the Director shall determine whether the operator 2972 has demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met. 2973 2974 (I) If the Director finds the owner or operator has 2975 demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met, the Director shall 2976 notify the owner or operator and request the State Treasurer to release that portion of the final 2977 financial assurance instruments. The State Treasurer shall then return the financial assurance 2978 instruments constituting that portion of the financial assurance so retained. 2979 2980 (II)If the Director finds the owner or operator has not 2981 demonstrated the requirements of W.S. § 35-11-313(f)(vi)(F) have been met, the Director shall 2982 notify the owner or operator by registered mail within a reasonable time after the request is filed. 2983 The notice shall state the reasons for denial and shall recommend corrective actions. 2984 2985 The owner or operator meets the requirements for release from a financial (ii) 2986 instrument in the following circumstances: 2987 2988 (A) The owner or operator has completed the phase of the geologic 2989 sequestration project for which the financial instrument was required and has fulfilled all its 2990 financial obligations as determined by the Director, including obtaining financial responsibility 2991 for the next phase of the geologic sequestration project, if required; 2992 2993 **(B)** The owner or operator has submitted a replacement financial 2994 instrument and received written approval from the Director accepting the new financial 2995 instrument and releasing the owner or operator from the previous financial instrument; or 2996 2997 (C) The owner or operator has submitted a revised financial assurance 2998 cost estimate for the remaining phases of the geologic sequestration project. The revised 2999 financial assurance cost estimate may demonstrate that a partial release of the financial 3000 instrument is warranted and will still provide adequate financial assurance for the remainder of 3001 the geologic sequestration project. Partial release of the financial instrument is at the discretion 3002 of the Director. 3003 3004 (i) Within a reasonable time following certification of site closure by the 3005 Administrator, plume stabilization, the completion of all remediation work, and release of all 3006 other financial assurance instruments, the owner or operator shall submit a proposed cost 3007 estimate for measurement, monitoring, and verification of plume stabilization. The Administrator

3008	shall evaluate and determine whether the proposed cost estimate is adequate.				
3009					
3010	(j) The owner or operator shall notify the Director by certified mail of adverse				
3011	financial conditions, such as bankruptcy, that may affect its ability to complete injection well-				
3012	plugging and post-injection site care and site closure.				
3013					
3014	(i) The owner or operator shall notify the Director by certified mail of the				
3015	commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S.				
3015	Code, naming the owner or operator or the third-party provider of a financial responsibility				
3010	instrument as debtor, within ten (10) days after commencement of the proceeding.				
	instrument as debtor, within ten (10) days after commencement of the proceeding.				
3018					
3019	(ii) An owner or operator who fulfills the requirements of this Section by				
3020	obtaining an irrevocable trust fund, surety bond, or irrevocable letter of credit shall be deemed to				
3021	be without the required financial assurance in the event of:				
3022					
3023	(A) Bankruptcy of the trustee or issuing institution;				
3024					
3025	(B) A suspension or revocation of the authority of the trustee				
3026	institution to act as trustee of the institution issuing the irrevocable trust fund, surety bond, or				
3027	irrevocable letter of credit; or				
3028					
3029	(C) If the license to do business in Wyoming of the surety issuing				
3030	financial assurance is suspended or revoked.				
3030	indicial associate is suspended of revoked.				
3032	(iii) Within sixty (60) days after such an event the owner or operator shall				
3032	establish other financial assurance that meets the requirements of paragraphs (c), (d), (e), (f), and				
3034	(g) of this Section.				
3035					
3036	(k) The Department shall conduct bond forfeiture proceedings pursuant to W.S. § 35-				
3037	11-421. If the forfeited financial assurance instrument is inadequate to cover the costs of the				
3038	closure, mitigation, reclamation, measurement, monitoring, verification, and pollution control,				
3039	the Department may request that the Attorney General bring suit to recover costs against the				
3040	owner, operator, or permittee.				
3041					
3042	(1) The owner or operator shall obtain and maintain public liability insurance for a				
3043	geologic sequestration project.				
3044					
3045	(i) The public liability insurance policy shall:				
3046					
3047	(A) Include coverage for the major risks identified in Appendix A to				
3048	this Chapter;				
3049	and chapter,				
3049	(B) Provide minimum coverage that:				
3050	(b) I for the minimum coverage that.				
	(I) $\Lambda$ counts for site specific risk factor and hard a direction set				
3052	(I) Accounts for site-specific risk factor and bond adjustment				
3053	factor calculations, based on the previous year's information; and				

3054	
3055	(II) Is at least \$15 million per occurrence with an annual
3056	aggregate of at least \$45 million, exclusive of legal defense costs; and
3057	aggregate of at least \$45 minion, exclusive of legal defense costs, and
3058	(C) Include a rider that requires the insurer to notify the Administrator
3059	whenever substantive changes are made to the policy, including any termination or failure to
3060	renew.
3061	
3062	(ii) The owner or operator shall recalculate the minimum coverage amount of
3063	the public liability insurance policy annually and at the same time that the owner or operator
3064	updates the financial assurance cost estimate pursuant to paragraph (b) of this Section. The
3065	owner or operator shall submit a copy of the current public liability insurance policy annually
3066	and at the same time that the owner or operator submits an updated financial assurance cost
3067	estimate pursuant to subparagraph (b)(viii) of this Section.
3068	
3069	(iii) The owner or operator shall maintain the public liability insurance policy
3070	until the Administrator certifies that plume stabilization has been achieved.
3071	1
3072	Section 27. Public Participation, Public Notice and Public Hearing Requirements.
3073	
3074	(a) The Administrator shall give public notice if a draft permit has been prepared,
3075	after receiving a financial assurance release request pursuant to Section 26(h)(i)(A) of this
3076	Chapter and finding the operator has met the requirements of W.S. $35-11-313(f)(vi)(F)$ , or if a
3077	hearing has been scheduled.
3078	nearing has been scheduled.
3079	(i) Public notice of the preparation of a draft permit shall allow at least sixty
3080	(60) days for public comment.
3080	(b) days for public comment.
	(ii) Dublic notice of a bearing or recommondation to release financial
3082	(ii) Public notice of a hearing or recommendation to release financial
3083	assurance after certifying site closure shall be given at least thirty (30) days before the hearing.
3084	
3085	(iii) Public notice of a hearing may be given at the same time as public notice
3086	of the draft permit or of a draft recommendation to release financial assurance after certifying
3087	site closure, and the two notices may be combined.
3088	
3089	(b) Public notice shall be given by:
3090	
3091	(i) Providing a copy of the notice, a copy of the fact sheet, the permit
3092	application (if any), and the draft permit (if any) to the following persons:
3093	
3094	(A) The applicant, by certified or registered mail;
3095	
3096	(B) The U.S. Environmental Protection Agency, Region 8 Drinking
3097	Water Program, by mail;
3098	
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3099 (C) The U.S. Environmental Protection Agency, Underground 3100 Injection Control Program, by mail; 3101 3102 (D) Wyoming Game and Fish Department; 3103 3104 (E) Wyoming State Engineer; 3105 3106 (F) State Historical Preservation Officer; 3107 3108 (G) Wyoming Oil and Gas Conservation Commission; 3109 3110 (H) Wyoming Department of Environmental Quality, Land Quality 3111 Division; 3112 3113 (I) Wyoming State Geological Survey; 3114 3115 (J) Wyoming Water Development Office; 3116 3117 (K) Wyoming Department of Environmental Quality, Air Quality 3118 Division; 3119 3120 (L) Wyoming Department of Environmental Quality, Solid and Hazardous Waste Division: and 3121 3122 3123 (M) U.S. Army Corps of Engineers; 3124 3125 (N) Federal agencies with jurisdiction over fish, shellfish, and wildlife resources and over coastal zone management plans; 3126 3127 3128  $(\mathbf{O})$ The Advisory Council on Historic Preservation; 3129 3130 (P) Any Tribes with Indian reservations and Indian lands identified pursuant to Sections 10(b)(v) and 10(b)(ix)(A)(VII) of this Chapter; 3131 3132 3133 Persons on the mailing list developed by the Department, including **(O)** 3134 those who request in writing to be on the list and participants in hearings in that area who request to be on "area" mailing lists; and 3135 3136 Any unit of state or local government having jurisdiction over the 3137 (R) area where the facility is proposed to be located. 3138 3139 3140 (ii) Publishing the notice in a newspaper of general circulation in the location 3141 of the facility or operation; and 3142

3143		(iii)	At the di	scretion of the Administrator, any other method reasonably	
3144	expected to give actual notice of the proposed action to the persons potentially affected by it,				
3145	including press releases or any other forum or medium to elicit public participation.				
3146	• •				
3147	(c)	All pu	olic notice	es issued under this chapter shall contain the following minimum	
3148	information:	1			
3149					
3150		(i)	Name ar	nd address of the Department;	
3151		(-)			
3152		(ii)	Name ar	ad address of the owner, operator, permittee, or permit applicant,	
3153	and if differen	· /		or activity regulated by the permit;	
3154	und, ir differen	in, or m	e fueling	or den regulated by the permit,	
3155		(iii)	A brief d	lescription of the business conducted at the facility or activity	
3156	described in th			tion, described in the draft permit, or subject to regulation under	
3157	this Chapter;	ie perm	n applica	tion, deserved in the draft permit, or subject to regulation under	
3158	uns chapter,				
3159		(iv)	The type	and quantity of wastes, fluids, or pollutants that are proposed to	
3160	be or are being	< <i>/</i>	v 1	disposed of, injected, emitted, or discharged;	
3160	be of are being	gueale	i, storeu,	disposed of, injected, enfitted, of discharged,	
3162		(v)	A brief	summary of the basis for the draft permit conditions, including	
	references to s				
3163	Telefences to a	ipplicat	ie statuto	ry or regulatory provisions;	
3164		()	Dessere	when our accurated marine and an alternatives to accuring data dands.	
3165		(vi) .		why any requested variances or alternatives to required standards	
3166	do or do not a	ppear ju	stified;		
3167		(::)	Nama	ddaese and talenhouse much an of a new on from whom interested	
3168		(vii)		ddress and telephone number of a person from whom interested	
3169	persons may obtain further information, including copies of the draft permit, statement of basis, fact sheet, and the application; and				
3170	fact sheet, and	the app	olication;	and	
3171		/ ····\	A 1 · C		
3172		(viii)	A brief c	lescription of comment procedures, including:	
3173					
3174			(A) F	Procedures to request a hearing;	
3175			(D) 7	71 1 1 1 1 1 . C.1 . 1	
3176			(B) 7	The beginning and ending dates of the comment period;	
3177			$(\mathbf{C})$		
3178			(C) 7	The address where comments may be submitted; and	
3179					
3180	•, • • •		(D) (	Other procedures that the public may use to participate in the final	
3181	permit decisio	n.			
3182	( 1)	T 11			
3183	(d)			e information required in paragraph (c) of this Section, any notice	
3184	for a hearing s	shall coi	itain the f	following:	
3185			DC		
3186		(i)	Reference	te to the date of previous public notices relating to the permit;	
3187		<i>(</i> )			
3188		(ii)	Date, tin	ne, and place of hearing; and	

3189	
3190	(iii) A brief description of the nature and purpose of the hearing, including
3191	applicable rules and procedures.
3192	
3193	(e) The Department shall provide an opportunity for the applicant, permittee, owner,
3194	operator, or any interested person to submit written comments regarding any aspect of a permit
3195	or to request a hearing.
3196	
3197	(i) During the public comment period, any interested person may submit
3198	written comments on the draft permit and may request a hearing. Requests for hearings shall be
3199	made in writing to the Administrator and shall state the reasons for the request.
3200	
3201	(ii) The Administrator shall hold a hearing whenever the Administrator finds,
3202	on the basis of requests, a significant degree of public interest in a draft permit.
3202	on the busis of requests, a significant degree of public interest in a drait perint.
3204	(iii) The Administrator may hold a hearing whenever a hearing may clarify
3205	issues involved in a permit decision.
3205	
3200	(iv) The public comment period shall automatically extend to the close of any
3208	hearing. The Administrator may also extend the comment period by so stating at the hearing.
3209	neuring. The ranning at the neuring at the neuring.
3210	(f) The Director shall render a decision on the draft permit within sixty (60) days
3211	after completion of the public comment period if no hearing is held. If a hearing is held, the
3212	Director shall make a decision on any Department hearing as soon as practicable after receipt of
3212	the transcript or after the expiration of the time set to receive written comments.
3213	the damber of arter the expiration of the time set to receive written comments.
3215	(g) At the time a final decision is issued, the Administrator shall respond in writing to
3216	comments received during the public comment period or during the hearing held by the
3210	Department. This response shall:
3218	
3210	(i) Specify any changes that have been made to the permit and the reasons for
3220	the changes; and
3220	the changes, and
3222	(ii) Briefly describe and respond to all comments stating a technical or
3223	regulatory concern that is within the authority of the Department to regulate.
3223	regulatory concern that is wrann the authority of the Department to regulate.
3225	Section 28. Incorporation by Reference.
3225	Section 20. Incorporation by Reference.
3220	(a) These rules incorporate by reference the following statutes, rules, and regulations
3228	in effect as of July 1, 2020:
3220	in cheet as of sury 1, 2020.
3230	(i) 10 C.F.R. Part 20, Appendix B, Table II, Column 2, available at
3230	http://www.ecfr.gov;
3231	
3232	(ii) 40 C.F.R. §§ 98.440 to 98.449,, available at http://www.ecfr.gov;
3233 3234	(1) +0 C.1. K. $33$ 20.440 to 20.449, available at http://www.ccff.gov,
5254	

3235	(iii) 40 C.F.R. § 141, Subparts E, F, and G, available at: http://www.ecfr.gov;
3236	
3237	(iv) 40 C.F.R. § 261.3 available at: http://www.ecfr.gov;
3238	
3239	(v) American Petroleum Institute Recommended Practice, API RP 14C,
3240	Recommended Practice for Analysis, Design, Installation and Testing of Safety Systems for
3241	Offshore Production Facilities, Recommended Practice 14C, (2018), referred to as "API RP
3242	14C", available at https://www.apiwebstore.org/publications/item.cgi?af9eaacd-f8b0-4d7c-bfa7-
3243	2c39a409f892;
3244	
3245	(vi) American Petroleum Institute Specification, API Spec 10A, Specification
3246	for Cements and Materials for Well Cementing. 25th Edition, (2019), referred to as "API
3240	Specification 10A", available at https://www.apiwebstore.org/publications/item.cgi?82493435-
3247	f281-45d8-af82-07ad8131cb56;
3249	1201-4500-0102-070001510050,
3249	(vii) American Petroleum Institute Recommended Practice, API RP 10D-2,
3250	Centralizer Placement and Stop-collar Testing, (2020), referred to as "API RP 10D-2", available
3252	at https://www.apiwebstore.org/publications/item.cgi?7ad6705a-954e-476c-b520-47cbbdce9f06;
3252	at https://www.aprwebstore.org/publications/item.cgr?/ad0705a-954e-470c-0520-47c0bdce9100,
3255	(viii) American Petroleum Institute Recommended Practice, API RP 10B-2,
3255	Recommended Practice for Testing Well Cements, (2019), referred to as "API RP 10B-2",
3256	available at https://www.apiwebstore.org/publications/item.cgi?3c1808c7-6312-4b8d-b3de-
3257	291ef79704c5;
3258	
3259	(ix) American Petroleum Institute Recommended Practice, API RP 14B,
3260	Design, Installation, Repair, and Operation of Subsurface Safety Valve Systems, (2012), referred
3261	to as "API RP 14 B", available at https://www.apiwebstore.org/publications/item.cgi?a1711f10-
3262	0121-4c12-936c-471c97a19f93;
3263	
3264	(x) American Petroleum Institute Specification, API Spec 5CT, Specification
3265	for Casing and Tubing, (2019), referred to as "API Specification 5CT", available at
3266	https://www.apiwebstore.org/publications/item.cgi?5b345884-5a3a-4889-8066-60f93e467f29;
3267	
3268	(xi) American Petroleum Institute Recommended Practice, API RP 5C1,
3269	Recommended Practices for Care and Use of Casing and Tubing, (2020), referred to as "API RP
3270	5C1", available at https://www.apiwebstore.org/publications/item.cgi?010058af-29b1-412c-
3271	b892-ec3e5583c534; and
3272	
3273	(xii) American Petroleum Institute Specification, API Spec 11D1, Packers and
3274	Bridge Plugs, (2015), referred to as "API Specification 11D1", available at
3275	https://www.apiwebstore.org/publications/item.cgi?4828a454-0fea-451b-a61b-18304836ea91.
3276	
3277	(b) For these rules incorporated by reference:
3278	
3279	(i) The Environmental Quality Council has determined that incorporation of
3280	the full text in these rules would be cumbersome or inefficient given the length or nature of the

3281	rules;
3282	
3283	(ii) This Chapter does not incorporate later amendments or editions of
3284	incorporated codes, standards, rules, and regulations; and
3285	
3286	(iii) All incorporated codes, standards, rules, and regulations are available for
3287	public inspection at the Department's Cheyenne office. Contact information for the Cheyenne
3288	office may be obtained at http://deq.wyoming.gov or from (307) 777-7937.
3289	

Appendix A.	Risk	Activity	Table
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	Major Risk (Feature, Event, or Process)		
1	Mineral Rights Infringement (Trespass)		
1 1	Leakage migrates into mineral zone or hydraulic front impacts recoverable mineral		
1.1	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-		
1.5	economically recoverable minerals.		
1.4	Act of God (e.g. seismic event).		
1.5	Formation fluid impact due to CO <sub>2</sub> 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 <sub>2</sub> 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		
2.3	carryover of dissolved contaminants.		
2.4	Act of God (e.g. seismic event).		
2.5	Formation fluid impact due to CO <sub>2</sub> injection.		
2.6	See also contributing causes 3.1, 3.2, 3.3, 3.5, 4.3, and 4.4		
2	Single Large Volume CO <sub>2</sub> Release to the Surface –		
3	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		
5.5	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		
5.4	below ground (i.e. near the surface).		
3.5	Orphan well failure (e.g. well not identified prior to injection).		
3.6	Sabotage/Terrorist attack (e.g. on surface infrastructure).		
3.7	Act of God (e.g. major seismic event)		
4	Low Level CO <sub>2</sub> Release to Surface – Ecological damage due to low-level		
4	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		
15	Mechanical failure of distribution system or storage facilities above or below ground		
4.5	(e.g. near surface).		
4.6	Orphan wells (e.g. well not identified prior to injection).		
4.6 4.7	Orphan wells (e.g. well not identified prior to injection). Induced seismicity leading to leakage.		

	Major Risk (Feature, Event, or Process)		
5	Storage Rights Infringement (CO <sub>2</sub> 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 <sub>2</sub> injection.		
5.5	Will also require primary contributing causes 3.1, 3.2, 3.3, 3.5, 4.3, and 4.4		
6	Modified Surface Topography (subsidence or uplift) Resulting in Property/Infrastructure Damage		
6.1	Induced Seismicity – Pressure from geochemistry induced reactivation of historic fault or dissolution of material caused by subsidence.		
6.2	Formation fluid impact due to $CO_2$ injection.		
7	Entrained Contaminant (Non-CO <sub>2</sub> ) 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.		

## **Risk Activity Table (continued)**