Crosswalk for West Virginia UIC Regulations Submitted with Primacy Applications Under Section 1422 of the SDWA
Legal Authority

The following tables compare the regulatory language submitted by West Virginia to EPA's regulations, specifically Parts 124, 144, 146, and 148 under Title 40 of the CFR. Under Section 1422 of the SDWA, the State's program must meet the requirements of EPA UIC regulations. This crosswalk was created in May 2022 and is based on regulations the State forwarded to EPA in March 2022.

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124 - Procedures For Decisionmaking **Subpart A - General Program Requirements**				
124.2*	*Definitions (see 144.3)*			
40 CFR 124.3(a)(1) (See also 145.11(a)(24))	**40 CFR 124.3 Application for a permit** Applicable to State programs, see §145.11 (UIC). (1) Any person who requires a permit under the UIC programs shall complete, sign, and submit to the Director an application for each permit required under §144.1 (UIC). Applications are not required for underground injections authorized by rules (§§ 144.21 through 144.26).	47-13-14.10.a	14.10. Application for a Permit. This section shall apply in addition to the requirements of subsections 8.5, 9.5, 10.5, and 14.3. 14.10.a. Permit application. Any person who is required to have a permit (including new applicants and permittees with expiring permits) shall complete, sign, and submit an application to the Director as described in this section. Persons currently authorized with UIC authorization by rule shall apply for permits when required by the Director.	Similar to the CFR. West Virginia doesn't directly say that rule-authorized wells do not need a permit application, but the intent is similar to the CFR.
40 CFR 124.3(a)(2) (See also 145.11(a)(24))	The Director shall not begin the processing of a permit until the applicant has fully complied with the application requirements for that permit. See §144.31 (UIC).	47-13-14.10.c	Completeness. The Director shall not issue a permit under a program before receiving a complete application, except for an emergency permit. An application for a permit under a program is complete when the Director receives an application form and any supplemental information which are completed to his or her satisfaction.	Subsection 14.10.c is comparable to the CFR in that processing of a permit only begins when the application is complete, and the Director cannot issue a permit based on an incomplete application. No concerns for stringency.
40 CFR 124.3(a)(3) (See also 145.11(a)(24))	Permit applications must comply with the signature and certification requirements of § 144.32 (UIC).	47-13-14.11	14.11. Signatories to Permit Applications and Reports. 14.11.a. Applications. All permit applications, except those submitted for Class 2 wells under the UIC program, shall be signed as follows…	WV does not specifically use the CFR language, but does specify who can sign permit applications. See 144.32. No concerns for stringency.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.3(d)	If an applicant fails or refuses to correct deficiencies in the application, the permit may be denied and appropriate enforcement actions may be taken under the applicable statutory provision including SDWA sections 1423 and 1424.			Missing. WV does not explicitly state that deficient applications can be denied/subject to enforcement.
40 CFR 124.4 (a)(1)	**40 CFR 124.4 Consolidation of permit processing.** Whenever a facility or activity requires a permit under more than one statute covered by these regulations, processing of two or more applications for those permits may be consolidated. The first step in consolidation is to prepare each draft permit at the same time.			Missing. WV does not discuss permit consolidation; this does not affect stringency. (Applies to all of 124.4.)
40 CFR 124.4 (a)(2)	Whenever draft permits are prepared at the same time, the statements of basis (required under § 124.7 for EPA-issued permits only) or fact sheets (§ 124.8), administrative records (required under § 124.9 for EPA-issued permits only), public comment periods (§ 124.10), and any public hearings (§ 124.12) on those permits should also be consolidated. The final permits may be issued together. They need not be issued together if in the judgment of the Regional Administrator or State Director(s), joint processing would result in unreasonable delay in the issuance of one or more permits.			Missing; see above.
40 CFR 124.4 (b)	Whenever an existing facility or activity requires additional permits under one or more of the statutes covered by these regulations, the permitting authority may coordinate the expiration date(s) of the new permit(s) with the expiration date(s) of the existing permit(s) so that all permits expire simultaneously. Processing of the subsequent applications for renewal permits may then be consolidated.			Missing; see above.
40 CFR 124.4 (c)	Processing of permit applications under paragraph (a) or (b) of this section may be consolidated as follows:			Missing; see above.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.4 (c)(1)	The Director may consolidate permit processing at his or her discretion whenever a facility or activity requires all permits either from EPA or from an approved State.			Missing; see above.
40 CFR 124.4 (c)(2)	The Regional Administrator and the State Director(s) may agree to consolidate draft permits whenever a facility or activity requires permits from both EPA and an approved State.			Missing; see above.
40 CFR 124.4 (c)(3)	Permit applicants may recommend whether or not the processing of their applications should be consolidated.			Missing; see above.
40 CFR 124.5(a) (See also 145.11(a)(25))	**40 CFR 124.5 Modification, revocation and reissuance, or termination of permits.** (Applicable to State programs, see §145.11 (UIC).) Permits may be modified, revoked and reissued, or terminated either at the request of any interested person (including the permittee) or upon the Director's initiative. However, permits may only be modified, revoked and reissued, or terminated for the reasons specified in § 144.39 or 144.40 (UIC). All requests shall be in writing and shall contain facts or reasons supporting the request.	47-13-14.18	Modification or Revocation and Reissuance of Permits. <u>When the Director receives any information (for example, inspects the facility, receives information submitted by the permittee as required in the permit, receives a request for modification or revocation and reissuance, or conducts a review of the permit file) he or she may determine whether or not one or more of the causes listed in subdivisions 14.18.a and 14.18.b of this section for modification or revocation and reissuance or both exists. If cause exists, the Director may modify or revoke and reissue the permit accordingly, subject to the limitations of subdivision 14.18.c of this section and request an updated application.</u> When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term. <u>If cause does not exist under this section or subsection 14.20, the Director shall not modify or revoke and reissue the permit.</u> If a permit modification satisfies the criteria in subsection 14.20 for "minor modifications" the permit may be modified without a draft permit or public review. Otherwise, a draft permit must be prepared. Notice of intent to revoke a permit will require a draft permit.	Similar to CFR. WV has similar provisions (underlined in review for emphasis) that, upon receipt of relevant information the Director may modify, revoke and reissue, or terminate a permit; however West Virginia limits the causes for the reasons in section 14.20 (see 144.41).

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.5(b)	If the Director decides the request is not justified, he or she shall send the requester a brief written response giving a reason for the decision. Denials of requests for modification, revocation and reissuance, or termination are not subject to public notice, comment, or hearings. Denials by the Regional Administrator may be informally appealed to the Environmental Appeals Board by a letter briefly setting forth the relevant facts. The Environmental Appeals Board may direct the Regional Administrator to begin modification, revocation and reissuance, or termination proceedings under paragraph (c) of this section. The appeal shall be considered denied if the Environmental Appeals Board takes no action on the letter within 60 days after receiving it. This informal appeal is, under 5 U.S.C. 704, a prerequisite to seeking judicial review of EPA action in denying a request for modification, revocation and reissuance, or termination.			Missing. This provision is not required for state programs.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.5(c)(1) (See also 145.11(a)(25))	(Applicable to State programs, see 40 CFR 145.11 (UIC)). (1) If the Director tentatively decides to modify or revoke and reissue a permit under 404 CFR 144.39 (UIC), he or she shall prepare a draft permit under § 124.6 incorporating the proposed changes. The Director may request additional information and, in the case of a modified permit, may require the submission of an updated application. In the case of revoked and reissued permits, the Director shall require the submission of a new application.	47-13-14.18	Modification or Revocation and Reissuance of Permits. When the Director receives any information (for example, inspects the facility, receives information submitted by the permittee as required in the permit, receives a request for modification or revocation and reissuance, or conducts a review of the permit file) he or she may determine whether or not one or more of the causes listed in subdivisions 14.18.a and 14.18.b of this section for modification or revocation and reissuance or both exists. If cause exists, the Director may modify or revoke and reissue the permit accordingly, subject to the limitations of subdivision 14.18.c of this section and request an updated application. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term. If cause does not exist under this section or subsection 14.20, the Director shall not modify or revoke and reissue the permit. If a permit modification satisfies the criteria in subsection 14.20 for "minor modifications" the permit may be modified without a draft permit or public review. Otherwise, a draft permit must be prepared. Notice of intent to revoke a permit will require a draft permit.	Similar intent to the CFR, in that the director must prepare a draft permit. However, WV does not address situations where the Director may need/request additional information or a new/updated application. Addressing this component in the CFR could add clarity to the application process.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.5(c)(2) (See also 145.11(a)(25))	In a permit modification under this section, only those conditions to be modified shall be reopened when a new draft permit is prepared. All other aspects of the existing permit shall remain in effect for the duration of the unmodified permit. When a permit is revoked and reissued under this section, the entire permit is reopened just as if the permit had expired and was being reissued. During any revocation and reissuance proceeding the permittee shall comply with all conditions of the existing permit until a new final permit is reissued.	47-13-14.18	Modification or Revocation and Reissuance of Permits. When the Director receives any information (for example, inspects the facility, receives information submitted by the permittee as required in the permit, receives a request for modification or revocation and reissuance, or conducts a review of the permit file) he or she may determine whether or not one or more of the causes listed in subdivisions 14.18.a and 14.18.b of this section for modification or revocation and reissuance or both exists. If cause exists, the Director may modify or revoke and reissue the permit accordingly, subject to the limitations of subdivision 14.18.c of this section and request an updated application. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term. If cause does not exist under this section or subsection 14.20, the Director shall not modify or revoke and reissue the permit. If a permit modification satisfies the criteria in subsection 14.20 for "minor modifications" the permit may be modified without a draft permit or public review. Otherwise, a draft permit must be prepared. Notice of intent to revoke a permit will require a draft permit.	Similar to CFR. WV does not explicitly state that, during any revocation and reissuance proceeding, the permittee must comply with the existing permit. Clarification is recommended.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.5(c)(3) (See also 145.11(a)(25))	''Minor modifications'' as defined in § 144.41 (UIC) are not subject to the requirements of this section.	47-13-14.18	Modification or Revocation and Reissuance of Permits. When the Director receives any information (for example, inspects the facility, receives information submitted by the permittee as required in the permit, receives a request for modification or revocation and reissuance, or conducts a review of the permit file) he or she may determine whether or not one or more of the causes listed in subdivisions 14.18.a and 14.18.b of this section for modification or revocation and reissuance or both exists. If cause exists, the Director may modify or revoke and reissue the permit accordingly, subject to the limitations of subdivision 14.18.c of this section and request an updated application. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term. If cause does not exist under this section or subsection 14.20, the Director shall not modify or revoke and reissue the permit. <u>If a permit modification satisfies the criteria in subsection 14.20 for "minor modifications" the permit may be modified without a draft permit or public review.</u> Otherwise, a draft permit must be prepared. Notice of intent to revoke a permit will require a draft permit.	Similar to CFR. (Note: throughout this table, when "similar to CFR" is used without elaboration, this means that WV's rules have the same intent as the CFR but may differ in word choice, references to the director/administrator, order, the use of internal rule references, etc.)

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.5(d)(1) (See also 145.11(a)(25))	(Applicable to State programs, see §145.11 (UIC) of this chapter.) (1) If the Director tentatively decides to terminate: A permit under § 144.40 (UIC) of this chapter, he or she shall issue a notice of intent to terminate. A notice of intent to terminate is a type of draft permit which follows the same procedures as any draft permit prepared under § 124.6 of this chapter.	47-13-14.18	Modification or Revocation and Reissuance of Permits. When the Director receives any information (for example, inspects the facility, receives information submitted by the permittee as required in the permit, receives a request for modification or revocation and reissuance, or conducts a review of the permit file) he or she may determine whether or not one or more of the causes listed in subdivisions 14.18.a and 14.18.b of this section for modification or revocation and reissuance or both exists. If cause exists, the Director may modify or revoke and reissue the permit accordingly, subject to the limitations of subdivision 14.18.c of this section and request an updated application. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term. If cause does not exist under this section or subsection 14.20, the Director shall not modify or revoke and reissue the permit. If a permit modification satisfies the criteria in subsection 14.20 for "minor modifications" the permit may be modified without a draft permit or public review. Otherwise, a draft permit must be prepared. Notice of intent to revoke a permit will require a draft permit.	WV does not describe what is required for a notice of intent to revoke a permit beyond that it requires a draft permit.
40 CFR 124.5(d)(3)	In the case of EPA-issued permits, a notice of intent to terminate or a complaint shall not be issued if the Regional Administrator and the permittee agree to termination in the course of transferring permit responsibility to an approved State under 145.25(b)(1) (UIC) of this chapter.			Missing. this provision apples to EPA-issued permits. No concern for stringency.
40 CFR 124.6(a) (See also 145.11(a)(26))	**40 CFR 124.6 Draft permits.** (Applicable to State programs, see §145.11 (UIC).) Once an application is complete, the Director shall tentatively decide whether to prepare a draft permit or to deny the application.	47-13-14.32.a	**47-13-14.32. Draft Permits.** Once an application is complete, the Director shall tentatively decide whether to prepare a draft permit or to deny the application.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.6(b)	If the Director tentatively decides to deny the permit application, he or she shall issue a notice of intent to deny. A notice of intent to deny the permit application is a type of draft permit which follows the same procedures as any draft permit prepared under this section. See § 124.6(e). If the Director's final decision (§ 124.15) is that the tentative decision to deny the permit application was incorrect, he or she shall withdraw the notice of intent to deny and proceed to prepare a draft permit under paragraph (d) of this section.			Missing. WV does not require a notice of intent to deny a permit. This provision is not required for state program rules.
40 CFR 124.6(d) (See also 145.11(a)(26))	(Applicable to State programs, see §145.11 (UIC).) If the Director decides to prepare a draft permit, he or she shall prepare a draft permit that contains the following information:	47-13-14.32.b	If the Director decides to prepare a draft permit, it shall contain the following information:	Same as CFR.
40 CFR 124.6(d)(1) (See also 145.11(a)(26))	All conditions under §144.51 and 144.42 (UIC);	47-13-14.32.b.1	All conditions under subsections 14.6, 14.7, and 14.12;	Same as CFR.
40 CFR 124.6(d)(2) (See also 145.11(a)(26))	All compliance schedules under §144.53 (UIC);	47-13-14.32.b.2	All compliance schedules; and	Similar to CFR; WV does not reference the specific requirements. No impact on stringency.
40 CFR 124.6(d)(3) (See also 145.11(a)(26))	All monitoring requirements under §144.54 (UIC); and	47-13-14.32.b.3	All monitoring requirements.	Similar to CFR; WV does not reference the specific requirements. No impact on stringency.
40 CFR 124.6(d)(4)(ii) (See also 145.11(a)(26))	For: *** UIC permits, permit conditions under § 144.52;			Missing; however WV's rule contains many of the provisions as are in 144.25 (see below).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.6(e) (See also 145.11(a)(26))	(Applicable to State programs, see §145.11 (UIC).) Draft permits prepared by a State shall be accompanied by a fact sheet if required under § 124.8.	47-13-14.31.a	A fact sheet shall be prepared for every draft permit for a major facility or activity and for every draft permit which the Director finds is the subject of widespread public interest or raises major issues. The fact sheet shall briefly set forth the principal facts and the significant factual, legal, methodological and policy questions considered in preparing the draft permit. The Director shall send this fact sheet to the applicant and, on request, to any other person and to the persons required under subparagraphs 14.24.c.1.A, 14.24.c.1.B, and 14.24.c.1.C. A major facility is classified as such by the Regional Administrator in conjunction with the State Director.	West Virginia requires a fact sheet for major permits and projects of wide interest (similar to 124.8). This has a similar intent as the CFR; no concerns for stringency.
40 CFR 124.8(a) (See also 145.11(a)(27))	**40 CFR 124.8 Fact sheet.** A fact sheet shall be prepared for every draft permit for a major, UIC facility or activity, and for every draft permit which the Director finds is the subject of wide-spread public interest or raises major issues. The fact sheet shall briefly set forth the principal facts and the significant factual, legal, methodological and policy questions considered in preparing the draft permit. The Director shall send this fact sheet to the applicant and, on request, to any other person.	47-13-14.31.a	**47-13-14.31. Fact Sheet.** A fact sheet shall be prepared for every draft permit for a major facility or activity and for every draft permit which the Director finds is the subject of widespread public interest or raises major issues. The fact sheet shall briefly set forth the principal facts and the significant factual, legal, methodological and policy questions considered in preparing the draft permit. The Director shall send this fact sheet to the applicant and, on request, to any other person and to the persons required under subparagraphs 14.24.c.1.A, 14.24.c.1.B, and 14.24.c.1.C. A major facility is classified as such by the Regional Administrator in conjunction with the State Director.	Similar to CFR. WV specifies that the Regional Administrator may classify major facilities as such; however it is unclear how this would be done. Clarification is suggested.
40 CFR 124.8(b) (See also 145.11(a)(27))	The fact sheet shall include, when applicable:	47-13-14.31.b	The fact sheet shall include, when applicable:	Same as CFR.
40 CFR 124.8(b)(1) (See also 145.11(a)(27))	A brief description of the type of facility or activity which is the subject of the draft permit;	47-13-14.31.b.1	A brief description of the type of facility or activity which is the subject of the draft permit;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.8(b)(2) (See also 145.11(a)(27))	The type and quantity of wastes, fluids, or pollutants which are proposed to be or are being treated, stored, disposed of, injected, emitted, or discharged.	47-13-14.31.b.2	The type and quantity of fluids, which are proposed to be or are being injected;	Similar to CFR. WV rule is limited to UIC-relevant provisions of the CFR; no impact on stringency.
40 CFR 124.8(b)(4) (See also 145.11(a)(27))	A brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions;	47-13-14.31.b.3	A brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions;	Same as CFR.
40 CFR 124.8(b)(5) (See also 145.11(a)(27))	Reasons why any requested variances or alternatives to required standards do or do not appear justified;	47-13-14.31.b.3.A	Justified or unjustified variances;	Similar to CFR. WV simplifies the CFR language, but the intent is the same.
40 CFR 124.8(b)(6) (See also 145.11(a)(27))	A description of the procedures for reaching a final decision on the draft permit including: (i) The beginning and ending dates of the comment period under § 124.10 and the address where comments will be received; (ii) Procedures for requesting a hearing and the nature of that hearing; and (iii) Any other procedures by which the public may participate in the final decision.	47-13-14.31.b.4	A description of the procedures for reaching a final decision on the draft permit including: A. The beginning and ending dates of the public comment period and the address where comments will be received; B. Procedures for requesting a hearing and the nature of that hearing; C. Any other procedures by which the public may participate in the final decision; and	Same as CFR.
40 CFR 124.8(b)(7) (See also 145.11(a)(27))	Name and telephone number of a person to contact for additional information.	47-13-14.31.b.4.D	Name and telephone number of a person to contact for additional information.	Same as CFR.
40 CFR 124.10(a)(1) (See also 145.11(a)(28))	**40 CFR 124.10 Public notice of permit actions and public comment period.** Scope. (1) The Director shall give public notice that the following actions have occurred:	47-13-14.24.a	**47-13-14.24. Public Participation in Permit Process.** Scope. Public notice shall be given that the following actions have occurred:	Similar to CFR. WV does not state whether the Director is responsible for giving public notice (although this is assumed, per other parts of the rules).
40 CFR 124.10(a)(1)(i)	A permit application has been tentatively denied under § 124.6(b);			Missing. WV does not require notice of tentative denial of a permit. This provision is not required of state rules.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.10(a)(1)(ii) (See also 145.11(a)(28))	(Applicable to State programs, see §145.11 (UIC).) A draft permit has been prepared under § 124.6(d);	47-13-14.24.a.1	A draft permit has been prepared; or	Same as CFR.
40 CFR 124.10(a)(1)(iii) (See also 145.11(a)(28))	(Applicable to State programs, see §145.11 (UIC).) A hearing has been scheduled under § 124.12;	47-13-14.24.a.2	A hearing time has been scheduled.	Same as CFR.
40 CFR 124.10(a)(1)(iv)	An appeal has been granted under § 124.19(c);			Missing. This provision is not required of state rules; no impact on stringency.
40 CFR 124.10(a)(2)	No public notice is required when a request for permit modification, revocation and reissuance, or termination is denied under § 124.5(b). Written notice of that denial shall be given to the requester and to the permittee.			Missing. This provision is not required of state rules; no impact on stringency.
40 CFR 124.10(b)(1) (See also 145.11(a)(28))	Timing (applicable to State programs, see §145.11 (UIC)). Public notice of the preparation of a draft permit (including a notice of intent to deny a permit application) required under paragraph (a) of this section shall allow at least 30 days for public comment.	47-13-14.24.b	Timing. 1. Public notice of the preparation of the draft permit required under this section shall allow at least thirty (30) days for public comment.	Similar to CFR. WV does not require a notice of an intent to deny a permit. This is less stringent than the CFR.
40 CFR 124.10(b)(2) (See also 145.11(a)(28))	Public notice of a public hearing shall be given at least 30 days before the hearing. (Public notice of the hearing may be given at the same time as public notice of the draft permit and the two notices may be combined.)	47-13-14.24.b.2	Public notice of a hearing shall be given at least thirty (30) days before the hearing.	Similar to CFR. WV does not mention giving simultaneous notice of the hearing and draft permit. No impact on stringency.
40 CFR 124.10(c)(1) (See also 145.11(a)(28))	Methods (applicable to State programs, see 40 CFR 145.11 (UIC)). Public notice of activities described in paragraph (a)(1) of this section shall be given by the following methods: (1) By mailing a copy of a notice to the following persons (any person otherwise entitled to receive notice under this paragraph may waive his or her rights to receive notice for any classes and categories of permits);	47-13-14.24.c	Methods. Public notice of activities described in this section shall be given by the following methods: 1. By mailing a copy of a notice to the following persons (any person otherwise entitled to receive notice under this paragraph may waive the right to receive notice for any classes and categories of permits):	Same as CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00012

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.10(c)(1)(i) (See also 145.11(a)(28))	The applicant;	47-13-14.24.c.1.A	The applicant;	Same as CFR.
40 CFR 124.10(c)(1)(ii) (See also 145.11(a)(28))	Any other agency which the Director knows has issued or is required to issue a RCRA, UIC, PSD (or other permit under the Clean Air Act), NPDES, 404, sludge management permit, or ocean dumping permit under the Marine Research Protection and Sanctuaries Act for the same facility or activity (including EPA when the draft permit is prepared by the State);	47-13-14.24.c.1.B	Any other agency including EPA which the Director knows has issued or is required to issue a RCRA, PSD, NPDES permit for the same facility or activity;	Similar to CFR. WV does not include CAA permitting agencies (which is less stringent/specific than the CFR) or ocean/MPRSA agencies (which are not applicable to a land-locked state).
40 CFR 124.10(c)(1)(iii) (See also 145.11(a)(28))	Federal and State agencies with jurisdiction over fish, shellfish, and wildlife resources and over coastal zone management plans, the Advisory Council on Historic Preservation, State Historic Preservation Officers, including any affected States (Indian Tribes). (For purposes of this paragraph, and in the context of the Underground Injection Control Program only, the term State includes Indian Tribes treated as States.)	47-13-14.24.c.1.C	Federal and State and interstate agencies with jurisdiction over fish and wildlife resources, public health, the State Historic Preservation Unit of the Department of Culture and History, and other appropriate government authorities, including any affected states;	Similar to CFR. WV requires notice to fewer types of agencies. This may be appropriate based on the state's organizational structure, but should be clarified.
40 CFR 124.10(c)(1)(viii) (See also 145.11(a)(28))	For Class I injection well UIC permits only, state and local oil and gas regulatory agencies and state agencies regulating mineral exploration and recovery;			Missing. This may be appropriate based on the state's organizational structure, but should be clarified.
40 CFR 124.10(c)(1)(ix)(A) (See also 145.11(a)(28))	Persons on a mailing list developed by: (A) Including those who request in writing to be on the list;	47-13-14.24.c.1.D	Persons on a mailing list developed by: 1. Including those who request in writing to be on the list;	Same as CFR.
40 CFR 124.10(c)(1)(ix)(B) (See also 145.11(a)(28))	Soliciting persons for "area lists" from participants in past permit proceedings in that area; and	47-13-14.24.c.1.D.2	Soliciting persons for "area lists" from participants in past permit proceedings in that area; and	Same as CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00013

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.10(c)(1)(ix)(C) (See also 145.11(a)(28))	Notifying the public of the opportunity to be put on the mailing list through periodic publication in the public press and in such publications as Regional and State funded newsletters, environmental bulletins, or State law journals. (The Director may update the mailing list from time to time by requesting written indication of continued interest from those listed. The Director may delete from the list the name of any person who fails to respond to such a request.)	47-13-14.24.c.1.D.3	Notifying the public of the opportunity to be put on the mailing list through periodic publication in the public press and in appropriate publications of the State.	Similar to CFR. Missing statements may not be relevant to state rules. WV does not include activities of the Director for the mailing list. WV does not describe appropriate publications or require updating the list. Clarification is recommended.
40 CFR 124.10(c)(1)(x) (See also 145.11(a)(28))	(A) To any unit of local government having jurisdiction over the area where the facility is proposed to be located; and (B) to each State agency having any authority under State law with respect to the construction or operation of such facility.	47-13-14.24.c.1.E	By mailing a copy to each agency having authority under State law with respect to the construction or operation of such facility;	Paragraph (A) of CFR is missing. May not be relevant to a state rule; clarification is recommended. Same as paragraph (B) of CFR.
40 CFR 124.10(c)(1)(xi) (See also 145.11(a)(28))	For Class VI injection well UIC permits, mailing or emailing a notice to State and local oil and gas regulatory agencies and State agencies regulating mineral exploration and recovery, the Director of the Public Water Supply Supervision program in the State, and all agencies that oversee injection wells in the State.	47-13-14.24.c.1.F	State and local oil and gas agencies for Class 6 UIC Permits.	Similar to CFR. WV is less specific on what state and local agencies are required to be notified. Clarification is recommended.
40 CFR 124.10(c)(2)(i) (See also 145.11(a)(28))	For major permits publication of a notice in a daily or weekly newspaper within the area affected by the facility or activity;	47-13-14.24.c.2	For any permit, and all major permits, the Director shall send the public notice to the applicant who shall be responsible for publication of a Class 1 legal advertisement by a date, and in a paper specified by the Director. Upon publication, the applicant shall send the Director a copy of the certificate of publication. The costs of publication shall be borne by the applicant; and	Similar to CFR. WV is more specific on the details of the publication of the notice, but does not specifically require the notice to be in a daily or weekly newspaper.
40 CFR 124.10(c)(3) (See also 145.11(a)(28))	When the program is being administered by an approved State, in a manner constituting legal notice to the public under State law; and			Missing. Clarification is recommended (perhaps in the program description).
40 CFR 124.10(c)(4) (See also 145.11(a)(28))	Any other method reasonably calculated to give actual notice of the action in question to the persons potentially affected by it, including press releases or any other forum or medium to elicit public participation.	47-13-14.24.c.3	Any other method reasonably calculated to give actual notice of the action in question to the persons potentially affected by it, including press releases or any other forum or medium to elicit public participation.	Same as CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00014

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.10(d)(1) (See also 145.11(a)(28))	Contents (applicable to State programs, see §145.11 (UIC))—(1) All public notices. All public notices issued under this part shall contain the following minimum information:	47-13-14.25	Contents of a Public Notice. a. All public notices issued under this section shall contain the following minimum information:	Same as CFR.
40 CFR 124.10(d)(1)(i) (See also 145.11(a)(28))	Name and address of the office processing the permit action for which notice is being given;	47-13-14.25.a.1	Name and address of the office processing the permit action for which notice is being given.	Same as CFR.
40 CFR 124.10(d)(1)(ii) (See also 145.11(a)(28))	Name and address of the permittee or permit applicant and, if different, of the facility or activity regulated by the permit;	47-13-14.25.a.2	Name and address of the permittee or permit applicant and, if different, of the facility or activity regulated by the permit.	Same as CFR.
40 CFR 124.10(d)(1)(iii) (See also 145.11(a)(28))	A brief description of the business conducted at the facility or activity described in the permit application or the draft permit.	47-13-14.25.a.3	A brief description of the business conducted at the facility described in the permit application or the draft permit.	Similar to the CFR. WV does not require a description of the activity. The intent appears to be similar to the CFR; no concerns for stringency.
40 CFR 124.10(d)(1)(iv) (See also 145.11(a)(28))	Name, address and telephone number of a person from whom interested persons may obtain further information, including copies of the draft permit, fact sheet, and the application; and	47-13-14.25.a.4	The name, address, and telephone number of a person from whom interested persons may obtain further information, including copies of the draft permit or fact sheet, and the application.	Same as CFR.
40 CFR 124.10(d)(1)(v) (See also 145.11(a)(28))	A brief description of the comment procedures required by §§ 124.11 and 124.12 and the time and place of any hearing that will be held, including a statement of procedures to request a hearing (unless a hearing has already been scheduled) and other procedures by which the public may participate in the final permit decision.	47-13-14.25.a.5	A brief description of the comment procedures required by subsections 14.26 and 14.27 and the time and place of any hearing that will be held, including a statement of procedures to request a hearing unless already scheduled, and other procedures by which the public may participate in the final permit decision.	Same as CFR.
40 CFR 124.10(d)(1)(x) (See also 145.11(a)(28))	Any additional information considered necessary or proper.			Missing. WV does not afford flexibility for additional information to be provided.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00015

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.10(d)(2) (See also 145.11(a)(28))	Public notices for hearings. In addition to the general public notice described in paragraph (d)(1) of this section, the public notice of a hearing under § 124.12 shall contain the following information:	47-13-14.25.b	In addition to the general public notice described in subdivision 14.25.a, the public notice of a hearing shall contain the following information:	Same as CFR.
40 CFR 124.10(d)(2)(i) (See also 145.11(a)(28))	Reference to the date of previous public notices relating to the permit;	47-13-14.25.b.1	Reference to the date of previous public notices relating to the permit;	Same as CFR.
40 CFR 124.10(d)(2)(ii) (See also 145.11(a)(28))	Date, time, and place of the hearing;	47-13-14.25.b.2	Date, time and place of the hearing; and	Same as CFR.
40 CFR 124.10(d)(2)(iii) (See also 145.11(a)(28))	A brief description of the nature and purpose of the hearing, including the applicable rules and procedures;	47-13-14.25.b.3	A brief description of the nature and purposes of the hearing, including the applicable rules and procedures.	Same as CFR.
40 CFR 124.10(e) (See also 145.11(a)(28))	(Applicable to State programs, see §145.11 (UIC).) In addition to the general public notice described in paragraph (d)(1) of this section, all persons identified in paragraphs (c)(1) (i), (ii), (iii), and (iv) of this section shall be mailed a copy of the fact sheet, the permit application (if any) and the draft permit (if any).	47-13-14.25.c	In addition to the general public notice, all persons identified in subparagraphs 14.24.c.1.A, 14.24.c.1.B, and 14.24.c.1.C shall be mailed a copy of the fact sheet, the permit application and the draft permit.	Same as CFR.
40 CFR 124.11 (See also 145.11(a)(29))	**40 CFR 124.11 Public comments and requests for public hearings.** (Applicable to State programs, see §145.11 (UIC).) During the public comment period provided under§ 124.10, any interested person may submit written comments on the draft permit and may request a public hearing, if no hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. All comments shall be considered in making the final decision and shall be answered as provided in § 124.17.	47-13-14.26	**47-13-14.26. Public Comment and Requests for Public Hearings.** During the public comment period provided, any interested person may submit written comments on the draft permit and may request a public hearing if no hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. All comments shall be considered in making the final decision and shall be answered as provided in subsection 14.30.	Same as CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00016

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.12(a)(1) (See also 145.11(a)(30))	**40 CFR 124.12 Public hearings.** (Applicable to State programs, see §145.11 (UIC).) (1) The Director shall hold a public hearing whenever he or she finds, on the basis of requests, a significant degree of public interest in a draft permit(s);	47-13-14.27.a	**47-13-14.27. Public Hearings.** The Director shall hold a public hearing whenever he or she finds, on the basis of requests, a significant degree of public interest of issues relevant to the draft permit(s). The Director also may hold a public hearing at his or her discretion, whenever, for instance, such a hearing might clarify one or more issues involved in the permit decision.	Same as CFR.
40 CFR 124.12(a)(2) (See also 145.11(a)(30))	The Director may also hold a public hearing at his or her discretion, whenever, for instance, such a hearing might clarify one or more issues involved in the permit decision;	47-13-14.27.a	The Director shall hold a public hearing whenever he or she finds, on the basis of requests, a significant degree of public interest of issues relevant to the draft permit(s). The Director also may hold a public hearing at his or her discretion, whenever, for instance, such a hearing might clarify one or more issues involved in the permit decision.	Same as CFR.
40 CFR 124.12(a)(4) (See also 145.11(a)(30))	Public notice of the hearing shall be given as specified in § 124.10.			Missing, although West Virginia has similar provisions to 124.10 (see above).
40 CFR 124.12(c)	Any person may submit oral or written statements and data concerning the draft permit. Reasonable limits may be set upon the time allowed for oral statements, and the submission of statements in writing may be required. The public comment period under § 124.10 shall automatically be extended to the close of any public hearing under this section. The hearing officer may also extend the comment period by so stating at the hearing.	47-13-14.27.b	Any person may submit oral or written statements and data concerning the draft permit. Reasonable limits may be set upon the time allowed for oral statements, and the submission of statements in writing may be required. The public comment period under paragraph 14.24.b.1 shall automatically be extended to ten (10) days after the close of any public hearing under this section.	Similar to CFR.
40 CFR 124.12(d)	A tape recording or written transcript of the hearing shall be made available to the public.	47-13-14.27.c	A tape recording or written transcript of the hearing shall be made available to the public, upon request.	Similar to CFR; WV only requires the transcript to be made available on request. This provision is not required of state rules; no impact on stringency.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00017

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.13	**40 CFR 124.13 Obligation to raise issues and provide information during the public comment period.** All persons, including applicants, who believe any condition of a draft permit is inappropriate or that the Director's tentative decision to deny an application, terminate a permit, or prepare a draft permit is inappropriate, must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period (including any public hearing) under § 124.10. Any supporting materials which are submitted shall be included in full and may not be incorporated by reference, unless they are already part of the administrative record in the same proceeding, or consist of State or Federal statutes and regulations, EPA documents of general applicability, or other generally available reference materials. Commenters shall make supporting materials not already included in the administrative record available to EPA as directed by the Regional Administrator. (A comment period longer than 30 days may be necessary to give commenters a reasonable opportunity to comply with the requirements of this section. Additional time shall be granted under § 124.10 to the extent that a commenter who requests additional time demonstrates the need for such time.)	47-13-14.28	**47-13-14.28. Obligation to Raise Issues and Provide Information During the Public Comment Period.** All persons, including applicants, who believe any condition of a draft permit is inappropriate or that the Director tentative decision to prepare a draft permit is inappropriate, shall raise all reasonably ascertainable issues and submit all reasonably available arguments and factual grounds supporting their position, including all supporting material, by the close of the public comment period. All supporting materials shall be included in full and not be incorporated by reference, unless they are already part of the administrative record in the same proceeding, or consist of State or Federal statutes and rules, documents of general applicability, or other generally available reference materials. Submitters of comments shall make supporting material not already included in the administrative record available to the State as directed by the Director.	Similar to CFR. WV does not include the parenthetical about the comment period exceeding 30 days. 145.11(a) does not require 124.13 to be part of a State Primacy Program.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.14 (a)(1)	**124.14 Reopening of the public comment period.** The Regional Administrator may order the public comment period reopened if the procedures of this paragraph could expedite the decisionmaking process. When the public comment period is reopened under this paragraph, all persons, including applicants, who believe any condition of a draft permit is inappropriate or that the Regional Administrator's tentative decision to deny an application, terminate a permit, or prepare a draft permit is inappropriate, must submit all reasonably available factual grounds supporting their position, including all supporting material, by a date, not less than sixty days after public notice under paragraph (a)(2) of this section, set by the Regional Administrator. Thereafter, any person may file a written response to the material filed by any other person, by a date, not less than twenty days after the date set for filing of the material, set by the Regional Administrator.	47-13-14.29	**47-13-14.29. Reopening of the Public Comment Period.**	WV's version of this section is missing the provisions of 124.10(a). 145.11(a) does not require 124.14 to be part of a State Primacy Program.
40 CFR 124.14 (a)(2)	Public notice of any comment period under this paragraph shall identify the issues to which the requirements of § 124.14(a) shall apply.			Missing.
40 CFR 124.14 (a)(3)	On his own motion or on the request of any person, the Regional Administrator may direct that the requirements of paragraph (a)(1) of this section shall apply during the initial comment period where it reasonably appears that issuance of the permit will be contested and that applying the requirements of paragraph (a)(1) of this section will substantially expedite the decisionmaking process. The notice of the draft permit shall state whenever this has been done.			Missing.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00019

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.14 (a)(4)	A comment period of longer than 60 days will often be necessary in complicated proceedings to give commenters a reasonable opportunity to comply with the requirements of this section. Commenters may request longer comment periods and they shall be granted under § 124.10 to the extent they appear necessary.			Missing.
40 CFR 124.14 (b)	If any data information or arguments submitted during the public comment period, including information or arguments required under § 124.13, appear to raise substantial new questions concerning a permit, the Regional Administrator may take one or more of the following actions:	47-13-14.29.a	If any data, information or arguments submitted during the public comment period appear to raise substantial new questions concerning a permit, the Director may take one or more of the following actions:	Similar to CFR.
40 CFR 124.14 (b)(1)	Prepare a new draft permit, appropriately modified, under § 124.6;	47-13-14.29.a.1	Prepare a new draft permit, appropriately modified;	Same as CFR.
40 CFR 124.14 (b)(2)	Prepare a revised statement of basis under § 124.7, a fact sheet or revised fact sheet under § 124.8 and reopen the comment period under § 124.14; or	47-13-14.29.a.2	Prepare a revised fact sheet and reopen the comment period under this section; or	Similar to CFR. WV only requires a fact sheet (not a statement of basis). No concern for stringency.
40 CFR 124.14 (b)(3)	Reopen or extend the comment period under § 124.10 to give interested persons an opportunity to comment on the information or arguments submitted.	47-13-14.29.a.3	Reopen or extend the comment period to give interested persons an opportunity to comment on the information or arguments submitted.	Same as CFR.
40 CFR 124.14 (c)	Comments filed during the reopened comment period shall be limited to the substantial new questions that caused its reopening. The public notice under § 124.10 shall define the scope of the reopening.	47-13-14.29.b	Comments filed during the reopened comment period shall be limited to the substantial new questions that caused its reopening. The public notice shall define the scope of the reopening.	Same as CFR.
40 CFR 124.14 (e)	Public notice of any of the above actions shall be issued under § 124.10.			Missing; however, WV has provisions similar to 124.10 (see below).

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.15 (a)	**40 CFR 124.15 Issuance and effective date of permit.** After the close of the public comment period under § 124.10 on a draft permit, the Regional Administrator shall issue a final permit decision. The Regional Administrator shall notify the applicant and each person who has submitted written comments or requested notice of the final permit decision. This notice shall include reference to the procedures for appealing a decision on a UIC permit under § 124.19 of this part. For the purposes of this section, a final permit decision means a final decision to issue, deny, modify, revoke and reissue, or terminate a permit.			Missing. WV does not have provisions regarding issuance and effective date of permit. This is less stringent than the CFR. (Applies to all of 124.15.)
40 CFR 124.15 (b)	A final permit decision (or a decision to deny a permit for the active life of a RCRA hazardous waste management facility or unit under § 270.29) shall become effective 30 days after the service of notice of the decision unless:			Missing.
40 CFR 124.15 (b)(1)	A later effective date is specified in the decision; or			Missing.
40 CFR 124.15 (b)(2)	Review is requested on the permit under § 124.19.			Missing.
40 CFR 124.15 (b)(3)	No comments requested a change in the draft permit, in which case the permit shall become effective immediately upon issuance.			Missing.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.16 (a)(1)	**40 CFR 124.16 Stays of contested permit conditions.** Stays. (1) If a request for review of a UIC permit under § 124.19 of this part is filed, the effect of the contested permit conditions shall be stayed and shall not be subject to judicial review pending final agency action. Uncontested permit conditions shall be stayed only until the date specified in paragraph (a)(2)(i) of this section. If the permit involves a new facility or new injection well, new source, new discharger or a recommencing discharger, the applicant shall be without a permit for the proposed new facility, injection well, source or discharger pending final agency action. See also § 124.60.			Missing. WV does not include provisions for stays of permit conditions. However, 145.11(a) does not require 124.16 to be part of a State Primacy Program.
40 CFR 124.16 (a)(2)(i)	Uncontested conditions which are not severable from those contested shall be stayed together with the contested conditions. The Regional Administrator shall identify the stayed provisions of permits for existing facilities, injection wells, and sources. All other provisions of the permit for the existing facility, injection well, or source become fully effective and enforceable 30 days after the date of the notification required in paragraph (a)(2)(ii) of this section.			Missing.
40 CFR 124.16 (a)(2)(ii)	The Regional Administrator shall, as soon as possible after receiving notification from the EAB of the filing of a petition for review, notify the EAB, the applicant, and all other interested parties of the uncontested (and severable) conditions of the final permit that will become fully effective enforceable obligations of the permit as of the date specified in paragraph (a)(2)(i) of this section .			Missing.
40 CFR 124.16 (b)(1)	Stays based on cross effects. (1) A stay may be granted based on the grounds that an appeal to the Administrator under § 124.19 of one permit may result in changes to another EPA-issued permit only when each of the permits involved has been appealed to the Administrator.			Missing.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.16 (b)(2)	No stay of an EPA-issued UIC permit shall be granted based on the staying of any State-issued permit except at the discretion of the Regional Administrator and only upon written request from the State Director.			Missing.
40 CFR 124.16 (c)(1)	Comply with the conditions of that permit during any modification or revocation and reissuance proceeding under § 124.5; and			Missing.
40 CFR 124.16 (c)(2)	To the extent conditions of any new permit are stayed under this section, comply with the conditions of the existing permit which correspond to the stayed conditions, unless compliance with the existing conditions would be technologically incompatible with compliance with other conditions of the new permit which have not been stayed.			Missing.
40 CFR 124.17(a) (See also 145.11(a)(31))	**40 CFR 124.17 Response to comments.** (Applicable to State programs, see § 145.11 (UIC).) At the time that any final permit decision is issued under § 124.15, the Director shall issue a response to comments. States are only required to issue a response to comments when a final permit is issued. This response shall:	47-13-14.30.a	**47-13-14.30. Response to Comments.** Any time that any final permit is issued, the Director shall prepare a response to comments. This response shall:	Similar to CFR.
40 CFR 124.17(a)(1) (See also 145.11(a)(31))	Specify which provisions, if any, of the draft permit have been changed in the final permit decision, and the reasons for the change; and	47-13-14.30.a.1	Specify which provisions, if any, of the draft permit have been changed in the final permit decision, and the reasons for the change; and	Same as CFR.
40 CFR 124.17(a)(2) (See also 145.11(a)(31))	Briefly describe and respond to all significant comments on the draft permit raised during the public comment period, or during any hearing.	47-13-14.30.a.2	Briefly describe and respond to all significant comments on the draft permit raised during the public comment period, or during any hearing.	Same as CFR.
40 CFR 124.17(c) (See also 145.11(a)(31))	(Applicable to State programs, see §145.11 (UIC).) The response to comments shall be available to the public.	47-13-14.30.b	The response to comments shall be available to the public.	Same as CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 124.19(a)(1)	**40 CFR 124.19 Appeal of RCRA, UIC, NPDES and PSD Permits.** Petitioning for review of a permit decision. (1) Initiating an appeal. Appeal from a UIC final permit decision issued under § 124.15 of this part is commenced by filing a petition for review with the Clerk of the Environmental Appeals Board within the time prescribed in paragraph (a)(3) of this section.			Missing. WV does not have provisions for appeals of UIC permits. This provision is not required of state rules; no impact on stringency. (Applies to all of 124.19.)
40 CFR 124.19(a)(2)	Who may file? Any person who filed comments on the draft permit or participated in a public hearing on the draft permit may file a petition for review as provided in this section. Additionally, any person who failed to file comments or failed to participate in the public hearing on the draft permit may petition for administrative review of any permit conditions set forth in the final permit decision, but only to the extent that those final permit conditions reflect changes from the proposed draft permit.			Missing.
40 CFR 124.19(a)(3)	Filing deadline. A petition for review must be filed with the Clerk of the Environmental Appeals Board within 30 days after the Regional Administrator serves notice of the issuance of a UIC final permit decision under § 124.15. A petition is filed when it is received by the Clerk of the Environmental Appeals Board at the address specified for the appropriate method of delivery as provided in paragraph (i)(2) of this section. [See the remainder of 40 CFR 124.19 for additional regulatory text.]			Missing.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144 - Underground Injection Control Program **Subpart A - General Provisions**				
40 CFR 144.1(g)	**40 CFR 144.1 Purpose and scope of Part 144.** *Scope of the permit or rule requirement.* The UIC permit program regulates underground injection by six classes of wells (see definition of ''well injection,'' 40 CFR 144.3). The six classes of wells are set forth in 40 CFR 144.6. All owners or operators of these injection wells must be authorized either by permit or rule by the Director. In carrying out the mandate of the SDWA, this subpart provides that no injection shall be authorized by permit or rule if it results in the movement of fluid containing any contaminant into underground sources of drinking water (USDWs –see 40 CFR 144.3 for definition), if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR part 141 or may adversely affect the health of persons (40 CFR 144.12). Existing Class IV wells which inject hazardous waste directly into an underground source of drinking water are to be eliminated over a period of six months and new such Class IV wells are to be prohibited (40 CFR 144.13). For Class V wells, if remedial action appears necessary, a permit may be required (40 CFR 144.25) or the Director must require remedial action or closure by order (40 CFR 144.6(c)). During UIC program development, the Director may identify aquifers and portions of aquifers which are actual or potential sources of drinking water. This will provide an aid to the Director in carrying out his or her duty to protect all USDWs. An aquifer is a USDW if it fits the definition under § 144.3, even if it has not been "identified." The Director may also designate "exempted aquifers" using the criteria in 40 CFR 146.4 of this chapter.	47-13-14.1.1	Scope. -- These rules set forth criteria and standards for the requirements which apply to the State Underground Injection Control Program (U.I.C.). The UIC permit program regulates underground injections by six (6) classes of wells. The six (6) classes of wells are set forth in section 4 of this rule. All owners or operators of these injection wells must be authorized either by permit or rule by the Director. . . . NOTE: The specification of exclusions under subdivision 1.1.e of this section shall not relieve any person of any requirements imposed under the State Act and rules, other than this Series, including State permit requirements. NOTE: Interim Status under RCRA for Class 1 Hazardous Waste Injection Wells. The minimum national standards which define acceptable injection of hazardous waste during the period of interim status under RCRA are set out in the applicable provisions of 40 CFR parts 144, 146, 147, and 40 CFR section 265.430. A UIC permit does not automatically terminate upon issuance to that well of a RCRA permit-by-rule under 40 CFR section 270.60(b). Thus, until a Class I well injecting hazardous waste receives a RCRA permit or permit-by-rule, the well's interim status requirements are the applicable requirements imposed pursuant to 40 CFR parts 144, 146, 147 and 40 CFR part 265, including any requirements imposed in the UIC permit.	WV rule contains a brief description of the scope and exclusions of its regulations. 145.11(a) does not require 144.1(g) to be part of a State Primacy Program. No impact on stringency.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.1(g) continued	Such aquifers are those which would otherwise qualify as "underground sources of drinking water" to be protected, but which have no real potential to be used as drinking water sources. Therefore, they are not USDWs. No aquifer is an exempted aquifer until it has been affirmatively designated under the procedures at § 144.7. Aquifers which do not fit the definition of "underground source of drinking water" are not "exempted aquifers." They are simply not subject to the special protection afforded USDWs. During initial Class VI program development, the Director shall not expand the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption for Class VI injection wells and EPA shall not approve a program that applies for aquifer exemption expansions of Class II-Class VI exemptions as part of the program description. All Class II to Class VI aquifer exemption expansions previously issued by EPA must be incorporated into the Class VI program descriptions pursuant to requirements at § 145.23(f)(9).			
40 CFR 144.1(g)(1)	Specific inclusions. The following wells are included among those types of injection activities which are covered by the UIC regulations. (This list is not intended to be exclusive but is for clarification only.)	47-13-14.1.1.a General	Specific inclusions. The following wells are included among those types of injection activities which are covered by the UIC rules (this list is not intended to be exclusive but is for clarification only):	Same as CFR.
40 CFR 144.1(g)(1)(i)	Any injection well located on a drilling platform inside the State's territorial waters.			Not included – WV is a landlocked state, so this omission does not affect stringency.
40 CFR 144.1(g)(1)(ii)	Any dug hole or well that is deeper than its largest surface dimension, where the principal function of the hole is emplacement of fluids.	47-13-14.1.1.b	Any dug hole or well that is deeper than its largest surface dimension, where the principal function of the hole is emplacement of fluids.	Same as CFR.
40 CFR 144.1(g)(1)(iii)	Any well used by generators of hazardous waste, or by owners or operators of hazardous waste management facilities, to dispose of fluids containing hazardous waste. This includes the disposal of hazardous waste into what would otherwise be septic systems and cesspools, regardless of their capacity.	47-13-14.1.1.c	Any septic tank or cesspool used by generators of hazardous waste, or by owners or operators of hazardous waste management facilities, to dispose of fluids containing hazardous waste.	The state rules are worded different than the CFR, but include hazardous waste disposal wells and septic system that dispose of hazardous waste. No concerns for stringency.

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ED_013399_00000014-00026

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.1(g)(1)(iv)	Any septic tank, cesspool, or other well used by a multiple dwelling, community, or Regional system for the injection of wastes.	47-13-14.1.1.d	Any septic tank, cesspool, or other well used by multiple dwelling, community, or regional system for the injection of waste.	Similar to CFR.
40 CFR 144.1(g)(2)	Specific exclusions. The following are not covered by these regulations:	47-13-14.1.1.e	Specific exclusions. The following are not covered by this rule:	Similar to CFR.
40 CFR 144.1(g)(2)(i)	Injection wells located on a drilling platform or other site that is beyond the State's territorial waters.			Not included – WV is a landlocked state, so this omission does not affect stringency.
40 CFR 144.1(g)(2)(ii)	Individual or single family residential waste disposal systems such as domestic cesspools or septic systems.	47-13-1.1.e.1	Individual or single family residential waste disposal systems such as domestic cesspools or septic systems.	Same as CFR.
40 CFR 144.1(g)(2)(iii)	Non-residential cesspools, septic systems or similar waste disposal systems if such systems (A) Are used solely for the disposal of sanitary waste, and (B) have the capacity to serve fewer than 20 persons a day.	47-13-1.1.e.3	Nonresidential cesspools, septic systems or similar waste disposal systems if such systems are used solely for the disposal of sanitary wastes and have the capacity to serve fewer than twenty (20) persons a day.	Similar to CFR.
40 CFR 144.1(g)(2)(iv)	Injection wells used for injection of hydrocarbons which are of pipeline quality and are gases at standard temperature and pressure for the purpose of storage.	47-13-1.1.e.4	Injection wells are used for injection of hydrocarbons which are of pipeline quality and are gases at standard temperature and pressure for the purpose of storage.	Similar to CFR.
40 CFR 144.1(g)(2)(v)	Any dug hole, drilled hole, or bored shaft which is not used for the subsurface emplacement of fluids.	47-13-1.1.e.2	Any dug hole which is not used for emplacement of fluids underground.	Similar to CFR; WV does not specify a well can be "drilled hole, or bored shaft;" no impact on stringency.
40 CFR 144.1(g)(3)	The prohibition applicable to Class IV wells under § 144.13 does not apply to injections of hazardous wastes into aquifers or portions thereof which have been exempted pursuant to § 146.04.	47-13-11.3.e	Class 4 Wells should not be in operation unless as part of an EPA administered program. Therefore, closure shall follow federal rules 40 CFR 144.23.	Differs from CFR. WV appears to ban new Class 4 wells unless they are issued by EPA; this provision is more stringent than CFR.
40 CFR 144.3	**40 CFR 144.3 Definitions.** *Administrator* means the Administrator of the United States Environmental Protection Agency, or an authorized representative.		**47-13-2. Definitions.**	Some definitions with regards to roles, e.g., *Administrator* or *Director*, differ or are absent in Rule Text.
	Application means the EPA standard national forms for applying for a permit, including any additions, revisions or modifications to the forms; or forms approved by EPA for use in approved States, including any approved modifications or revisions.	47-13-2.3	"Application" means the State standard forms for applying for a permit or permit modification, including any additions, revisions or modifications to the forms.	Similar to CFR. WV does not appear to imply that modified/revised forms be approved. Clarification of the definition is recommended.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
	Appropriate Act and regulations means the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA); or Safe Drinking Water Act (SDWA), whichever is applicable; and applicable regulations promulgated under those statutes.			Missing; term is not used in the rules.
	Approved State Program means a UIC program administered by the State or Indian Tribe that has been approved by EPA according to SDWA sections 1422 and/or 1425.			Missing. This definition is not required of state rules; no impact on stringency.
	Aquifer means a geological "formation," group of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring.	47-13-2.4	"Aquifer" means a geological "formation", group of formations, or part of a formation that is capable of yielding a usable amount of water to a well or spring.	Similar to CFR. *Significant* is replaced with *usable*. No concerns for stringency.
	Area of review means the area surrounding an injection well described according to the criteria set forth in § 146.06 or in the case of an area permit, the project area plus a circumscribing area the width of which is either 1⁄4 of a mile or a number calculated according to the criteria set forth in § 146.06.	47-13-2.5	"Area of review" means the area surrounding an injection well described according to the criteria set forth in subsection 5.2, or in the case of an area permit, the project area plus a circumscribing area the width of which is either 1/4 of a mile or a number calculated according to the criteria set forth in subsection 5.3.	Same as CFR.
	Cesspool means a "drywell" that receives untreated sanitary waste containing human excreta, and which sometimes has an open bottom and/or perforated sides.			Missing; but WV does define large capacity cesspools similar to CFR. See 40 CFR 144.81(2).
	Contaminant means any physical, chemical, biological, or radiological substance or matter in water.	47-13-2.15	"Contaminant" means any man induced physical, chemical, biological or radiological substance or matter in water.	Same as CFR.

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ED_013399_00000014-00028

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
	Director means the Regional Administrator, the State director or the Tribal director as the context requires, or an authorized representative. When there is no approved State or Tribal program, and there is an EPA administered program, "Director" means the Regional Administrator. When there is an approved State or Tribal program, "Director" normally means the State or Tribal director. In some circumstances, however, EPA retains the authority to take certain actions even when there is an approved State or Tribal program. In such cases, the term "Director" means the Regional Administrator and not the State or Tribal director.			WV provides no definition for "Director" yet uses the term throughout its rules. This term should be defined for clarity.
	Draft permit means a document prepared under §124.6 indicating the Director's tentative decision to issue or deny, modify, revoke and reissue, terminate, or reissue a "permit." A notice of intent to terminate a permit, and a notice of intent to deny a permit, as discussed in §124.5 are types of "draft permits." A denial of a request for modification, revocation and reissuance, or termination, as discussed in §124.5 is not a "draft permit."	47-13-2.18	"Draft permit" means a document indicating the Director's tentative decision to issue, modify, suspend, revoke, revoke and reissue, or reissue a "permit". A notice of intent to revoke a permit is a type of "draft permit". A denial of a request for modification, suspension, revocation, or revocation and reissuance, is not a "draft permit".	Similar to CFR. However, WV specifically excludes denial of a request for modification, suspension, revocation, or revocation and reissuance from the definition of a draft permit.
	Drilling mud means a heavy suspension used in drilling an "injection well," introduced down the drill pipe and through the drill bit.	47-13-2.19	"Drilling mud" means a heavy suspension used in drilling an "injection well", introduced down the drill pipe and through the drill bit.	Same as CFR.
	Drywell means a well, other than an improved sinkhole or subsurface fluid distribution system, completed above the water table so that its bottom and sides are typically dry except when receiving fluids.	47-13-2.20	"Dry Well" means a bored, drilled, or driven shaft or a dug hole, that is not an improved sinkhole or subsurface fluid distribution system, whose depth is greater than its largest surface dimension which is completed above the water table so that its bottom and sides are typically dry except when receiving fluids.	Similar to CFR. Includes more detail. No concerns for stringency.
	Eligible Indian Tribe is a Tribe that meets the statutory requirements established at 42 U.S.C. 300j-11(b)(1).			Missing; tribes/tribal are referred to in the WV rules. Addition of this definition for clarity is recommended.
	Emergency permit means a UIC "permit" issued in accordance with § 144.34.			Missing, and used in the WV rules. Addition of this definition for clarity is recommended.

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ED_013399_00000014-00029

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
	Environmental Protection Agency ("EPA") means the United States Environmental Protection Agency.	47-13-2.21	"Environmental Protection Agency" (EPA) means the United States Environmental Protection Agency.	Same as CFR.
	Exempted aquifer means an "aquifer" or its portion that meets the criteria in the definition of "underground source of drinking water" but which has been exempted according to the procedures in §144.7.	47-13-2.22	"Exempted aquifer" means an "aquifer" or its portion that meets the criteria in the definition of "underground source of drinking water" but which has been exempted according to the procedures in subsection 3.1.	Same as CFR.
	Existing injection well means an "injection well" other than a "new injection well."	47-13-2.23	"Existing injection well" means an "injection well" other than a "new injection well".	Same as CFR.
	Facility or activity means any UIC "injection well," or an other facility or activity that is subject to regulation under the UIC program.	47-13-2.25	"Facility or activity" means any "injection well" that is subject to rule under the UIC program.	Similar to CFR.
	Fluid means any material or substance which flows or moves whether in a semisolid, liquid, sludge, gas, or any other form or state.	47-13-2.28	"Fluid" means any material or substance which flows or moves whether in a semisolid, liquid, sludge, gas, or any other form or state.	Same as CFR.
	Formation means a body of consolidated or unconsolidated rock characterized by a degree of lithologic homogeneity which is prevailingly, but not necessarily, tabular and is mappable on the earth's surface or traceable in the subsurface.	47-13-2.29	"Formation" means a body of rock characterized by a degree of lithologic homogeneity which is prevailingly, but not necessarily, tabular and is mappable on the earth's surface or traceable in the subsurface.	Similar to CFR. WV definition does not distinguish *consolidated* or *unconsolidated.*
	Formation fluid means "fluid" present in a "formation" under natural conditions as opposed to introduced fluids, such as "drilling mud."	47-13-2.30	"Formation fluid" means "fluid" present in a "formation" under natural conditions as opposed to introduced fluids, such as "drilling mud".	Same as CFR.
	Generator means any person, by site location, whose act or process produces hazardous waste identified or listed in 40 CFR part 261.	47-13-2.31	"Generator" means any person, by site location, whose act or process produces hazardous waste identified or listed in 33CSR20, Hazardous Waste Management Rule, or whose act first causes a hazardous waste to become subject to this rule.	Similar to CFR, names the state's hazardous waste rule.
	Geologic sequestration means the long-term containment of a gaseous, liquid, or supercritical carbon dioxide stream in subsurface geologic formations. This term does not apply to carbon dioxide capture or transport.	47-13-2.32	"Geologic sequestration" means the long-term containment of a gaseous, liquid, or supercritical carbon dioxide stream in subsurface geologic formations. This term does not apply to carbon dioxide capture or transport.	Same as CFR.
	Ground water means water below the land surface in a zone of saturation.	47-13-2.34	"Groundwater" means water below the land surface in a zone of saturation.	Same as CFR.
	Hazardous waste means a hazardous waste as defined in 40 CFR 261.3.	47-13-2.35	"Hazardous waste" means a hazardous waste as defined in 33CSR20-2.1.a.	Similar to CFR. (The state rule cites is an appropriate reference.)

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
	Hazardous waste management facility ("HWM facility") means all contiguous land, and structures, other appurtenances, and improvements on the land used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (for example, one or more landfills, surface impoundments, or combination of them). *HWM facility* means "Hazardous Waste Management facility"	47-13-2.36	"Hazardous Waste Management facility" ("HWM facility") means all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of "hazardous waste". A facility may consist of several "treatment", "storage", or "disposal" operational units.	Similar to CFR. Excludes examples of types of treatment facilities. Probably does not affect stringency.
	Improved sinkhole means a naturally occurring karst depression or other natural crevice found in volcanic terrain and other geologic settings which have been modified by man for the purpose of directing and emplacing fluids into the subsurface.	47-13-2.37	"Improved Sinkhole" means a naturally occurring karst depression or other natural crevice found in volcanic terrain and other geologic settings which have been modified by man for the purposes of directing and emplacing fluids into the subsurface.	Same as CFR.
	Indian lands means "Indian country" as defined in 18 U.S.C. 1151. That section defines Indian country as: (a) All land within the limits of any Indian reservation under the jurisdiction of the United States government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation; (b) All dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a State; and (c) All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.			Missing; tribes/tribal are referred to in the WV rules. Addition of this definition is recommended for clarity.
	Indian Tribe means any Indian Tribe having a Federally recognized governing body carrying out substantial governmental duties and powers over a defined area.			Missing; tribes/tribal are referred to in the WV rules. Addition of this definition is recommended for clarity.
	Injection well means a "well" into which "fluids" are being injected.	47-13-2.38	"Injection well" means a well, subsurface distribution system, or an improved sinkhole into which fluids are being injected.	Similar to and more detailed than CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
	Injection zone means a geological "formation" group of formations, or part of a formation receiving fluids through a "well."	47-13-2.39	"Injection zone" means a geological "formation", group of formations or part of a formation receiving fluids through a "well" and for Class 6 Wells, the formation that is of sufficient areal extent, thickness, porosity, and permeability to receive carbon dioxide through a well or wells associated with a geologic sequestration project.	Similar to and more detailed than CFR.
	Interstate Agency means an agency of two or more States established by or under an agreement or compact approved by the Congress, or any other agency of two or more States or Indian Tribes having substantial powers or duties pertaining to the control of pollution as determined and approved by the Administrator under the "appropriate Act and regulations."			Missing. This definition is not required of state rules; no impact on stringency.
	Major facility means any UIC "facility or activity" classified as such by the Regional Administrator, or, in the case of approved State programs, the Regional Administrator in conjunction with the State Director.			Missing. This definition is not required of state rules; no impact on stringency.
	Manifest means the shipping document originated and signed by the "generator" which contains the information required by subpart B of 40 CFR part 262.	47-13-2.42	"Manifest" means the form used for identifying the quantity, composition and the origin, routing and destination of the hazardous waste during its transportation off-site from the point of generation to the point of disposal, treatment or storage.	Similar to and more detailed than CFR.
	New injection wells means an "injection well" which began injection after a UIC program for the State applicable to the well is approved or prescribed.	47-13-2.45	"New injection well" means a "well" which began injection after the effective date of this rule.	Similar to CFR.
	Owner or operator means the owner or operator of any "facility or activity" subject to regulation under the UIC program.	47-13-2.46	"Owner or operator" means the owner or operator of a facility or activity subject to regulation under the UIC program.	Same as CFR.
	Permit means an authorization, license, or equivalent control document issued by EPA or an approved State to implement the requirements of this part, parts 145, 146 and 124. "Permit" includes an area permit (§144.33) and an emergency permit (§144.34). Permit does not include UIC authorization by rule (§144.21), or any permit which has not yet been the subject of final agency action, such as a "draft permit."	47-13-2.48	"Permit" means an authorization, license, or equivalent control document issued by the State to implement the requirements of the UIC Program. "Permit" includes an area permit and a UIC Emergency Permit. "Permit" does not include UIC authorization by rule or any permit which has not yet been the subject of final agency action, such as a "draft permit".	Similar to CFR.

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ED_013399_00000014-00032

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
	Person means an individual, association, partnership, corporation, municipality, state, federal, or tribal agency, or an agency or employee thereof	47-13-2.49	"Person" means an individual, association, partnership, corporation, municipality, State, Federal, or Tribal agency, or an agency or employee thereof.	Same as CFR.
	Plugging means the act or process of stopping the flow of water, oil or gas into or out of a formation through a borehole or well penetrating that formation.	47-13-2.50	"Plugging" means the act or process of stopping the flow of water, oil or gas into or out of a "formation" through a borehole or well penetrating that formation.	Same as CFR.
	Point of injection means the last accessible sampling point prior to waste fluids being released into the subsurface environment through a Class V injection well. For example, the point of injection of a Class V septic system might be the distribution box—the last accessible sampling point before the waste fluids drain into the underlying soils. For a dry well, it is likely to be the well bore itself.	47-13-2.52	"Point of Injection" means for a Class 5 well the last accessible sampling point before the release of waste fluids into the subsurface environment. For example, the point of injection of a septic system might be the distribution box-the last accessible sampling point before the waste fluids drain into the leachfield and the underlying soils. For a dry well, it is likely to be the well bore itself.	Similar to CFR.
	Project means a group of wells in a single operation.	47-13-2.56	"Project" means a group of "wells" in a single operation.	Same as CFR.
	Radioactive Waste means any waste which contains radioactive material in concentrations which exceed those listed in 10 CFR part 20, appendix B, table II, column 2.	47-13-2.58	"Radioactive waste" means any waste which contains radioactive material in concentrations which exceed those listed in (10) CFR Part 20, Appendix B, Table II, Column 2.	Same as CFR.
	RCRA means the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 (Pub. L. 94–580, as amended by Pub. L. 95–609, Pub. L. 96–510, 42 U.S.C. 6901 et seq.).	47-13-2.59	"RCRA" means the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 (Pub. 1. 94-580, as amended by Pub. L. 95-609, 42 USC 6901 et seq.)	Similar to CFR.
	Regional Administrator means the Regional Administrator of the appropriate Regional Office of the Environmental Protection Agency or the authorized representative of the Regional Administrator.	47-13-2.60	"Regional Administrator" means the Regional Administrator of Region 3 of the U.S. Environmental Protection Agency or the authorized representative of the Regional Director.	Similar to CFR. WV substitutes *appropriate Regional Office* with *Region 3*.

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ED_013399_00000014-00033

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
	Sanitary waste means liquid or solid wastes originating solely from humans and human activities, such as wastes collected from toilets, showers, wash basins, sinks used for cleaning domestic areas, sinks used for food preparation, clothes washing operations, and sinks or washing machines where food and beverage serving dishes, glasses, and utensils are cleaned. Sources of these wastes may include single or multiple residences, hotels and motels, restaurants, bunkhouses, schools, ranger stations, crew quarters, guard stations, campgrounds, picnic grounds, day-use recreation areas, other commercial facilities, and industrial facilities provided the waste is not mixed with industrial waste.	47-13-2.62	"Sanitary waste" means liquid or solid waste originating solely from humans and human activities, such as wastes collected from toilets, showers, wash basins, sinks used for cleaning domestic areas, sinks used for food preparation, clothes washing operations, and sinks or washing machines where food and beverage serving dishes, glasses, and utensils are cleaned. Sources of these wastes may include single or multiple residences, hotels and motels, restaurants, bunkhouses, schools, ranger stations, crew quarters, guard stations, campgrounds, picnic grounds, day-use recreation areas, other commercial facilities, and industrial facilities provided the waste is not mixed with industrial waste.	Same as CFR.
	Schedule of compliance means a schedule of remedial measures included in a "permit," including an enforceable sequence of interim requirements (for example, actions, operations, or milestone events) leading to compliance with the "appropriate Act and regulations."	47-13-2.63	"Schedule of compliance" means a schedule of remedial measures included in a "permit", including an enforceable sequence of interim requirements (for example, actions, operations, or milestone events) leading to compliance with the SDWA and State Act and rules.	Similar to CFR.
	Septic system means a "well" that is used to emplace sanitary waste below the surface and is typically comprised of a septic tank and subsurface fluid distribution system or disposal system.	47-13-2.64	"Septic system" means a "well" that is used to emplace sanitary waste below the surface and is typically comprised of a septic tank and subsurface fluid distribution system or disposal system.	Same as CFR.
	SDWA means the Safe Drinking Water Act (Pub. L. 93–523, as amended; 42 U.S.C. 300f et seq.).	47-13-2.61.	"Safe Drinking Water Act" (SDWA) means the Safe Drinking Water Act (Pub. L. 95-523 as amended by Pub. L. 95-1900; 42 USC section 3000 et seq.	Similar to CFR.
	Site means the land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity.	47-13-2.65	"Site" means the land or water where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity.	Same as CFR.
	State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands, the Commonwealth of the Northern Mariana Islands, or an Indian Tribe treated as a State.	47-13-2.68	"State" means the State of West Virginia.	Differs from CFR. Specific to WV.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
	State Director means the chief administrative officer of any State, interstate, or Tribal agency operating an "approved program," or the delegated representative of the State director. If the responsibility is divided among two or more States, interstate, or Tribal agencies, "State Director" means the chief administrative officer of the State, interstate, or Tribal agency authorized to perform the particular procedure or function to which reference is made.			Missing. Addition of this definition is recommended for clarity.
	State/EPA agreement means an agreement between the Regional Administrator and the State which coordinates EPA and State activities, responsibilities and programs.	47-13-2.70	"State/EPA agreement" means an agreement between the Regional Administrator and the State which coordinates EPA and State activities, responsibilities and programs.	Same as CFR.
	Stratum (plural strata) means a single sedimentary bed or layer, regardless of thickness, that consists of generally the same kind of rock material.	47-13-2.71	"Stratum" (plural strata) means a single sedimentary bed or layer, regardless of thickness, that consists of generally the same kind of rock material.	Same as CFR.
	Subsurface fluid distribution system means an assemblage of perforated pipes, drain tiles, or other similar mechanisms intended to distribute fluids below the surface of the ground.	47-13-2.73	"Subsurface distribution system" means an assemblage of perforated pipes, drain tiles, or other similar mechanisms intended to distribute fluids below the surface of the ground.	Similar to CFR.
	Total dissolved solids means the total dissolved (filterable) solids as determined by use of the method specified in 40 CFR part 136.	47-13-2.75	"Total dissolved solids" means the total dissolved (filterable) solids as determined by use of the method specified in 40 CFR Part 136.	Same as CFR.
	Transferee means the owner or operator receiving ownership and/or operational control of the well.			Missing; term is used in the WV rules. Addition of this definition is recommended for clarity (but is not required of state rules).
	Transferor means the owner or operator transferring ownership and/or operational control of the well.			Missing; term is used in the WV rules. Addition of this definition is recommended for clarity (but is not required of state rules).
	UIC means the Underground Injection Control program under Part C of the Safe Drinking Water Act, including an "approved State program."	47-13-2.77	"UIC" means the Underground Injection Control program under Part C of the Safe Drinking Water Act, including an approved State program.	Similar to CFR.
	Underground injection means a "well injection."	47-13-2.78	"Underground injection" means the subsurface emplacement of fluids into a well, subsurface distribution system, or improved sinkhole.	Includes more detail than CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
	Underground source of drinking water (USDW) means an aquifer or its portion: (a)(1) Which supplies any public water system; or (2) Which contains a sufficient quantity of ground water to supply a public water system; and (i) Currently supplies drinking water for human consumption; or (ii) Contains fewer than 10,000 mg/l total dissolved solids; and (b) Which is not an exempted aquifer.	47-13-2.79	"Underground source of drinking water" (USDW) means an "aquifer" or its portion: a. which supplies any public water system; or b. which contains a sufficient quantity of groundwater to supply a public water system; and b.1. currently supplies drinking water for human consumption; or b.2. contains fewer than 10,000 mg/1 total dissolved solids; and c. which is not an exempted aquifer.	Same as CFR.
	Well means: A bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or, a dug hole whose depth is greater than the largest surface dimension; or, an improved sinkhole; or, a subsurface fluid distribution system.	47-13-2.80	"Well" for the purpose of the State UIC Program, means a bored, drilled or driven shaft, or a dug hole whose depth is greater than the largest surface dimension, an improved sinkhole; or, a subsurface fluid distribution system.	Similar to CFR.
	Well injection means the subsurface emplacement of fluids through a well.	47-13-2.81	"Well injection" means the subsurface emplacement of fluids through a well.	Same as CFR.
40 CFR 144.5 (a)	**40 CFR 144.5 Confidentiality of information.** In accordance with 40 CFR part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR part 2 (Public Information).	47-13-14.21.a	**47-12-14.21. Confidentiality of Information.** Any information submitted to the State pursuant to this rule may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "CONFIDENTIAL BUSINESS INFORMATION" on each page containing such information. If no claim is made at the time of submission, the State may make the information available to the public without further notice.	Similar to CFR. Does not specify that WV may make the information available to the public without further notice or how CBI will be treated. Clarification is recommended.
40 CFR 144.5 (b) (See also 145.11(a)(1))	Claims of confidentiality for the following information will be denied: (1) The name and address of any permit applicant or permittee; (2) Information which deals with the existence, absence, or level of contaminants in drinking water.	47-13-14.21.b	Claims of confidentiality for the following information will be denied: 1. The name and address of any permit applicant or permittee. 2. Information which deals with the existence, absence, or level of contaminants in drinking water.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.6 (See also 145.11(a)(2))	**40 CFR 144.6 Classification of wells.** Injection wells are classified as follows:	47-13-4	**47-13-4. Classes of Wells.**	Similar to CFR.
40 CFR 144.6 (a)(1) (See also 145.11(a)(2))	*Class I.* (1) Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to inject hazardous waste beneath the lowermost formation containing, within one-quarter mile of the well bore, an underground source of drinking water.	47-13-4.1.a	Class 1. Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to inject hazardous waste beneath the lowermost formation containing, within 1/4 mile of the well bore, an underground source of drinking water.	Same as CFR.
40 CFR 144.6 (a)(2) (See also 145.11(a)(2))	Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water.	47-13-4.1.b	Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within 1/4 mile of the well bore, an underground source of drinking water.	Same as CFR.
40 CFR 144.6 (a)(3) (See also 145.11(a)(2))	Radioactive waste disposal wells which inject fluids below the lowermost formation containing an underground source of drinking water within one quarter mile of the well bore.	47-13-4.1.c	It also includes wells not covered in Class 4 that inject radioactive material listed in 10 CFR Part 20, Appendix B, Table II, Column 2.	Differs from CFR in that it does not specify injection of radioactive waste within 1/4 mile of the USDW. Clarification is recommended.
40 CFR 144.6(b) (See also 145.11(a)(2))	*Class II.* Wells which inject fluids:	47-13-4.2	Class 2. Wells injecting fluids:	Same as CFR.
40 CFR 144.6(b)(1) (See also 145.11(a)(2))	Which are brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection.	47-13-4.2.a	Which are brought to the surface in connection with natural gas storage, or oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection;	Similar to CFR. WV's definition of a Class II well is not specific to *conventional* operations. Is it WV's intent to include hydraulic fracturing wells in the Class II definition?
40 CFR 144.6(b)(2) (See also 145.11(a)(2))	For enhanced recovery of oil or natural gas; and	47-13-4.2.b	For enhanced recovery of oil or natural gas; and	Same as CFR.
40 CFR 144.6(b)(3) (See also 145.11(a)(2))	For storage of hydrocarbons which are liquid at standard temperature and pressure.	47-13-4.2.c	For storage of hydrocarbons which are liquid at standard temperature and pressure.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.6(c) (See also 145.11(a)(2))	*Class III.* Wells which inject for extraction of minerals including:	47-13-4.3	Class 3. Wells which inject for extraction of minerals including:	Same as CFR. WV also includes wells used for in situ combustion of fossil fuel (47-13-4.3.d) in Class III.
40 CFR 144.6(c)(1) (See also 145.11(a)(2))	Mining of sulfur by the Frasch process;	47-13-4.3.a	Mining of sulphur by the Frasch process;	Same as CFR.
40 CFR 144.6(c)(2) (See also 145.11(a)(2))	In situ production of uranium or other metals; this category includes only in-situ production from ore bodies which have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class V.	47-13-4.3.b	In situ production of uranium or other metals. This category includes only in situ production from ore bodies which have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class 5;	Same as CFR.
40 CFR 144.6(c)(3) (See also 145.11(a)(2))	Solution mining of salts or potash.	47-13-4.3.c	Solution mining of salts or potash; and	Same as CFR.
40 CFR 144.6(d)(1) (See also 145.11(a)(2))	*Class IV.* (1) Wells used by generators of hazardous waste or of radioactive waste, by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous waste or radioactive waste into a formation which within one-quarter (1⁄4) mile of the well contains an underground source of drinking water.			Missing. WV does not specifically describe Class IV wells injecting *into* a formation near a USDW.
40 CFR 144.6(d)(2) (See also 145.11(a)(2))	Wells used by generators of hazardous waste or of radioactive waste, by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous waste or radioactive waste above a formation which within one-quarter (1⁄4) mile of the well contains an underground source of drinking water.			Missing. WV does not specifically describe Class IV wells injecting *above* a formation near a USDW.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.6(d)(3) (See also 145.11(a)(2))	Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to dispose of hazardous waste, which cannot be classified under paragraph (a)(1) or (d) (1) and (2) of this section (e.g., wells used to dispose of hazardous waste into or above a formation which contains an aquifer which has been exempted pursuant to § 146.04).	47-13-4.4.a	Class 4. Wells used by generators of hazardous waste or by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites, to dispose of hazardous wastes which cannot be classified under subdivisions 4.1.a, 4.1.b, or 4.1.c.	Similar to CFR. WV does not include examples. The above two rows are summarized by this row.
40 CFR 144.6(e) (See also 145.11(a)(2))	*Class V*. Injection wells not included in Class I, II, III, IV, or VI. Specific types of Class V injection wells are described in 40 CFR 144.81.	47-13-4.5	Class 5. Injection wells not included in Classes 1, 2, 3, 4, or 6. Class 5 wells include, but are not limited to…	Similar to CFR.
40 CFR 144.6(f) (See also 145.11(a)(2))	*Class VI.* Wells that are not experimental in nature that are used for geologic sequestration of carbon dioxide beneath the lowermost formation containing a USDW; or, wells used for geologic sequestration of carbon dioxide that have been granted a waiver of the injection depth requirements pursuant to requirements at § 146.95 of this chapter; or, wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to §§ 146.4 of this chapter and 144.7(d).	47-13-4.6	Class 6. Wells used to inject carbon dioxide (CO2) into rock formations. Wells that are not experimental in nature that are used for geologic sequestration of carbon dioxide beneath the lowermost formation containing a USDW; or, wells used for geologic sequestration of carbon dioxide that have been granted a waiver of the injection depth requirements pursuant to requirements at subsection 14.8.d. of this chapter; or, wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of an existing Class 2 enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to section 13.3 and 40 CFR 144.7(d).	Similar to CFR. WV includes an extra sentence at beginning referring to CO2 injection; does not impact stringency.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.7(a) (See also 145.11(a)(3))	**40 CFR 144.7 Identification of underground sources of drinking water and exempted aquifers.** The Director may identify (by narrative description, illustrations, maps, or other means) and shall protect as underground sources of drinking water, all aquifers and parts of aquifers which meet the definition of ''underground source of drinking water'' in § 144.3, except to the extent there is an applicable aquifer exemption under paragraph (b) of this section or an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption for the exclusive purpose of Class VI injection for geologic sequestration under paragraph (d) of this section. Other than EPA approved aquifer exemption expansions that meet the criteria set forth in § 146.4(d) of this chapter, new aquifer exemptions shall not be issued for Class VI injection wells. Even if an aquifer has not been specifically identified by the Director, it is an underground source of drinking water if it meets the definition in § 144.3.	47-13-14.22.a	The Director may identify (by narrative description, illustrations, maps, or other means) and shall protect, except where exempted under subdivision 14.22.b of this section, as an underground source of drinking water, all aquifers or parts of aquifer which meet the definition of an "underground source of drinking water" in section 2. Even if an aquifer has not been specifically identified by the Director, it is an underground source of drinking water if it meets the definition in section 2 or an expansion to the areal extent of an existing Class II EOR/EGR aquifer exemption for the exclusive purpose of Class 6 injection for geologic sequestration. Other than EPA approved aquifer exemption expansions or exemptions following 40 CFR 144.7(a)., new aquifer exemptions shall not be issued for Class 6 injection wells.	Similar to CFR. The following sentence seems to be incomplete: "Even if an aquifer has not been specifically identified by the Director, it is an underground source of drinking water if it meets the definition in section 2 or an expansion to the areal extent of an existing Class II EOR/EGR aquifer exemption for the exclusive purpose of Class 6 injection for geologic sequestration"
40 CFR 144.7(b)(1) (See also 145.11(a)(3))	The Director may identify (by narrative description, illustrations, maps, or other means) and describe in geographic and/or geometric terms (such as vertical and lateral limits and gradient) which are clear and definite, all aquifers or parts thereof which the Director proposes to designate as exempted aquifers using the criteria in 40 CFR 146.4.	47-13-14.22.b	The Director may identify (by narrative description, illustrations, maps, or other means) and describe in geographic and/or geometric terms, such as vertical and lateral limits and gradient, which are clear and definite, all aquifers or parts thereof which the Director proposes to designate as exempted aquifers using the criteria in section 3.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.7(b)(2) (See also 145.11(a)(3))	No designation of an exempted aquifer submitted as part of a UIC program shall be final until approved by the Administrator as part of a UIC program. No designation of an expansion to the areal extent of a Class II enhanced oil recovery or enhanced gas recovery aquifer exemption for the exclusive purpose of Class VI injection for geologic sequestration shall be final until approved by the Administrator as a revision to the applicable Federal UIC program under part 147 or as a substantial revision of an approved State UIC program in accordance with § 145.32 of this chapter.	47-13-14.22.c	No designation of an exempted aquifer submitted as a part of a UIC Program shall be final until approved by the Director of the U.S. EPA as part of the State program. 1. No designation of an expansion to the areal extent of a Class II EOR/EGR aquifer exemption for the exclusive purpose of Class 6 injection for geologic sequestration shall be final until approved by the Director of the U.S. EPA as part of the State Program.	Similar to CFR. WV uses the terms *Administrator* and *Director* differently, but appropriately refers to EPA as the approving authority for aquifer exemptions. No concerns for stringency.
40 CFR 144.7(b)(3) (See also 145.11(a)(3))	Subsequent to program approval or promulgation, the Director may, after notice and opportunity for a public hearing, identify additional exempted aquifers. For approved State programs exemption of aquifers *identified* (i) under § 146.04(b) shall be treated as a program revision under § 145.32; (ii) under § 146.04(c) shall become final if the State Director submits the exemption in writing to the Administrator and the Administrator has not disapproved the designation within 45 days. Any disapproval by the Administrator shall state the reasons and shall constitute final Agency action for purposes of judicial review.			Missing. WV does address EPA's role in aquifer exemption determinations, so the omission of this may not affect stringency.
40 CFR 144.7(c)(1) (See also 145.11(a)(3))	For Class III wells, the Director shall require an applicant for a permit which necessitates an aquifer exemption under § 146.04(b)(1) to furnish the data necessary to demonstrate that the aquifer is expected to be mineral or hydrocarbon producing. Information contained in the mining plan for the proposed project, such as a map and general description of the mining zone, general information on the mineralogy and geochemistry of the mining zone, analysis of the amenability of the mining zone to the proposed mining method, and a time-table of planned development of the mining zone shall be considered by the Director in addition to the information required by § 144.31(g).	47-13-14.22.d	For Class 3 wells, the Director shall require an applicant for a permit which necessitates an aquifer exemption under paragraph 3.1.b.1 to furnish the data necessary to demonstrate that the aquifer is expected to be mineral or hydrocarbon producing. Information contained in the mining plan for the proposed project, such as a map and general description of the mining zone, general information on the mineralogy and geochemistry of the mining zone, analysis of the amenability of the mining zone to the proposed mining method, and a time-table of planned development of the mining zone shall be considered by the Director in addition to the information required by subsection 14.3.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.7(c)(2) (See also 145.11(a)(3))	For Class II wells, a demonstration of commercial producibility shall be made as follows:	47-13-14.22.e	For Class 2 wells, a demonstration of commercial producibility shall be made as follows:	Same as CFR.
40 CFR 144.7(c)(2)(i) (See also 145.11(a)(3))	For a Class II well to be used for enhanced oil recovery processes in a field or project containing aquifers from which hydrocarbons were previously produced, commercial producibility shall be presumed by the Director upon a demonstration by the applicant of historical production having occurred in the project area or field.	47-13-14.22.e.1	For a Class 2 well to be used for enhanced oil recovery processes in a field or project containing aquifers from which hydrocarbons were previously produced, commercial productibility shall be presumed by the Director upon a demonstration by the applicant of historical production having occurred in the project area or field.	Same as CFR. Typo: "productibility" should be "producibility"
40 CFR 144.7(c)(2)(ii) (See also 145.11(a)(3))	For Class II wells not located in a field or project containing aquifers from which hydrocarbons were previously produced, information such as logs, core data, formation description, formation depth, formation thickness and formation parameters such as permeability and porosity shall be considered by the Director, to the extent such information is available.	47-13-14.22.e.2	For Class 2 wells not located in a field or project containing aquifers from which hydrocarbons were previously produced, information such as logs, core data, formation description, formation depth, formation thickness and formation parameters such as permeability and porosity shall be considered by the Director, to the extent such information is available.	Same as CFR.
40 CFR 144.7(d) (See also 145.11(a)(3))	*Expansion to the areal extent of existing Class II aquifer exemptions for Class VI wells.* Owners or operators of Class II enhanced oil recovery or enhanced gas recovery wells may request that the Director approve an expansion to the areal extent of an aquifer exemption already in place for a Class II enhanced oil recovery or enhanced gas recovery well for the exclusive purpose of Class VI injection for geologic sequestration. Such requests must be treated as a revision to the applicable Federal UIC program under part 147 or as a substantial program revision to an approved State UIC program under § 145.32 of this chapter and will not be final until approved by EPA.	47-13-14.22.c.2	Requests must be treated as a substantial program revision under the approved State UIC program and will not be final until approved by EPA.	Similar to CFR. However, WV does require that an operator request an expansion of an existing Class 2 aquifer exemption. No concerns for stringency.

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ED_013399_00000014-00042

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.7(d)(1) (See also 145.11(a)(3))	The owner or operator of a Class II enhanced oil recovery or enhanced gas recovery well that requests an expansion of the areal extent of an existing aquifer exemption for the exclusive purpose of Class VI injection for geologic sequestration must define (by narrative description, illustrations, maps, or other means) and describe in geographic and/or geometric terms (such as vertical and lateral limits and gradient) that are clear and definite, all aquifers or parts thereof that are requested to be designated as exempted using the criteria in § 146.4 of this chapter.	47-13-14.22.c.2	In order to make a request to the Director to approve an expansion to the areal extent of existing Class II aquifer exemptions for Class 6 wells, the owner or operator of a Class II EOR/EGR must define and describe all aquifers that are requested to be designated as exempted in 40 CFR 146.4.	The WV text is less specific than the CFR regarding the information to be included in the request, i.e., it does not specify submittal of describe illustrations, maps, or other means and the vertical and lateral limits and gradient of all aquifers. However, because the determination is EPA's, not the state's, this may not affect stringency.
40 CFR 144.7(d)(2) (See also 145.11(a)(3))	In evaluating a request to expand the areal extent of an aquifer exemption of a Class II enhanced oil recovery or enhanced gas recovery well for the purpose of Class VI injection, the Director must determine that the request meets the criteria for exemptions in § 146.4. In making the determination, the Director shall consider:	47-13-14.22.c.2	The Director must determine that the request meets the criteria in 40 CFR 146.4 and consider:	Differs from CFR. However, because the determination is EPA's, not the state's, and the specific considerations are the same as the CFR at 144.19, this may not affect stringency.
40 CFR 144.7(d)(2)(i) (See also 145.11(a)(3))	Current and potential future use of the USDWs to be exempted as drinking water resources;	47-13-14.22.c.2.1	Current and potential future use of the USDWs to be exempted as drinking water resources;	Same as CFR.
40 CFR 144.7(d)(2)(ii) (See also 145.11(a)(3))	The predicted extent of the injected carbon dioxide plume, and any mobilized fluids that may result in degradation of water quality, over the lifetime of the GS project, as informed by computational modeling performed pursuant to § 146.84(c)(1), in order to ensure that the proposed injection operation will not at any time endanger USDWs including non-exempted portions of the injection formation;	47-13-14.22.c.2.2	The predicted extent of the injected CO2 plume and any mobilized fluids that may degrade of water quality, over the GS project lifetime, as informed by computational modeling in 14.9.c.1.;	Differs from CFR (WV does not include text related to ensuring protection of USDWs). However, because the determination is EPA's, not the state's, this may not affect stringency. Since it may affect the approvability of any aquifer exemption expansion requests WV submits to EPA, clarification is recommended.
40 CFR 144.7(d)(2)(iii) (See also 145.11(a)(3))	Whether the areal extent of the expanded aquifer exemption is of sufficient size to account for any possible revisions to the computational model during reevaluation of the area of review, pursuant to § 146.84(e); and	47-13-14.22.c.2.3	Whether the areal extent of the expanded aquifer exemption is of sufficient size to account for any possible revisions to the computational model during reevaluation of the area of review, pursuant to 14.9.e.4.; and	Same as CFR.

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ED_013399_00000014-00043

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.7(d)(2)(iv) (See also 145.11(a)(3))	Any information submitted to support a waiver request made by the owner or operator under § 146.95, if appropriate.	47-13-14.22.c.2.4	Any information submitted to support a waiver request made by the owner or operator under 14.8.d., if appropriate.	Same as CFR.
40 CFR 144.8(a) (See also 145.11(a)(4))	**40 CFR 144.8 Noncompliance and program reporting by the Director.** The Director shall prepare quarterly and annual reports as detailed below. When the State is the permit-issuing authority, the State Director shall submit any reports required under this section to the Regional Administrator. (a) *Quarterly reports.* The Director shall submit quarterly narrative reports for major facilities as follows:			Missing; noncompliance reporting is a requirement for the state, not owners or operators. (Applies to all of 144.8.)
40 CFR 144.8(a)(1)(i) (See also 145.11(a)(4))	*Format.* The report shall use the following format: (i) Provide an alphabetized list of permittees. When two or more permittees have the same name, the lowest permit number shall be entered first.			Missing.

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ED_013399_00000014-00044

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.8(a)(1)(ii) (See also 145.11(a)(4))	For each entry on the list, include the following information in the following order: (A) Name, location, and permit number of the noncomplying permittees. (B) A brief description and date of each instance of noncompliance for that permittee. Instances of noncompliance may include one or more the kinds set forth in paragraph (a)(2) of this section. When a permittee has noncompliance of more than one kind, combine the information into a single entry for each such permittee. (C) The date(s) and a brief description of the action(s) taken by the Director to ensure compliance. (D) Status of the instance(s) of noncompliance with the date of the review of the status or the date of resolution. (E) Any details which tend to explain or mitigate the instance(s) of noncompliance.			Missing.
40 CFR 144.8(a)(2) (See also 145.11(a)(4))	*Instances of noncompliance to be reported.* Any instances of noncompliance within the following categories shall be reported in successive reports until the noncompliance is reported as resolved. Once noncompliance is reported as resolved it need not appear in subsequent reports.			Missing.
40 CFR 144.8(a)(2)(i) (See also 145.11(a)(4))	*Failure to complete construction elements.* When the permittee has failed to complete, by the date specified in the permit, an element of a compliance schedule involving either planning for construction or a construction step (for example, begin construction, attain operation level); and the permittee has not returned to compliance by accomplishing the required elements of the schedule within 30 days from the date a compliance schedule report is due under the permit.			Missing.

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ED_013399_00000014-00045

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.8(a)(2)(ii) (See also 145.11(a)(4))	*Modifications to schedules of compliance.* When a schedule of compliance in the permit has been modified under §§144.39 or 144.41 because of the permittee's noncompliance.			Missing.
40 CFR 144.8(a)(2)(iii) (See also 145.11(a)(4))	*Failure to complete or provide compliance schedule or monitoring reports.* When the permittee has failed to complete or provide a report required in a permit compliance schedule (for example, progress report or notice of noncompliance or compliance) or a monitoring report; and the permittee has not submitted the complete report within 30 days from the date it is due under the permit for compliance schedules, or from the date specified in the permit for monitoring reports.			Missing.
40 CFR 144.8(a)(2)(iv) (See also 145.11(a)(4))	*Deficient reports.* When the required reports provided by the permittee are so deficient as to cause misunderstanding by the Director and thus impede the review of the status of compliance.			Missing.
40 CFR 144.8(a)(2)(v) (See also 145.11(a)(4))	*Noncompliance with other permit requirements.* Noncompliance shall be reported in the following circumstances:			Missing.
40 CFR 144.8(a)(2)(v)(A) (See also 145.11(a)(4))	Whenever the permittee has violated a permit requirement (other than reported under paragraph (a)(2) (i) or (ii) of this section), and has not returned to compliance within 45 days from the date reporting of noncompliance was due under the permit; or			Missing.
40 CFR 144.8(a)(2)(v)(B) (See also 145.11(a)(4))	When the Director determines that a pattern of noncompliance exists for a major facility permittee over the most recent four consecutive reporting periods. This pattern includes any violation of the same requirement in two consecutive reporting periods, and any violation of one or more requirements in each of four consecutive reporting periods;			Missing.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.8(a)(2)(v)(C) (See also 145.11(a)(4))	When the Director determines significant permit noncompliance or other significant event has occurred, such as a migration of fluids into a USDW.			Missing.
40 CFR 144.8(a)(2)(vi) (See also 145.11(a)(4))	*All other.* Statistical information shall be reported quarterly on all other instances of noncompliance by major facilities with permit requirements not otherwise reported under paragraph (a) of this section.			Missing.
40 CFR 144.8(b)(1) (See also 145.11(a)(4))	*Annual reports* — (1) *Annual noncompliance report.* Statistical reports shall be submitted by the Director on nonmajor UIC permittees indicating the total number reviewed, the number of noncomplying nonmajor permittees, the number of enforcement actions, and number of permit modifications extending compliance deadlines. The statistical information shall be organized to follow the types of noncompliance listed in paragraph (a) of this section.			Missing.
40 CFR 144.8(b)(2)(i) (See also 145.11(a)(4))	For State-administered UIC Programs only. In addition to the annual noncompliance report, the State Director shall: Submit each year a program report to the Administrator (in a manner and form prescribed by the Administrator) consisting of:			Missing.
40 CFR 144.8(b)(2)(i)(A) (See also 145.11(a)(4))	A detailed description of the State's implementation of its program;			Missing.
40 CFR 144.8(b)(2)(i)(B) (See also 145.11(a)(4))	Suggested changes, if any to the program description (see § 145.23(f)) which are necessary to reflect more accurately the State's progress in issuing permits;			Missing.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.8(b)(2)(i)(C) (See also 145.11(a)(4))	An updated inventory of active underground injection operations in the State.			Missing.
40 CFR 144.8(b)(2)(ii) (See also 145.11(a)(4))	In addition to complying with the requirements of paragraph (b)(2)(i) of this section, the Director shall provide the Administrator, on February 28th and August 31st of each of the first two years of program operation, the information required in 40 CFR 146.15, 146.25, and 146.35.			Missing.
40 CFR 144.8(b)(2)(iii) (See also 145.11(a)(4))	All Class VI program reports shall be consistent with reporting requirements set forth in §146.91 of this chapter.			Missing.
40 CFR 144.8(c)(1) (See also 145.11(a)(4))	Schedule. (1) For all quarterly reports. On the last working day of May, August, November, and February, the State Director shall submit to the Regional Administrator information concerning noncompliance with permit requirements by major facilities in the State in accordance with the following schedule. The Regional Administrator shall prepare and submit information for EPA-issued permits to EPA Headquarters in accordance with the same schedule. QUARTERS COVERED BY REPORTS ON NONCOMPLIANCE BY MAJOR FACILITIES [Date for completion of reports] January, February, and March: 1 May 31 April, May, and June: 1 Aug. 31 July, August, and September: 1 Nov. 30 October, November, and December: 1 Feb. 28 1 Reports must be made available to the public for inspection and copying on this date.			Missing.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.8(c)(2) (See also 145.11(a)(4))	For all annual reports. The period for annual reports shall be for the calendar year ending December 31, with reports completed and available to the public no more than 60 days later.			Missing.
Subpart B - General Program Requirements				
40 CFR 144.11 (See also 145.11(a)(5))	**40 CFR 144.11 Prohibition of unauthorized injection.** Any underground injection, except into a well authorized by rule or except as authorized by permit issued under the UIC program, is prohibited. The construction of any well required to have a permit is prohibited until the permit has been issued.	47-13-14.1.a	**47-13-14.1. General Prohibition and Prohibition of Movement of Fluid into Underground Sources of Drinking Water.** Underground injection is prohibited unless authorized by permit or rule. The construction of any well required to have a permit is prohibited until the permit has been issued.	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.12(a) (See also 145.11(a)(6))	**40 CFR 144.12 Prohibition of movement of fluid into underground sources of drinking water.** No owner or operator shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR part 142 or may otherwise adversely affect the health of persons. The applicant for a permit shall have the burden of showing that the requirements of this paragraph are met.	47-13-14.1.b	No owner or operator shall construct, operate, maintain, convert, plug, abandon or conduct any other underground injection activity in a manner which causes or allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 142 or promulgated pursuant to W. Va. Code §16-1-1 et seq., or may otherwise adversely affect the health of persons. The applicant for a permit shall have the burden of showing that the requirements of this paragraph are met.	Similar to CFR. Note: the reference to part 142 in the CFR text should be to 40 CFR 141, the location of the primary drinking water regulations.
40 CFR 144.12(b) (See also 145.11(a)(6))	For Class I, II, III, and VI wells, if any water quality monitoring of an underground source of drinking water indicates the movement of any contaminant into the underground source of drinking water, except as authorized under part 146, the Director shall prescribe such additional requirements for construction, corrective action, operation, monitoring, or reporting (including closure of the injection well) as are necessary to prevent such movement. In the case of wells authorized by permit, these additional requirements shall be imposed by modifying the permit in accordance with §144.39, or the permit may be terminated under §144.40 if cause exists, or appropriate enforcement action may be taken if the permit has been violated. In the case of wells authorized by rule, see §§ 144.21 through 144.24.	47-13-14.1.c	For Class 1, 2, 3, and 6 wells, if any water quality monitoring of an USDW indicates the movement of any contaminant into USDW except as authorized under this rule, the Director shall prescribe such additional requirements for construction, corrective action, operation, monitoring, or reporting (including closure of the injection well) as are necessary to prevent such movement. In the case of wells authorized by permit, these additional requirements shall be imposed by modifying the permit or the permit may be revoked if cause exists, or appropriate enforcement action may be taken if the permit has been violated. In the case of wells authorized by rule, see subsection 14.2.	Similar to CFR.
40 CFR 144.12(c) (See also 145.11(a)(6))	For Class V wells, if at any time the Director learns that a Class V well may cause a violation of primary drinking water regulations under 40 CFR part 142, he or she shall:	47-13-14.1.d	For Class 5 wells, if at any time the Director learns that a Class 5 well may cause a violation of primary drinking water rules under 40 CFR Part 142 or W. Va. Code §16-1-1 et seq., he or she shall:	Similar to CFR. Note: the reference to part 142 in the CFR text should be to 40 CFR 141, the location of the primary drinking water regulations.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.12(c)(1) (See also 145.11(a)(6))	Require the injector to obtain an individual permit;	47-13-14.1.d.1	Require the injector to obtain an individual permit;	Same as CFR.
40 CFR 144.12(c)(2) (See also 145.11(a)(6))	Order the injector to take such actions (including, where required, closure of the injection well) as may be necessary to prevent the violation.	47-13-14.1.d.2	Order the injector to take such actions (including where required closure of the injection well) as may be necessary to prevent the violation; or	Same as CFR.
40 CFR 144.12(c)(3) (See also 145.11(a)(6))	Take enforcement action.	47-13-14.1.d.3	Take enforcement action.	Same as CFR.
40 CFR 144.12(d) (See also 145.11(a)(6))	Whenever the Director learns that a Class V well may be otherwise adversely affecting the health of persons, he or she may prescribe such actions as may be necessary to prevent the adverse effect, including any action authorized under paragraph (c) of this section.	47-13-14.1.e	Whenever the Director learns that a Class 5 well may be otherwise adversely affecting the health of persons, he or she may prescribe such actions as may be necessary to prevent the adverse effect, including any action authorized under subdivision 14.2.d of this section.	Similar to CFR.
40 CFR 144.12(e) (See also 145.11(a)(6))	Notwithstanding any other provision of this section, the Director may take emergency action upon receipt of information that a contaminant which is present in or likely to enter a public water system or underground source of drinking water may present an imminent and substantial endangerment to the health of persons.	47-13-14.1.f	Notwithstanding any other provision of this section, the Director may take emergency action under W. Va. Code §22-11-19 upon receipt of information that a contaminant which is present in or is likely to enter a public water system or USDW may present an imminent and substantial endangerment to health of persons.	Similar to CFR.
40 CFR 144.13 (a) (See also 145.11(a)(7))	**40 CFR 144.13 Prohibition of Class IV wells.** The following are prohibited, except as provided in paragraph (c) of this section:	47-13-11.1.a	**47-13-11. Criteria and Standards Applicable to Class 4 Wells.** This section sets forth criteria and standards for underground injection control programs to regulate wells, including non-residential septic system wells, used by generators of hazardous wastes or owners and operators of hazardous waste management facilities to inject into or above strata that contain an underground source of drinking water.	WV provides introductory text that is not in the CFR; no impact on stringency.
40 CFR 144.13 (a)(1) (See also 145.11(a)(7))	The construction of any Class IV well.	47-13-11.1.b	All new Class 4 wells are prohibited.	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.13 (a)(2) (See also 145.11(a)(7))	The operation or maintenance of any Class IV well not in operation prior to July 18, 1980.	47-13-11.3	e. Class 4 Wells should not be in operation unless as part of an EPA administered program. Therefore, closure shall follow federal rules 40 CFR 144.23.	Differs from CFR, but defers to the CFR/EPA administered programs. The intent appears to be the same. Does EPA agree?
40 CFR 144.13 (a)(3) (See also 145.11(a)(7))	The operation or maintenance of any Class IV well that was in operation prior to July 18, 1980, after six months following the effective date of a UIC program approved or promulgated for the state.	47-13-11.3	a. The operation of any existing Class 4 well shall be prohibited six (6) months after the effective date of this rule.	Similar to CFR. 47-13-11.3 provides detailed requirements for the closure of Class IV wells.
40 CFR 144.13 (a)(4) (See also 145.11(a)(7))	Any increase in the amount of hazardous waste or change in the type of hazardous waste injected into a Class IV well.			Missing. WV prohibits new Class IV wells, but does not explicitly prohibit an increase in the amount of hazardous waste injected. Because Class IV wells would be permitted by EPA, this may not affect stringency.
40 CFR 144.13 (b) (See also 145.11(a)(7))	The owner or operator of a Class IV well shall comply with the requirements of § 144.14, and with the requirements of § 144.23 regarding closure of Class IV wells.	47-13-11.3.e	Class 4 Wells should not be in operation unless as part of an EPA administered program. Therefore, closure shall follow federal rules 40 CFR 144.23.	Differs from (but refers to) the CFR. No concerns for stringency.
40 CFR 144.13 (c) (See also 145.11(a)(7))	Wells used to inject contaminated ground water that has been treated and is being reinjected into the same formation from which it was drawn are not prohibited by this section if such injection is approved by EPA, or a State, pursuant to provisions for cleanup of releases under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601-9657, or pursuant to requirements and provisions under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6901 through 6987.			Missing. But 47-13-11.3e. states that no Class IV wells should be in operation unless as part of an EPA administered program. No concerns for stringency.
40 CFR 144.13 (d) (See also 145.11(a)(7))	Clarification. The following wells are not prohibited by this action:			Missing; no concerns for stringency (?)

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.13 (d)(1) (See also 145.11(a)(7))	Wells used to inject hazardous waste into aquifers or portions thereof that have been exempted pursuant to § 146.4, if the exempted aquifer into which waste is injected underlies the lowermost formation containing a USDW. Such wells are Class I wells as specified in § 144.6(a)(1), and the owner or operator must comply with the requirements applicable to Class I wells.			Missing (see above).
40 CFR 144.13 (d)(2) (See also 145.11(a)(7))	Wells used to inject hazardous waste where no USDW exists within one quarter mile of the well bore in any underground formation, provided that the Director determines that such injection is into a formation sufficiently isolated to ensure that injected fluids do not migrate from the injection zone. Such wells are Class I wells as specified in § 144.6(a)(1), and the owner or operator must comply with the requirements applicable to Class I wells.			Missing (see above).
40 CFR 144.14(a) (See also 145.11(a)(8))	**40 CFR 144.14 Requirements for wells injecting hazardous waste.** (a) Applicability. The regulations in this section apply to all generators of hazardous waste, and to the owners or operators of all hazardous waste management facilities, using any class of well to inject hazardous wastes accompanied by a manifest. (See also § 144.13.)	47-13-7.1	**47-13-7. Requirements for Wells Injecting Hazardous Waste.** Applicability. The rules in this section and section 8 apply to all generators of hazardous waste, and to the owners or operators of all hazardous waste management facilities, using any Class 1 well to inject hazardous waste accompanied by a manifest.	Same as CFR.
40 CFR 144.14(b) (See also 145.11(a)(8))	Authorization. The owner or operator of any well that is used to inject hazardous waste required to be accompanied by a manifest or delivery document shall apply for authorization to inject as specified in § 144.31 within 6 months after the approval or promulgation of the State UIC program.	47-13-7.2	Authorization. The owner or operator of any Class 1 well that is used to inject hazardous wastes accompanied by a manifest or delivery document shall apply for authorization to inject within six (6) months of the effective date of this rule.	Similar to CFR. Wording differences are consistent with a primacy revision.
40 CFR 144.14(c) (See also 145.11(a)(8))	Requirements. In addition to complying with the applicable requirements of this part and 40 CFR part 146, the owner or operator of each facility meeting the requirements of paragraph (b) of this section, shall comply with the following:	47-13-7.3	Requirements. In addition to requiring compliance with the applicable requirements of section 8, the Director shall, for each facility meeting the requirements of subsection 7.2 require that the owner or operator comply with the following:	Similar to CFR.

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ED_013399_00000014-00053

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.14(c)(1) (See also 145.11(a)(8))	Notification. The owner or operator shall comply with the notification requirements of section 3010 of Public Law 94-580.	47-13-7.3.a	Notification. The owner or operator shall comply with the notification requirements in the Hazardous Waste Management Rule, 33CSR20-4, (W. Va. Code §22-18).	Same as CFR.
40 CFR 144.14(c)(2) (See also 145.11(a)(8))	Identification number. The owner or operator shall comply with the requirements of 40 CFR 264.11.	47-13-7.3.b	Identification number. The owner or operator shall comply with the requirements in the Hazardous Waste Management Rule, 33CSR20-8. (W. Va. Code §22-18).	Similar to CFR; WV refers to its state rule instead of 40 CFR 264.11. (No checks for equivalency of rules was performed.)
40 CFR 144.14(c)(3) (See also 145.11(a)(8))	Manifest system. The owner or operator shall comply with the applicable recordkeeping and reporting requirements for manifested wastes in 40 CFR 264.71.	47-13-7.3.c	Manifest system. The owner or operator shall comply with the applicable record keeping and reporting requirements for manifested wastes in the Hazardous Waste Management Rules, 33CSR20-8. (W. Va. Code §22-18).	Similar to CFR; see above.
40 CFR 144.14(c)(4) (See also 145.11(a)(8))	Manifest discrepancies. The owner or operator shall comply with 40 CFR 264.72.	47-13-7.3.d	Manifest discrepancies. The owner or operator shall comply with the Hazardous Waste Management Rules, 33CSR20-8. (W. Va. Code §22-18).	Similar to CFR; see above.
40 CFR 144.14(c)(5) (See also 145.11(a)(8))	Operating record. The owner or operator shall comply with 40 CFR 264.73(a), (b)(1), and (b)(2).	47-13-7.3.e	Operating record. The owner or operator shall comply with the Hazardous Waste Management Rules, 33CSR20-8. (W. Va. Code §22-18).	Similar to CFR; see above.
40 CFR 144.14(c)(6) (See also 145.11(a)(8))	Annual report. The owner or operator shall comply with 40 CFR 264.75.	47-13-7.3.f	Annual report. The owner or operator shall comply with the Hazardous Waste Management Rules, 33CSR20-8. (W. Va. Code §22-18).	Similar to CFR; see above.
40 CFR 144.14(c)(7) (See also 145.11(a)(8))	Unmanifested waste report. The owner or operator shall comply with 40 CFR 264.75.	47-13-7.3.g	Unmanifested waste report. The owner or operator shall comply with the Hazardous Waste Management Rules, 33CSR20-8. (W. Va. Code §22-18).	Similar to CFR; see above.
40 CFR 144.14(c)(8) (See also 145.11(a)(8))	Personnel training. The owner or operator shall comply with the applicable personnel training requirements of 40 CFR 264.16.	47-13-7.3.h	Personnel training. The owner or operator shall comply with the applicable personnel training requirements in the Hazardous Waste Management Rules, 33CSR20-8. (W. Va. Code §22-18).	Similar to CFR; see above.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00054

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.14(c)(9) (See also 145.11(a)(8))	Certification of closure. When abandonment is completed, the owner or operator must submit to the Director certification by the owner or operator and certification by an independent registered professional engineer that the facility has been closed in accordance with the specifications in § 144.52(a)(6).	47-13-7.3.i	Certification of closure. When abandonment is completed, the owner or operator must submit to the Director certification by the owner or operator and certification by an independent registered professional engineer that the facility has been closed in accordance with the specifications in subsection 14.7.f of this rule.	Similar to CFR; see above.
40 CFR 144.15	**40 CFR 144.15 Prohibition of non-experimental Class V wells for geologic sequestration.** The construction, operation or maintenance of any non-experimental Class V geologic sequestration well is prohibited.	47-13-13.1.a.1	The construction, operation or maintenance of any non-experimental Class V geologic sequestration well is prohibited.	Same as CFR.
40 CFR 144.16(a)	**40 CFR 144.16 Waiver of requirement by Director.** When injection does not occur into, through or above an underground source of drinking water, the Director may authorize a well or project with less stringent requirements for area of review, construction, mechanical integrity, operation, monitoring, and reporting than required in 40 CFR part 146 or § 144.52 to the extent that the reduction in requirements will not result in an increased risk of movement of fluids into an underground source of drinking water.	47-13-14.8.a	When injection does not occur into, through, or above an underground source of drinking water, the Director may authorize a well or project with less stringent requirements for area of review, construction, mechanical integrity, operation, monitoring, and reporting than required in section 8, 9, 10, and subsection 14.7 to the extent that the reduction in requirements will not result in an increased risk of movement of fluids into an underground source of drinking water.	Same as CFR.
40 CFR 144.16(b)	When injection occurs through or above an underground source of drinking water, but the radius of endangering influence when computed under § 146.06(a) is smaller or equal to the radius of the well, the Director may authorize a well or project with less stringent requirements for operation, monitoring, and reporting than required in 40 CFR part 146 or § 144.52 to the extent that the reduction in requirements will not result in an increased risk of movement of fluids into an underground source of drinking water.	47-13-14.8.b	For wells other than Class 6, when injection occurs through or above an underground source of drinking water, but the radius of endangering influence when computed under subdivision 5.3.a is smaller or equal to the radius of the well, the Director may authorize a well or project with less stringent requirements for operation, monitoring, and reporting in sections 8, 10, and subsection 14.7 to the extent that the reduction in requirements will not result in an increased risk of movement of fluids into an underground source of drinking water.	Similar to CFR. Excludes Class VI wells; this makes the WV provision more stringent than the CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00055

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.16(c)	When reducing requirements under paragraph (a) or (b) of this section, the Director shall prepare a fact sheet under § 124.8 explaining the reasons for the action.	47-13-14.8.c	When reducing requirements under subdivision 14.8.a or 14.8.b of this section, the Director shall explain the reason for the action by preparing a fact sheet under subsection 14.31.	Similar to CFR.
40 CFR 144.17	**40 CFR 144.17 Records.** The Director or the Administrator may require, by written notice on a selective well-by-well basis, an owner or operator of an injection well to establish and maintain records, make reports, conduct monitoring, and provide other information as is deemed necessary to determine whether the owner or operator has acted or is acting in compliance with Part C of the SDWA or its implementing regulations.			Missing. WV does not provide the director flexibility to require additional records, per 144.17.
40 CFR 144.18	**40 CFR 144.18 Requirements for Class VI wells.** Owners or operators of Class VI wells must obtain a permit. Class VI wells cannot be authorized by rule to inject carbon dioxide.	47-13-13.1.a.2	Owners or operators of Class 6 wells must obtain a permit. Class 6 wells cannot be authorized by rule to inject carbon dioxide.	Same as CFR.
40 CFR 144.19(a)	**40 CFR 144.19 Transitioning from Class II to Class VI.** Owners or operators that are injecting carbon dioxide for the primary purpose of long- term storage into an oil and gas reservoir must apply for and obtain a Class VI geologic sequestration permit when there is an increased risk to USDWs compared to Class II operations. In determining if there is an increased risk to USDWs, the owner or operator must consider the factors specified in §144.19(b).	47-13-13.1.c	**13.1.c. Transitioning to a Class 6 Well from a Class II Well.** Owners or operators that are injecting carbon dioxide for the primary purpose of long-term storage into an oil and gas reservoir must apply for and obtain a Class 6 geologic sequestration permit when there is an increased risk to USDWs compared to Class II operations.	Similar to CFR.
40 CFR 144.19(b)	The Director shall determine when there is an increased risk to USDWs compared to Class II operations and a Class VI permit is required. In order to make this determination the Director must consider the following:	47-13-13.1.c	In determining if there is an increased risk to USDWs, the owner or operator as well as the Director must consider:	Similar to CFR. WV does not explicitly state that the Director (i.e., not the operator) makes the determination when there is an increased risk to USDWs. Clarification is recommended.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00056

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.19(b)(1)	Increase in reservoir pressure within the injection zone(s);	47-13-13.1.c.1	Increase in reservoir pressure within the injection zone(s);	Same as CFR.
40 CFR 144.19(b)(2)	Increase in carbon dioxide injection rates;	47-13-13.1.c.2	Increase in carbon dioxide injection rates;	Same as CFR.
40 CFR 144.19(b)(3)	Decrease in reservoir production rates;	47-13-13.1.c.3	Decrease in reservoir production rates;	Same as CFR.
40 CFR 144.19(b)(4)	Distance between the injection zone(s) and USDWs;	47-13-13.1.c.4	Distance between the injection zone(s) and USDWs;	Same as CFR.
40 CFR 144.19(b)(5)	Suitability of the Class II area of review delineation;	47-13-13.1.c.5	Suitability of the Class II area of review delineation;	Same as CFR.
40 CFR 144.19(b)(6)	Quality of abandoned well plugs within the area of review;	47-13-13.1.c.6	Quality of abandoned well plugs within the area of review;	Same as CFR.
40 CFR 144.19(b)(7)	The owner's or operator's plan for recovery of carbon dioxide at the cessation of injection;	47-13-13.1.c.7	The owner's or operator's plan for recovery of carbon dioxide at the cessation of injection;	Same as CFR.
40 CFR 144.19(b)(8)	The source and properties of injected carbon dioxide; and	47-13-13.1.c.8	The source and properties of injected carbon dioxide; and	Same as CFR.
40 CFR 144.19(b)(9)	Any additional site-specific factors as determined by the Director.	47-13-13.1.c.9	Any additional site-specific factors as determined by the Director.	Same as CFR.
Subpart C - Authorization of Underground Injection by Rule				
40 CFR 144.21(a) (See also 145.11(a)(9))	**40 CFR 144.21 Existing Class I, Class II (except enhanced recovery and hydrocarbon storage) and Class III wells.** An existing Class I, II (except enhanced recovery and hydrocarbon storage) and III injection well is authorized by rule if the owner or operator injects into the existing well within one year after the date at which a UIC program authorized under the SDWA becomes effective for the first time or inventories the well pursuant to the requirements of § 144.26. An owner or operator of a well which is authorized by rule pursuant to this section shall rework, operate, maintain, convert, plug, abandon or inject into the well in compliance with applicable regulations.			Missing. WV only allows authorization by rule for Class V wells. Applies to all of 144.21.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.21(b) (See also 145.11(a)(9))	*Duration of well authorization by rule*. Well authorization under this section expires upon the effective date of a permit issued pursuant to §§ 144.25, 144.31, 144.33 or 144.34; after plugging and abandonment in accordance with an approved plugging and abandonment plan pursuant to §§ 144.28(c) and 146.10, and upon submission of a plugging and abandonment report pursuant to § 144.28(k); or upon conversion in compliance with § 144.28(j).			
40 CFR 144.21(c) (See also 145.11(a)(9))	*Prohibitions on injection*. An owner or operator of a well authorized by rule pursuant to this section is prohibited from injecting into the well:			
40 CFR 144.21(c)(1) (See also 145.11(a)(9))	Upon the effective date of an applicable permit denial;			
40 CFR 144.21(c)(2) (See also 145.11(a)(9))	Upon failure to submit a permit application in a timely manner pursuant to §§ 144.25 or 144.31;			
40 CFR 144.21(c)(3) (See also 145.11(a)(9))	Upon failure to submit inventory information in a timely manner pursuant to § 144.26;			
40 CFR 144.21(c)(4) (See also 145.11(a)(9))	Upon failure to comply with a request for information in a timely manner pursuant to § 144.27;			
40 CFR 144.21(c)(5) (See also 145.11(a)(9))	Upon failure to provide alternative financial assurance pursuant to § 144.28(d)(7);			
40 CFR 144.21(c)(6) (See also 145.11(a)(9))	Forty-eight hours after receipt of a determination by the Director pursuant to § 144.28(f)(3) that the well lacks mechanical integrity, unless the Director requires immediate cessation;			

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.21(c)(7) (See also 145.11(a)(9))	Upon receipt of notification from the Director pursuant to § 144.28(l) that the transferee has not demonstrated financial responsibility pursuant to § 144.28(d);			
40 CFR 144.21(c)(8)(i)(See also 145.11(a)(9))	For Class I and III wells: In States with approved programs, five years after the effective date of the UIC program unless a timely and complete permit application is pending the Director's decision; or			
40 CFR 144.21(c)(9) (See also 145.11(a)(9))	For Class II wells (except enhanced recovery and hydrocarbon storage), five years after the effective date of the UIC program unless a timely and complete permit application is pending the Director's decision.			
40 CFR 144.21(d) (See also 145.11(a)(9))	Class II and III wells in existing fields or projects. Notwithstanding the prohibition in § 144.11, this section authorizes Class II and Class III wells or projects in existing fields or projects to continue normal operations until permitted, including construction, operation, and plugging and abandonment of wells as part of the operation, provided the owner or operator maintains compliance with all applicable requirements.			
40 CFR 144.21(e) (See also 145.11(a)(9))	Requirements. The owner or operator of a well authorized under this section shall comply with the applicable requirements of § 144.28 and part 147 of this chapter no later than one year after authorization.			

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.22(a) (See also 145.11(a)(9))	**40 CFR 144.22 Existing Class II enhanced recovery and hydrocarbon storage wells.** An existing Class II enhanced recovery or hydrocarbon storage injection well is authorized by rule for the life of the well or project, if the owner or operator injects into the existing well within one year after the date which a UIC program authorized under the SDWA becomes effective for the first time or inventories the well pursuant to the requirements of § 144.26. An owner or operator of a well which is authorized by rule pursuant to this section shall rework, operate, maintain, convert, plug, abandon or inject into the well in compliance with applicable regulations.			Missing. WV only allows authorization by rule for Class V wells. Applies to all of 144.22.
40 CFR 144.22(b) (See also 145.11(a)(9))	*Duration of well authorization by rule*. Well authorization under this section expires upon the effective date of a permit issued pursuant to § 144.19, § 144.25, § 144.31, § 144.33 or § 144.34; after plugging and abandonment in accordance with an approved plugging and abandonment plan pursuant to §§ 144.28(c) and 146.10 of this chapter; and upon submission of a plugging and abandonment report pursuant to § 144.28(k); or upon conversion in compliance with § 144.28(j).			
40 CFR 144.22(c) (See also 145.11(a)(9))	*Prohibitions on injection*. An owner or operator of a well authorized by rule pursuant to this section is prohibited from injecting into the well:			
40 CFR 144.22(c)(1) (See also 145.11(a)(9))	Upon the effective date of an applicable permit denial;			
40 CFR 144.22(c)(2) (See also 145.11(a)(9))	Upon failure to submit a permit application in a timely manner pursuant to §§ 144.25 or 144.31;			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.22(c)(3) (See also 145.11(a)(9))	Upon failure to submit inventory information in a timely manner pursuant to § 144.26;			
40 CFR 144.22(c)(4) (See also 145.11(a)(9))	Upon failure to comply with a request for information in a timely manner pursuant to § 144.27;			
40 CFR 144.22(c)(5) (See also 145.11(a)(9))	Upon failure to provide alternative financial assurance pursuant to § 144.28(d)(7);			
40 CFR 144.22(c)(6) (See also 145.11(a)(9))	Forty-eight hours after receipt of a determination by the Director pursuant to § 144.28(f)(3) that the well lacks mechanical integrity, unless the Director requires immediate cessation; or			
40 CFR 144.22(c)(7) (See also 145.11(a)(9))	Upon receipt of notification from the Director pursuant to § 144.28(l) that the transferee has not demonstrated financial responsibility pursuant to § 144.28(d).			
40 CFR 144.22(d) (See also 145.11(a)(9))	*Requirements.* The owner or operator of a well authorized under this section shall comply with the applicable requirements of § 144.28 and part 147 of this chapter. Such owner or operator shall comply with the casing and cementing requirements no later than 3 years and other requirements no later than 1 year after authorization.			
40 CFR 144.23(a) (See also 145.11(a)(9))	**40 CFR 144.23 Class IV wells.** (a) Injection into existing Class IV wells is authorized for up to six months after approval or promulgation of the UIC Program. Such wells are subject to the requirements of §§ 144.13 and 144.14(c).			Missing. WV only allows authorization by rule for Class V wells. Applies to all of 144.23.
40 CFR 144.23(b)(See also 145.11(a)(9))	Closure. For EPA administered programs only,			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.23(b)(1) (See also 145.11(a)(9))	Prior to abandoning any Class IV well, the owner or operator shall plug or otherwise close the well in a manner acceptable to the Regional Administrator.			
40 CFR 144.23(b)(3) (See also 145.11(a)(9))	The owner or operator of a Class IV well must notify the Regional Administrator of intent to abandon the well at least thirty days prior to abandonment.			
40 CFR 144.23(c) (See also 145.11(a)(9))	Notwithstanding the requirements of paragraphs (a) and (b) of this section, injection wells used to inject contaminated ground water that has been treated and is being injected into the same formation from which it was drawn are authorized by rule for the life of the well if such subsurface emplacement of fluids is approved by EPA, or a State, pursuant to provisions for cleanup of releases under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601-9675, or pursuant to requirements and provisions under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6901-6992k.			
40 CFR 144.24 (a) (See also 145.11(a)(9))	**40 CFR 144.24 Class V wells.** (a) A Class V injection well is authorized by rule, subject to the conditions in § 144.84	47-13-14.2.a	1. Injection into existing or new Class 5 wells may be authorized by rule for periods up to one (1) year from the effective date of this rule. Rule authorizations may be reissued annually; however, all such wells must be issued permits within five (5) years or close down at the end of the fifth year's authorization period.	Similar to CFR. WV also describes Class V well authorization by rule in detail in 47-13-14.2.a2 through 5. Note that in response to comments from EPA in 2021, WV added examples of Class V well types that may require a permit (e.g., large capacity septic systems, and smaller septic systems at meat processing facilities, kennels, beauty salons, or other facilities with waste streams other than sanitary waste).

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.24 (b) (See also 145.11(a)(9))	Duration of well authorization by rule. Well authorization under this section expires upon the effective date of a permit issued pursuant to §§ 144.25, 144.31, 144.33 or 144.34, or upon proper closure of the well.	47-13-14.2.a.1	Injection into existing or new Class 5 wells may be authorized by rule for periods up to one (1) year from the effective date of this rule. Rule authorizations may be reissued annually; however, all such wells must be issued permits within five (5) years or close down at the end of the fifth year's authorization period.	WV allows Class V wells to be authorized by rule for up to one year; thus the state is more stringent than the CFR.
40 CFR 144.24 (c) (See also 145.11(a)(9))	Prohibition of injection. An owner or operator of a well which is authorized by rule pursuant to this section is prohibited from injecting into the well:			Missing. This may be implied in 47-13-14.2.a.1.
40 CFR 144.24 (c)(1) (See also 145.11(a)(9))	Upon the effective date of an applicable permit denial;			Missing. This may be implied in 47-13-14.2.a.1.
40 CFR 144.24 (c)(2) (See also 145.11(a)(9))	Upon failure to submit a permit application in a timely manner pursuant to §§ 144.25 or 144.31;			Missing. WV does not describe what would happen if the owner or operator did not submit an application. Clarification is recommended.
40 CFR 144.24 (c)(3) (See also 145.11(a)(9))	Upon failure to submit inventory information in a timely manner pursuant to § 144.26; or			Missing. See 144.26/47-13-14.2.d. for inventory requirements.
40 CFR 144.24 (c)(4) (See also 145.11(a)(9))	Upon failure to comply with a request for information in a timely manner pursuant to § 144.27.			Missing. WV does not describe what would happen if the owner or operator did not comply with a request. Clarification is recommended.
40 CFR 144.25 (a) (See also 145.11(a)(9))	**40 CFR 144.25 Requiring a permit.** The Director may require the owner or operator of any Class I, II, III or V injection well which is authorized by rule under this subpart to apply for and obtain an individual or area UIC permit. Cases where individual or area UIC permits may be required include:	47-13-14.2.c.1.	**47-13-14.2.c Requiring a permit.** The Director may require any Class 1, 2, 3, or 5 injection well authorized by rule to apply for and obtain an individual or area UIC permit. Under no circumstances may a Class 6 well be authorized to inject by rule. Cases where individual or area UIC permits may be required include, but are not limited to:	Similar to CFR. WV also includes a prohibition of Class VI authorization by rule. Note that WV does not appear to allow authorization by rule for classes 1, 2, and 3. There seems to be an inconsistency in their rule. (No impact on stringency, however.)

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.25 (a)(1) (See also 145.11(a)(9))	The injection well is not in compliance with any requirement of the rule; Note: Any underground injection which violates any authorization by rule is subject to appropriate enforcement action.	47-13-14.2.c.1.A	The injection well is not in compliance with any requirement of the rule; (Note: Any underground injection which violates any rule under this section is subject to appropriate enforcement action).	Similar to CFR.
40 CFR 144.25 (a)(2) (See also 145.11(a)(9))	The injection well is not or no longer is within the category of wells and types of well operations authorized in the rule;	47-13-14.2.c.1.B	The injection well is not or no longer is within the category of wells and types of well operations authorized in the rule;	Same as CFR.
40 CFR 144.25 (a)(3) (See also 145.11(a)(9))	The protection of USDWs requires that the injection operation be regulated by requirements, such as for corrective action, monitoring and reporting, or operation, which are not contained in the rule.	14.2.c.1.C	The protection of USDWs requires that the injection operation be regulated by requirements, such as for corrective action, monitoring and reporting, or operation, which are not contained in the rule; and	Same as CFR.
40 CFR 144.25 (a)(4) (See also 145.11(a)(9))	When the injection well is a Class I, II (except existing enhanced recovery and hydrocarbon storage) or III well, in accordance with a schedule established by the Director pursuant to § 144.31(c).			Missing. WV does not appear to allow authorization by rule for classes 1, 2, and 3.
40 CFR 144.25 (b) (See also 145.11(a)(9))	For EPA-administered programs, the Regional Administrator may require an owner or operator of any well which is authorized by rule under this subpart to apply for an individual or area UIC permit under this paragraph only if the owner or operator has been notified in writing that a permit application is required. The owner or operator of a well which is authorized by rule under this subpart is prohibited from injecting into the well upon the effective date of permit denial, or upon failure by the owner or operator to submit an application in a timely manner as specified in the notice. The notice shall include: a brief statement of the reasons for requiring a permit; an application form; a statement setting a time for the owner or operator to file the application; and a statement of the consequences of denial or issuance of the permit, or failure to submit an application, as described in this paragraph.			Missing. Not applicable to state programs.

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ED_013399_00000014-00064

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.25 (c) (See also 145.11(a)(9))	An owner or operator of a well authorized by rule may request to be excluded from the coverage of this subpart by applying for an individual or area UIC permit. The owner or operator shall submit an application under § 144.31 with reasons supporting the request, to the Director. The Director may grant any such requests.	47-13-14.2.c.2	Any owner or operator authorized by a rule may request to be excluded from the coverage of the rule by applying for an individual or area UIC permit. The owner or operator shall submit an application under subsection 14.3 with reasons supporting the request to the Director. The Director may grant any such request.	Same as CFR.
40 CFR 144.26(See also 145.11(a)(9))	**40 CFR 144.26 Inventory requirements.** The owner or operator of an injection well which is authorized by rule under this subpart shall submit inventory information to the Director. Such an owner or operator is prohibited from injecting into the well upon failure to submit inventory information for the well within the time frame specified in paragraph (d) of this section.	47-13-14.2.d	**47-13-14.2.d. Inventory requirements.** All injection wells covered by rule shall submit inventory information to the Director. Any rule under this section shall provide for the automatic termination of authorization for any well which fails to comply within the time specified in paragraph 14.2.d.3 of this section.	Differs from CFR; however, the intent is similar in that inventory information is required and rule authorization is terminated for failure to comply.
40 CFR 144.26 (a) (See also 145.11(a)(9))	Contents. As part of the inventory, the Director shall require and the owner/operator shall provide at least the following information:	47-13-14.2.d.1	Contents. The Director shall require:	Similar to CFR.
40 CFR 144.26 (a)(1) (See also 145.11(a)(9))	Facility name and location;	47-13-14.2.d.1.B	Facility name and location;	Same as CFR.
40 CFR 144.26 (a)(2) (See also 145.11(a)(9))	Name and address of legal contact;	47-13-14.2.d.1.C	Name and address of legal contact;	Same as CFR.
40 CFR 144.26 (a)(3) (See also 145.11(a)(9))	Ownership of facility;	47-13-14.2.d.1.D	Ownership of facility;	Same as CFR.
40 CFR 144.26 (a)(4) (See also 145.11(a)(9))	Nature and type of injection wells; and	47-13-14.2.d.1.E	Nature and type of injection wells; and	Same as CFR.

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ED_013399_00000014-00065

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.26 (a)(5) (See also 145.11(a)(9))	Operating status of injection wells. Note: This information is requested on national form "Inventory of Injection Wells," OMB No. 158-R0170.	47-13-14.2.d.1.F	Operating status of injection wells.	Similar to CFR; WV does not reference a reporting form. Clarification is recommended (perhaps in the primacy package).
40 CFR 144.26 (b)(See also 145.11(a)(9))	*Additional contents*. For EPA administered programs only, the owner or operator of a well listed in paragraph (b)(1) of this section shall provide the information listed in paragraph (b)(2) of this section.			Missing. 145.11(a) does not require 144.26(b) to be part of a State Primacy Program. No concerns for stringency.
40 CFR 144.26 (b)(1)(i) (See also 145.11(a)(9))	This section applies to the following wells: (i) Class II enhanced recovery wells;			Missing. (See above.)
40 CFR 144.26 (b)(1)(ii) (See also 145.11(a)(9))	Class IV wells;			Missing. (See above.)
40 CFR 144.26 (b)(1)(iii) (See also 145.11(a)(9))	The following Class V wells: (A) Sand or other backfill wells [§ 146.5(e)(8)]; (B) Radioactive waste disposal wells that are not Class I wells (40 CFR 146.5 (e)(11)); (C) Geothermal energy recovery wells [§ 146.5(e)(12)]; (D) Brine return flow wells [§ 146.5(e)(14)]; (E) Wells used in experimental technologies [§ 146.5(e)(15)]; (F) Municipal and industrial disposal wells other than Class I; and (G) Any other Class V wells at the discretion of the Regional Administrator.			Missing. (See above.)
40 CFR 144.26 (b)(2) (See also 145.11(a)(9))	The owner or operator of a well listed in paragraph (b)(1) shall provide a listing of all wells owned or operated setting forth the following information for each well. (A single description of wells at a single facility with substantially the same characteristics is acceptable).	47-13-12.2.a	The owner or operator of any Class 5 well shall within one (1) year of the effective date of this rule notify the Director of the existence of any well meeting the definition of Class 5 under his control, and submit a description of:	Differs from CFR. (See above.)

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.26 (b)(2)(i) (See also 145.11(a)(9))	For Class II only, the field name(s);			Missing. (See above.)
40 CFR 144.26 (b)(2)(ii) (See also 145.11(a)(9))	Location of each well or project given by Township, Range, Section, and Quarter-Section, or by latitude and longitude to the nearest second, according to the conventional practice in the State;			145.11(a) does not require 144.26(b) to be part of a State Primacy Program. No concerns for stringency.
40 CFR 144.26 (b)(2)(iii) (See also 145.11(a)(9))	Date of completion of each well;			See above.
40 CFR 144.26 (b)(2)(iv) (See also 145.11(a)(9))	Identification and depth of the formation(s) into which each well is injecting;			See above.
40 CFR 144.26 (b)(2)(v) (See also 145.11(a)(9))	Total depth of each well;			See above.
40 CFR 144.26 (b)(2)(vi) (See also 145.11(a)(9))	Casing and cementing record, tubing size, and depth of packer;			See above.
40 CFR 144.26 (b)(2)(vii) (See also 145.11(a)(9))	Nature of the injected fluids;			See above.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.26 (b)(2)(viii) (See also 145.11(a)(9))	Average and maximum injection pressure at the wellhead;			See above.
40 CFR 144.26 (b)(2)(ix) (See also 145.11(a)(9))	Average and maximum injection rate; and			See above.
40 CFR 144.26 (b)(2)(x) (See also 145.11(a)(9))	Date of the last mechanical integrity test, if any.			See above.
40 CFR 144.26 (c) (See also 145.11(a)(9))	*Notice.* Upon approval of the UIC Program in a State, the Director shall notify owners or operators of injection wells of their duty to submit inventory information. The method of notification selected by the Director must assure that the owners or operators will be made aware of the inventory requirement.	47-13-14.2.d.2	Notice. Upon approval of the State UIC Program, the Director shall notify owners or operators of injection wells of their duty to submit inventory information. The method of notification selected by the Director must assure that the owners or operators will be made aware of the inventory requirement.	Similar to CFR.
40 CFR 144.26 (d)(1) (See also 145.11(a)(9))	*Deadlines.* (1) The owner or operator of an injection well shall submit inventory information no later than one year after the date of approval or effective date of the UIC program for the State. The Director need not require inventory information from any facility with interim status under RCRA.	47-13-14.2.d.3	Deadlines. Owners or operators of injection wells must submit inventory information no later than one (1) year after authorization by rule. The Director need not require inventory information from any facility with interim status under W. Va. Code §22-18.	Similar to CFR; WV references a state law instead of RCRA (no review of the state law was performed).
40 CFR 144.26 (d)(2) (See also 145.11(a)(9))	For EPA administered programs the information need not be submitted if a complete permit application is submitted within one year of the effective data of the UIC program. The owner or operator of Class IV well shall submit inventory information no later than 60 days after the effective date of the program.			Missing. Applies to EPA programs only. No concerns for stringency.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.27 (a)	**40 CFR 144.27 Requiring other information.** For EPA administered programs only, in addition to the inventory requirements of § 144.26, the Regional Administrator may require the owner or operator of any well authorized by rule under this subpart to submit information as deemed necessary by the Regional Administrator to determine whether a well may be endangering an underground source of drinking water in violation of § 144.12 of this part.			Missing. Applies to EPA programs only (for all of 144.27). No concerns for stringency.
40 CFR 144.27 (b)(1)	Such information requirements may include, but are not limited to: (1) Performance of ground-water monitoring and the periodic submission of reports of such monitoring;			
40 CFR 144.27 (b)(2)	An analysis of injected fluids, including periodic submission of such analyses; and			
40 CFR 144.27 (b)(3)	A description of the geologic strata through and into which injection is taking place.			
40 CFR 144.27 (c)	Any request for information under this section shall be made in writing, and include a brief statement of the reasons for requiring the information. An owner or operator shall submit the information within the time period(s) provided in the notice.			
40 CFR 144.27 (d)	An owner or operator of an injection well authorized by rule under this subpart is prohibited from injecting into the well upon failure of the owner or operator to comply with a request for information within the time period(s) specified by the Director pursuant to paragraph (c) of this section. An owner or operator of a well prohibited from injection under this section shall not resume injection except under a permit issued pursuant to §§ 144.25, 144.31, 144.33 or 144.34.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28	**40 CFR 144.28 Requirements for Class I, II, and III wells authorized by rule**. The following requirements apply to the owner or operator of a Class I, II or III well authorized by rule under this subpart, as provided by §§ 144.21(e) and 144.22(d).			Missing. WV only allows authorization by rule for Class 5 wells. This provision is not required of state rules; no impact on stringency. (Applies to all of 144.28.)
40 CFR 144.28 (a)	The owner or operator shall comply with all applicable requirements of this subpart and subpart B of this part. Any noncompliance with these requirements constitutes a violation of the Safe Drinking Water Act and is grounds for enforcement action, except that the owner or operator need not comply with these requirements to the extent and for the duration such noncompliance is authorized by an emergency permit under § 144.34.			
40 CFR 144.28 (b)(1)	Twenty-four hour reporting. The owner or operator shall report any noncompliance which may endanger health or the environment, including: (1) Any monitoring or other information which indicates that any contaminant may cause an endangerment to a USDW; or			
40 CFR 144.28 (b)(2)	Any noncompliance or malfunction of the injection system which may cause fluid migration into or between USDWs. Any information shall be provided orally within 24 hours from the time the owner or operator becomes aware of the circumstances. A written submission shall also be provided within five days of the time the owner or operator becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause, the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (c)(1)	*Plugging and abandonment plan.* (1) The owner or operator shall prepare, maintain, and comply with a plan for plugging and abandonment of the well or project that meets the requirements of § 146.10 of this chapter and is acceptable to the Director. For purposes of this paragraph, temporary intermittent cessation of injection operations is not abandonment.			
40 CFR 144.28 (c)(2)	For EPA administered programs:			
40 CFR 144.28 (c)(2)(i)	The owner or operator shall submit the plan, on a form provided by the Regional Administrator, no later than one year after the effective date of the UIC program in the state.			
40 CFR 144.28 (c)(2)(ii)	The owner or operator shall submit any proposed significant revision to the method of plugging reflected in the plan no later than the notice of plugging required by § 144.28(j)(2) (i.e. , 45 days prior to plugging unless shorter notice is approved).			
40 CFR 144.28 (c)(2)(iii)	(iii) The plan shall include the following information: (A) The nature and quantity and material to be used in plugging; (B) The location and extent (by depth) of the plugs; (C) Any proposed test or measurement to be made; (D) The amount, size, and location (by depth) of casing to be left in the well; (E) The method and location where casing is to be parted; and (G) The estimated cost of plugging the well.			
40 CFR 144.28 (c)(2)(iv)(A)	After a cessation of operations of two years the owner or operator shall plug and abandon the well in accordance with the plan unless he: (A) Provides notice to the Regional Administrator;			
40 CFR 144.28 (c)(2)(iv)(B)	Describe actions or procedures, satisfactory to the Regional Administrator, that the owner or operator will take to ensure that the well will not endanger USDWs during the period of temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived by the Regional Administrator.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (c)(2)(v)	The owner or operator of any well that has been temporarily abandoned [ceased operations for more than two years and has met the requirements of paragraphs (c)(2) (A) and (B) of this section] shall notify the Regional Administrator prior to resuming operation of the well.			
40 CFR 144.28 (d)(1)	(d) Financial responsibility. (1) The owner, operator and/or, for EPA-administered programs, the transferor of a Class I, II or III well, is required to demonstrate and maintain financial responsibility and resources to close, plug and abandon the underground injection operation in a manner prescribed by the Director until:			
40 CFR 144.28 (d)(1)(i)	The well has been plugged and abandoned in accordance with an approved plugging and abandonment plan pursuant to §§ 144.28(c) and 146.10 and submission of a plugging and abandonment report has been made pursuant to § 144.28(k);			
40 CFR 144.28 (d)(1)(ii)	The well has been converted in compliance with the requirements of § 144.28(j); or			
40 CFR 144.28 (d)(1)(iii)	For EPA-administered programs, the transferor has received notice from the Director that the transferee has demonstrated financial responsibility for the well. The owner or operator shall show evidence of such financial responsibility to the Director by the submission of a surety bond, or other adequate assurance, such as a financial statement.			
40 CFR 144.28 (d)(2)	For EPA-administered programs, the owner or operator shall submit such evidence no later than one year after the effective date of the UIC program in the State. Where the ownership or operational control of the well is transferred more than one year after the effective date of the UIC program, the transferee shall submit such evidence no later than the date specified in the notice required pursuant to § 144.28(l)(2).			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (d)(3)	For EPA administered programs the Regional Administrator may require the owner or operator to submit a revised demonstration of financial responsibility if the Regional Administrator has reason to believe that the original demonstration is no longer adequate to cover the cost of closing, plugging and abandoning the well.			
40 CFR 144.28 (d)(4)	For EPA administered programs the owner or operator of a well injecting hazardous waste must comply with the financial responsibility requirements of subpart F of this part.			
40 CFR 144.28 (d)(5)	For EPA-administered programs, an owner or operator must notify the Regional Administrator by certified mail of the commencement of any voluntary or involuntary proceeding under Title 11 (Bankruptcy) of the United States Code which names the owner or operator as debtor, within 10 business days after the commencement of the proceeding. Any party acting as guarantor for the owner or operator for the purpose of financial responsibility must so notify the Regional Administrator, if the guarantor is named as debtor in any such proceeding.			
40 CFR 144.28 (d)(6)	In the event of commencement of a proceeding specified in paragraph (d)(5) of this section, an owner or operator who has furnished a financial statement for the purpose of demonstrating financial responsibility under this section shall be deemed to be in violation of this paragraph until an alternative financial assurance demonstration acceptable to the Regional Administrator is provided either by the owner or operator or by its trustee in bankruptcy, receiver, or other authorized party. All parties shall be prohibited from injecting into the well until such alternate financial assurance is provided.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (e)(1)	*Casing and cementing requirements.* For enhanced recovery and hydrocarbon storage wells: (1) The owner or operator shall case and cement the well to prevent movement of fluids into or between underground sources of drinking water. In determining and specifying casing and cementing requirements, the following factors shall be considered:			
40 CFR 144.28 (e)(1)(i)	Depth to the injection zone;			
40 CFR 144.28 (e)(1)(ii)	Depth to the bottom of all USDWs; and			
40 CFR 144.28 (e)(1)(iii)	Estimated maximum and average injection pressures.			
40 CFR 144.28 (e)(2)(i)	In addition, in determining and specifying casing and cementing requirements the Director may consider information on: (i) Nature of formation fluids;			
40 CFR 144.28 (e)(2)(ii)	Lithology of injection and confining zones;			
40 CFR 144.28 (e)(2)(iii)	External pressure, internal pressure, and axial loading;			
40 CFR 144.28 (e)(2)(iv)	Hole size;			
40 CFR 144.28 (e)(2)(v)	Size and grade of all casing strings; and			
40 CFR 144.28 (e)(2)(vi)	Class of cement.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (e)(3)(i)	The requirements in paragraphs (e) (1) and (2) of this section need not apply if: (i) Regulatory controls for casing and cementing existed at the time of drilling of the well and the well is in compliance with those controls; and			
40 CFR 144.28 (e)(3)(ii)	Well injection will not result in the movement of fluids into an underground source of drinking water so as to create a significant risk to the health of persons.			
40 CFR 144.28 (e)(4)	When a State did not have regulatory controls for casing and cementing prior to the time of the submission of the State program to the Administrator, the Director need not apply the casing and cementing requirements in paragraph (e)(1) of this section if he submits as a part of his application for primacy, an appropriate plan for casing and cementing of existing, newly converted, and newly drilled wells in existing fields, and the Administrator approves the plan.			
40 CFR 144.28 (f)(1)	*Operating requirements*. (1) Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.			
40 CFR 144.28 (f)(2)	The owner or operator of a Class I, II or III injection well authorized by rule shall establish and maintain mechanical integrity as defined in § 146.8 of this chapter until the well is properly plugged in accordance with an approved plugging and abandonment plan pursuant to §§ 144.28(c) and 146.10, and a plugging and abandonment report pursuant to § 144.28(k) is submitted, or until the well is converted in compliance with § 144.28(j). For EPA-administered programs, the Regional Administrator may require by written notice that the owner or operator comply with a schedule describing when mechanical integrity demonstrations shall be made.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (f)(3)	When the Director determines that a Class I (non-hazardous), II or III injection well lacks mechanical integrity pursuant to § 146.8 of this chapter, the Director shall give written notice of his determination to the owner or operator. Unless the Director requires immediate cessation, the owner or operator shall cease injection into the well within 48 hours of receipt of the Director's determination. The Director may allow plugging of the well in accordance with the requirements of § 146.10 of this chapter, or require the owner or operator to perform such additional construction, operation, monitoring, reporting and corrective action as is necessary to prevent the movement of fluid into or between USDWs caused by the lack of mechanical integrity. The owner or operator may resume injection upon receipt of written notification from the Director that the owner or operator has demonstrated mechanical integrity pursuant to § 146.8 of this chapter.			
40 CFR 144.28 (f)(4)	The Director may allow the owner or operator of a well which lacks mechanical integrity pursuant to § 146.8(a)(1) of this chapter to continue or resume injection if the owner or operator has made a satisfactory demonstration that there is no movement of fluid into or between USDWs.			
40 CFR 144.28 (f)(5)	For Class I wells, unless an alternative to a packer has been approved under § 146.12(c) of this chapter, the owner or operator shall fill the annulus between the tubing and the long string of casings with a fluid approved by the Director and maintain a pressure, also approved by the Director, on the annulus. For EPA administered programs, the owner or operator of a Class I well completed with tubing and packer shall fill the annulus between tubing and casing with a noncorrosive fluid and maintain a positive pressure on the annulus. For other Class I wells, the owner or operator shall insure that the alternative completion method will reliably provide a comparable level of protection to underground sources of drinking water.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (f)(6)(i)(A)	Injection pressure. (i) For Class I and III wells: (A) Except during stimulation, the owner or operator shall not exceed an injection pressure at the wellhead which shall be calculated so as to assure that the pressure during injection does not initiate new fractures or propagate existing fractures in the injection zone; and			
40 CFR 144.28 (f)(6)(i)(B)	The owner or operator shall not inject at a pressure which will initiate fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water.			
40 CFR 144.28 (f)(6)(ii)(A)	For Class II wells: (A) The owner or operator shall not exceed a maximum injection pressure at the wellhead which shall be calculated so as to assure that the pressure during injection does not initiate new fractures of propagate existing fractures in the confining zone adjacent to the USDWs; and			
40 CFR 144.28 (f)(6)(ii)(B)	The owner or operator shall not inject at a pressure which will cause the movement of injection or formation fluids into an underground source of drinking water.			
40 CFR 144.28 (g)	*Monitoring requirements.* The owner or operator shall perform the monitoring as described in this paragraph. For EPA administered programs, monitoring of the nature of the injected fluids shall comply with applicable analytical methods cited and described in table I of 40 CFR 136.3 or in appendix III of 40 CFR part 261 or by other methods that have been approved by the Regional Administrator.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (g)(1)(i)	(1) The owner or operator of a Class I well shall: (i) Analyze the nature of the injected fluids with sufficient frequency to yield data representative of their characteristics;			
40 CFR 144.28 (g)(1)(ii)	Install and use continuous recording devices to monitor injection pressure, flow rate and volume, and the pressure on the annulus between the tubing and the long string of casing;			
40 CFR 144.28 (g)(1)(iii)	Install and use monitoring wells within the area of review if required by the Director, to monitor any migration of fluids into and pressure in the underground sources of drinking water. The type, number and location of the wells, the parameters to be measured, and the frequency of monitoring must be approved by the Director.			
40 CFR 144.28 (g)(2)(i)	For Class II wells: (i) The owner or operator shall monitor the nature of the injected fluids with sufficient frequency to yield data representative of their characteristics. For EPA administered programs, this frequency shall be at least once within the first year of the authorization and thereafter when changes are made to the fluid.			
40 CFR 144.28 (g)(2)(ii)(A)	The owner or operator shall observe the injection pressure, flow rate, and cumulative volume at least with the following frequencies: (A) Weekly for produced fluid disposal operations;			
40 CFR 144.28 (g)(2)(ii)(B)	Monthly for enhanced recovery operations;			
40 CFR 144.28 (g)(2)(ii)(C)	Daily during the injection of liquid hydrocarbons and injection for withdrawal of stored hydrocarbons; and			
40 CFR 144.28 (g)(2)(ii)(D)	Daily during the injection phase of cyclic steam operations.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (g)(2)(iii)	The owner or operator shall record one observation of injection pressure, flow rate and cumulative volume at reasonable intervals no greater than thirty days.			
40 CFR 144.28 (g)(2)(iv)(A)	For enhanced recovery and hydrocarbon storage wells: (A) The owner or operator shall demonstrate mechanical integrity pursuant to § 146.8 of this chapter at least once every five years during the life of the injection well.			
40 CFR 144.28 (g)(2)(iv)(B)	For EPA administered programs, the Regional Administrator by written notice may require the owner or operator to comply with a schedule describing when such demonstrations shall be made.			
40 CFR 144.28 (g)(2)(iv)(C)	For EPA administered programs, the owner or operator of any well required to be tested for mechanical integrity shall notify the Regional Administrator at least 30 days prior to any required mechanical integrity test. The Regional Administrator may allow a shorter notification period if it would be sufficient to enable EPA to witness the mechanical integrity testing if it chose. Notification may be in the form of a yearly or quarterly schedule of planned mechanical integrity tests, or it may be on an individual basis.			
40 CFR 144.28 (g)(2)(v)	The owner or operator of a hydrocarbon storage or enhanced recovery wells may monitor them by manifold monitoring on a field or project basis rather than on an individual well basis if such facilities consist of more than one injection well, operate with a common manifold, and provided the owner or operator demonstrates to the Director that manifold monitoring is comparable to individual well monitoring.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (g)(3)(i)	(3)(i) For Class III wells the owner or operator shall provide to the Director a qualitative analysis and ranges in concentrations of all constituents of injected fluids at least once within the first year of authorization and thereafter whenever the injection fluid is modified to the extent that the initial data are incorrect or incomplete. The owner or operator may request Federal confidentiality as specified in 40 CFR part 2. If the information is proprietary the owner or operator may in lieu of the ranges in concentrations choose to submit maximum concentrations which shall not be exceeded. In such a case the owner or operator shall retain records of the undisclosed concentrations and provide them upon request to the Regional Administrator as part of any enforcement investigation; and			
40 CFR 144.28 (g)(3)(ii)	Monitor injection pressure and either flow rate or volume semi-monthly, or meter and record daily injected and produced fluid volumes as appropriate;			
40 CFR 144.28 (g)(3)(iii)	Monitor the fluid level in the injection zone semi-monthly, where appropriate;			
40 CFR 144.28 (g)(3)(iv)	All Class III wells may be monitored on a field or project basis rather than an individual well basis by manifold monitoring. Manifold monitoring may be used in cases of facilities consisting of more than one injection well, operating with a common manifold. Separate monitoring systems for each well are not required provided the owner or operator demonstrates to the Director that manifold monitoring is comparable to individual well monitoring.			
40 CFR 144.28 (h)(1)(i)	*Reporting requirements.* The owner or operator shall submit reports to the Director as follows: (1) For Class I wells, quarterly reports on: (i) The physical, chemical, and other relevant characteristics of the injection fluids;			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (h)(1)(ii)	Monthly average, maximum, and minimum values for injection pressure, flow rate and volume, and annular pressure;			
40 CFR 144.28 (h)(1)(iii)	The results from ground-water monitoring wells prescribed in paragraph (g)(1)(iii) of this section;			
40 CFR 144.28 (h)(1)(iv)	The results of any test of the injection well conducted by the owner or operator during the reported quarter if required by the Director; and			
40 CFR 144.28 (h)(1)(v)	Any well work over performed during the reported quarter.			
40 CFR 144.28 (h)(2)(i)	(2) For Class II wells: (i) An annual report to the Director summarizing the results of all monitoring, as required in paragraph (g)(2) of this section. Such summary shall include monthly records of injected fluids, and any major changes in characteristics or sources of injected fluids. Previously submitted information may be included by reference.			
40 CFR 144.28 (h)(2)(ii)	The owner or operator of hydrocarbon storage and enhanced recovery projects may report on a field or project basis rather than on an individual well basis where manifold monitoring is used.			
40 CFR 144.28 (h)(3)(i)	For Class III wells: (i) Quarterly reporting on all monitoring, as required in paragraph (g)(3) of this section;			
40 CFR 144.28 (h)(3)(ii)	Quarterly reporting of the results of any periodic tests required by the Director that are performed during the reported quarter;			
40 CFR 144.28 (h)(3)(iii)	Monitoring may be reported on a project or field basis rather than an individual well basis where manifold monitoring is used.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (i)(1)	*Retention of records.* The owner or operator shall retain records of all monitoring information, including the following: (1) Calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, and copies of all reports required by this section, for a period of at least three years from the date of the sample, measurement, or report. This period may be extended by request of the Director at any time; and			
40 CFR 144.28 (i)(2)	The nature and composition of all injected fluids until three years after the completion of any plugging and abandonment procedures specified under § 144.52(l)(6). The Director may require the owner or operator to deliver the records to the Director at the conclusion of the retention period. For EPA administered programs, the owner or operator shall continue to retain the records after the three year retention period unless he delivers the records to the Regional Administrator or obtains written approval from the Regional Administrator to discard the records.			
40 CFR 144.28 (j)(1)	*Notice of abandonment.* (1) The owner or operator shall notify the Director, according to a time period required by the Director, before conversion or abandonment of the well.			
40 CFR 144.28 (j)(2)	For EPA-administered programs, the owner or operator shall notify the Regional Administrator at least 45 days before plugging and abandonment. The Regional Administrator, at his discretion, may allow a shorter notice period.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (k)	*Plugging and abandonment report*. For EPA-administered programs, within 60 days after plugging a well or at the time of the next quarterly report (whichever is less) the owner or operator shall submit a report to the Regional Administrator. If the quarterly report is due less than 15 days before completion of plugging, then the report shall be submitted within 60 days. The report shall be certified as accurate by the person who performed the plugging operation. Such report shall consist of either:			
40 CFR 144.28 (k)(1)	A statement that the well was plugged in accordance with the plan previously submitted to the Regional Administrator; or			
40 CFR 144.28 (k)(2)	Where actual plugging differed from the plan previously submitted, an updated version of the plan, on the form supplied by the Regional Administrator, specifying the different procedures used.			
40 CFR 144.28 (l)(1)	(l) Change of ownership or operational control. For EPA-administered programs: (1) The transferor of a Class I, II or III well authorized by rule shall notify the Regional Administrator of a transfer of ownership or operational control of the well at least 30 days in advance of the proposed transfer.			
40 CFR 144.28 (l)(2)	The notice shall include a written agreement between the transferor and the transferee containing a specific date for transfer of ownership or operational control of the well; and a specific date when the financial responsibility demonstration of § 144.28(d) will be met by the transferee.			
40 CFR 144.28 (l)(3)	The transferee is authorized to inject unless he receives notification from the Director that the transferee has not demonstrated financial responsibility pursuant to § 144.28(d).			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.28 (m)	*Requirements for Class I hazardous waste wells.* The owner or operator of any Class I well injecting hazardous waste shall comply with § 144.14(c). In addition, for EPA-administered programs the owner or operator shall properly dispose of, or decontaminate by removing all hazardous waste residues, all injection well equipment.			
Subpart D - Authorization By Permit				
40 CFR 144.31(a) (See also 145.11(a)(10))	**40 CFR 144.31 Application for a permit; authorization by permit.** Permit application. Unless an underground injection well is authorized by rule under subpart C of this part, all injection activities including construction of an injection well are prohibited until the owner or operator is authorized by permit. An owner or operator of a well currently authorized by rule must apply for a permit under this section unless well authorization by rule was for the life of the well or project. Authorization by rule for a well or project for which a permit application has been submitted terminates for the well or project upon the effective date of the permit. Procedures for applications, issuance and administration of emergency permits are found exclusively in § 144.34. A RCRA permit applying the standards of part 264, subpart C of this chapter will constitute a UIC permit for hazardous waste injection wells for which the technical standards in part 146 of this chapter are not generally appropriate.	47-13-14.3.a 47-13-14.10.a	**47-13-14.3. Application for a Permit; Authorization by Permit.** a. Permit application. Except as provided in subsection 14.2 (authorization by rule), all underground injections into Class 1, 2, 3, or 6 wells shall be prohibited unless authorized by permit. Those authorized by a rule under subsection 14.2 must still apply for a permit under this section unless authorization was for the life of the well or project. Rules authorizing well injections for which permit applications have been submitted shall lapse for a particular well injection or project upon the effective date of the permit or permit denial for that well injection or project. Expiration will be effective following effective date of a permit, after closure (plugging and abandonment), or after conversion of the well. **47-13-14.10. Application for a Permit. This section shall apply in addition to the requirements of subsections 8.5, 9.5, 10.5, and 14.3.** a. Permit application. Any person who is required to have a permit (including new applicants and permittees with expiring permits) shall complete, sign, and submit an application to the Director as described in this section. Persons currently authorized with UIC authorization by rule shall apply for permits when required by the Director.	Similar to CFR; however, WV does not contain a provision that a RCRA permit will constitute a UIC permit for hazardous waste injection wells. This may not affect stringency (particularly since several sub provisions below are the same as the CFR), but clarification may be appropriate.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.31(b) (See also 145.11(a)(10))	Who applies? When a facility or activity is owned by one person but is operated by another person, it is the operator's duty to obtain a permit.	47-13-14.10.b	Who applies. When a facility or activity is owned by one person but is operated by another person, it is the operator's duty to obtain a permit.	Same as CFR.
40 CFR 144.31(c) (See also 145.11(a)(10))	Time to apply. Any person who performs or proposes an underground injection for which a permit is or will be required shall submit an application to the Director in accordance with the UIC program as follows:	47-13-14.3.b	Time to apply. Any person who performs or proposes an underground injection for which a permit is or will be required shall submit an application to the Director in accordance with the State UIC Program as follows:	Similar to CFR.
40 CFR 144.31(c)(1) (See also 145.11(a)(10))	For existing wells, as expeditiously as practicable and in accordance with the schedule in any program description under § 145.23(f), but no later than 4 years from the approval or promulgation of the UIC program.	47-13-14.3.b.1	For existing injection wells as expeditiously as practicable and in accordance with the schedule contained in the State UIC Program description, but no later than four (4) years from the effective date of this rule or as required under subsection 7.3 for wells injecting hazardous waste.	Similar to CFR.
40 CFR 144.31(c)(2) (See also 145.11(a)(10))	For new injection wells, except new wells in projects authorized under § 144.21(d) or authorized by an existing area permit under § 144.33(c), a reasonable time before construction is expected to begin.	47-13-14.3.b.2	For new injection wells, except new wells in projects authorized under paragraph 14.2.a.1 or covered by an existing area permit under subdivision 14.4.c, a reasonable time before construction is expected to begin.	Similar to CFR.
40 CFR 144.31(d) (See also 145.11(a)(10))	Completeness. The Director shall not issue a permit before receiving a complete application for a permit except for emergency permits. An application for a permit is complete when the Director receives an application form and any supplemental information which are completed to his or her satisfaction. The completeness of any application for a permit shall be judged independently of the status of any other permit application or permit for the same facility or activity.	47-13-14.10.c	Completeness. The Director shall not issue a permit under a program before receiving a complete application, except for an emergency permit. An application for a permit under a program is complete when the Director receives an application form and any supplemental information which are completed to his or her satisfaction.	Differs from CFR. WV does not include a provision that the completeness of permit applications is judged independently of other applications. Clarification is recommended.
40 CFR 144.31(e) (See also 145.11(a)(10))	Information requirements. All applicants for Class I, II, III, and V permits shall provide the following information to the Director, using the application form provided by the Director. Applicants for Class VI permits shall follow the criteria provided in §146.82 of this chapter.	47-13-14.10.d	Information requirements. All applicants for UIC permits shall provide the following information to the Director, using the application form provided by the Director. Class 6 applicants shall follow the requirements of 13.8.:	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.31(e)(1) (See also 145.11(a)(10))	The activities conducted by the applicant which require it to obtain permits under RCRA, UIC, the National Pollution Discharge Elimination system (NPDES) program under the Clean Water Act, or the Prevention of Significant Deterioration (PSD) program under the Clean Air Act.	47-13-14.10.d.1	The activities conducted by the applicant which require it to obtain permits under UIC.	WV only requires the applicant to list UIC permits; may be less stringent than CFR. Clarification is recommended.
40 CFR 144.31(e)(2) (See also 145.11(a)(10))	Name, mailing address, and location of the facility for which the application is submitted.	47-13-14.10.d.2	Name, mailing address, and location of the facility for which the application is submitted.	Same as CFR.
40 CFR 144.31(e)(3) (See also 145.11(a)(10))	Up to four SIC codes which best reflect the principal products or services provided by the facility.	47-13-14.10.d.3	Up to four (4) SIC codes which best reflect the principal products or services provided by the facility.	Same as CFR.
40 CFR 144.31(e)(4) (See also 145.11(a)(10))	The operator's name, address, telephone number, ownership status, and status as Federal, State, private, public, or other entity.	47-13-14.10.d.4	The operator's name, address, telephone number, ownership status, and status as Federal, State, private, public, or other entity.	Same as CFR.
40 CFR 144.31(e)(5) (See also 145.11(a)(10))	Whether the facility is located on Indian lands.			Missing. However, 145.11(a) does not require 144.31(e)(5) to be part of a State Primacy Program.
40 CFR 144.31(e)(6) (See also 145.11(a)(10))	A listing of all permits or construction approvals received or applied for under any of the following programs:	47-13-14.10.d.5	A listing of all permits or construction approvals received or applied for under any of the following programs:	Same as CFR.
40 CFR 144.31(e)(6)(i) (See also 145.11(a)(10))	Hazardous Waste Management program under RCRA.	47-13-14.10.d.5.A	Hazardous Waste Management Program under RCRA and W. Va. Code §22-18-1 et seq.	Similar to CFR. WV also references a state rule. (No review was performed.)
40 CFR 144.31(e)(6)(ii) (See also 145.11(a)(10))	UIC program under SDWA.			Missing; this may not be needed based on WV's organizational structure; clarification is recommended as part of the primacy package.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.31(e)(6)(iii) (See also 145.11(a)(10))	NPDES program under CWA.	47-13-14.10.d.5.B	NPDES program under CWA and State Act.	Similar to CFR. WV also references a state rule. (No review was performed.)
40 CFR 144.31(e)(6)(iv) (See also 145.11(a)(10))	Prevention of Significant Deterioration (PSD) program under the Clean Air Act.	47-13-14.10.d.5.C	Prevention of Significant Deterioration (PSD) program under the Clean Air Act.	Same as CFR.
40 CFR 144.31(e)(6)(v) (See also 145.11(a)(10))	Nonattainment program under the Clean Air Act.	47-13-14.10.d.5.D	Nonattainment program under the Clean Air Act.	Same as the CFR.
40 CFR 144.31(e)(6)(vi) (See also 145.11(a)(10))	National Emission Standards for Hazardous Pollutants (NESHAPS) preconstruction approval under the Clean Air Act.	47-13-14.10.d.5.E	National Emission Standards for Hazardous Pollutants (NESHAPS) pre-construction approval under the Clean Air Act.	Same as CFR.
40 CFR 144.31(e)(6)(vii) (See also 145.11(a)(10))	Ocean dumping permits under the Marine Protection Research and Sanctuaries Act.			Not included – WV is a landlocked state, so this omission does not affect stringency.
40 CFR 144.31(e)(6)(viii) (See also 145.11(a)(10))	Dredge and fill permits under section 404 of CWA.	47-13-14.10.d.5.F	Dredge or fill permits under section 404 of CWA.	Same as CFR.
40 CFR 144.31(e)(6)(ix) (See also 145.11(a)(10))	Other relevant environmental permits, including State permits.	47-13-14.10.d.5.G	Other relevant environmental permits, including State permits.	Same as CFR.

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ED_013399_00000014-00087

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.31(e)(7) (See also 145.11(a)(10))	A topographic map (or other map if a topographic map is unavailable) extending one mile beyond the property boundaries of the source depicting the facility and each of its intake and discharge structures; each of its hazardous waste treatment, storage, or disposal facilities; each well where fluids from the facility are injected underground; and those wells, springs, and other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant within a quarter mile of the facility property boundary.	47-13-14.10.d.6	A topographic map extending one (1) mile beyond the property boundaries of the source, depicting the facility and each well where fluids from the facility are injected underground and those wells, springs, other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant in the map area. A. Map requirements for Class 6 permits shall include the injection well for which a permit is sought and the applicable area of review consistent with 5.4 and 14.9.b.5. Within the area of review, the map must show the number or name, and location of all injection wells, producing wells, abandoned wells, plugged wells or dry holes, deep stratigraphic boreholes, State- or EPA-approved subsurface cleanup sites, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells, other pertinent surface features including structures intended for human occupancy, State, Tribal, and Territory boundaries, and roads. The map should also show faults, if known or suspected. Only information of public record is required to be included on this map.	WV includes less detail about the content of the map than the CFR, e.g., WV does not require the map to show intake and discharge structures; hazardous waste treatment, storage, or disposal facilities; or drinking water wells listed in public records or otherwise known to the applicant within a quarter mile of the facility property boundary. This is less stringent than the CFR. WV also describes requirements specific to Class VI.
40 CFR 144.31(e)(8) (See also 145.11(a)(10))	A brief description of the nature of the business.	47-13-14.10.d.7	A brief description of the nature of the business.	Same as CFR.
40 CFR 144.31(e)(9) (See also 145.11(a)(10))	For EPA-administered programs, the applicant shall identify and submit on a list with the permit application the names and addresses of all owners of record of land within one-quarter mile of the facility boundary. This requirement may be waived by the Regional Administrator where the site is located in a populous area and the Regional Administrator determines that the requirement would be impracticable.			Missing. Applies to EPA programs only.

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ED_013399_00000014-00088

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.31(e)(10) (See also 145.11(a)(10))	A plugging and abandonment plan that meets the requirements of § 146.10 of this chapter and is acceptable to the Director.	47-13-14.7.f	Plugging and abandonment. Any Class 1, 2, 3, or 6 permit shall include, and any Class 5 permit may include, conditions to ensure that plugging and abandonment of the well will not allow the movement of fluids either into an underground source of drinking water or from one underground source of drinking water to another. Any applicant for a UIC permit shall be required to submit a plan for plugging and abandonment.…	WV does not explicitly require including a plugging and abandonment plan in a permit application; however 47-13-14.7.f requires that any UIC permit applicant be required to submit a plan for plugging and abandonment. This is equivalent to the CFR for Classes I, II, III, and VI, but not necessarily for Class V.
40 CFR 144.31(f)	*Recordkeeping*. Applicants shall keep records of all data used to complete permit applications and any supplemental information submitted under § 144.31 for a period of at least 3 years from the date the application is signed.	47-13-14.10.e	Record keeping. Applicants shall keep records of all data used to complete permit applications and any supplemental information submitted under subsection 14.3 for a period of at least three (3) years from the date the application is signed.	Same as CFR.
40 CFR 144.31(g)(1)(i)	*Information Requirements for Class I Hazardous Waste Injection Wells Permits.* (1) The following information is required for each active Class I hazardous waste injection well at a facility seeking a UIC permit: (i) Dates well was operated.	47-13-8,2,g	Information requirements for Class 1 Hazardous Waste Injection Well Permits. 1. The following is required for each active Class 1 hazardous waste injection well at a facility seeking a UIC permit: 1.A. Dates well was operated.	Same as CFR.
40 CFR 144.31(g)(1)(ii)	Specification of all wastes which have been injected in the well, if available.	47-13-8,2,g.1.B	1.B. Specifications of all wastes which have been injected in the well, if available.	Same as CFR.
40 CFR 144.31(g)(2)	The owner or operator of any facility containing one or more active hazardous waste injection wells must submit all available information pertaining to any release of hazardous waste or constituents from any active hazardous waste injection well at the facility.	47-13-8,2,g.2	The owner or operator of any existing facility containing one or more active hazardous waste injection wells must submit all available information pertaining to any release of hazardous waste or constituents from any active hazardous waste injection well at the facility.	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.31(g)(3)	The owner or operator of any facility containing one or more active Class I hazardous waste injection wells must conduct such preliminary site investigations as are necessary to determine whether a release is occurring, has occurred, or is likely to have occurred.	47-13-8,2,g.3	The owner or operator of any facility containing one or more active Class 1 hazardous waste injection wells must conduct preliminary site investigations as are necessary to determine whether a release is occurring, has occurred, or is likely to have occurred.	Same as CFR.
40 CFR 144.32(a) (See also 145.11(a)(11))	**40 CFR 144.32 Signatories to permit applications and reports.** Applications. All permit applications, except those submitted for Class II wells (see paragraph (b) of this section), shall be signed as follows:	47-13-14.11.a	**47-13-14.11. Signatories to Permit Applications and Reports.** Applications. All permit applications, except those submitted for Class 2 wells under the UIC program, shall be signed as follows:	Similar to CFR.
40 CFR 144.32(a)(1) (See also 145.11(a)(11))	For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means;	47-13-14.11.a.1	For a corporation: by a principal officer of at least the level of vice-president;	WV requires that a signatory be at least a vice president; this may be more stringent/restrictive than the CFR.
40 CFR 144.32(a)(1)(i) (See also 145.11(a)(11))	A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision making functions for the corporation, or	47-13-14.11.a.1		See the above row.
40 CFR 144.32(a)(1)(ii) (See also 145.11(a)(11))	the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. NOTE: EPA does not require specific assignments or delegations of authority to responsible corporate officers identified in § 144.32(a)(1)(i). The Agency will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the Director to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under § 144.32(a)(1)(ii) rather than to specific individuals.	47-13-14.11.a.1		See the above row.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.32(a)(2) (See also 145.11(a)(11))	For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or	47-13-14.11.a.2	For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or	Same as CFR.
40 CFR 144.32(a)(3) (See also 145.11(a)(11))	For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:	47-13-14.11.a.3	For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.	Similar to CFR. WV does not provide examples of principal executive officers. No impact on stringency.
40 CFR 144.32(a)(3)(i) (See also 145.11(a)(11))	The chief executive officer of the agency, or			Not included.
40 CFR 144.32(a)(3)(ii) (See also 145.11(a)(11))	a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).			Not included.
40 CFR 144.32(b) (See also 145.11(a)(11))	*Reports*. All reports required by permits, other information requested by the Director, and all permit applications submitted for Class II wells under § 144.31 shall be signed by a person described in paragraph (a) of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if:	47-13-14.11.b	Reports. All reports required by permits, other information requested by the Director, and all permit applications submitted for Class 2 wells shall be signed by a person described in subdivision 14.11.a above in this section, or by a duly authorized representative of that person. A person is a duly authorized representative if:	Similar to CFR.
40 CFR 144.32(b)(1) (See also 145.11(a)(11))	The authorization is made in writing by a person described in paragraph (a) of this section;	47-13-14.11.b.1	The authorization is made in writing by a person described in subdivision 14.11.a of this section;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.32(b)(2) (See also 145.11(a)(11))	The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and	47-13-14.11.b.2	The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and	Same as CFR.
40 CFR 144.32(b)(3) (See also 145.11(a)(11))	The written authorization is submitted to the Director.	47-13-14.11.b.3	The written authorization is submitted to the Director.	Same as CFR.
40 CFR 144.32(c) (See also 145.11(a)(11))	*Changes to authorization*. If an authorization under paragraph (b) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.	47-13-14.11.c	Changes to Authorization. If an authorization under subdivision 14.11.b of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of subdivision 14.11.b of this section must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.	Same as CFR.
40 CFR 144.32(d) (See also 145.11(a)(11))	*Certification*. Any person signing a document under paragraph (a) or (b) of this section shall make the following certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	47-13-14.11.d	Certification. Any person signing a document under subdivision 14.11.a or 14.11.b of this section shall make the following certification: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."	WV's version of the certification statement is less detailed than the CFR, but it does have similar provisions and provide for penalties for submitting false information. No concerns for stringency.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.33(a) (See also 145.11(a)(12))	**40 CFR 144.33 Area permits.** The Director may issue a permit on an area basis, rather than for each well individually, provided that the permit is for injection wells:	47-13-14.4.a	**47-13-14.4 Area Permits** The Director may issue a permit on an area basis, rather than for each well individually, provided that the permit is for injection wells:	Same as CFR.
40 CFR 144.33(a)(1) (See also 145.11(a)(12))	(1) Described and identified by location in permit application(s) if they are existing wells, except that the Director may accept a single description of wells with substantially the same characteristics;	47-13-14.4.a.1	Described and identified by location in permit application(s) if they are existing wells, except that the Director may accept a single description of wells with substantially the same characteristics;	Same as CFR.
40 CFR 144.33(a)(2) (See also 145.11(a)(12))	Within the same well field, facility site, reservoir, project, or similar unit in the same State;	47-13-14.4.a.2	Within the same well field, facility site, reservoir project, or similar unit in the State;	Same as CFR.
40 CFR 144.33(a)(3) (See also 145.11(a)(12))	Operated by a single owner or operator; and	47-13-14.4.a.3	Operated by a single owner or operator;	Same as CFR.
40 CFR 144.33(a)(4) (See also 145.11(a)(12))	Used to inject other than hazardous waste; and	47-13-14.4.a.4	Used to inject other than hazardous waste; and	Same as CFR.
40 CFR 144.33(a)(5) (See also 145.11(a)(12))	Other than Class VI wells.	47-13-14.4.a.5	Other than Class 6 Wells.	Same as CFR.
40 CFR 144.33(b)(1) (See also 145.11(a)(12))	Area permits shall specify: (1) The area within which underground injections are authorized, and	47-13-14.4.b	Area permits shall specify: 1. The area within which underground injections are authorized; and	Same as CFR.
40 CFR 144.33(b)(2) (See also 145.11(a)(12))	The requirements for construction, monitoring, reporting, operation, and abandonment, for all wells authorized by the permit.	47-13-14.4.b.2	The requirements for construction, monitoring, reporting, operation, and abandonment, for all wells authorized by the permit.	Same as CFR.
40 CFR 144.33(c)(1) (See also 145.11(a)(12))	The area permit may authorize the permittee to construct and operate, convert, or plug and abandon wells within the permit area provided: (1) The permittee notifies the Director at such time as the permit requires;	47-13-14.4.c	The area permit may authorize the permittee to construct and operate, convert, or plug and abandon wells within the permit area provided: 1. The permittee notifies the Director at such time as the permit requires;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.33(c)(2) (See also 145.11(a)(12))	The additional well satisfies the criteria in paragraph (a) of this section and meets the requirements specified in the permit under paragraph (b) of this section; and	47-13-14.4.c.2	The additional well satisfies the criteria in subdivision 14.4.a of this section and meets the requirements specified in the permit under subdivision 14.4.b of this section; and	Same as CFR.
40 CFR 144.33(c)(3) (See also 145.11(a)(12))	The cumulative effects of drilling and operation of additional injection wells are considered by the Director during evaluation of the area permit application and are acceptable to the Director.	47-13-14.4.c.3	The cumulative effects of drilling and operation of additional injection wells are considered by the Director during evaluation of the area permit application and are acceptable to the Director.	Same as CFR.
40 CFR 144.33(d) (See also 145.11(a)(12))	If the Director determines that any well constructed pursuant to paragraph (c) of this section does not satisfy any of the requirements of paragraphs (c) (1) and (2) of this section the Director may modify the permit under § 144.39, terminate under § 144.40, or take enforcement action. If the Director determines that cumulative effects are unacceptable, the permit may be modified under § 144.39.	47-13-14.4.d	If the Director determines that any well constructed pursuant to subdivision 14.4.c of this section does not satisfy any of the requirements of paragraphs 14.4.c.1 and 14.4.c.2 of this section, the Director may modify the permit under subsection 14.18, revoke under subsection 14.19, or take enforcement action. If the Director determines that cumulative effects are unacceptable, the permit may be modified under subsection 14.18.	Similar to CFR. However, WV's regulations do not address termination of permits (only revocation). The impact on stringency is unclear. See 144.40.
40 CFR 144.34(a)(1) (See also 145.11(a)(13))	**40 CFR 144.34 Emergency permits.** *Coverage.* Notwithstanding any other provision of this part or part 124, the Director may temporarily permit a specific underground injection if: (1) An imminent and substantial endangerment to the health of persons will result unless a temporary emergency permit is granted; or	47-13-14.5.a	**47-13-14.5 Emergency Permits** Coverage. Notwithstanding any other provision of this rule, the Director may temporarily permit a specific underground injection which has not otherwise been authorized by rule or permit if: 1. An imminent and substantial endangerment to the health of persons will result unless a temporary emergency permit is granted; or	Similar to CFR.
40 CFR 144.34(a)(2) (See also 145.11(a)(13))	A substantial and irretrievable loss of oil or gas resources will occur unless a temporary emergency permit is granted to a Class II well; and	47-13-14.5.a.2	A substantial or irretrievable loss of oil or gas resources will occur unless a temporary emergency permit is granted to a Class 2 well; and	Same as CFR.
40 CFR 144.34(a)(2)(i) (See also 145.11(a)(13))	Timely application for a permit could not practicably have been made; and	47-13-14.5.a.2.A	Timely application for a permit could not practicably have been made; and	Same as CFR.

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ED_013399_00000014-00094

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.34(a)(2)(ii) (See also 145.11(a)(13))	The injection will not result in the movement of fluids into underground sources of drinking water; or	47-13-14.5.a.2.B	The injection will not result in the movement of fluids into underground sources of drinking water; or	Same as CFR.
40 CFR 144.34(a)(3) (See also 145.11(a)(13))	A substantial delay in production of oil or gas resources will occur unless a temporary emergency permit is granted to a new Class II well and the temporary authorization will not result in the movement of fluids into an underground source of drinking water.	47-13-14.5.a.3	A substantial delay in production of oil or gas resources will occur unless a temporary emergency permit is granted to a new Class 2 well and the temporary authorization will not result in the movement of fluids into an underground source of drinking water.	Same as CFR.
40 CFR 144.34(b)(1) (See also 145.11(a)(13))	*Requirements for issuance*. (1) Any temporary permit under paragraph (a)(1) of this section shall be for no longer term than required to prevent the hazard.	47-13-14.5.b	Requirements for issuance. 1. Any temporary permit under paragraph 14.5.a.1. of this section shall be for no longer term than required to prevent the hazard.	Same as CFR.
40 CFR 144.34(b)(2) (See also 145.11(a)(13))	Any temporary permit under paragraph (a)(2) of this section shall be for no longer than 90 days, except that if a permit application has been submitted prior to the expiration of the 90-day period, the Director may extend the temporary permit until final action on the application.	47-13-14.5.b.2	Any temporary permit under paragraph 14.5.b.2 of this section shall be for no longer term than ninety (90) days, except that if a permit application has been submitted prior to the expiration date of the ninety (90) day period, the Director may extend the temporary permit until final action on the application.	Same as CFR. Note: this provision should refer to paragraph 14.5.a.2.
40 CFR 144.34(b)(3) (See also 145.11(a)(13))	Any temporary permit under paragraph (a)(3) of this section shall be issued only after a complete permit application has been submitted and shall be effective until final action on the application.	47-13-14.5.b.3	Any temporary permit under paragraph 14.5.a.3 of this section shall be issued only after a complete permit application has been submitted and shall be effective until final action on the application.	Same as CFR.
40 CFR 144.34(b)(4) (See also 145.11(a)(13))	Notice of any temporary permit under this paragraph shall be published in accordance with § 124.11 within 10 days of the issuance of the permit.	47-13-14.5.b.4	Notice of any temporary permit under this paragraph shall be published within ten (10) days of the issuance of the permit. Public Notice follows subsections 14.24 and 14.25.	Similar to CFR. WV adds that public notices must follow requirements similar to Part 124.
40 CFR 144.34(b)(5) (See also 145.11(a)(13))	The temporary permit under this section may be either oral or written. If oral, it must be followed within 5 calendar days by a written temporary emergency permit.	47-13-14.5.b.5	The temporary permit under this section may be either oral or written. If oral, it must be followed within five (5) calendar days by a written temporary emergency permit.	Same as CFR.
40 CFR 144.34(b)(6) (See also 145.11(a)(13))	The Director shall condition the temporary permit in any manner he or she determines is necessary to ensure that the injection will not result in the movement of fluids into an underground source of drinking water.	47-13-14.5.b.6	The Director shall condition the temporary permit in any manner he or she determines is necessary to ensure that the injection will not result in the movement of fluids into an underground source of drinking water.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.35(a) (See also 145.11(a)(14))	**40 CFR 144.35 Effect of a permit.** Except for Class II and III wells, compliance with a permit during its term constitutes compliance, for purposes of enforcement, with Part C of the SDWA. However, a permit may be modified, revoked and reissued, or terminated during its term for cause as set forth in §§ 144.39 and 144.40.	47-13-14.16.c	**47-13-14.16. Effect of a Permit.** Except for Class 2 and 3 wells, compliance with a permit during its term constitutes compliance, for purposes of enforcement, with Part C of SDWA. However, a permit may be modified, revoked, and reissued, suspended or revoked during its term for cause as set forth in subsections 14.18 and 14.19.	Similar to CFR. However, WV's regulations do not address termination of permits (only revocation). The impact on stringency is unclear. See 144.40.
40 CFR 144.35(b) (See also 145.11(a)(14))	The issuance of a permit does not convey any property rights of any sort, or any exclusive privilege.	47-13-14.16.a	The issuance of a permit does not convey any property rights of any sort, or any exclusive privilege.	Same as CFR.
40 CFR 144.35(c) (See also 145.11(a)(14))	The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.	47-13-14.16.b	The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or rules.	Same as CFR.
40 CFR 144.36(a) (See also 145.11(a)(15))	**40 CFR 144.36 Duration of permits.** Permits for Class I and V wells shall be effective for a fixed term not to exceed 10 years. UIC permits for Class II and III wells shall be issued for a period up to the operating life of the facility. UIC permits for Class VI wells shall be issued for the operating life of the facility and the post-injection site care period. The Director shall review each issued Class II, III, and VI well UIC permit at least once every 5 years to determine whether it should be modified, revoked and reissued, terminated or a minor modification made as provided in §§144.39, 144.40, or 144.41.	47-13-14.13	**47-13-14.13. Duration of Permits.** UIC permits for Class 1, 2, 3, 5 and 6 wells shall be effective for a fixed term not to exceed five (5) years. Reevaluation is required to determine whether it should be modified, revoked and reissued, terminated or a minor modification made.	Differs from CFR. WV is more stringent than the CFR in that no permit may be issued for more than 5 years.
40 CFR 144.36(b) (See also 145.11(a)(15))	Except as provided in § 144.37, the term of a permit shall not be extended by modification beyond the maximum duration specified in this section.	47-13-14.13.a	The term of a permit shall not be extended by modification beyond the maximum duration specified in this section.	WV does not allow for extension of continuing permits; this may be more stringent than the CFR.
40 CFR 144.36(c) (See also 145.11(a)(15))	The Director may issue any permit for a duration that is less than the full allowable term under this section.	47-13-14.13.b	The Director may issue any permit for a duration that is less than the full allowable term under this section.	Same as CFR.

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ED_013399_00000014-00096

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.37 (a)(1)	**40 CFR 144.37 Continuation of expiring permits.** *EPA permits*. When EPA is the permit-issuing authority, the conditions of an expired permit continue in force under 5 U.S.C. 558(c) until the effective date of a new permit if: (1) The permittee has submitted a timely application which is a complete application for a new permit; and			WV does not allow for extension of continuing permits. This provision is not required of state rules; no impact on stringency. (Applies to all of 144.37.)
40 CFR 144.37 (a)(2)	The Regional Administrator, through no fault of the permittee does not issue a new permit with an effective date on or before the expiration date of the previous permit (for example, when issuance is impracticable due to time or resource constraints).			
40 CFR 144.37 (b)	*Effect.* Permits continued under this section remain fully effective and enforceable.			
40 CFR 144.37 (c)(1)	*Enforcement.* When the permittee is not in compliance with the conditions of the expiring or expired permit the Regional Administrator may choose to do any or all of the following: (1) Initiate enforcement action based upon the permit which has been continued;			
40 CFR 144.37 (c)(2)	Issue a notice of intent to deny the new permit. If the permit is denied, the owner or operator would then be required to cease the activities authorized by the continued permit or be subject to enforcement action for operating without a permit;			
40 CFR 144.37 (c)(3)	Issue a new permit under part 124 with appropriate conditions; or			
40 CFR 144.37 (c)(4)	Take other actions authorized by these regulations.			

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ED_013399_00000014-00097

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.37 (d)	*State continuation.* An EPA issued permit does not continue in force beyond its time expiration date under Federal law if at that time a State is the permitting authority. A State authorized to administer the UIC program may continue either EPA or State-issued permits until the effective date of the new permits, if State law allows. Otherwise, the facility or activity is operating without a permit from the time of expiration of the old permit to the effective date of the State-issued new permit.			
40 CFR 144.38(a) (See also 145.11(a)(16))	**40 CFR 144.38 Transfer of permits.** Transfers by modification. Except as provided in paragraph (b) of this section, a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued (under § 144.39(b)(2)), or a minor modification made (under § 144.41(d)), to identify the new permittee and incorporate such other requirements as may be necessary under the Safe Drinking Water Act.	47-13-14.17.a	**47-13-14.17. Transfer of Permits.** Transfers by modification. Except as provided in subdivision 14.17.b of this section, a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued, or a minor modification made to identify the new permittee and incorporate such other requirements as may be necessary under the SDWA and the State Act and rules.	Similar to CFR. WV also references requirements under the State Act and rules. No impact on stringency.
40 CFR 144.38(b) (See also 145.11(a)(16))	Automatic transfers. As an alternative to transfers under paragraph (a) of this section, any UIC permit for a well not injecting hazardous waste or injecting carbon dioxide for geologic sequestration may be automatically transferred to a new permittee if:	47-13-14.17.b	Automatic transfers. As an alternative to transfers under subdivision 14.17.a of this section, any UIC permit for a well not injecting hazardous waste or injecting carbon dioxide may be automatically transferred to a new permittee if:	Same as CFR.
40 CFR 144.38(b)(1) (See also 145.11(a)(16))	The current permittee notifies the Director at least 30 days in advance of the proposed transfer date referred to in paragraph (b)(2) of this section;	47-13-14.17.b.1	The current permittee notifies the Director at least thirty (30) days in advance of the proposed transfer date in paragraph 14.17.b.2 of this section;	Same as CFR.
40 CFR 144.38(b)(2) (See also 145.11(a)(16))	The notice includes a written agreement between the existing and new permittees containing a specific date for transfer or permit responsibility, coverage, and liability between them, and the notice demonstrates that the financial responsibility requirements of § 144.52(a)(7) will be met by the new permittee; and	47-13-14.17.b.2	The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility coverage, and liability between them and, in the case of UIC permits, the notice demonstrates that the financial responsibility requirements of subdivision 14.7.g will be met by new permittee; and	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.38(b)(3) (See also 145.11(a)(16))	The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify or revoke and reissue the permit. A modification under this paragraph may also be a minor modification under § 144.41. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph (b)(2) of this section.	47-13-14.17.b.3	The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify or revoke and reissue the permit. A modification under this section may also be a minor modification under subsection 14.20. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 14.17.b.2 of this section.	Same as CFR.
40 CFR 144.39 (See also 145.11(a)(17))	**40 CFR 144.39 Modification or revocation and *reissuance* of permits.** When the Director receives any information (for example, inspects the facility, receives information submitted by the permittee as required in the permit (see § 144.51 of this chapter), receives a request for modification or revocation and reissuance under § 124.5, or conducts a review of the permit file) he or she may determine whether or not one or more of the causes listed in paragraphs (a) and (b) of this section for modification or revocation and reissuance or both exist. If cause exists, the Director may modify or revoke and reissue the permit accordingly, subject to the limitations of paragraph (c) of this section, and may request an updated application if necessary. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term. See § 124.5(c)(2) of this chapter. If cause does not exist under this section or § 144.41 of this chapter, the Director shall not modify or revoke and reissue the permit. If a permit modification satisfies the criteria in § 144.41 for ''minor modifications'' the permit may be modified without a draft permit or public review. Otherwise, a draft permit must be prepared and other procedures in part 124 must be followed.	47-13-14.18	**47-13-14.18 Modification or Revocation and Reissuance of Permits.** When the Director receives any information (for example, inspects the facility, receives information submitted by the permittee as required in the permit, receives a request for modification or revocation and reissuance, or conducts a review of the permit file) he or she may determine whether or not one or more of the causes listed in subdivisions 14.18.a and 14.18.b of this section for modification or revocation and reissuance or both exists. If cause exists, the Director may modify or revoke and reissue the permit accordingly, subject to the limitations of subdivision 14.18.c of this section and request an updated application. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term. If cause does not exist under this section or subsection 14.20, the Director shall not modify or revoke and reissue the permit. If a permit modification satisfies the criteria in subsection 14.20 for "minor modifications" the permit may be modified without a draft permit or public review. Otherwise, a draft permit must be prepared. Notice of intent to revoke a permit will require a draft permit.	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.39(a) (See also 145.11(a)(17))	Causes for modification. The following are causes for modification. For Class I hazardous waste injection wells, Class II, Class III or Class VI wells the following may be causes for revocation and reissuance as well as modification; and for all other wells the following may be cause for revocation or reissuance as well as modification when the permittee requests or agrees.	47-13-14.18.a	Cause for modification. The following are causes for modification but not revocation and reissuance of permits, except for Class 1, 2 and 3 wells in which case the following may be causes for revocation and reissuance as well as modification.	Similar to CFR. However, The exemption from this provision applies to Class 1, 2 and 3 wells (not Class I hazardous or Class VI, per the CFR). Also, the last provision of the CFR related to permittee requests is not in WV's rule. Clarification is recommended.
40 CFR 144.39(a)(1) (See also 145.11(a)(17))	*Alterations*. There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.	47-13-14.18.a.1	Alterations. There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.	Same as CFR.
40 CFR 144.39(a)(2) (See also 145.11(a)(17))	*Information.* The Director has received information. Permits other than for Class II and III wells may be modified during their terms for this cause only if the information was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of issuance. For UIC area permits (§ 144.33), this cause shall include any information indicating that cumulative effects on the environment are unacceptable.	47-13-14.18.a.2	Information. The Director has received information. Permits other than for Class 2 and 3 wells may be modified during their terms for this cause only if the information was not available at the time of permit issuance (other than revised rules, guidance, or test methods) and would have justified the application of different permit conditions at the time of issuance. For UIC area permits, this cause shall include any information indicating that cumulative effects on the environment are unacceptable.	Similar to CFR.
40 CFR 144.39(a)(3) (See also 145.11(a)(17))	*New regulations*. The standards or regulations on which the permit was based have been changed by promulgation of new or amended standards or regulations or by judicial decision after the permit was issued. Permits other than for Class I hazardous waste injection wells, Class II, Class III or Class VI wells may be modified during their permit terms for this cause only as follows:	47-13-14.18.a.3	New rules. The standards or rules on which the permit was based have been changed by promulgation of amended standards or rules or by judicial decision after the permit was issued. Permits other than for Class 2 or 3 wells may be modified during their terms for this cause only as follows:	Similar to CFR.
40 CFR 144.39(a)(3)(i)(A) (See also 145.11(a)(17))	For promulgation of amended standards or regulations, when: (A) The permit condition requested to be modified was based on a promulgated part 146 regulation; and	47-13-14.18.a.3.A	For promulgation of amended standards or rules, when: 1. The permit condition to be modified was based on a State regulation requiring compliance with forty (40) CFR Part 146; and	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.39(a)(3)(i)(B) (See also 145.11(a)(17))	EPA has revised, withdrawn, or modified that portion of the regulation on which the permit condition was based, and	47-13-14.18.a.3.A.2	The State has revised, withdrawn, or modified that portion of the regulation on which the permit condition was based.	Similar to CFR.
40 CFR 144.39(a)(3)(i)(C) (See also 145.11(a)(17))	A permittee requests modification in accordance with § 124.5 within ninety (90) days after Federal Register notice of the action on which the request is based.			Missing. This provision may be specific to Federal Register notices and not be applicable to states.
40 CFR 144.39(a)(3)(ii) (See also 145.11(a)(17))	For judicial decisions, a court of competent jurisdiction has remanded and stayed EPA promulgated regulations if the remand and stay concern that portion of the regulations on which the permit condition was based and a request is filed by the permittee in accordance with § 124.5 within ninety (90) days of judicial remand.	47-13-14.18.a.3.B	For judicial decisions, a court of competent jurisdiction has remanded and stayed State promulgated rules if the remand and stay concern that portion of the rules on which the permit condition was based.	WV does not require a request to be filed within 90 days of judicial remand. Clarification is recommended.
40 CFR 144.39(a)(4) (See also 145.11(a)(17))	*Compliance schedules.* The Director determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or materials shortage or other events over which the permittee has little or no control and for which there is no reasonably available remedy. See also § 144.41(c) (minor modifications).	47-13-14.18.a.4	Compliance schedules. The Director determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or materials shortage or other events over which the permittee has little or no control and for which there is no reasonably available remedy.	Same as CFR.
40 CFR 144.39(a)(5) (See also 145.11(a)(17))	*Basis for modification of Class VI permits.* Additionally, for Class VI wells, whenever the Director determines that permit changes are necessary based on:	47-13-14.18.a.5	For Class 6 wells. Whenever the Director determines that permit changes are necessary based on area of review reevaluations or any amendments to the testing and monitoring plan, injection well plugging plan, post injection site care and site closure plan, or emergency and remedial response plan; or a review of monitoring and/or testing results conducted in accordance with permit requirements.	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.39(a)(5)(i) (See also 145.11(a)(17))	Area of review reevaluations under §146.84(e)(1) of this chapter;	47-13-14.18.a.5	For Class 6 wells. Whenever the Director determines that permit changes are necessary based on area of review reevaluations or any amendments to the testing and monitoring plan, injection well plugging plan, post injection site care and site closure plan, or emergency and remedial response plan; or a review of monitoring and/or testing results conducted in accordance with permit requirements.	Same as CFR.
40 CFR 144.39(a)(5)(ii) (See also 145.11(a)(17))	Any amendments to the testing and monitoring plan under §146.90(j) of this chapter;	47-13-14.18.a.5	For Class 6 wells. Whenever the Director determines that permit changes are necessary based on area of review reevaluations or any amendments to the testing and monitoring plan, injection well plugging plan, post injection site care and site closure plan, or emergency and remedial response plan; or a review of monitoring and/or testing results conducted in accordance with permit requirements.	Same as CFR.
40 CFR 144.39(a)(5)(iii) (See also 145.11(a)(17))	Any amendments to the injection well plugging plan under §146.92(c) of this chapter;	47-13-14.18.a.5	For Class 6 wells. Whenever the Director determines that permit changes are necessary based on area of review reevaluations or any amendments to the testing and monitoring plan, injection well plugging plan, post injection site care and site closure plan, or emergency and remedial response plan; or a review of monitoring and/or testing results conducted in accordance with permit requirements.	Same as CFR.
40 CFR 144.39(a)(5)(iv) (See also 145.11(a)(17))	Any amendments to the post-injection site care and site closure plan under §146.93(a)(3) of this chapter;	47-13-14.18.a.5	For Class 6 wells. Whenever the Director determines that permit changes are necessary based on area of review reevaluations or any amendments to the testing and monitoring plan, injection well plugging plan, post injection site care and site closure plan, or emergency and remedial response plan; or a review of monitoring and/or testing results conducted in accordance with permit requirements.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.39(a)(5)(v) (See also 145.11(a)(17))	Any amendments to the emergency and remedial response plan under §146.94(d) of this chapter; or	47-13-14.18.a.5	For Class 6 wells. Whenever the Director determines that permit changes are necessary based on area of review reevaluations or any amendments to the testing and monitoring plan, injection well plugging plan, post injection site care and site closure plan, or emergency and remedial response plan; or a review of monitoring and/or testing results conducted in accordance with permit requirements.	Same as CFR.
40 CFR 144.39(a)(5)(vi) (See also 145.11(a)(17))	A review of monitoring and/or testing results conducted in accordance with permit requirements.	47-13-14.18.a.5	For Class 6 wells. Whenever the Director determines that permit changes are necessary based on area of review reevaluations or any amendments to the testing and monitoring plan, injection well plugging plan, post injection site care and site closure plan, or emergency and remedial response plan; or a review of monitoring and/or testing results conducted in accordance with permit requirements.	Same as CFR.
40 CFR 144.39(b) (See also 145.11(a)(17))	Causes for modification or revocation and reissuance. The following are causes to modify or, alternatively, revoke and reissue a permit:	47-13-14.18.b	Cause for modification or revocation and reissuance. The following are causes to modify or, alternatively, revoke and reissue a permit:	Same as CFR.
40 CFR 144.39(b)(1) (See also 145.11(a)(17))	Cause exists for termination under § 144.40, and the Director determines that modification or revocation and reissuance is appropriate.	47-13-14.18.b.1	Cause exists for revocation under subsection 14.19 and the Director determines that modification or revocation and reissuance is appropriate.	Similar to CFR. However, WV's regulations do not address termination of permits (only revocation). The impact on stringency is unclear. See 144.40.
40 CFR 144.39(b)(2) (See also 145.11(a)(17))	The Director has received notification (as required in the permit, see § 144.41(d)) of a proposed transfer of the permit. A permit also may be modified to reflect a transfer after the effective date of an automatic transfer (§ 144.38(b)) but will not be revoked and reissued after the effective date of the transfer except upon the request of the new permittee.	47-13-14.18.b.2	The Director has received notification of a proposed transfer of the permit. A permit may also be modified to reflect a transfer after the effective date of an automatic transfer under subdivision 14.17.b but will not be revoked and reissued after the effective date of the transfer except upon the request of the new permittee unless the permit is up for reissuance or meets a qualification for revocation under 14.19.	Similar to CFR. WV also states that a permit won't be revised or revoked unless it is up for reissuance or pursuant to 14.19 (revocation and suspension of permits).

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ED_013399_00000014-00103

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.39(b)(3) (See also 145.11(a)(17))	A determination that the waste being injected is a hazardous waste as defined in § 261.3 either because the definition has been revised, or because a previous determination has been changed.	47-13-14.19.a.3	A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or revocation. Such as the waste being injected in now a hazardous waste.	Missing in WV's provisions for modification or revocation and reissuance of permits. However, the intent of 14.19.a.3 may be similar to the CFR in that the Director may revoke or suspend a permit or deny a permit renewal if the waste being injected is a hazardous waste. Suggest edit for clarity: "…injected is now a hazardous waste…"
40 CFR 144.39(c) (See also 145.11(a)(17))	Facility siting. Suitability of the facility location will not be considered at the time of permit modification or revocation and reissuance unless new information or standards indicate that a threat to human health or the environment exists which was unknown at the time of permit issuance.	47-13-14.18.c	Facility siting. Suitability of the facility location will not be considered at the time of permit modification or revocation and reissuance unless new information or standards indicate that a threat to human health or the environment exists which was unknown at the time of permit issuance.	Same as CFR.
40 CFR 144.40(a) (See also 145.11(a)(18))	**40 CFR 144.40 Termination of permits.** The Director may terminate a permit during its term, or deny a permit renewal application for the following causes:	47-13-14.19.a	**47-13-14.19. Revocation and Suspension of Permits.** The Director may revoke or suspend a permit during its term or deny a permit renewal application for the following causes:	WV's regulations do not address termination of permits (only revocation). The impact on stringency is unclear. If revocation and suspension has a similar impact, then the provisions may be equivalent.
40 CFR 144.40(a)(1) (See also 145.11(a)(18))	Noncompliance by the permittee with any condition of the permit;	47-13-14.19.a.1	Noncompliance by the permittee with any condition of the permit;	Same as CFR.
40 CFR 144.40(a)(2) (See also 145.11(a)(18))	The permittee's failure in the application or during the permit issuance process to disclose fully all relevant facts, or the permittee's misrepresentation of any relevant facts at any time; or	47-13-14.19.a.2	The permittee's failure in the application or during the permit issuance process to disclose fully all relevant facts, or the permittee's misrepresentation of any relevant facts at any time; or	Same as CFR.
40 CFR 144.40(a)(3) (See also 145.11(a)(18))	A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination;	47-13-14.19.a.3	A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or revocation. Such as the waste being injected in now a hazardous waste.	Similar to CFR. WV also references a change of the injectate to hazardous waste, which is similar to 40 CFR 144.39(b)(3).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.40(b) (See also 145.11(a)(18))	The Director shall follow the applicable procedures in part 124 in terminating any permit under this section.			Missing. See note above.
40 CFR 144.41	**40 CFR 144.41 Minor modifications of permits.** Upon the consent of the permittee, the Director may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section, without following the procedures of part 124. Any permit modification not processed as a minor modification under this section must be made for cause and with part 124 draft permit and public notice as required in §144.39. Minor modifications may only:	47-13-14.20	**47-13-14.20 Minor Modifications of Permits.** Upon the consent of the permittee, the Director may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section. Any permit modification not processed as a minor modification under this section must be made for cause and with a draft permit and public notice as required in subsection 14.18. Minor modifications may only:	Similar to CFR in that minor modifications do not require PN.
40 CFR 144.41(a)	Correct typographical errors;	47-13-14.20.a	Correct typographical errors;	Same as CFR.
40 CFR 144.41(b)	Require more frequent monitoring or reporting by the permittee;	47-13-14.20.b	Require more frequent monitoring or reporting by the permittee;	Same as CFR.
40 CFR 144.41(c)	Change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement; or	47-13-14.20.c	Change an interim compliance date in a schedule of compliance, provided the new date is not more than one hundred-twenty (120) days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement;	Same as CFR.
40 CFR 144.41(d)	Allow for a change in ownership or operational control of a facility where the Director determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Director.	47-13-14.20.d	Allow for a change in ownership or operational control of a facility where the Director determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Director; or	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.41(e)	Change quantities or types of fluids injected which are within the capacity of the facility as permitted and, in the judgment of the Director, would not interfere with the operation of the facility or its ability to meet conditions described in the permit and would not change its classification.	47-13-14.20.e	Allow the following: 1. Change quantities or types of fluids injected which are within the capacity of the facility as permitted, and in the judgement of the Director would not interfere with the operation of the facility or its ability to meet conditions prescribed in the permit, and would not change its classification;	Similar to CFR.
40 CFR 144.41(f)	Change construction requirements approved by the Director pursuant to § 144.52(a)(1) (establishing UIC permit conditions), provided that any such alteration shall comply with the requirements of this part and part 146.	47-13-14.20.e.2	Change construction requirements approved by the Director pursuant to subdivision 14.7.a, provided that any such alteration shall comply with the requirements of this rule; and	Similar to CFR.
40 CFR 144.41(g)	Amend a plugging and abandonment plan which has been updated under § 144.52(a)(6).	47-13-14.20.e.3	Amend a plugging and abandonment plan which has been updated under subdivision 14.6.e.	Same as CFR.
40 CFR 144.41(h)	Amend a Class VI injection well testing and monitoring plan, plugging plan, post-injection site care and site closure plan, or emergency and remedial response plan where the modifications merely clarify or correct the plan, as determined by the Director.	47-13-14.20.e.4	Amend a Class 6 injection well testing and monitoring plan, plugging plan, post-injection site care and site closure plan, or emergency and remedial response plan where the modifications merely clarify or correct the plan.	Similar to CFR. WV does not specify that the Director must determine whether a plan amendment is minor. However, if all plan amendments must be provided to the director, this may not affect stringency.
Subpart E - Permit Conditions				
40 CFR 144.51 (See also 145.11(a)(19))	**40 CFR 144.51 Conditions applicable to all permits.** The following conditions apply to all UIC permits. All conditions applicable to all permits shall be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to these regulations (or the corresponding approved State regulations) must be given in the permit.	47-13-14.12	**47-13-14.12. Conditions Applicable to All permits.** The following conditions are applicable to all permits, and shall be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to this rule must be given in the permit.	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.51(a) (See also 145.11(a)(19))	Duty to comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Safe Drinking Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application; except that the permittee need not comply with the provisions of this permit to the extent and for the duration such noncompliance is authorized in an emergency permit under §144.34.	47-13-14.12.a	Duty to comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the SDWA and the State Act and is grounds for enforcement action; for permit suspension or revocation, revocation and reissuance, or modification; or for denial of a permit renewal application.	Similar to CFR. WV does not allow exceptions to the duty to comply for emergency permits. This would be more stringent than the CFR.
40 CFR 144.51(b) (See also 145.11(a)(19))	Duty to reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.	47-13-14.12.b	Duty to Reapply. If the permittee wishes to continue activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.	Same as CFR.
40 CFR 144.51(c) (See also 145.11(a)(19))	Need to halt or reduce activity not a defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.	47-13-14.12.c	Duty to reduce or halt activity. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.	Similar to CFR.
40 CFR 144.51(d) (See also 145.11(a)(19))	Duty to mitigate. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.	47-13-14.12.d	Duty to mitigate. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.	Same as CFR.
40 CFR 144.51(e) (See also 145.11(a)(19))	Proper operation and maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.	47-13-14.12.e	Proper operation and maintenance. The permittee shall at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.	Similar to CFR. WV does not require adequate laboratory and process controls. Clarification is recommended.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.51(f) (See also 145.11(a)(19))	Permit actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.	47-13-14.12.f	Permit actions. This permit may be modified, revoked and reissued, suspended, or revoked for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, suspension or revocation, or notification of planned changes or anticipated noncompliance, does not stay any permit condition. All requests shall be in writing and shall contain facts or reasons supporting the request.	Similar to CFR. However, WV's regulations do not address termination of permits (only revocation). The impact on stringency is unclear. See 144.40. WV also requires all requests be in writing, which is more specific than the CFR.
40 CFR 144.51(g) (See also 145.11(a)(19))	Property rights. This permit does not convey any property rights of any sort, or any exclusive privilege.	47-13-14.12.g	Property rights. This permit does not convey any property rights of any sort, or any exclusive privilege.	Same as CFR.
40 CFR 144.51(h) (See also 145.11(a)(19))	Duty to provide information. The permittee shall furnish to the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.	47-13-14.12.h	Duty to provide information. The permittee shall furnish to the Director within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or revoking this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.	Similar to CFR. However, WV's regulations do not address termination of permits (only revocation). The impact on stringency is unclear. See 144.40.
40 CFR 144.51(i) (See also 145.11(a)(19))	Inspection and entry. The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:	47-13-14.12.i	Inspection and entry. The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as maybe required by law, to:	Same as CFR.
40 CFR 144.51(i)(1) (See also 145.11(a)(19))	Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;	47-13-14.12.i.1	Enter upon the permittees premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;	Same as CFR.
40 CFR 144.51(i)(2) (See also 145.11(a)(19))	Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;	47-13-14.12.i.2	Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.51(i)(3) (See also 145.11(a)(19))	Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and	47-13-14.12.i.3	Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and	Same as CFR.
40 CFR 144.51(i)(4) (See also 145.11(a)(19))	Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the SDWA, any substances or parameters at any location.	47-13-14.12.i.4	Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the SDWA and State Act, any substances or parameters at any location.	Similar to CFR. WV also refers to the State Act as an authority for authorization.
40 CFR 144.51(j)(1) (See also 145.11(a)(19))	Monitoring and records. (1) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.	47-13-14.12.j	Monitoring and records. 1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.	Same as CFR.
40 CFR 144.51(j)(2) (See also 145.11(a)(19))	The permittee shall retain records of all monitoring information, including the following:	47-13-14.12.j.2	The permittee shall retain records of all monitoring information, including all 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 Director at any time.	Same as CFR.
40 CFR 144.51(j)(2)(i) (See also 145.11(a)(19))	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 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the Director at any time; and	47-13-14.12.j.2	The permittee shall retain records of all monitoring information, including all 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 Director at any time.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.51(j)(2)(ii) (See also 145.11(a)(19))	The nature and composition of all injected fluids until three years after the completion of any plugging and abandonment procedures specified under §144.52(a)(6), or under part 146 subpart G as appropriate. The Director may require the owner or operator to deliver the records to the Director at the conclusion of the retention period.			Missing. WV does not require retention of information on injected fluids or that the operator may be required to deliver the records to the permitting authority. This is less stringent than the CFR.
40 CFR 144.51(j)(3) (See also 145.11(a)(19))	Records of monitoring information shall include:	47-13-14.12.j.3	Records of monitoring information shall include:	Same as CFR.
40 CFR 144.51(j)(3)(i) (See also 145.11(a)(19))	The date, exact place, and time of sampling or measurements;	47-13-14.12.j.3.A	The date, exact place, and time of sampling or measurements;	Same as CFR.
40 CFR 144.51(j)(3)(ii) (See also 145.11(a)(19))	The individual(s) who performed the sampling or measurements;	47-13-14.12.j.3.B	The individual(s) who performed the sampling or measurements;	Same as CFR.
40 CFR 144.51(j)(3)(iii) (See also 145.11(a)(19))	The date(s) analyses were performed;	47-13-14.12.j.3.C	The date(s) analysis(es) were performed;	Same as CFR.
40 CFR 144.51(j)(3)(iv) (See also 145.11(a)(19))	The individual(s) who performed the analyses;	47-13-14.12.j.3.D	The individual(s) who performed the analyses;	Same as CFR.
40 CFR 144.51(j)(3)(v) (See also 145.11(a)(19))	The analytical techniques or methods used; and	47-13-14.12.j.3.E	The analytical techniques or methods used; and	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.51(j)(3)(vi) (See also 145.11(a)(19))	The results of such analyses.	47-13-14.12.j.3.F	The results of such analyses.	Same as CFR.
40 CFR 144.51(j)(4) (See also 145.11(a)(19))	Owners or operators of Class VI wells shall retain records as specified in subpart H of part 146, including §§146.84(g), 146.91(f), 146.92(d), 146.93(f), and 146.93(h) of this chapter.	47-13-14.12.1.9	Owners or operators of Class 6 wells shall retain records as specified in 47 CSR 13, including subparts 14.4.d., 14.6.c.1.F., 14.9.f., 14.9.g., and 14.9.h.	Same as CFR.
40 CFR 144.51(k) (See also 145.11(a)(19))	Signatory requirement. All applications, reports, or information submitted to the Administrator shall be signed and certified. (See §144.32.)	47-13-14.12.k	Signatory requirement. All applications, reports, or information submitted to the Director shall be signed and certified, as required under subsection 14.11.	Similar to CFR.
40 CFR 144.51(l)(1) (See also 145.11(a)(19))	Reporting requirements. (1) Planned changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility.	47-13-14.12.l	Reporting requirements. 1. Planned changes. The permittee shall give notice to the Director as soon as possible of any planned significant physical alterations or additions to the permitted facility, or any planned significant changes in the operation of the facility.	Similar to CFR. WV also requires reporting of any changes in facility operations. No concerns for stringency.
40 CFR 144.51(l)(2) (See also 145.11(a)(19))	Anticipated noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.	47-13-14.12.l.2	Anticipated noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with the permit requirements.	Same as CFR.
40 CFR 144.51(l)(3) (See also 145.11(a)(19))	Transfers. This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Safe Drinking Water Act. (See §144.38; in some cases, modification or revocation and reissuance is mandatory.)	47-13-14.12.l.3	Transfers. This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA and the State Act and rules. In some cases, modification or revocation and reissuance is mandatory (see subsection 14.17).	Similar to CFR. WV also references the State Act and rules. No concerns for stringency.
40 CFR 144.51(l)(4) (See also 145.11(a)(19))	Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.	47-13-14.12.l.4	Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.51(l)(5) (See also 145.11(a)(19))	Compliance schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 30 days following each schedule date.	47-13-14.12.l.5	Compliance schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than thirty (30) days following each schedule date.	Same as CFR.
40 CFR 144.51(l)(6) (See also 145.11(a)(19))	Twenty-four hour reporting. The permittee shall report any noncompliance which may endanger health or the environment, including:	47-13-14.12.l.6	Immediate reporting. The permittee shall report any noncompliance which may endanger health or the environment immediately after becoming aware of the circumstances ...	Similar to CFR. WV does not specify what constitutes the timing of *Immediate reporting*. Additionally, the requirement is tied to the operator becoming aware of the non-compliance, so it is unclear if the timeline is more than 24 hours after initiation of the non-compliance event. Clarification is recommended.
40 CFR 144.51(l)(6)(i) (See also 145.11(a)(19))	Any monitoring or other information which indicates that any contaminant may cause an endangerment to a USDW; or	47-13-14.6.d	The following shall be included as information which must be reported immediately under paragraph 14.12.l.6: 1. Any monitoring or other information which indicates that any contaminant may cause an endangerment to USDWs; and	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.51(l)(6)(ii) (See also 145.11(a)(19))	Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between USDWs. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause, the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.	47-13-14.6.d.2 47-13-14.12.l.6	47-13-14.6.d.2 Any non-compliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between the USDWs. 47-13-14.12.l.6 Immediate reporting. The permittee shall report any noncompliance which may endanger health or the environment immediately after becoming aware of the circumstances by using the Water Resources Emergency Notification Number, 1-800-642-3074. Written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.	Similar to CFR. 24-hour reporting is via a telephone hotline, so oral notification is assumed. See also 144.51(l)(6)(i) about timing.
40 CFR 144.51(l)(7) (See also 145.11(a)(19))	Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs (l) (4), (5), and (6) of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (l)(6) of this section.	47-13-14.12.l.7	Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs 14.12.l.1, 14.12.l.4, 14.12.l.5, and 14.12.l.6 of this section, at the time monitoring reports are submitted. The report shall contain the information listed in paragraph 14.12.l.6 of this section.	Same as CFR.
40 CFR 144.51(l)(8) (See also 145.11(a)(19))	Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.	47-13-14.12.l.8	Other information. Where a permittee becomes aware that he/she failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, he/she shall promptly submit such facts or information.	Similar to CFR.
40 CFR 144.51(m) (See also 145.11(a)(19))	Requirements prior to commencing injection. Except for all new wells authorized by an area permit under §144.33(c), a new injection well may not commence injection until construction is complete, and	47-13-14.6.c	c. In addition to paragraph 14.12.l.1 (notice of planned changes): except for all new wells authorized by an area permit under subdivision 14.4.c, a new injection well may not commence injection until construction is complete, and:	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.51(m)(1) (See also 145.11(a)(19))	The permittee has submitted notice of completion of construction to the Director; and	47-13-14.6.c.1	The permittee has submitted notice of completion of construction to the Director; and	Same as CFR.
40 CFR 144.51(m)(2)(i) (See also 145.11(a)(19))	The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or	47-13-14.6.c.1.A	The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or	Same as CFR.
40 CFR 144.51(m)(2)(ii) (See also 145.11(a)(19))	The permittee has not received notice *from* the Director of his or her intent to inspect or otherwise review the new injection well within 13 days of the date of the notice in paragraph (m)(1) of this section, in which case prior inspection or review is waived and the permittee may commence injection. The Director shall include in his notice a reasonable time period in which he shall inspect the well.	47-13-14.6.c.1.B	The permittee has not received notice from the Director of his or her intent to inspect or otherwise review the new injection well within thirteen (13) days of the date of the notice in paragraph 14.12.c.1 of this section, in which case prior inspection or review is waived and the permittee may commence injection. The Director shall include in the notice a reasonable time period in which he or she shall inspect the well.	Same as CFR.
40 CFR 144.51(n) (See also 145.11(a)(19))	The permittee shall notify the Director at such times as the permit requires before conversion or abandonment of the well or in the case of area permits before closure of the project.	47-13-14.6.e	The permittee shall notify the Director as such times as the permit requires before conversion or abandonment of the well or in the case of area permits before closure of the project.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.51(o) (See also 145.11(a)(19))	A Class I, II or III permit shall include and a Class V permit may include conditions which meet the applicable requirements of §146.10 of this chapter to ensure that plugging and abandonment of the well will not allow the movement of fluids into or between USDWs. Where the plan meets the requirements of §146.10 of this chapter, the Director shall incorporate the plan into the permit as a permit condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, the Director may require the applicant to revise the plan, prescribe conditions meeting the requirements of this paragraph, or deny the permit. A Class VI permit shall include conditions which meet the requirements set forth in §146.92 of this chapter. Where the plan meets the requirements of §146.92 of this chapter, the Director shall incorporate it into the permit as a permit condition. For purposes of this paragraph, temporary or intermittent cessation of injection operations is not abandonment.	47-13-14.7.f	Plugging and abandonment. Any Class 1, 2, 3, or 6 permit shall include, and any Class 5 permit may include, conditions to ensure that plugging and abandonment of the well will not allow the movement of fluids either into an underground source of drinking water or from one underground source of drinking water to another. Any applicant for a UIC permit shall be required to submit a plan for plugging and abandonment. Where the plugging and abandonment plan meets the requirements of this paragraph, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, the Director shall require the applicant to revise the plan, prescribe conditions meeting the requirements of this paragraph, or deny the application. For purposes of this paragraph, temporary intermittent cessation of injection operations is not abandonment. The owner or operator shall submit revisions to the method of closure no later than the date on which closure notification is required. The Director should be notified at least 45 days prior to the abandonment of any Class 5 injection well.	Differs from CFR. WV applies to Class I, II, III, and VI wells; however, the intent is similar to the CFR and requires that a P&A plan be an enforceable permit condition; this does not appear to affect stringency.
40 CFR 144.51(p) (See also 145.11(a)(19))	*Plugging and abandonment report*. For EPA-administered programs, within 60 days after plugging a well or at the time of the next quarterly report (whichever is less) the owner or operator shall submit a report to the Regional Administrator. If the quarterly report is due less than 15 days before completion of plugging, then the report shall be submitted within 60 days. The report shall be certified as accurate by the person who performed the plugging operation. Such report shall consist of either:			Missing. Applies to EPA programs only; no concerns for stringency.
40 CFR 144.51(p)(1) (See also 145.11(a)(19))	A statement that the well was plugged in accordance with the plan previously submitted to the Regional Administrator; or			Missing. Applies to EPA programs only; no concerns for stringency.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.51(p)(2) (See also 145.11(a)(19))	Where actual plugging differed from the plan previously submitted, and updated version of the plan on the form supplied by the regional administrator, specifying the differences.			Missing. Applies to EPA programs only; no concerns for stringency.
40 CFR 144.51(q)(1) (See also 145.11(a)(19))	*Duty to establish and maintain mechanical integrity.* The owner or operator of a Class I, II, III or VI well permitted under this part shall establish mechanical integrity prior to commencing injection or on a schedule determined by the Director. Thereafter the owner or operator of Class I, II, and III wells must maintain mechanical integrity as defined in §146.8 of this chapter and the owner or operator of Class VI wells must maintain mechanical integrity as defined in §146.89 of this chapter.	47-13-14.7.h	Mechanical integrity. The permittee of a Class 1, 2, 3, or 6 well shall establish and maintain mechanical integrity. A permit for any Class 1, 2, 3, or 6 well or injection project which lacks mechanical integrity shall include, and for any Class 5 well may include, a condition prohibiting injection operations until the permittee shows to the satisfaction of the Director under subsection 6.2 that the well has mechanical integrity.	Differs from CFR. WV rule has a similar intent in that Class I, II, III, and VI permittees must establish and maintain MI.
40 CFR 144.51(q)(2) (See also 145.11(a)(19))	When the Director determines that a Class I, II, III or VI well lacks mechanical integrity pursuant to §§146.8 or 146.89 of this chapter for Class VI of this chapter, he/she shall give written notice of his/her determination to the owner or operator. Unless the Director requires immediate cessation, the owner or operator shall cease injection into the well within 48 hours of receipt of the Director's determination. The Director may allow plugging of the well pursuant to the requirements of §146.10 of this chapter or require the permittee to perform such additional construction, operation, monitoring, reporting and corrective action as is necessary to prevent the movement of fluid into or between USDWs caused by the lack of mechanical integrity. The owner or operator may resume injection upon written notification from the Director that the owner or operator has demonstrated mechanical integrity pursuant to §146.8 of this chapter.	47-13-14.6.i	When the Director determines that a Class 1, 2, 3 or 6 well lacks mechanical integrity he/she shall give written notice of his/her determination to the owner or operator. Unless the Director requires immediate cessation, the owner or operator shall cease injection into the well within 48 hours of receipt of the Director's determination. The Director may allow plugging of the well pursuant to the requirements of 14.7.f. of this chapter or require the permittee to perform such additional construction, operation, monitoring, reporting and corrective action as is necessary to prevent the movement of fluid into or between USDWs caused by the lack of mechanical integrity. The owner or operator may resume injection upon written notification from the Director that the owner or operator has demonstrated mechanical integrity pursuant to 14.6.f. and 14.6.g. of this chapter. The Director may allow the owner or operator of a well which lacks mechanical integrity to continue or resume injection, if the owner or operator has made a satisfactory demonstration that there are no leaks in the casing/tubing/packer and no movement of fluid into or between USDWs.	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.51(q)(3) (See also 145.11(a)(19))	The Director may allow the owner or operator of a well which lacks mechanical integrity pursuant to § 146.8(a)(1) of this chapter to continue or resume injection, if the owner or operator has made a satisfactory demonstration that there is no movement of fluid into or between USDWs.	47-13-14.6.i	When the Director determines that a Class 1, 2, 3 or 6 well lacks mechanical integrity he/she shall give written notice of his/her determination to the owner or operator. Unless the Director requires immediate cessation, the owner or operator shall cease injection into the well within 48 hours of receipt of the Director's determination. The Director may allow plugging of the well pursuant to the requirements of 14.7.f. of this chapter or require the permittee to perform such additional construction, operation, monitoring, reporting and corrective action as is necessary to prevent the movement of fluid into or between USDWs caused by the lack of mechanical integrity. The owner or operator may resume injection upon written notification from the Director that the owner or operator has demonstrated mechanical integrity pursuant to 14.6.f. and 14.6.g. of this chapter. The Director may allow the owner or operator of a well which lacks mechanical integrity to continue or resume injection, if the owner or operator has made a satisfactory demonstration that there are no leaks in the casing/tubing/packer and no movement of fluid into or between USDWs.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.52(a) (See also 145.11(a)(20))	**40 CFR 144.52 Establishing permit conditions.** (a) In addition to conditions required in § 144.51, the Director shall establish conditions, as required on a case-by-case basis under § 144.36 (duration of permits), § 144.53(a) (schedules of compliance), § 144.54 (monitoring), and for EPA permits only § 144.53(b) (alternate schedules of compliance), and § 144.4 (considerations under Federal law). Permits for owners or operators of hazardous waste injection wells shall include conditions meeting the requirements of § 144.14 (requirements for wells injecting hazardous waste), paragraphs (a)(7) and (a)(9) of this section, and subpart G of part 146. Permits for owners or operators of Class VI injection wells shall include conditions meeting the requirements of subpart H of part 146. Permits for other wells shall contain the following requirements, when applicable.	47-13-14.7	**47-13-14.7. Establishing UIC Permit Conditions.** In addition to conditions required in all permits (subsections 14.6 and 14.12), the Director shall establish conditions in permits as required on a case-by-case basis, to provide for and assure compliance with all applicable requirements of the SDWA and State Act and rules. An applicable requirement is a State statutory or regulatory requirement which takes effect prior to final administrative disposition of a permit and is also any requirement which takes effect prior to the modification or revocation and reissuance of a permit. Each permit shall include conditions meeting the following requirements when applicable:	This introductory section does not specifically cite requirements for Class I hazardous or Class VI wells; however it appears to have a similar intent to the CFR. See also the rows below and subparts G and H of part 146.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.52(a)(1) (See also 145.11(a)(20))	Construction requirements as set forth in part 146. Existing wells shall achieve compliance with such requirements according to a compliance schedule established as a permit condition. The owner or operator of a proposed new injection well shall submit plans for testing, drilling, and construction as part of the permit application. Except as authorized by an area permit, no *construction* may commence until a permit has been issued containing construction requirements (see §144.11). New wells shall be in compliance with these requirements prior to commencing injection operations. Changes in construction plans during construction may be approved by the Administrator as minor modifications (§144.41). No such changes may be physically incorporated into construction of the well prior to approval of the modification by the Director.	47-13-14.7.a	Construction requirements as set forth in subsections 8.2, 9.2 and 10.2. Existing wells shall achieve compliance with such requirements according to a compliance schedule established as a permit condition. The owner or operator of a proposed new injection well shall submit plans for testing, drilling, and construction as part of the permit application. Except as authorized by an area permit, no construction may commence until a permit has been issued containing construction requirements. New wells shall be in compliance with these requirements prior to commencing injection operations. Changes in construction plans during construction may be approved by the Director as minor modification. No such changes may be physically incorporated into construction of the well prior to approval of the modification by the Director.	Same as CFR.
40 CFR 144.52(a)(2) (See also 145.11(a)(20))	Corrective action as set forth in §§144.55, 146.7, and 146.84 of this chapter.	47-13-14.7.b	Corrective action as set forth in subsections 6.1 and 14.9.	Same as CFR.
40 CFR 144.52(a)(3) (See also 145.11(a)(20))	Operation requirements as set forth in 40 CFR part 146; the permit shall establish any maximum injection volumes and/or pressures necessary to assure that fractures are not initiated in the confining zone, that injected fluids do not migrate into any underground source of drinking water, that formation fluids are not displaced into any underground source of drinking water, and to assure compliance with the part 146 operating requirements.	47-13-14.7.c	Operation requirements as set forth in subsections 8.4, 9.4 and 10.4. The permit shall establish any maximum injection volumes and/or pressure necessary to assure that fractures are not initiated in the confining zone, that injected fluids do not migrate into any underground source of drinking water, that formation fluids are not displaced into any underground source of drinking water, and to assure compliance with operation requirements.	Same as CFR.
40 CFR 144.52(a)(4) (See also 145.11(a)(20))	*Requirements for wells managing hazardous waste*, as set forth in § 144.14.	47-13-14.7.d	Requirements for wells managing hazardous waste, as set forth in sections 7 and 11.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.52(a)(5) (See also 145.11(a)(20))	Monitoring and reporting requirements as set forth in 40 CFR part 146. The permittee shall be required to identify types of tests and methods used to generate the monitoring data.	47-13-14.7.e	Monitoring and reporting requirements as set forth in subsections 8.4, 9.4 and 10.4. The permittee shall be required to identify types of tests and methods used to generate the monitoring data.	Same as CFR.
40 CFR 144.52(a)(6) (See also 145.11(a)(20))	After a cessation of operations of two years the owner or operator shall plug and abandon the well in accordance with the plan unless he:	47-13-14.7.f.2	The owner or operator of a well shall plug and abandon their well(s) within two (2) years of cessation, following their plan, unless:	Similar to CFR.
40 CFR 144.52(a)(6)(i) (See also 145.11(a)(20))	Provides notice to the Regional Administrator;	47-13-14.7.f.2.A	The owner/operator provides notice to the Director;	Similar to CFR.
40 CFR 144.52(a)(6)(ii) (See also 145.11(a)(20))	Describes actions or procedures, satisfactory to the Regional Administrator, that the owner or operator will take to ensure that the well will not endanger USDWs during the period of temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived by the Regional Administrator.	47-13-14.7.f.2.B	Describes actions or procedures, satisfactory to the Director, that the owner or operator will take to ensure that the well will not endanger USDWs during the period of temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived by the Director.	Similar to CFR.
40 CFR 144.52(a)(7)(i) (See also 145.11(a)(20))	Financial responsibility. (i) The permittee, including the transferor of a permit, is required to demonstrate and maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner prescribed by the Director until:	47-13-14.7.g	Financial responsibility. The permit shall require the permittee, including the transferor of a permit, to demonstrate and maintain financial responsibility and resources to close, plug, and abandon underground injection wells in a manner prescribed by the Director until: the well has been plugged and abandoned and the report submitted; or the well has been converted; or the transferor of the permit receives notice that the transferee has demonstrated financial responsibility. The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Director. For Class 6 permits the following provisions also apply:	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.52(a)(7)(i)(A) (See also 145.11(a)(20))	The well has been plugged and abandoned in accordance with an approved plugging and abandonment plan pursuant to §§144.51(o), 146.10, and 146.92 of this chapter, and submitted a plugging and abandonment report pursuant to §144.51(p); or	47-13-14.7.g	Financial responsibility. The permit shall require the permittee, including the transferor of a permit, to demonstrate and maintain financial responsibility and resources to close, plug, and abandon underground injection wells in a manner prescribed by the Director until: the well has been plugged and abandoned and the report submitted; or the well has been converted; or the transferor of the permit receives notice that the transferee has demonstrated financial responsibility. The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Director. For Class 6 permits the following provisions also apply:	Similar to CFR; however, WV does not specify that plugging be in accordance with an approved plan. Clarification is recommended.
40 CFR 144.52(a)(7)(i)(B) (See also 145.11(a)(20))	The well has been converted in compliance with the requirements of §144.51(n); or	47-13-14.7.g	Financial responsibility. The permit shall require the permittee, including the transferor of a permit, to demonstrate and maintain financial responsibility and resources to close, plug, and abandon underground injection wells in a manner prescribed by the Director until: the well has been plugged and abandoned and the report submitted; or the well has been converted; or the transferor of the permit receives notice that the transferee has demonstrated financial responsibility. The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Director. For Class 6 permits the following provisions also apply:	Similar to CFR; however WV does not specify that the conversion be in accordance with requirements similar to 40 CFR 144.51(n). Clarification is recommended.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.52(a)(7)(i)(C) (See also 145.11(a)(20))	The transferor of a permit has received notice from the Director that the owner or operator receiving transfer of the permit, the new permittee, has demonstrated financial responsibility for the well.	47-13-14.7.g	Financial responsibility. The permit shall require the permittee, including the transferor of a permit, to demonstrate and maintain financial responsibility and resources to close, plug, and abandon underground injection wells in a manner prescribed by the Director until: the well has been plugged and abandoned and the report submitted; or the well has been converted; <u>or the transferor of the permit receives notice that the transferee has demonstrated financial responsibility</u>. The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Director. For Class 6 permits the following provisions also apply:	Similar to CFR.
40 CFR 144.52(a)(7)(ii) (See also 145.11(a)(20))	The permittee shall show evidence of such financial responsibility to the Director by the submission of a surety bond, or other adequate assurance, such as a financial statement or other materials acceptable to the Director. The owner or operator of a well injecting hazardous waste must comply with the financial responsibility requirements of subpart F of this part. For Class VI wells, the permittee shall show evidence of such financial responsibility to the Director by the submission of a qualifying instrument (see §146.85(a) of this chapter), such as a financial statement or other materials acceptable to the Director. The owner or operator of a Class VI well must comply with the financial responsibility requirements set forth in §146.85 of this chapter.	47-13-14.7.g	Financial responsibility. The permit shall require the permittee, including the transferor of a permit, to demonstrate and maintain financial responsibility and resources to close, plug, and abandon underground injection wells in a manner prescribed by the Director until: the well has been plugged and abandoned and the report submitted; or the well has been converted; or the transferor of the permit receives notice that the transferee has demonstrated financial responsibility. <u>The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Director. For Class 6 permits the following provisions also apply:</u> <u>1. The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, trust fund, insurance, irrevocable standby letter of credit, escrow account, or other adequate assurance, such as a financial statement or other material acceptable to the Director.</u>	Similar to CFR. WV does not include requirements for wells injecting hazardous waste (see Subpart F of Part 144). WV describes further financial responsibility requirements for Class VI wells in section 47-13-14.7.g (see 146.85).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.52(a)(8) (See also 145.11(a)(20))	*Mechanical integrity*. A permit for any Class I, II, III or VI well or injection project which lacks mechanical integrity shall include, and for any Class V well may include, a condition prohibiting injection operations until the permittee shows to the satisfaction of the Director under §§146.8, or 146.89 for Class VI, that the well has mechanical integrity.	47-13-14.7.h	Mechanical integrity. The permittee of a Class 1, 2, 3, or 6 well shall establish and maintain mechanical integrity. A permit for any Class 1, 2, 3, or 6 well or injection project which lacks mechanical integrity shall include, and for any Class 5 well may include, a condition prohibiting injection operations until the permittee shows to the satisfaction of the Director under subsection 6.2 that the well has mechanical integrity.	Similar to CFR.
40 CFR 144.52(a)(9) (See also 145.11(a)(20))	*Additional conditions*. The Director shall impose on a case-by-case basis such additional conditions as are necessary to prevent the migration of fluids into underground sources of drinking water.	47-13-14.7.i	Additional conditions. The Director shall impose on a case-by-case basis such additional conditions as are necessary to prevent the migration of fluids into underground sources of drinking water.	Same as CFR.
40 CFR 144.52(b)(1) (See also 145.11(a)(20))	In addition to conditions required in all permits the Director shall establish conditions in permits as required on a case-by-case basis, to provide for and assure compliance with all applicable requirements of the SDWA and parts 144, 145, 146 and 124.	47-13-14.7	Establishing UIC Permit Conditions. <u>In addition to conditions required in all permits (subsections 14.6 and 14.12), the Director shall establish conditions in permits as required on a case-by-case basis, to provide for and assure compliance with all applicable requirements of the SDWA and State Act and rules.</u> An applicable requirement is a State statutory or regulatory requirement which takes effect prior to final administrative disposition of a permit and is also any requirement which takes effect prior to the modification or revocation and reissuance of a permit. Each permit shall include conditions meeting the following requirements when applicable:	Similar to CFR.
40 CFR 144.52(b)(2) (See also 145.11(a)(20))	For a State issued permit, an applicable requirement is a State statutory or regulatory requirement which takes effect prior to final administrative disposition of the permit. For State and EPA administered programs, an applicable requirement is also any requirement which takes effect prior to the modification or revocation and reissuance of a permit, to the extent allowed in §144.39.	47-13-14.7	Establishing UIC Permit Conditions. In addition to conditions required in all permits (subsections 14.6 and 14.12), the Director shall establish conditions in permits as required on a case-by-case basis, to provide for and assure compliance with all applicable requirements of the SDWA and State Act and rules. <u>An applicable requirement is a State statutory or regulatory requirement which takes effect prior to final administrative disposition of a permit and is also any requirement which takes effect prior to the modification or revocation and reissuance of a permit.</u> Each permit shall include conditions meeting the following requirements when applicable:	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.52(b)(3) (See also 145.11(a)(20))	New or reissued permits, and to the extent allowed under §144.39 modified or revoked and reissued permits, shall incorporate each of the applicable requirements referenced in §144.52.			Missing.
40 CFR 144.52(c) (See also 145.11(a)(20))	Incorporation. All permit conditions shall be incorporated either expressly or by reference. If incorporated by reference, a specific citation to the applicable regulations or requirements must be given in the permit.	47-13-14.12	Conditions Applicable to All permits. The following conditions are applicable to all permits, and shall be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to this rule must be given in the permit.	Similar to CFR.
40 CFR 144.53(a) (See also 145.11(a)(21))	**40 CFR 144.53 Schedule of compliance.** General. The permit may, when appropriate, specify a schedule of compliance leading to compliance with the SDWA and parts 144, 145, 146, and 124.		**47-13-14.14. Schedules of Compliance.** a. The permit may, when appropriate, specify a schedule of compliance leading to compliance with the SDWA, the State Act and rules.	Similar to CFR. WV also references the State Act.
40 CFR 144.53(a)(1) (See also 145.11(a)(21))	Time for compliance. Any schedules of compliance shall require compliance as soon as possible, and in no case later than 3 years after the effective date of the permit.	47-13-14.14.a	1. Time for compliance. Any schedules for compliance under this section shall require compliance as soon as possible. 2. In addition, a schedule of compliance shall require compliance no later than three (3) years after the effective date of the permit.	Similar to CFR.
40 CFR 144.53(a)(2) (See also 145.11(a)(21))	Interim dates. Except as provided in paragraph (b)(1)(ii) of this section, if a permit establishes a schedule of compliance which exceeds 1 year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.	47-13-14.14.a.3	Interim dates. Except as provided in subparagraph 14.14.b.1.B. of this section, if a permit establishes a schedule of compliance which exceeds one (1) year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.	Same as CFR.
40 CFR 144.53(a)(2)(i) (See also 145.11(a)(21))	The time between interim dates shall not exceed 1 year.	47-13-14.14.a.3.A	The time between interim dates shall not exceed one (1) year.	Same as CFR.
40 CFR 144.53(a)(2)(ii) (See also 145.11(a)(21))	If the time necessary for completion of any interim requirement is more than 1 year and is not readily divisible into stages for completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.	47-13-14.14.a.3.B	If the time necessary for completion of any interim requirement (such as the construction of a control facility) is more than one (1) year and is not readily divisible into stages for completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.	Similar to CFR. WV includes an example of an interim requirement. No concerns for stringency.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.53(a)(3) (See also 145.11(a)(21))	Reporting. The permit shall be written to require that if paragraph (a)(1) of this section is applicable, progress reports be submitted no later than 30 days following each interim date and the final date of compliance.	47-13-14.14.a.4	Reporting. The permit shall be written to require that no later than thirty (30) days following each interim date and the final date of compliance, the permittee shall notify the Director in writing of its compliance or noncompliance with the interim or final requirements.	Similar to CFR. WV requires notification to the Director similar to the CFR.
40 CFR 144.53(b)	*Alternative schedules of compliance*. A permit applicant or permittee may cease conducting regulated activities (by plugging and abandonment) rather than continue to operate and meet permit requirements as follows:	47-13-14.14.b	Alternative schedules of compliance. A UIC permit applicant or permittee may cease conducting regulated activities (by plugging and abandonment) rather than continue to operate and meet permit requirements as follows:	Same as CFR.
40 CFR 144.53(b)(1)	If the permittee decides to cease conducting regulated activities at a given time within the term of a permit which has already been issued:	47-13-14.14.b.1	If the permittee decides to cease conducting regulated activities at a given time within the term of a permit which has already been issued:	Same as CFR.
40 CFR 144.53(b)(1)(i)	The permit may be modified to contain a new or additional schedule leading to timely cessation of activities; or	47-13-14.14.b.1.A	The permit may be modified to contain a new or additional schedule leading to timely cessation of activities; or	Same as CFR. EPA recommends deleting "or" in this provision, which is at the end of the list.
40 CFR 144.53(b)(1)(ii)	The permittee shall cease conducting permitted activities before noncompliance with any interim or final compliance schedule requirement already specified in the permit.			Missing. This was in earlier versions of the WV rule and appears to have been inadvertently deleted.
40 CFR 144.53(b)(2)	If the decision to cease conducting regulated activities is made before issuance of a permit whose term will include the termination date, the permit shall contain a schedule leading to termination which will ensure timely compliance with applicable requirements.	47-13-14.14.b.2	If the decision to cease conducting regulated activities is made before issuance of a permit whose term will include the termination date, the permit shall contain a schedule leading to termination which will ensure timely compliance with applicable requirements.	Same as CFR.
40 CFR 144.53(b)(3)	If the permittee is undecided whether to cease conducting regulated activities, the Director may issue or modify a permit to contain two schedules as follows:	47-13-14.14.b.3	If the permittee is undecided whether to cease conducting regulated activities, the Director may issue or modify a permit to contain two schedules as follows:	Same as CFR.
40 CFR 144.53(b)(3)(i)	Both schedules shall contain an identical interim deadline requiring a final decision on whether to cease conducting regulated activities no later than a date which ensures sufficient time to comply with applicable requirements in a timely manner if the decision is to continue conducting regulated activities;	47-13-14.14.b.3.A	Both schedules shall contain an identical interim deadline requiring a final decision on whether to cease conducting regulated activities no later than a date which ensures sufficient time to comply with applicable requirements in a timely manner if the decision is to continue conducting regulated activities.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.53(b)(3)(ii)	One schedule shall lead to timely compliance with applicable requirements;	47-13-14.14.b.3.B	One schedule shall lead to timely compliance with applicable requirements;	Same as CFR.
40 CFR 144.53(b)(3)(iii)	The second schedule shall lead to cessation of regulated activities by a date which will ensure timely compliance with applicable requirements;	47-13-14.14.b.3.C	The second schedule shall lead to cessation of regulated activities by a date which will ensure timely compliance with applicable requirements; and	Same as CFR.
40 CFR 144.53(b)(3)(iv)	Each permit containing two schedules shall include a requirement that after the permittee has made a final decision under paragraph (b)(3)(i) of this section it shall follow the schedule leading to compliance if the decision is to continue conducting regulated activities, and follow the schedule leading to termination if the decision is to cease conducting regulated activities.	47-13-14.14.b.3.D	Each permit containing two (2) schedules shall include a requirement that after the permittee has made a final decision under subparagraph 14.14.b.1.A. of this section it shall follow the schedule leading to compliance if the decision is to continue conducting regulated activities, and follow the schedule leading to termination if the decision is to cease conducting regulated activities.	Same as CFR.
40 CFR 144.53(b)(4)	The applicant's or permittee's decision to cease conducting regulated activities shall be evidenced by a firm public commitment satisfactory to the Director, such as a resolution of the board of directors of a corporation.	47-13-14.14.b.3.E	The applicant's or permittee's decision to cease conducting regulated activities shall be evidenced by a firm public commitment satisfactory to the Director, such as a resolution of the board of directors of a corporation.	Same as CFR.
40 CFR 144.54(a) (See also 145.11(a)(22))	**40 CFR 144.54 Requirements for recording and reporting of monitoring results.** All permits shall specify: Requirements concerning the proper use, maintenance, and installation, when appropriate, of monitoring equipment or methods (including biological monitoring methods when appropriate);	47-13-14.15	**47-13-14.15 Requirements for Recording and Reporting of Monitoring Results.** All permits shall specify: a. Requirements concerning the proper use, maintenance, and installation, when appropriate, of monitoring equipment or methods (including biological monitoring methods when appropriate);	Same as CFR.
40 CFR 144.54(b) (See also 145.11(a)(22))	Required monitoring including type, intervals, and frequency sufficient to yield data which are representative of the monitored activity including when appropriate, continuous monitoring;	47-13-14.15.b	Required monitoring including type, intervals, and frequency sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring; and	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.54(c) (See also 145.11(a)(22))	Applicable reporting requirements based upon the impact of the regulated activity and as specified in part 146. Reporting shall be no less frequent than specified in the above regulations.	47-13-14.15.c	Applicable reporting requirements based upon the impact of the regulated activity and as specified elsewhere by this rule.	Similar to CFR. WV does not specify a reporting frequency in this provision.
40 CFR 144.55(a) (See also 145.11(a)(23))	**40 CFR 144.55 Corrective action.** *Coverage*. Applicants for Class I, II, (other than existing), or III injection well permits shall identify the location of all known wells within the injection well's area of review which penetrate the injection zone, or in the case of Class II wells operating over the fracture pressure of the injection formation, all known wells within the area of review penetrating formations affected by the increase in pressure. For such wells which are improperly sealed, completed, or abandoned, the applicant shall also submit a plan consisting of such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water ("corrective action"). Where the plan is adequate, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate (based on the factors in § 146.07), the Director shall require the applicant to revise the plan, prescribe a plan for corrective action as a condition of the permit under paragraph (b) of this section, or deny the application. The Director may disregard the provisions of § 146.06 (Area of Review) and § 146.07 (Corrective Action) when reviewing an application to permit an existing Class II well.	47-13-14.9	**47-13-14.9 Corrective Action** a. Applicants for Class 1, 2 (other than existing wells) or 3 injection well permits shall identify the location of all known wells within the injection well's area of review which penetrate the injection zone (or for Class 2, all wells penetrating formations affected by an increase in pressure) and/or confining zone. For such wells which are improperly sealed, completed, or abandoned, the applicant shall also submit a plan consisting of such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water ("corrective action") under subsection 6.1. Where the plan is adequate, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, he or she shall require the applicant to revise the plan, prescribe a plan for corrective action as a condition of the permit under subdivision 14.9.b of this section, or deny the application.	Similar to CFR. The WV text applies to all Class II wells, not Class II wells operating over the fracture pressure of the injection formation (as in the CFR). WV does not specify that the provisions can be disregarded for existing Class II wells. These differences may make the WV regulations more expansive/stringent than the CFR.
40 CFR 144.55 (b)(1) (See also 145.11(a)(23))	*Requirements*— (1) Existing injection wells. Any permit issued for an existing injection well (other than Class II) requiring corrective action shall include a compliance schedule requiring any corrective action accepted or prescribed under paragraph (a) of this section to be completed as soon as possible.	47-13-14.9.b	Requirements. 1. Existing injection wells. Any permit issued for an existing injection well (other than Class 2) requiring corrective action shall include a compliance schedule requiring any corrective action accepted or prescribed under subdivision 14.9.a of this section to be completed as soon as possible.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.55 (b)(2) (See also 145.11(a)(23))	New injection wells. No owner or operator of a new injection well may begin injection until all required corrective action has been taken.	47-13-14.9.b.2	New injection wells. No permit for a new injection well may authorize injection until all required corrective action has been taken.	Similar to CFR.
40 CFR 144.55 (b)(3) (See also 145.11(a)(23))	Injection pressure limitation. The Director may require as a permit condition that injection pressure be so limited that pressure in the injection zone does not exceed hydrostatic pressure at the site of any improperly completed or abandoned well within the area of review. This pressure limitation shall satisfy the corrective action requirement. Alternatively, such injection pressure limitation can be part of a compliance schedule and last until all other required corrective action has been taken.	47-13-14.9.b.3	Injection pressure limitation. The Director may require as a permit condition that pressure be so limited that pressure in the injection zone does not exceed hydrostatic pressure at the site of any improperly completed or abandoned well within the area of review. This pressure limitation shall satisfy the corrective action requirement. Alternatively, such injection pressure limitation can be part of a compliance schedule and last until all other required corrective action has been taken.	Same as CFR.
40 CFR 144.55 (b)(4) (See also 145.11(a)(23))	Class III wells only. When setting corrective action requirements the Director shall consider the overall effect of the project on the hydraulic gradient in potentially affected USDWs, and the corresponding changes in potentiometric surface(s) and flow direction(s) rather than the discrete effect of each well. If a decision is made that corrective action is not necessary based on the determinations above, the monitoring program required in § 146.33(b) shall be designed to verify the validity of such determinations..	47-13-14.9.b.4	Class 3 wells only. When setting corrective action requirements, the Director shall consider the overall effect of the project on the hydraulic gradient in potentially affected USDW's, and the corresponding changes in potentiometric surface(s) and flow direction(s) rather than the discrete effect of each well. If a decision is made that corrective action is not necessary based on the determinations above, the monitoring program required in subdivision 10.4.b shall be designed to verify the validity of such determinations.	Same as CFR.
Subpart F - Financial Responsibility: Class I Hazardous Wells				

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ED_013399_00000014-00128

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.60	**40 CFR 144.60 Applicability.** The requirements of §§ 144.62, 144.63, and 144.70 apply to owners and operators of all existing and new Class I Hazardous waste injection wells, except as provided otherwise in this section.			Missing. WV does not include financial responsibility requirements specific to Class I wells. (Applies to all of Subpart F of Part 144.)
40 CFR 144.61(a)	**40 CFR 144.61 Definitions of terms as used in this subpart.** *Plugging and abandonment plan* means the plan for plugging and abandonment prepared in accordance with the requirements of §§ 144.28 and 144.51.			
40 CFR 144.61(b)	*Current plugging* cost estimate means the most recent of the estimates prepared in accordance with § 144.62 (a), (b) and (c).			
40 CFR 144.61(c)	*Parent corporation* means a corporation which directly owns at least 50 percent of the voting stock of the corporation which is the injection well owner or operator; the latter corporation is deemed a subsidiary of the parent corporation.			
40 CFR 144.61(d)	The following terms are used in the specifications for the financial test for plugging and abandonment. The definitions are intended to represent the common meanings of the terms as they are generally used by the business community. Assets means all existing and all probable future economic benefits obtained or controlled by a particular entity.			
40 CFR 144.61(d)	Current assets means cash or other assets or resources commonly identified as those which are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business.			
40 CFR 144.61(d)	Current liabilities means obligations whose liquidation is reasonably expected to require the use of existing resources properly classifiable as current assets or the creation of other current liabilities.			

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ED_013399_00000014-00129

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.61(d)	Independently audited refers to an audit performed by an independent certified public accountant in accordance with generally accepted auditing standards.			
40 CFR 144.61(d)	Liabilities means probable future sacrifices of economic benefits arising from present obligations to transfer assets or provide services to other entities in the future as a result of past transactions or events.			
40 CFR 144.61(d)	Net working capital means current assets minus current liabilities.			
40 CFR 144.61(d)	Net worth means total assets minus total liabilities and is equivalent to owner's equity.			
40 CFR 144.61(d)	Tangible net worth means the tangible assets that remain after deducting liabilities; such assets would not include intangibles such as goodwill and rights to patents or royalties.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.62(a)*	**40 CFR 144.62 Cost estimate for plugging and abandonment.** The owner or operator must prepare a written estimate, in current dollars, of the cost of plugging the injection well in accordance with the plugging and abandonment plan as specified in §§ 144.28 and 144.51. The plugging and abandonment cost estimate must equal the cost of plugging and abandonment at the point in the facility's operating life when the extent and manner of its operation would making plugging and abandonment the most expensive, as indicated by its plugging and abandonment plan.			
40 CFR 144.62(b)*	The owner or operator must adjust the plugging and abandonment cost estimate for inflation within 30 days after each anniversary of the date on which the first plugging and abandonment cost estimate was prepared. The adjustment must be made as specified in paragraphs (b) (1) and (2) of this section, using an inflation factor derived from the annual Oil and Gas Field Equipment Cost Index. The inflation factor is the result of dividing the latest published annual Index by the Index for the previous year.			
40 CFR 144.62 (b)(1)*	The first adjustment is made by multiplying the plugging and abandonment cost estimate by the inflation factor, resulting in the adjusted cost estimate.			
40 CFR 144.62 (b)(2)*	Subsequent adjustments are made by multiplying the latest adjusted cost estimate by the latest inflation factor.			
40 CFR 144.62(c)*	The owner or operator must revise the plugging and abandonment cost estimate whenever a change in the plugging and abandonment plan increases the cost of plugging and abandonment. The revised plugging and abandonment cost estimate must be adjusted for inflation as specified in § 144.62(b).			

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ED_013399_00000014-00131

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.62(d)*	The owner or operator must keep the following at the facility during the operating life of the facility: the latest plugging and abandonment cost estimate prepared in accordance with § 144.62 (a) and (c) and, when this estimate has been adjusted in accordance with § 144.62(b), the latest adjusted plugging and abandonment cost estimate.			
40 CFR 144.63 (a)-(f)*	**40 CFR 144.63 Financial assurance for plugging and abandonment.** An owner or operator of each facility must establish financial assurance for the plugging and abandonment of each existing and new Class I hazardous waste injection well. He must choose from the options as specified in paragraphs (a) through (f) of this section. Plugging and abandonment trust fund. Surety bond guaranteeing payment into a plugging and abandonment trust fund Surety bond guaranteeing performance of plugging and abandonment Plugging and abandonment letter of credit Plugging and abandonment insurance Financial test and corporate guarantee for plugging and abandonment			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.63(g)*	Use of multiple financial mechanisms. An owner or operator may satisfy the requirements of this section by establishing more than one financial mechanism per injection well. These mechanisms are limited to trust funds, surety bonds, guaranteeing payment into a trust fund, letters of credit, and insurance. The mechanisms must be as specified in paragraphs (a), (b), (d), and (e), respectively, of this section, except that it is the combination of mechanisms, rather than the single mechanism, which must provide financial assurance for an amount at least equal to the adjusted plugging and abandonment cost. If an owner or operator uses a trust fund in combination with a surety bond or letter of credit, he may use that trust fund as the standby trust fund for the other mechanisms. A single standby trust may be established for two or more mechanisms. The Regional Administrator may invoke any or all of the mechanisms to provide for plugging and abandonment of the injection well.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.63(h)*	Use of a financial mechanism for multiple facilities. An owner or operator may use a financial assurance mechanism specified in this section to meet the requirements of this section for more than one injection well. Evidence of financial assurance submitted to the Regional Administrator must include a list showing, for each injection well, the EPA Identification Number, name, address, and the amount of funds for plugging and abandonment assured by the mechanism. If the injection wells covered by the mechanism are in more than one Region, identical evidence of financial assurance must be submitted to and maintained with the Regional Administrators of all such Regions. The amount of funds available through the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each injection well. In directing funds available through the mechanism for plugging and abandonment of any of the injection wells covered by the mechanism, the Regional Administrator may direct only the amount of funds designated for that injection well, unless the owner or operator agrees to use additional funds available under the mechanism.			
40 CFR 144.63(i)*	Release of the owner or operator from the requirements of this section. Within 60 days after receiving certifications from the owner or operator and an independent registered professional engineer that plugging and abandonment has been accomplished in accordance with the plugging and abandonment plan, the Regional Administrator will notify the owner or operator in writing that he is no longer required by this section to maintain financial assurance for plugging and abandonment of the injection well, unless the Regional Administrator has reason to believe that plugging and abandonment has not been in accordance with the plugging and abandonment plan.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.64(a)*	**40 CFR 144.64 Incapacity of owners or operators, guarantors, or financial institutions.** An owner or operator must notify the Regional Administrator by certified mail of the commencement of a voluntary or involuntary proceeding under title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor, within 10 business days after the commencement of the proceeding. A guarantor of a corporate guarantee as specified in § 144.63(f) must make such a notification if he is named as debtor, as required under the terms of the guarantee (§ 144.70(f)).			
40 CFR 144.64(b)*	An owner or operator who fulfills the requirements of § 144.63 by obtaining a letter of credit, surety bond, or insurance policy will be deemed to be without the required financial assurance or liability coverage in the event of bankruptcy, insolvency, or a suspension or revocation of the license or charter of the issuing institution. The owner or operator must establish other financial assurance or liability coverage within 60 days after such an event.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.65 (a)	**40 CFR 144.65 Use of State-required mechanisms.** For a facility located in a State where EPA is administering the requirements of this subpart but where the State has plugging and abandonment regulations that include requirements for financial assurance of plugging and abandonment, an owner or operator may use State-required financial mechanisms to meet the requirements of this subpart if the Regional Administrator determines that the State mechanisms are at least equivalent to the mechanisms specified in this subpart. The Regional Administrator will evaluate the equivalency of the mechanisms mainly in terms of (1) certainty of the availability of funds for the required plugging and abandonment activities and (2) the amount of funds that will be made available. The Regional Administrator may also consider other factors. The owner or operator must submit to the Regional Administrator evidence of the establishment of the mechanism together with a letter requesting that the State-required mechanism be considered acceptable for meeting the requirements of this subpart. The submittal must include the following information: The facility's EPA Identification Number, name and address, and the amounts of funds for plugging and abandonment coverage assured by the mechanism. The Regional Administrator will notify the owner or operator of his determination regarding the mechanism's acceptability. The Regional Administrator may require the owner or operator to submit additional information as is deemed necessary for making this determination.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.65 (b)	If a State-required mechanism is found acceptable as specified in paragraph (a) of this section except for the amount of funds available, the owner or operator may satisfy the requirements of this subpart by increasing the funds available through the State-required mechanism or using additional mechanisms as specified in this subpart. The amounts of funds available through the State and Federal mechanisms must at least equal the amounts required by this subpart.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.66(a)	**40 CFR 144.66 State assumption of responsibility.** If a State either assumes legal responsibility for an owner's or operator's compliance with the plugging and abandonment requirements of these regulations or assures that funds will be available from State sources to cover these requirements, the owner or operator will be in compliance with the requirements of this subpart if the Regional Administrator determines that the State's assumption of responsibility is at least equivalent to the mechanisms specified in this subpart. The Regional Administrator will evaluate the equivalency of State guarantees mainly in terms of (1) certainty of the availability of funds for the required plugging and abandonment coverage and (2) the amount of funds that will be made available. The Regional Administrator may also consider other factors. The owner or operator must submit to the Regional Administrator a letter from the State describing the nature of the State's *assumption* of responsibility together with a letter from the owner or operator requesting that the State's assumption of responsibility be considered acceptable for meeting the requirements of this subpart. The letter from the State must include, or have attached to it, the following information: the facility's EPA Identification Number, name and address, and the amounts of funds for plugging and abandonment coverage that are guaranteed by the State. The Regional Administrator will notify the owner or operator of his determination regarding the acceptability of the State's guarantee in lieu of mechanisms specified in this subpart. The Regional Administrator may require the owner or operator to submit additional information as is deemed necessary to make this determination. Pending this			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.66(a) continued	this determination, the owner or operator will be deemed to be in compliance with § 144.63.			
40 CFR 144.66(b)	If a State's assumption of responsibility is found acceptable except for the amount of funds available, the owner or operator may satisfy the requirements of this subpart by use of both the State's assurance and additional financial mechanisms as specified in this subpart. The amount of funds available through the State and Federal mechanisms must at least equal the amount required by this subpart.			
40 CFR 144.70(a)(1)	**40 CFR 144.70 Wording of the instruments.** A trust agreement for a trust fund, as specified in §144.63(a), must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted: [see §144.70]			
40 CFR 144.70(a)(2)	The following is an example of the certification of acknowledgment which must accompany the trust agreement for a trust fund as specified in § 144.63(a). State requirements may differ on the proper content of this acknowledgment. [see §144.70]			
40 CFR 144.70(b)	A surety bond guaranteeing payment into a trust fund, as specified in § 144.63 of this chapter, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted: [see. §144.70]			
40 CFR 144.70(c)	A surety bond guaranteeing performance of plugging and abandonment, as specified in § 144.63(c), must be worded as follows, except that the instructions in brackets are to be replaced with the relevant information and the brackets deleted: [see. §144.70]			
40 CFR 144.70(d)	A letter of credit, as specified in § 144.63(d) of this chapter, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.70(e)	A certificate of insurance, as specified in § 144.63(e) of this chapter, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:			
40 CFR 144.70(f)	A letter from the chief financial officer, as specified in § 144.63(f) of this chapter, must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:			
40 CFR 144.70(g)	A corporate guarantee as specified in § 144.63(e) must be worded as follows except that instructions in brackets are to be replaced with the relevant information and the bracketed material deleted:			
Subpart G—Requirements for Owners and Operators of Class V Injection Wells				
40 CFR 144.79	**40 CFR 144.79 General.** This subpart tells you what requirements apply if you own or operate a Class V injection well. You may also be required to follow additional requirements listed in the rest of this part. Where they may apply, these other requirements are referenced rather than repeated. The requirements described in this subpart and elsewhere in this part are to protect underground sources of drinking water and are part of the Underground Injection Control (UIC) Program established under the Safe Drinking Water Act. This subpart is written in a special format to make it easier to understand the regulatory requirements. Like other EPA regulations, it establishes enforceable legal requirements.	47-13-12.1	General. This section sets forth requirements for underground injection control programs to regulate all injection not regulated in sections 8, 9, 10, 11, and 13. Generally, wells covered in this section inject non-hazardous fluids into strata that contain underground sources of drinking water. It includes, but is not limited to, the following types of injection wells: Waste disposal wells, such as drainage wells, cooling water return flow wells, air conditioning return flow wells, salt water barrier wells and subsidence control wells (not associated with oil and gas production).	Differs from CFR. WV does not use the special format of the CFR to enhance understanding of the requirements (this applies to all of Subpart G). This introductory provision is similar in intent to the CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.80(a)(1)*	**40 CFR 144.80 What is a Class V injection well?** As described in § 144.6, injection wells are classified as follows: Class I. (1) Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to inject hazardous waste beneath the lowermost formation containing, within one-quarter mile of the well bore, an underground source of drinking water.	47-13-4.1	Class 1. a. Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to inject hazardous waste beneath the lowermost formation containing, within 1/4 mile of the well bore, an underground source of drinking water.	Same as CFR.
40 CFR 144.80(a)(2)*	Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water;	47-13-4.1.b	Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within 1/4 mile of the well bore, an underground source of drinking water.	Same as CFR.
40 CFR 144.80(a)(3)*	Radioactive waste disposal wells which inject fluids below the lowermost formation containing an underground source of drinking water within one quarter mile of the well bore.	47-13-4.1.c	It also includes wells not covered in Class 4 that inject radioactive material listed in 10 CFR Part 20, Appendix B, Table II, Column 2.	Differs from CFR in that it does not specify injection of radioactive waste within 1/4 mile of the USDW. Clarification is recommended.
40 CFR 144.80(b)(1)*	Class II. Wells which inject fluids: (1) Which are brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection.	47-13-4.2	Class 2. Wells injecting fluids: a. Which are brought to the surface in connection with natural gas storage, or oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection;	Similar to CFR. WV's definition of a Class II well is not specific to *conventional* operations. Is it WV's intent to include hydraulic fracturing wells in the Class II definition?
40 CFR 144.80(b)(2)*	For enhanced recovery of oil or natural gas; and	47-13-4.2.b	For enhanced recovery of oil or natural gas; and	Same as CFR.
40 CFR 144.80(b)(3)*	For storage of hydrocarbons which are liquid at standard temperature and pressure.	47-13-4.2.c	For storage of hydrocarbons which are liquid at standard temperature and pressure.	Same as CFR.
40 CFR 144.80(c)*	Class III. Wells which inject fluids for extraction of minerals including:	47-13-4.3	Class 3. Wells which inject for extraction of minerals including:	Same as CFR. WV also includes. Wells used for in situ combustion of fossil fuel (47-13-4.3.d) in Class III.
40 CFR 144.80(c)(1)*	Mining of sulfur by the Frasch process;	47-13-4.3.a	Mining of sulphur by the Frasch process;	See § 144.6.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.80(c)(2)*	In situ production of uranium or other metals; this category includes only in situ production from ore bodies which have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class V.	47-13-4.3.b	In situ production of uranium or other metals. This category includes only in situ production from ore bodies which have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class 5;	Same as CFR.
40 CFR 144.80(c)(3)*	Solution mining of salts or potash.	47-13-4.3.c	Solution mining of salts or potash; and	Same as CFR.
40 CFR 144.80(d)(1)*	Class IV. (1) Wells used by generators of hazardous waste or of radioactive waste, by owners and operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous waste or radioactive waste into a formation which within one quarter (1⁄4) mile of the well contains an underground source of drinking water.			Missing. WV does not specifically describe Class IV wells injecting *into* a formation near a USDW.
40 CFR 144.80(d)(2)*	Wells used by generators of hazardous waste or of radioactive waste, by owners and operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous waste or radioactive waste above a formation which within one quarter (1⁄4) mile of the well contains an underground source of drinking water.			Missing. WV does not specifically describe Class IV wells injecting *above* a formation near a USDW.
40 CFR 144.80(d)(3)*	Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to dispose of hazardous waste, which cannot be classified under paragraph (a)(1) or (d)(1) and (2) of this section (e.g., wells used to dispose of hazardous waste into or above a formation which contains an aquifer which has been exempted pursuant to 40 CFR 146.04).	47-13-4.4	Class 4. a. Wells used by generators of hazardous waste or by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites, to dispose of hazardous wastes which cannot be classified under subdivisions 4.1.a, 4.1.b, or 4.1.c.	Similar to CFR. WV does not include examples. The above two rows are summarized by this row.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.80(e)*	Class V. Injection wells not included in Class I, II, III, IV or VI. Typically, Class V wells are shallow wells used to place a variety of fluids directly below the land surface. However, if the fluids you place in the ground qualify as a hazardous waste under the Resource Conservation and Recovery Act (RCRA), your well is either a Class I or Class IV well, not a Class V well. Examples of Class V wells are described in § 144.81.	47-13-4.5	Class 5. Injection wells not included in Classes 1, 2, 3, 4, or 6. Class 5 wells include, but are not limited to:	Similar intent to CFR.
40 CFR 144.80(f)*	Class VI. Wells used for geologic sequestration of carbon dioxide beneath the lowermost formation containing a USDW, except those wells that are experimental in nature; or, wells used for geologic sequestration of carbon dioxide that have been granted a waiver of the injection depth requirements pursuant to requirements at § 146.95 of this chapter; or, wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of a existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to § 146.4 of this chapter and § 144.7(d).	47-13-4.6	Class 6. a. Wells used to inject carbon dioxide (CO2) into rock formations. Wells that are not experimental in nature that are used for geologic sequestration of carbon dioxide beneath the lowermost formation containing a USDW; or, wells used for geologic sequestration of carbon dioxide that have been granted a waiver of the injection depth requirements pursuant to requirements at subsection 14.8.d. of this chapter; or, wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of an existing Class 2 enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to section 13.3 and 40 CFR 144.7(d).	Similar to CFR. WV includes an extra sentence at beginning referring to CO2 injection; does not impact stringency.
40 CFR 144.81*	**40 CFR 144.81 Does this subpart apply to me?** This subpart applies to you if you own or operate a Class V well, for example:	47-13-4.5	Class 5. Injection wells not included in Classes 1, 2, 3, 4, or 6. Class 5 wells include, but are not limited to:	Intent is similar to CFR.
40 CFR 144.81(1)*	Air conditioning return flow wells used to return to the supply aquifer the water used for heating or cooling in a heat pump;	47-13-4.5.k	Air conditioning return flow wells used to return to the supply aquifer the water used for heating or cooling in a heat pump.	Same as CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.81(2)*	Large capacity cesspools including multiple dwelling, community or regional cesspools, or other devices that receive sanitary wastes, containing human excreta, which have an open bottom and sometimes perforated sides. The UIC requirements do not apply to single family residential cesspools nor to non-residential cesspools which receive solely sanitary waste and have the capacity to serve fewer than 20 persons a day.	47-13-4.5.a	Cesspools, including multiple dwelling, community or regional cesspools, or other devices that receive wastes, which have an open bottom and sometimes have perforated sides. The UIC requirements do not apply to single family residential cesspools nor to nonresidential cesspools which receive solely sanitary wastes and have the capacity to serve fewer than twenty (20) persons a day.	WV defines cesspools, rather than large-capacity cesspools. However, the regulations apply to cesspools that serve more than 20 persons a day, consistent with the CFR. No concerns for stringency.
40 CFR 144.81(3)*	Cooling water return flow wells used to inject water previously used for cooling;	47-13-4.5.l	Cooling water return flow wells used to inject water previously used for cooling.	Same as CFR.
40 CFR 144.81(4)*	Drainage wells used to drain surface fluids, primarily storm runoff, into a subsurface formation;	47-13-4.5.m	Drainage wells used to drain surface fluid, primarily storm runoff, into a subsurface formation.	Same as CFR.
40 CFR 144.81(5)*	Dry wells used for the injection of wastes into a subsurface formation;	47-13-4.5.n	Dry wells used for the injection of wastes into a subsurface formation.	Same as CFR.
40 CFR 144.81(6)*	Recharge wells used to replenish the water in an aquifer;	47-13-4.5.o	Recharge wells used to replenish the water in an aquifer.	Same as CFR.
40 CFR 144.81(7)*	Salt water intrusion barrier wells used to inject water into a fresh aquifer to prevent the intrusion of salt water into the fresh water;	47-13-4.5.p	Salt water intrusion barrier wells used to inject water into the fresh water aquifer to prevent the intrusion of salt water into the fresh water.	Same as CFR.
40 CFR 144.81(8)*	Sand backfill and other backfill wells used to inject a mixture of water and sand, mill tailings or other solids into mined out portions of subsurface mines whether what is injected is a radioactive waste or not.	47-13-4.5.b	Sand backfill and other backfill wells used to inject a mixture of water and sand, mill tailings or other solids into mined out portions of subsurface mines provided what is injected is not a radioactive waste.	Similar to CFR.
40 CFR 144.81(9)*	Septic system wells used to inject the waste or effluent from a multiple dwelling, business establishment, community or regional business establishment septic tank. The UIC requirements do not apply to single family residential septic system wells, nor to non-residential septic system wells which are used solely for the disposal of sanitary waste and have the capacity to serve fewer than 20 persons a day.	47-13-4.5.c	Septic system wells used to inject the waste or effluent from a multiple dwelling, business establishment, community or regional business establishment septic tank. The UIC requirements do not apply to single family residential septic system wells, nor to nonresidential septic system wells which are used solely for the disposal of sanitary waste and have the capacity to serve fewer than twenty (20) persons a day.	Same as CFR.
40 CFR 144.81(10)*	Subsidence control wells (not used for the purpose of oil or natural gas production) used to inject fluids into a non-oil or gas producing zone to reduce or eliminate subsidence associated with the overdraft of fresh water;	47-13-4.5.q	Subsidence control wells (not used for the purpose of oil or natural gas production) used to inject fluids into a non-oil or gas producing zone to reduce or eliminate subsidence associated with the overdraft of fresh water.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.81(11)*	Injection wells associated with the recovery of geothermal energy for heating, aquaculture and production of electric power;	47-13-4.5.d	Injection wells associated with the recovery of geothermal energy for heating, aquaculture and production of electric power.	Same as CFR.
40 CFR 144.81(12)*	Wells used for solution mining of conventional mines such as stopes leaching;	47-13-4.5.e	Wells used for solution mining of conventional mines such as stopes leaching.	Same as CFR.
40 CFR 144.81(13)*	Wells used to inject spent brine into the same formation from which it was withdrawn after extraction of halogens or their salts;	47-13-4.5.g	Wells used to inject spent brine into the same formation from which it was withdrawn after extraction of halogens or their salts.	Same as CFR.
40 CFR 144.81(14)*	Injection wells used in experimental technologies.	47-13-4.5.h	Injection wells used in experimental technologies.	Same as CFR.
40 CFR 144.81(15)*	Injection wells used for in situ recovery of lignite, coal, tar sands, and oil shale.	47-13-4.5.f	Injection wells used for in situ recovery of lignite, coal, tar sands, and oil shale.	Same as CFR.
40 CFR 144.81(16)*	Motor vehicle waste disposal wells that receive or have received fluids from vehicular repair or maintenance activities, such as an auto body repair shop, automotive repair shop, new and used car dealership, specialty repair shop (e.g., transmission and muffler repair shop), or any facility that does any vehicular repair work. Fluids disposed in these wells may contain organic and inorganic chemicals in concentrations that exceed the maximum contaminant levels (MCLs) established by the primary drinking water regulations (see 40 CFR part 141). These fluids also may include waste petroleum products and may contain contaminants, such as heavy metals and volatile organic compounds, which pose risks to human health.	47-13-2.44	"Motor Vehicle Waste Disposal Wells (MVWDW)" mean dry wells or septic tank and leachfield combinations that receive or have received fluids from motor vehicle repair or maintenance activities, such as an auto body repair shop, automotive repair shop, new and used car dealership, specialty repair shop (e.g. transmission and muffler repair shop), or any facility that does any vehicular repair work.	The WV definition of a motor vehicle waste disposal well, which is provided in the definition section and not as a Class V subtype, appears to be similar to the CFR. WV's definition omits the CFR text that the fluids also may include waste petroleum products and may contain contaminants, such as heavy metals and volatile organic compounds, which pose risks to human health. This should not impact stringency.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.82*	**40 CFR 144.82 What must I do to protect underground sources of drinking water?** If you own or operate any type of Class V well, the regulations below require that you cannot allow movement of fluid into USDWs that might cause endangerment, you must comply with other Federal UIC requirements in 40 CFR parts 144 through 147, and you must comply with any other measures required by your State or EPA Regional Office UIC Program to protect USDWs, and you must properly close your well when you are through using it. You also must submit basic information about your well, as described in § 144.83.			Missing. However, the intent of the state's regulation is similar to the CFR; see below.
40 CFR 144.82(a)(1)*	Prohibition of fluid movement. (1) As described in § 144.12(a), your injection activity cannot allow the movement of fluid containing any contaminant into USDWs, if the presence of that contaminant may cause a violation of the primary drinking water standards under 40 CFR part 141, other health based standards, or may otherwise adversely affect the health of persons. This prohibition applies to your well construction, operation, maintenance, conversion, plugging, closure, or any other injection activity.	47-13-14.1.b	No owner or operator shall construct, operate, maintain, convert, plug, abandon or conduct any other underground injection activity in a manner which causes or allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 142 or promulgated pursuant to W. Va. Code §16-1-1 et seq., or may otherwise adversely affect the health of persons. The applicant for a permit shall have the burden of showing that the requirements of this paragraph are met.	WV rule content is similar/comparable to the CFR.
40 CFR 144.82(a)(2)*	If the Director of the UIC Program in your State or EPA Region learns that your injection activity may endanger USDWs, he or she may require you to close your well, require you to get a permit, or require other actions listed in § 144.12(c), (d), or (e).	47-13-14.1.d	For Class 5 wells, if at any time the Director learns that a Class 5 well may cause a violation of primary drinking water rules under 40 CFR Part 142 or W. Va. Code §16-1-1 et seq., he or she shall: 14.1.d.1. Require the injector to obtain an individual permit; 14.1.d.2. Order the injector to take such actions (including where required closure of the injection well) as may be necessary to prevent the violation; or 14.1.d.3. Take enforcement action.	WV rule content is similar/comparable to the CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.82(b)*	Closure requirements. You must close the well in a manner that complies with the above prohibition of fluid movement. Also, you must dispose or otherwise manage any soil, gravel, sludge, liquids, or other materials removed from or adjacent to your well in accordance with all applicable Federal, State, and local regulations and requirements.	47-13-14.7.f	Plugging and abandonment. Any Class 1, 2, 3, or 6 permit shall include, and any Class 5 permit may include, conditions to ensure that plugging and abandonment of the well will not allow the movement of fluids either into an underground source of drinking water or from one underground source of drinking water to another. Any applicant for a UIC permit shall be required to submit a plan for plugging and abandonment. Where the plugging and abandonment plan meets the requirements of this paragraph, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, the Director shall require the applicant to revise the plan, prescribe conditions meeting the requirements of this paragraph, or deny the application. For purposes of this paragraph, temporary intermittent cessation of injection operations is not abandonment. The owner or operator shall submit revisions to the method of closure no later than the date on which closure notification is required. The Director should be notified at least 45 days prior to the abandonment of any Class 5 injection well.	Section 47-13-14.7.f requires that Class V wells be closed in a protective manner, similar to CFR intent; however, it does not contain the specific text related to managing any soil, gravel, sludge, liquids, or other materials. Clarification is recommended.
40 CFR 144.82(c)*	Other requirements in Parts 144 through 147. Beyond this subpart, you are subject to other UIC Program requirements in 40 CFR parts 144 through 147. While most of the relevant requirements are repeated or referenced in this subpart for convenience, you need to read these other parts to understand the entire UIC Program.			Missing. This explanatory text regarding the requirement to comply with other UIC provisions is missing; however, except as noted, the WV regulations for Class V wells align to the CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.82(d)*	Other State or EPA requirements. 40 CFR parts 144 through 147 define minimum Federal UIC requirements. EPA Regional Offices administering the UIC Program have the flexibility to establish additional or more stringent requirements based on the authorities in parts 144 through 147, if believed to be necessary to protect USDWs. States can have their own authorities to establish additional or more stringent requirements if needed to protect USDWs. You must comply with these additional requirements, if any exist in your area. Contact the UIC Program Director in your State or EPA Region to learn more.			Missing. This may not be appropriate for a state-specific rule. No concerns for stringency.
40 CFR 144.83*	**40 CFR 144.83 Do I need to notify anyone about my Class V injection well?** Yes, you need to provide basic "inventory information" about your well to the UIC Director, if you haven't already. You also need to provide any additional information that your UIC Program Director requests in accordance with the provisions of the UIC regulations.	47-13-12.2	Inventory and Assessment. a. The owner or operator of any Class 5 well shall within one (1) year of the effective date of this rule notify the Director of the existence of any well meeting the definition of Class 5 under his control, and submit a description of:	Similar to CFR in that WV requires Class V owners or operators to submit inventory information.
40 CFR 144.83(a)*	Inventory requirements. Unless you know you have already satisfied the inventory requirements in § 144.26 that were in effect prior to the issuance of this Subpart G, you must give your UIC Program Director certain information about yourself and your injection operation. Note: This information is requested on national form "Inventory of Injection Wells," OMB No. 2040-0042.			This specific CFR provision is missing; however, WV requires Class V owners or operators to submit inventory information at 47-13-12.2 (see 144.83(a)(2)(i)). WV does not reference the 7520 form, which is acceptable, particularly given recent conversion to e-reporting.

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Code of Federal Regulations		Current West Virginia Statutes and Regulations		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.83(a)(1)*	The requirements differ depending on your well status and location, as described in the following table:			Missing. This national-level table is not needed in WV's rules.

If your well is . . .	And you're in one of these locations ("Primacy" States, where the State runs the Class V UIC Program): AL, AR, Commonwealth of Northern Mariana Islands, CT, DE, FL, GA, Guam, ID, IL, KS, LA, ME, MD, MA, MS, MO, NE, NV, NH, NJ, NM, NC, ND, OH, OK, OR, PR, RI, SC, TX, UT, VT, WA, WV, WI, or WY	Or you're in one of these locations ("Direct Implementation" or DI Programs, where EPA runs the Class V UIC Program): AK, AS, AZ, CA, CO, HI, IN, IA, KY, MI, MN, MT, NY, PA, SD, TN, VA, VI, DC, or any Indian Country
(i) New (prior to construction of your well)	. . . then you must contact your State UIC Program to determine what you must submit and by when.	. . . then you must submit the inventory information described in (a)(2) of this section prior to constructing your well.
(ii) Existing (construction underway or completed)	. . . then you must contact your State UIC Program to determine what you must submit and by when.	. . . then you must cease injection and submit the inventory information. You may resume injection 90 days after you submit the information unless the UIC Program Director notifies you that injection may not resume or may resume sooner.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.83(a)(2)(i)*	If your well is in a Primacy State or a DI Program State, here is the information you must submit: (i) No matter what type of Class V well you own or operate, you must submit at least the following information for each Class V well: facility name and location; name and address of legal contact; ownership of facility; nature and type of injection well(s); and operating status of injection well(s).	47-13-12.2.a	1. The construction features of the well; 2. The nature and volume of injected fluids; 3. The alternative means of disposal available to the operator; 4. The environmental and economic consequences of well disposal and its alternatives; 5. Facility name and location; 6. Name and address of legal contact; 7. Ownership of facility; 8. Nature and type of injection wells; and 9. Operating status of injection wells.	Similar to/more expansive/stringent than CFR.
40 CFR 144.83(a)(2)(ii)*	Additional information. If you are in a Direct Implementation State and you own or operate a well listed below you must also provide the information listed in paragraph (a) (2) (iii) as follows: (A) Sand or other backfill wells (40 CFR 144.81(8) and 146.5(e)(8) of this chapter); (B) Geothermal energy recovery wells (40 CFR 144.81(11) and 146.5 (e)(12) of this chapter); (C) Brine return flow wells (40 CFR 144.81(13) and 146.5 (e)(14) of this chapter); (D) Wells used in experimental technology (40 CFR 144.81(14) and 146.5 (e)(15) of this chapter); (E) Municipal and industrial disposal wells other than Class I; and (F) Any other Class V wells at the discretion of the Regional Administrator.			Missing. This DI state-only provision is not applicable to WV.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.83(a)(2)(iii)*	You must provide a list of all wells owned or operated along with the following information for each well. (A single description of wells at a single facility with substantially the same characteristics is acceptable). (A) Location of each well or project given by Township, Range, Section, and Quarter-Section, or by latitude and longitude to the nearest second, according to the conventional practice in your State; (B) Date of completion of each well; (C) Identification and depth of the underground formation(s) into which each well is injecting; (D) Total depth of each well; (E) Construction narrative and schematic (both plan view and cross-sectional drawings); (F) Nature of the injected fluids; (G) Average and maximum injection pressure at the wellhead; (H) Average and maximum injection rate; and (I) Date of the last inspection.	47-13-12.2.a	1. The construction features of the well; 2. The nature and volume of injected fluids; 3. The alternative means of disposal available to the operator; 4. The environmental and economic consequences of well disposal and its alternatives; 5. Facility name and location; 6. Name and address of legal contact; 7. Ownership of facility; 8. Nature and type of injection wells; and 9. Operating status of injection wells.	The WV provision incorporates some of the information in the CFR provision, e.g., location, construction information (which may include formation and depth), and nature of fluids. Other information required in the CFR (e.g., dates of completion and last inspection; average and maximum injection pressure and rate) is not required by WV. Revision to require submittal of information on dates of completion and last inspection; average and maximum injection pressure and rate is recommended.
40 CFR 144.83(a)(3)*	Regardless of whether your well is in a Primacy State or DI Program you are responsible for knowing about, understanding, and complying with these inventory requirements.			Missing. No concerns for stringency.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.83(b)(1)*	Information in response to requests. If you are in one of the DI Programs listed in the table above, the UIC Program Director may require you to submit other information believed necessary to protect underground sources of drinking water. (1) Such information requirements may include, but are not limited to: (i) Perform ground water monitoring and periodically submit your monitoring results; (ii) Analyze the fluids you inject and periodically submit the results of your analyses; (iii) Describe the geologic layers through which and into which you are injecting; and (iv) Conduct other analyses and submit other information, if needed to protect underground sources of drinking water.			Missing. This provision applies to wells in DI programs.
40 CFR 144.83(b)(2)*	If the Director requires this other information, he or she will request it from you in writing, along with a brief statement on why the information is required. This written notification also will tell you when to submit the information.	47-13-14.2.d.2	Notice. Upon approval of the State UIC Program, the Director shall notify owners or operators of injection wells of their duty to submit inventory information. The method of notification selected by the Director must assure that the owners or operators will be made aware of the inventory requirement.	Similar intent to CFR.
40 CFR 144.83(b)(3)*	You are prohibited from using your injection well if you fail to comply with the written request within the time frame specified. You can start injecting again only if you receive a permit.	47-13-14.2.d.3	Deadlines. Owners or operators of injection wells must submit inventory information no later than one (1) year after authorization by rule. The Director need not require inventory information from any facility with interim status under W. Va. Code §22-18.	Differs from CFR. WV does imply that a permit would be needed. Clarification is recommended.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.84(a)*	**40 CFR 144.84 Do I need to get a permit?** No, unless you fall within an exception described below: (a) General authorization by rule. With certain exceptions listed in paragraph (b) of this section, your Class V injection activity is "authorized by rule," meaning you have to comply with all the requirements of this subpart and the rest of the UIC Program but you don't have to get an individual permit. Well authorization expires once you have properly closed your well, as described in § 144.82(b).	47-13-12.4	Wells Regulated by Rule and Permit. a. Certain Class 5 wells may be authorized by rule pursuant to subsection 14.2., unless the Director requires an individual permit. Permits shall be for continuous injection of Class 5 liquids such as septic system drain field discharges and stormwater. While rule authorization is intended for temporary (based on timing or number of injections) or limited injections, including but not limited to remediation treatment fluids. b. Information to be considered by the Director prior to issuance of a permit. b.1. (Reserved).	While the format is different, WV does have provisions for authorization by rule and when an owner or operator must apply for a permit. No concerns for stringency.
40 CFR 144.84(b)*	Circumstances in which permits or other actions are required. If you fit into one of the categories listed below, your Class V well is no longer authorized by rule. This means that you have to either get a permit or close your injection well. You can find out by contacting the UIC Program Director in your State or EPA Region if this is the case. Subpart D of this part tells you how to apply for a permit and describes other aspects of the permitting process. Subpart E of this part outlines some of the requirements that apply to you if you get a permit.			Missing. However, WV does have provisions for when an owner or operator must apply for a permit that are analogous to some parts of the CFR (see below).
40 CFR 144.84(b)(1)*	You fail to comply with the prohibition of fluid movement standard in § 144.12(a) and described in § 144.82(a) (in which case, you have to get a permit, close your well, and/or comply with other conditions determined by the UIC Program Director in your State or EPA Region);			Missing. However 47-13-14.1 generally requires that, if the director determines that the well may cause a violation or endanger human health, they may require the operator to apply for a permit.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.84(b)(2)*	You own or operate a Class V large-capacity cesspool (in which case, you must close your well as specified in the additional requirements below) or a Class V motor vehicle waste disposal well in a ground water protection area or sensitive ground water area (in which case, you must either close your well or get a permit as specified in the additional requirements in this subsection). New motor vehicle waste disposal wells and new cesspools are prohibited as of April 5, 2000;	47-13-12.1	a. All new large capacity cesspools are prohibited. b. All existing large capacity cesspools must be closed by April 5, 2005. c. All new motor vehicle waste disposal wells are prohibited. d. All existing motor vehicle waste disposal wells must be closed by January 1, 2005, or operated in compliance with Section 14.1.b.and d. of this rule such that the Director will require wells to be permitted and maintained. e. Applicants for permits for existing MVWDWs must meet MCLs at the point of injection while the permit application is under review. If a permit is issued for a MVWDW, the permittee must comply with permit requirements including requirements to meet MCLs and other health-based standards at the point of injection.	WV prohibits all new motor vehicle wells and all new and existing large capacity cesspools regardless of whether they are in a ground water protection area or sensitive ground water area. Existing motor vehicle wells must be closed or permitted, regardless of whether they are in a ground water protection area or sensitive ground water area. This is more expansive/stringent than the CFR. The WV provision contains a deadline that is in the past.
40 CFR 144.84(b)(3)*	You are specifically required by the UIC Program Director in your State or EPA Region to get a permit (in which case, rule authorization expires upon the effective date of the permit issued, or you are prohibited from injecting into your well upon:			Missing. However, 47-13-14.1 generally requires that if the director determines that the well may cause a violation or endanger human health, they may require the operator to apply for a permit.
40 CFR 144.84(b)(3)(i)*	Failure to submit a permit application in a timely manner as specified in a notice from the Director; or			Missing. See above.
40 CFR 144.84(b)(3)(ii)*	Upon the effective date of permit denial);			Missing. See above.
40 CFR 144.84(b)(4)*	You have failed to submit inventory information to your UIC Program Director, as described in § 144.83(a) (in which case, you are prohibited from injecting into your well until you comply with the inventory requirements); or			Missing. See above.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00154

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.84(b)(5)*	If you are in a DI State and you received a request from your UIC Program Director for additional information under § 144.83(b), and have failed to comply with the request in a timely manner (in which case, you are prohibited from injecting into your well until you get a permit).			Missing. Applies in DI states only. No concerns for stringency.
40 CFR 144.85(a)*	**40 CFR 144.85 Do these additional requirements apply to me?** Large-capacity cesspools. The additional requirements apply to all new and existing large-capacity cesspools regardless of their location. If you are using a septic system for these type of wastes you are not subject to the additional requirements in this subpart.	47-13-12.1	a. All new large capacity cesspools are prohibited. b. All existing large capacity cesspools must be closed by April 5, 2005.	Differs from CFR. WV does not allow new large-capacity cesspools and existing ones must be closed. This is more stringent than the CFR.
40 CFR 144.85(b)*	Motor vehicle waste disposal wells existing on April 5, 2000. If you have a Class V motor vehicle waste disposal well these requirements apply to you if your well is located in a ground water protection area or other sensitive ground water area that is identified by your State or EPA Region. If your State or EPA Region fails to identify ground water protection areas and/or other sensitive ground water areas these requirements apply to all Class V motor vehicle wells in the State.	47-13-12.1	d. All existing motor vehicle waste disposal wells must be closed by January 1, 2005, or operated in compliance with Section 14.1.b.and d. of this rule such that the Director will require wells to be permitted and maintained. e. Applicants for permits for existing MVWDWs must meet MCLs at the point of injection while the permit application is under review. If a permit is issued for a MVWDW, the permittee must comply with permit requirements including requirements to meet MCLs and other health-based standards at the point of injection.	WV requirements are similar to the CFR, but apply to all motor vehicle waste disposal wells, regardless of whether they are in ground water protection area or other sensitive ground water area. This is more stringent/expansive than the CFR.
40 CFR 144.85(c)*	New motor vehicle waste disposal wells. The additional requirements apply to all new motor vehicle waste disposal wells as of April 5, 2000.	47-13-12.1	c. All new motor vehicle waste disposal wells are prohibited.	Differs from CFR. WV prohibits new motor vehicle waste disposal wells. This is more stringent/ expansive than the CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.86*	**40 CFR 144.86 What are the definitions I need to know?** State Drinking Water Source Assessment and Protection Program. This is a new approach to protecting drinking water sources, specified in the 1996 Amendments to the Safe Drinking Water Act at Section 1453. States must prepare and submit for EPA approval a program that sets out how States will conduct local assessments, including: delineating the boundaries of areas providing source waters for public water systems; identifying significant potential sources of contaminants in such areas; and determining the susceptibility of public water systems in the delineated areas to the inventoried sources of contamination.			WV requirements apply to all motor vehicle waste disposal wells, regardless of whether they are in ground water protection area or other sensitive ground water area. This is more stringent/ expansive than the CFR. (Applies to of 144.86.)
40 CFR 144.86(b)	Complete Local Source Water Assessment for Ground Water Protection Areas. When EPA has approved a State's Drinking Water Source Assessment and Protection Program, States will begin to conduct local assessments for each public water system in their State. For the purposes of this rule, local assessments for community water systems and non-transient non-community systems are complete when four requirements are met: First, a State must delineate the boundaries of the assessment area for community and non-transient non-community water systems. Second, the State must identify significant potential sources of contamination in these delineated areas. Third, the State must "determine the susceptibility of community and non-transient non-community water systems in the delineated area to such contaminants." Lastly, each State will develop its own plan for making the completed assessments available to the public.			See above.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.86(c)	Ground Water Protection Area. A ground water protection area is a geographic area near and/or surrounding community and non-transient non-community water systems that use ground water as a source of drinking water. These areas receive priority for the protection of drinking water supplies and States are required to delineate and assess these areas under section 1453 of the Safe Drinking Water Act. The additional requirements in § 144.88 apply to you if your Class V motor vehicle waste disposal well is in a ground water protection area for either a community water system or a non-transient non-community water system, in many States, these areas will be the same as Wellhead Protection Areas that have been or will be delineated as defined in section 1428 of the SDWA.			See above.
40 CFR 144.86(d)	Community Water System. A community water system is a public water system that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.			See above.
40 CFR 144.86(e)	Non-Transient Non-Community Water System. A public water system that is not a community water system and that regularly serves at least 25 of the same people over six months a year. These may include systems that provide water to schools, day care centers, government/military installations, manufacturers, hospitals or nursing homes, office buildings, and other facilities.			See above.
40 CFR 144.86(f)	Delineation. Once a State's Drinking Water Source Assessment and Protection Program is approved, the States will begin delineating their local assessment areas. Delineation is the first step in the assessment process in which the boundaries of ground water protection areas are identified.			See above.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.86(g)	Other Sensitive Ground Water Areas. States may also identify other areas in the State in addition to ground water protection areas that are critical to protecting underground sources of drinking water from contamination. These other sensitive ground water areas may include areas such as areas overlying sole-source aquifers; highly productive aquifers supplying private wells; continuous and highly productive aquifers at points distant from public water supply wells; areas where water supply aquifers are recharged; karst aquifers that discharge to surface reservoirs serving as public water supplies; vulnerable or sensitive hydrogeologic settings, such as glacial outwash deposits, eolian sands, and fractured volcanic rock; and areas of special concern selected based on a combination of factors, such as hydrogeologic sensitivity, depth to ground water, significance as a drinking water source, and prevailing land-use practices.			See above.
40 CFR 144.87(a)*	**40 CFR 144.87 How does the identification of ground water protection areas and other sensitive areas affect me?** You are subject to these new requirements if you own or operate an existing motor vehicle well and you are located in a ground water protection area or an other sensitive ground water area. If your State or EPA Region fails to identify these areas within the specified time frames these requirements apply to all existing motor vehicle waste disposal wells within your State.	47-13-12.1	d. All existing motor vehicle waste disposal wells must be closed by January 1, 2005, or operated in compliance with Section 14.1.b.and d. of this rule such that the Director will require wells to be permitted and maintained. e. Applicants for permits for existing MVWDWs must meet MCLs at the point of injection while the permit application is under review. If a permit is issued for a MVWDW, the permittee must comply with permit requirements including requirements to meet MCLs and other health-based standards at the point of injection.	WV requirements apply to all motor vehicle waste disposal wells, regardless of whether they are in ground water protection area or other sensitive ground water area. This is more stringent/ expansive than the CFR. (Applies to of 144.87.)

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.87(b)(1)*	Ground water protection areas. (1) For the purpose of this subpart, States are required to complete all local source water assessments for ground water protection areas by January 1, 2004. Once a local assessment for a ground water protection area is complete every existing motor vehicle waste disposal well owner in that ground water protection area has one year to close the well or receive a permit. If a State fails to complete all local assessments for ground water protection areas by January 1, 2004, the following may occur:			
40 CFR 144.87(b)(1)(i)*	The new requirements in this subpart will apply to all existing motor vehicle waste disposal wells in the State and owners and operators of motor vehicle waste disposal wells located outside of completed assessments for ground water protection areas must close their well or receive a permit by January 1, 2005.			
40 CFR 144.87(b)(1)(ii)*	EPA may grant a State an extension for up to one year from the January 1, 2004 deadline if the State is making reasonable progress in completing the source water assessments for ground water protection areas. States must apply for the extension by June 1, 2003. If a State fails to complete the assessments for the remaining ground water protection areas by the extended date the rule requirements will apply to all motor vehicle waste disposal wells in the State and owners and operators of motor vehicle waste disposal wells located outside of ground water protection areas with completed assessments must close their well or receive a permit by January 1, 2006.			
40 CFR 144.87(b)(2)*	The UIC Program Director may extend the compliance deadline for specific motor vehicle waste disposal wells for up to one year if the most efficient compliance option for the well is connection to a sanitary sewer or installation of new treatment technology.			

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ED_013399_00000014-00159

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.87(c)*	Other sensitive ground water areas. States may also delineate other sensitive ground water areas by January 1, 2004. Existing motor vehicle waste disposal well owners and operators within other sensitive ground water areas have until January 1, 2007 to receive a permit or close the well. If a State or EPA Region fails to identify these additional sensitive ground water areas by January 1, 2004, the new requirements of this rule will apply to all motor vehicle waste disposal wells in the State effective January 1, 2007 unless they are subject to a different compliance date pursuant to paragraph (b) of this section. Again, EPA may extend the January 1, 2004 deadline for up to one year for States to delineate other sensitive ground water areas if the State is making reasonable progress in identifying the sensitive areas. States must apply for this extension by June 1, 2003. If a State has been granted an extension, existing motor vehicle waste disposal well owners and operators within the sensitive ground water areas have until January 1, 2008 to close the well or receive a permit, unless they are subject to a different compliance date pursuant to paragraph (b) of this section. If a State has been granted an extension and fails to delineate sensitive areas by the extended date, the rule requirements will apply to all motor vehicle waste disposal wells in the State and owners and operators have until January 1, 2008 to close the well or receive a permit, unless they are subject to a different compliance date pursuant to paragraph (b) of this section.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.87(d)*	How to find out if your well is in a ground water protection area or sensitive ground water area. States are required to make their local source water assessments widely available to the public through a variety of methods after the assessments are complete. You can find out if your Class V well is in a ground water protection area by contacting the State agency responsible for the State Drinking Water Source Assessment and Protection Program in your area. You may call the Safe Drinking Water Hotline at 1-800-426-4791 to find out who to call in your State for this information. The State office responsible for implementing the Drinking Water Source Assessment and Protection Program makes the final and official determination of boundaries for ground water protection areas. Because States that choose to delineate other sensitive ground water areas are also required to make the information on these areas accessible to the public, they may do so in a manner similar to the process used by the States in publicizing the EPA approved Drinking Water Source Assessment and Protection Program. You can find out if your Class V well is in an other sensitive ground water area by contacting the State or Federal agency responsible for the Underground Injection Control Program. You may call the Safe Drinking Water Hotline at 1-800-426-4791 to find out who to call for information.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.87(e)*	Changes in the status of the EPA approved state drinking water source assessment and protection program. After January 1, 2004 your State may assess a ground water protection area for ground water supplying a new community water system or a new non-transient non-community water system that includes your Class V injection well. Also, your State may officially re-delineate the boundaries of a previously delineated ground water protection area to include additional areas that includes your motor vehicle waste disposal well. This would make the additional regulations apply to you if your motor vehicle waste disposal well is in such an area. The additional regulations start applying to you one year after the State completes the local assessment for the ground water protection area for the new drinking water system or the new re-delineated area. The UIC Program Director responsible for your area may extend this deadline for up to one year if the most efficient compliance option for the well is connection to a sanitary sewer or installation of new treatment technology.			
40 CFR 144.87(f)*	What happens if my state doesn't designate other sensitive ground water areas? If your State or EPA Region elects not to delineate the additional sensitive ground water areas, the additional regulations apply to you regardless of the location of your well by January 1, 2007, or January 2008 if an extension has been granted as explained in paragraph (c) of this section, except for wells in ground water protection areas which are subject to different compliance deadlines explained in paragraph (b) of this section.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.87(h)*	Application of requirements outside of ground water protection areas and sensitive ground water areas. EPA expects and strongly encourages States to use existing authorities in the UIC program to take whatever measures are needed to ensure Class V wells are not endangering USDWs in any other areas outside of delineated ground water protection areas and sensitive ground water areas. Such measures could include, if believed to be necessary by a UIC Program Director, applying the additional requirements below to other areas and/or other types of Class V wells. Therefore, the Director may apply the additional requirements to you, even if you are not located in the areas listed in paragraph (a) of this section.			
40 CFR 144.88 (See also 145.11(a)(32))	The additional requirements are specified in the following tables:			Missing. See below.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**

Code of Federal Regulations		Current West Virginia Statutes and Regulations		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.88(a) (See also 145.11(a)(32))	(a) Table 1—Additional Requirements for Large-Capacity Cesspools Statewide [See § 144.85 to determine if these additional requirements apply to you]	47-13-12.1	a. All new large capacity cesspools are prohibited. b. All existing large capacity cesspools must be closed by April 5, 2005.	Similar intent to the CFR. WV requires all large-capacity cesspools be closed.

Well Status	**Requirement**	**Deadline**
If your cesspool is. . .	Then you. . .	By. . .
(1) Existing (operational or under construction by April 5, 2000)	(i) Must close the well	April 5, 2005.
	(ii) Must notify the UIC Program Director (both Primacy States and Direct Implementation States) of your intent to close the well. Note: This information is requested on national form "Preclosure Notification for Closure of Injection Wells,"	At least 30 days prior to closure.
(2) New or converted (construction not started before April 5, 2000)	Are prohibited	April 5, 2000.

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Code of Federal Regulations		Current West Virginia Statutes and Regulations		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.88(b)(1) (See also 145.11(a)(32))	Table 2—Additional Requirements for Motor Vehicle Waste Disposal Wells [See § 144.85 to determine if these additional requirements apply to you] **Well status** / **Requirement** / **Deadline** If your motor vehicle waste disposal well is / Then. . . / By. . . (1) Existing (operational or under construction by April 5, 2000) / (i) If your well is in a ground water protection area, you must close the well or obtain a permit / Within 1 year of the completion of your local source water assessment; your UIC Program Director may extend the closure deadline, but not the permit application deadline, for up to one year if the most efficient compliance option is connection to a sanitary sewer or installation of new treatment technology. (ii) If your well is in an other sensitive ground water area, you must close the well or obtain a permit / By January 1, 2007; your UIC Program Director may extend the closure deadline, but not the permit application deadline, for up to one year if the most efficient compliance option is connection to a sanitary sewer or installation of new treatment technology.	47-13-12.1	c. All new motor vehicle waste disposal wells are prohibited. d. All existing motor vehicle waste disposal wells must be closed by January 1, 2005, or operated in compliance with Section 14.1.b.and d. of this rule such that the Director will require wells to be permitted and maintained. e. Applicants for permits for existing MVWDWs must meet MCLs at the point of injection while the permit application is under review. If a permit is issued for a MVWDW, the permittee must comply with permit requirements including requirements to meet MCLs and other health-based standards at the point of injection.	WV requirements apply to all motor vehicle waste disposal wells, regardless of whether they are in ground water protection area or other sensitive ground water area. This is more stringent/ expansive than the CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

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Code of Federal Regulations		Current West Virginia Statutes and Regulations		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.88(b)(1) continued (See also 145.11(a)(32))				

Well status	**Requirement**	**Deadline**
If your motor vehicle waste disposal well is	Then. . .	By. . .
(1) Existing (operational or under construction by April 5, 2000)	(iii) If you plan to seek a waiver from the ban and apply for a permit, you must meet MCLs at the point of injection while your permit application is under review, if you choose to keep operating your well	The date you submit your permit application.
	(iv) If you receive a permit, you must comply with all permit conditions, if you choose to keep operating your well, including requirements to meet MCLs and other health based standards at the point of injection, follow best management practices, and monitor your injectate and sludge quality	The date(s) specified in your permit.

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Code of Federal Regulations				Current West Virginia Statutes and Regulations		
Citation	**CFR Text**			**Citation**	**Rule Text**	**Difference**
40 CFR 144.88(b)(1) continued (See also 145.11(a)(32))	**Well status**	**Requirement**	**Deadline**			
	If your motor vehicle waste disposal well is	Then. . .	By. . .			
	(1) Existing (operational or under construction by April 5, 2000)	(v) If your well is in a State which has not completed all their local assessments by January 1, 2004 or by the extended date if your State has obtained an extension as described in 144.87, and you are outside an area with a completed assessment you must close the well or obtain a permit	January 1, 2005 unless your State obtains an extension as described in 144.87 (b) in which case your deadline is January 1, 2006; your UIC Program Director may extend the closure deadline, but not the permit application deadline, for up to one year if the most efficient compliance option is connection to a sanitary sewer or installation of new treatment technology.			

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Code of Federal Regulations				Current West Virginia Statutes and Regulations		
Citation	**CFR Text**			**Citation**	**Rule Text**	**Difference**
40 CFR 144.88(b)(1) continued (See also 145.11(a)(32))	**Well status**	**Requirement**	**Deadline**			
	If your motor vehicle waste disposal well is	Then. . .	By. . .			
	(1) Existing (operational or under construction by April 5, 2000)	(vi) If your well is in a State that has not delineated other sensitive ground water areas by January 1, 2004 and you are outside of an area with a completed assessment you must close the well or obtain a permit regardless of your location	January 1, 2007 unless your State obtains an extension as described in 144.87(c) in which case your deadline is January 2008.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**

Code of Federal Regulations		Current West Virginia Statutes and Regulations		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.88(b)(1) continued (See also 145.11(a)(32))	**Well status** / **Requirement** / **Deadline** If your motor vehicle waste disposal well is / Then. . . / By. . . (1) Existing (operational or under construction by April 5, 2000) / (vii) If you plan to close your well, you must notify the UIC Program Director of your intent to close the well (this includes closing your well prior to conversion) Note: This information is requested on national form "Preclosure Notification for Closure of Injection Wells". / At least 30 days prior to closure.			
40 CFR 144.88(b)(2) (See also 145.11(a)(32))	**Well status** / **Requirement** / **Deadline** If your motor vehicle waste disposal well is / Then. . . / By. . . (2) New or converted (construction not started before April 5, 2000) / Are prohibited / April 5, 2000.	47-13-12.1.c	All new motor vehicle waste disposal wells are prohibited.	WV requirements apply to all motor vehicle waste disposal wells, regardless of whether they are in a ground water protection area or other sensitive ground water area. This is more stringent/expansive than the CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.89*	**40 CFR 144.89 How do I close my Class V injection well?** The following describes the requirements for closing your Class V injection well.	47-13-14.7.f	Plugging and abandonment. Any Class 1, 2, 3, or 6 permit shall include, and any Class 5 permit may include, conditions to ensure that plugging and abandonment of the well will not allow the movement of fluids either into an underground source of drinking water or from one underground source of drinking water to another. Any applicant for a UIC permit shall be required to submit a plan for plugging and abandonment. Where the plugging and abandonment plan meets the requirements of this paragraph, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, the Director shall require the applicant to revise the plan, prescribe conditions meeting the requirements of this paragraph, or deny the application. For purposes of this paragraph, temporary intermittent cessation of injection operations is not abandonment. The owner or operator shall submit revisions to the method of closure no later than the date on which closure notification is required. The Director should be notified at least 45 days prior to the abandonment of any Class 5 injection well.	WV does not specify closure procedures specific to Class V motor vehicle waste disposal wells. 47-13-14.7.f requires including P&A plans in all permits. This may be less stringent than the CFR because it does not describe how motor vehicle waste disposal wells are to be closed and would not apply to any motor vehicle well that did not have a permit. Clarification is recommended. This applies to all of 144.89.
40 CFR 144.89(a)(1)*	Closure. (1) Prior to closing a Class V large-capacity cesspool or motor vehicle waste disposal well, you must plug or otherwise close the well in a manner that complies with the prohibition of fluid movement standard in § 144.12 and summarized in § 144.82(a). If the UIC Program Director in your State or EPA Region has any additional or more specific closure standards, you have to meet those standards too. You also must dispose or otherwise manage any soil, gravel, sludge, liquids, or other materials removed from or adjacent to your well in accordance with all applicable Federal, State, and local regulations and requirements, as in § 144.82(b).			See above.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 144.89(a)(2)*	(2) Closure does not mean that you need to cease operations at your facility, only that you need to close your well. A number of alternatives are available for disposing of waste fluids. Examples of alternatives that may be available to motor vehicle stations include: recycling and reusing wastewater as much as possible; collecting and recycling petroleum-based fluids, coolants, and battery acids drained from vehicles; washing parts in a self-contained, recirculating solvent sink, with spent solvents being recovered and replaced by the supplier; using absorbents to clean up minor leaks and spills, and placing the used materials in approved waste containers and disposing of them properly; using a wet vacuum or mop to pick up accumulated rain or snow melt, and if allowed, connecting floor drains to a municipal sewer system or holding tank, and if allowed, disposing of the holding tank contents through a publicly owned treatment works. You should check with the publicly owned treatment works you might use to see if they would accept your wastes. Alternatives that may be available to owners and operators of a large-capacity cesspool include: conversion to a septic system; connection to sewer; and installation of an on-site treatment unit.			See above.
40 CFR 144.89(b)*	Conversions. In limited cases, the UIC Director may authorize the conversion (reclassification) of a motor vehicle waste disposal well to another type of Class V well. Motor vehicle wells may only be converted if: all motor vehicle fluids are segregated by physical barriers and are not allowed to enter the well; and, injection of motor vehicle waste is unlikely based on a facility's compliance history and records showing proper waste disposal. The use of a semi-permanent plug as the means to segregate waste is not sufficient to convert a motor vehicle waste disposal well to another type of Class V well.			See above.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146 – Underground Injection Control Program: Criteria and Standards **Subpart A – General Provisions**				
40 CFR 146.1(a)	**40 CFR 146.1 Applicability and scope.** This part sets forth technical criteria and standards for the Underground Injection Control Program. This part should be read in conjunction with 40 CFR parts 124, 144, and 145, which also apply to UIC programs. 40 CFR part 144 defines the regulatory framework of EPA administered permit programs. 40 CFR part 145 describes the elements of an approvable State program and procedures for EPA approval of State participation in the permit programs. 40 CFR part 124 describes the procedures the Agency will use for issuing permits under the covered programs. Certain of these procedures will also apply to State-administered programs as specified in 40 CFR part 145.	47-13-1	**47-13-1. General.** 1. Scope. -- These rules set forth criteria and standards for the requirements which apply to the State Underground Injection Control Program (U.I.C.). The UIC permit program regulates underground injections by six (6) classes of wells. The six (6) classes of wells are set forth in section 4 of this rule. All owners or operators of these injection wells must be authorized either by permit or rule by the Director.	Differs from CFR. However, differences in this introductory text do not affect stringency.
40 CFR 146.1(b)	Upon the approval, partial approval or promulgation of a State UIC program by the Administrator, any underground injection which is not authorized by the Director by rule or by permit is unlawful.	47-13-1.1	Scope. -- These rules set forth criteria and standards for the requirements which apply to the State Underground Injection Control Program (U.I.C.). The UIC permit program regulates underground injections by six (6) classes of wells. The six (6) classes of wells are set forth in section 4 of this rule. <u>All owners or operators of these injection wells must be authorized either by permit or rule by the Director.</u>	Differs from CFR; however the intent is similar.
40 CFR 146.2	**40 CFR 146.2 Law authorizing these regulations.** The Safe Drinking Water Act, 42 U.S.C. 300f et seq. authorizes these regulations and all other UIC program regulations referenced in 40 CFR part 144. Certain regulations relating to the injection of hazardous waste are also authorized by the Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq.			Missing. SDWA authority does not apply to WV's rule. No concerns for stringency.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.3	**40 CFR 146.3 Definitions** *Abandoned well* means a well whose use has been permanently discontinued or which is in a state of disrepair such that it cannot be used for its intended purpose or for observation purposes.	47-13-2	**47-13-2. Definitions.** The definitions set forth in W. Va. Code §22-11-3 shall apply to this rule along with the following definitions unless the context clearly indicates otherwise: 1. "Abandoned well" means a well whose use has been permanently discontinued or which is in a state of disrepair such that it cannot be used for its intended purpose or for observation purposes.	Same as CFR.
	Casing means a pipe or tubing of appropriate material, of varying diameter and weight, lowered into a borehole during or after drilling in order to support the sides of the hole and thus prevent the walls from caving, to prevent loss of drilling mud into porous ground, or to prevent water, gas, or other fluid from entering or leaving the hole.	47-13-2.9	"Casing" means a pipe or tubing of appropriate material, of varying diameter and weight, lowered into a borehole during or after drilling in order to support the sides of the hole and thus prevent the walls from caving, to prevent loss of drilling mud into porous ground, or to prevent water, gas, or other fluid from entering or leaving the hole.	Same as CFR.
	Catastrophic collapse means the sudden and utter failure of overlying “strata” caused by removal of underlying materials.	47-13-2.10	"Catastrophic collapse" means the sudden and utter failure of overlying "strata" caused by removal of underlying materials.	Same as CFR.
	Cementing means the operation whereby a cement slurry is pumped into a drilled hole and/or forced behind the casing.	47-13-2.11	"Cementing" means the operation whereby a cement slurry is pumped into a drilled hole and/or forced behind the casing.	Same as CFR.
	Confining bed means a body of impermeable or distinctly less permeable material stratigraphically adjacent to one or more aquifers.	47-13-2.13	"Confining bed" means a body of impermeable or distinctly less permeable material stratigraphically adjacent to one or more aquifers.	Same as CFR.
	Confining zone means a geological formation, group of formations, or part of a formation that is capable of limiting fluid movement above an injection zone.	47-13-2.14	"Confining zone" means a geological formation, group of formations, or part of a formation stratigraphically overlying the injection zone(s) that acts as barrier to fluid movement above an injection zone. For Class 6 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).	Same as CFR.
	Conventional mine means an open pit or underground excavation for the production of minerals.	47-13-2.16	"Conventional mine" means an open pit or underground excavation for the production of minerals.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
	Disposal well means a well used for the disposal of waste into a subsurface stratum.			Missing. This term is not used (other than in the context of motor vehicle or hazardous waste disposal well).
	Effective date of a UIC program means the date that a State UIC program is approved or established by the Administrator.			Missing. This term is not required for state rules.
	Experimental technology means a technology which has not been proven feasible under the conditions in which it is being tested.	47-13-2.24	"Experimental technology" means a technology which has not been proven feasible under the conditions in which it is being tested.	Same as CFR.
	Fault means a surface or zone of rock fracture along which there has been displacement.	47-13-2.26	"Fault" means a surface or zone of rock fracture along which there has been displacement.	Same as CFR.
	Flow rate means the volume per time unit given to the flow of gases or other fluid substance which emerges from an orifice, pump, turbine or passes along a conduit or channel.	47-13-2.27	"Flow rate" means the volume per time unit given to the flow of gases or other fluid substance which emerges from an orifice, pump, turbine, or passes along a conduit or channel.	Same as CFR.
	Lithology means the description of rocks on the basis of their physical and chemical characteristics.	47-13-2.41	"Lithology" means the description of rocks on the basis of their physical and chemical characteristics.	Same as CFR.
	Packer means a device lowered into a well to produce a fluid-tight seal.	47-13-2.47	"Packer" means a device lowered into a "well" to produce a fluid-tight seal.	Same as CFR.
	Plugging record means a systematic listing of permanent or temporary abandonment of water, oil, gas, test, exploration and waste injection wells, and may contain a well log, description of amounts and types of plugging material used, the method employed for plugging, a description of formations which are sealed and a graphic log of the well showing formation location, formation thickness, and location of plugging structures.	47-13-2.51	"Plugging record" means a systematic listing of permanent or temporary abandonment of water, oil, gas, test, exploration and waste injection wells, and may contain a well log, description of amounts and types of plugging material used, the method employed for plugging, a description of formations which are sealed and a graphic log of the well showing formation location, formation thickness, and location of plugging structures.	Same as CFR.
	Pressure means the total load or force per unit area acting on a surface.	47-13-2.54	"Pressure" means the total load or force per unit area acting on a surface.	Same as CFR.
	Sole or principal source aquifer means an aquifer which has been designated by the Administrator pursuant to section 1424 (a) or (e) of the SDWA.	47-13-2.67	"Sole or principal source aquifer" means an aquifer which has been designated by the Administrator pursuant to section 1424 (a) or (e) of the SDWA.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
	Subsidence means the lowering of the natural land surface in response to: Earth movements; lowering of fluid pressure; removal of underlying supporting material by mining or solution of solids, either artificially or from natural causes; compaction due to wetting (Hydrocompaction); oxidation of organic matter in soils; or added load on the land surface.	47-13-2.72	"Subsidence" means the lowering of the natural land surface in response to: Earth movements; lowering of fluid pressure; removal of underlying supporting material by mining or solution of solids, either artificially or from natural causes; compaction due to wetting (Hydro compaction); oxidation of organic matter in soils; or added load on the land surface.	Same as CFR.
	Surface casing means the first string of well casing to be installed in the well.	47-13-2.74	"Surface casing" means the first string of well casing to be installed in the well.	Same as CFR.
	Well plug means a watertight and gastight seal installed in a borehole or well to prevent movement of fluids.	47-13-2.82	"Well plug" means a watertight and gastight seal installed in a borehole or well to prevent movement of fluids.	Same as CFR.
	Well stimulation means several processes used to clean the well bore, enlarge channels, and increase pore space in the interval to be injected thus making it possible for wastewater to move more readily into the formation, and includes (1) surging, (2) jetting, (3) blasting, (4) acidizing, (5) hydraulic fracturing.	47-13-2.83	"Well stimulation" means several processes used to clean the well bore, enlarge channels, and increase pore space in the interval to be injected thus making it possible for wastewater to move more readily into the formation, and includes (1) surging, (2) jetting, (3) blasting, (4) acidizing, (5) hydraulic fracturing.	Same as CFR.
	Well monitoring means the measurement by on-site instruments or laboratory methods, of the quality of water in a well	47-13-2.84	"Well monitoring" means the measurement, by on-site instruments or laboratory methods, of the quality of water in a well.	Same as CFR.
40 CFR 146.4	**40 CFR 146.4 Criteria for exempted aquifers.** An aquifer or a portion thereof which meets the criteria for an "underground source of drinking water" in §146.3 may be determined under §144.7 of this chapter to be an "exempted aquifer" for Class I–V wells if it meets the criteria in paragraphs (a) through (c) of this section. Class VI wells must meet the criteria under paragraph (d) of this section:	47-13-3	**47-13-3. Criteria for Exempted Aquifer Status.** 1. An aquifer or a portion thereof which meets the criteria for an "underground source of drinking water" in section 2 may be determined to be an exempted aquifer if it meets the following criteria:	Similar to CFR. WV does not have the additional language regarding Class VI wells. However, it does contain provisions analogous to 146.4(d); see below.
40 CFR 146.4(a)	It does not currently serve as a source of drinking water; and	47-13-3.1.a	It does not currently serve as a source of drinking water; and	Same as CFR.
40 CFR 146.4(b)	It cannot now and will not in the future serve as a source of drinking water because:	47-13-3.1.b	It cannot now and will not in the future serve as a source of drinking water because:	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.4(b)(1)	It is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible.	47-13-3.1.b.1	It is a mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a Class 2 or 3 operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible;	Same as CFR.
40 CFR 146.4(b)(2)	It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;	47-13-3.1.b.2	It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;	Same as CFR.
40 CFR 146.4(b)(3)	It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or	47-13-3.1.b.3	It is so contaminated that it would be economically or technologically impractical to render the water fit for human consumption; or	Same as CFR.
40 CFR 146.4(b)(4)	It is located over a Class III well mining area subject to subsidence or catastrophic collapse; or	47-13-3.1.b.4	It is located over a Class 3 well mining area subject to subsidence or catastrophic collapse; or	Same as CFR.
40 CFR 146.4(c)	The total dissolved solids content of the ground water is more than 3,000 and less than 10,000 mg/l and it is not reasonably expected to supply a public water system.	47-13-3.1.c	The Total Dissolved Solids content of the groundwater is more than three thousand (3,000) and less than ten thousand (10,000) mg/1 and it is not reasonably expected to supply a public water system.	Same as CFR.
40 CFR 146.4(d)	The areal extent of an aquifer exemption for a Class II enhanced oil recovery or enhanced gas recovery well may be expanded for the exclusive purpose of Class VI injection for geologic sequestration under §144.7(d) of this chapter if it meets the following criteria:	47-13-3.1.d	The areal extent of an aquifer exemption for a Class II EOR/EGR well may be expanded for the exclusive purpose of Class 6 injection for geologic sequestration if:	Similar to CFR.
40 CFR 146.4(d)(1)	It does not currently serve as a source of drinking water; and	47-13-3.1.d.1	It is not currently a source of drinking water; and	Similar to CFR.
40 CFR 146.4(d)(2)	The total dissolved solids content of the ground water is more than 3,000 mg/l and less than 10,000 mg/l; and	47-13-3.1.d.2	Total dissolved solids content of the ground water is >3,000 but <10,000 mg/l; and	Same as CFR.
40 CFR 146.4(d)(3)	It is not reasonably expected to supply a public water system.	47-13-3.1.d.3	It is not reasonably expected to supply a public water system.	Same as CFR.
40 CFR 146.5	**40 CFR 146.5 Classification of injection wells.** Injection wells are classified as follows:	47-13-4	**47-13-4. Classes of Wells.**	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.5(a)(1)	Class I. (1) Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to inject hazardous waste beneath the lowermost formation containing, within one quarter (1⁄4) mile of the well bore, an underground source of drinking water.	47-13-4.1	Class 1. a. Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to inject hazardous waste beneath the lowermost formation containing, within 1/4 mile of the well bore, an underground source of drinking water	Same as CFR.
40 CFR 146.5(a)(2)	Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water.	47-13-4.1.b	Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within 1/4 mile of the well bore, an underground source of drinking water.	Same as CFR.
40 CFR 146.5(a)(3)	Radioactive waste disposal wells which inject fluids below the lowermost formation containing an underground source of drinking water within one quarter mile of the well bore.	47-13-4.1.c	It also includes wells not covered in Class 4 that inject radioactive material listed in 10 CFR Part 20, Appendix B, Table II, Column 2.	Differs from the CFR in that it does not specify injection of radioactive waste within 1/4 mile of the USDW.
40 CFR 146.5(b)(1)	Class II. Wells which inject fluids: (1) Which are brought to the surface in connection with conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection.	47-13-4.2	Class 2. Wells injecting fluids: a. Which are brought to the surface in connection with natural gas storage, or oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection;	WV's definition of a Class II well is not specific to *conventional* operations. Is it WV's intent to include hydraulic fracturing wells in the Class II definition?
40 CFR 146.5(b)(2)	For enhanced recovery of oil or natural gas; and	47-13-4.2.b	For enhanced recovery of oil or natural gas; and	Same as CFR.
40 CFR 146.5(b)(3)	For storage of hydrocarbons which are liquid at standard temperature and pressure.	47-13-4.2.c	For storage of hydrocarbons which are liquid at standard temperature and pressure.	Same as CFR.
40 CFR 146.5(c)	Class III. Wells which inject for extraction of minerals including:	47-13-4.3	Class 3. Wells which inject for extraction of minerals including:	Same as CFR. WV also includes in situ combustion of fossil fuel (47-13-4.3.d) in Class III.
40 CFR 146.5(c)(1)	Mining of sulfur by the Frasch process;	47-13-4.3.a	Mining of sulphur by the Frasch process;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.5(c)(2)	In situ production of uranium or other metals. This category includes only in-situ production from ore bodies which have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class V.	47-13-4.3.b	In situ production of uranium or other metals. This category includes only in situ production from ore bodies which have not been conventionally mined. Solution mining of conventional mines such as stopes leaching is included in Class 5;	Same as CFR.
40 CFR 146.5(c)(3)	Solution mining of salts or potash.	47-13-4.3.c	Solution mining of salts or potash; and	Same as CFR.
40 CFR 146.5(d)(1)	Class IV. (1) Wells used by generators of hazardous waste or of radioactive waste, by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous waste or radioactive waste into a formation which within one quarter (1⁄4) mile of the well contains an underground source of drinking water.			Missing. WV does not specifically describe Class IV wells injection *into* a formation near a USDW.
40 CFR 146.5(d)(2)	Wells used by generators of hazardous waste or of radioactive waste, by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous waste or radioactive waste above a formation which within one quarter (1⁄4) mile of the well contains an underground source of drinking water.			Missing. WV does not specifically describe Class IV wells injection *above* a formation near a USDW.
40 CFR 146.5(d)(3)	Wells used by generators of hazardous waste or owners or operators of hazardous waste management facilities to dispose of hazardous waste, which cannot be classified under § 146.05(a)(1) or § 146.05(d) (1) and (2) (e.g., wells used to dispose of hazardous wastes into or above a formation which contains an aquifer which has been exempted pursuant to § 146.04).	47-13-4.4	Class 4. a. Wells used by generators of hazardous waste or by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites, to dispose of hazardous wastes which cannot be classified under subdivisions 4.1.a, 4.1.b, or 4.1.c.	Similar to CFR. WV does not include examples. The above two rows are summarized by this row.
40 CFR 146.5(e)	Class V wells are wells not included in Classes I, II, III, IV, or VI (see 144.81).	47-13-4.5	Class 5. Injection wells not included in Classes 1, 2, 3, 4, or 6. Class 5 wells include, but are not limited to:	Same as CFR.
40 CFR 146.5(e)(1)	Air conditioning return flow wells used to return to the supply aquifer the water used for heating or cooling in a heat pump;	47-13-4.5.k	Air conditioning return flow wells used to return to the supply aquifer the water used for heating or cooling in a heat pump.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.5(e)(2)	Large capacity cesspools including multiple dwelling, community or regional cesspools, or other devices that receive sanitary wastes, containing human excreta, which have an open bottom and sometimes perforated sides. The UIC requirements do not apply to single family residential cesspools nor to non-residential cesspools which receive solely sanitary waste and have the capacity to serve fewer than 20 persons a day.	47-13-4.5.a	Cesspools, including multiple dwelling, community or regional cesspools, or other devices that receive wastes, which have an open bottom and sometimes have perforated sides. The UIC requirements do not apply to single family residential cesspools nor to nonresidential cesspools which receive solely sanitary wastes and have the capacity to serve fewer than twenty (20) persons a day.	WV defines cesspools, rather than large-capacity cesspools. However, the regulations apply to cesspools that serve more than 20 persons a day, consistent with CFR. No concerns for stringency.
40 CFR 146.5(e)(3)	Cooling water return flow wells used to inject water previously used for cooling;	47-13-4.5.l	Cooling water return flow wells used to inject water previously used for cooling.	Same as CFR.
40 CFR 146.5(e)(4)	Drainage wells used to drain surface fluids, primarily storm runoff, into a subsurface formation;	47-13-4.5.m	Drainage wells used to drain surface fluid, primarily storm runoff, into a subsurface formation.	Same as CFR.
40 CFR 146.5(e)(5)	Dry wells used for the injection of wastes into a subsurface formation;	47-13-4.5.n	Dry wells used for the injection of wastes into a subsurface formation.	Same as CFR.
40 CFR 146.5(e)(6)	Recharge wells used to replenish the water in an aquifer;	47-13-4.5.o	Recharge wells used to replenish the water in an aquifer.	Same as CFR.
40 CFR 146.5(e)(7)	Salt water intrusion barrier wells used to inject water into a fresh aquifer to prevent the intrusion of salt water into the fresh water;	47-13-4.5.p	Salt water intrusion barrier wells used to inject water into the fresh water aquifer to prevent the intrusion of salt water into the fresh water.	Same as CFR.
40 CFR 146.5(e)(8)	Sand backfill and other backfill wells used to inject a mixture of water and sand, mill tailings or other solids into mined out portions of subsurface mines whether what is injected is a radioactive waste or not.	47-13-4.5.b	Sand backfill and other backfill wells used to inject a mixture of water and sand, mill tailings or other solids into mined out portions of subsurface mines provided what is injected is not a radioactive waste.	Differs from CFR. WV specifies that this subtype does not include radioactive waste disposal.
40 CFR 146.5(e)(9)	Septic system wells used to inject the waste or effluent from a multiple dwelling, business establishment, community or regional business establishment septic tank. The UIC requirements do not apply to single family residential septic system wells, nor to non-residential septic system wells which are used solely for the disposal of sanitary waste and have the capacity to serve fewer than 20 persons a day.	47-13-4.5.c	Septic system wells used to inject the waste or effluent from a multiple dwelling, business establishment, community or regional business establishment septic tank. The UIC requirements do not apply to single family residential septic system wells, nor to nonresidential septic system wells which are used solely for the disposal of sanitary waste and have the capacity to serve fewer than twenty (20) persons a day.	Same as CFR.
40 CFR 146.5(e)(10)	Subsidence control wells (not used for the purpose of oil or natural gas production) used to inject fluids into a non-oil or gas producing zone to reduce or eliminate subsidence associated with the overdraft of fresh water;	47-13-4.5.q	Subsidence control wells (not used for the purpose of oil or natural gas production) used to inject fluids into a non-oil or gas producing zone to reduce or eliminate subsidence associated with the overdraft of fresh water.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.5(e)(11)	Radioactive waste disposal wells other than Class IV;			Missing. This should not be included, as the CFR text contains obsolete references to radioactive material, the disposal of which is prohibited in a Class V well. No concerns for stringency.
40 CFR 146.5(e)(12)	Injection wells associated with the recovery of geothermal energy for heating, aquaculture and production of electric power;	47-13-4.5.d	Injection wells associated with the recovery of geothermal energy for heating, aquaculture and production of electric power.	Same as CFR.
40 CFR 146.5(e)(13)	Wells used for solution mining of conventional mines such as stopes leaching;	47-13-4.5.e	Wells used for solution mining of conventional mines such as stopes leaching.	Same as CFR.
40 CFR 146.5(e)(14)	Wells used to inject spent brine into the same formation from which it was withdrawn after extraction of halogens or their salts;	47-13-4.5.g	Wells used to inject spent brine into the same formation from which it was withdrawn after extraction of halogens or their salts.	Same as CFR.
40 CFR 146.5(e)(15)	Injection wells used in experimental technologies.	47-13-4.5.h	Injection wells used in experimental technologies.	Same as CFR.
40 CFR 146.5(e)(16)	Injection wells used for in situ recovery of lignite, coal, tar sands, and oil shale.	47-13-4.5.f	Injection wells used for in situ recovery of lignite, coal, tar sands, and oil shale.	Same as CFR.
40 CFR 146.5(f)	Class VI. Wells that are not experimental in nature that are used for geologic sequestration of carbon dioxide beneath the lowermost formation containing a USDW; or, wells used for geologic sequestration of carbon dioxide that have been granted a waiver of the injection depth requirements pursuant to requirements at § 146.95; or, wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to §§ 146.4 and 144.7(d) of this chapter.	47-13-4.6	Class 6. a. Wells used to inject carbon dioxide (CO2) into rock formations. Wells that are not experimental in nature that are used for geologic sequestration of carbon dioxide beneath the lowermost formation containing a USDW; or, wells used for geologic sequestration of carbon dioxide that have been granted a waiver of the injection depth requirements pursuant to requirements at subsection 14.8.d. of this chapter; or, wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of an existing Class 2 enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to section 13.3 and 40 CFR 144.7(d).	Similar to CFR. WV includes an extra sentence referring to CO2 injection. No concerns for stringency.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.6	**40 CFR 146.6 Area of review.** The area of review for each injection well or each field, project or area of the State shall be determined according to either paragraph (a) or (b) of this section. The Director may solicit input from the owners or operators of injection wells within the State as to which method is most appropriate for each geographic area or field.	47-13-5	**47-13-5. Area of Review.** 1. The Director shall select the methods by which the area of review shall be established for each injection well or each field, project, or area of the State. 2. The area of review may be defined as either: 2.a. The zone of endangering influence as determined in accordance with subdivision 5.3.a; or 2.b. An area within a fixed radius around each injection well as determined in accordance with subdivision 5.3.c.	Differs from CFR. WV may be more stringent in that the Director determines the AoR delineation method.
40 CFR 146.6(a)(1)	Zone of endangering influence. (1) The zone of endangering influence shall be:	47-13-5.3	Zone of endangering influence. The zone of endangering influence shall be:	Same as CFR.
40 CFR 146.6(a)(1)(i)	In the case of application(s) for well permit(s) under § 122.38 that area the radius of which is the lateral distance in which the pressures in the injection zone may cause the migration of the injection and/or formation fluid into an underground source of drinking water; or	47-13-5.3.a	In case of application(s) for well permit(s) under subsection 14.3, that area the radius of which is the horizontal distance from the injection well in which the pressures in the injection zone may cause the migration of the injection and/or formation fluid into an underground source of drinking water; or	Similar to CFR.
40 CFR 146.6(a)(1)(ii)	In the case of an application for an area permit under § 122.39, the project area plus a circumscribing area the width of which is the lateral distance from the perimeter of the project area, in which the pressures in the injection zone may cause the migration of the injection and/or formation fluid into an underground source of drinking water.	47-13-5.3.b	In the case of an application for an area permit under subsection 14.4, the area of the project plus a circumscribing area, the width of which is the horizontal distance for the perimeter of the project, in which the pressures in the injection zone may cause the migration of the injection and/or formation fluid into an underground source of drinking water. Computation of the zone of endangering influence should be based upon but not limited to, the parameters listed below and should be calculated for an injection time period equal to the expected life of the facility. The Thesis equation is an example of one possible objective method:	Similar to CFR.

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ED_013399_00000014-00181

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.6(a)(2)	Computation of the zone of endangering influence may be based upon the parameters listed below and should be calculated for an injection time period equal to the expected life of the injection well or pattern. The following modified Theis equation illustrates one form which the mathematical model may take. [see 40 CFR 146.6(a)(2) for equation]	47-13-5.3.b	In the case of an application for an area permit under subsection 14.4, the area of the project plus a circumscribing area, the width of which is the horizontal distance for the perimeter of the project, in which the pressures in the injection zone may cause the migration of the injection and/or formation fluid into an underground source of drinking water. Computation of the zone of endangering influence should be based upon but not limited to, the parameters listed below and should be calculated for an injection time period equal to the expected life of the facility. The Thesis equation is an example of one possible objective method:	Similar to CFR. WV adds that the factors that support the computation are not limited to the items listed in the CFR; this may result in a more rigorous review. No concerns for stringency. Typo in WV text: "The Thesis equation..."

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40 CFR 146.6(a)(2) continued	[INCLUDEPICTURE "http://www.ecfr.gov/graphics/ec15no91.140.gif" * MERGEFORMATINET] where: [INCLUDEPICTURE "http://www.ecfr.gov/graphics/ec15no91.141.gif" * MERGEFORMATINET] r=Radius of endangering influence from injection well (length) k=Hydraulic conductivity of the injection zone (length/time) H=Thickness of the injection zone (length) t=Time of injection (time) S=Storage coefficient (dimensionless) Q=Injection rate (volume/time) hbo =Observed original hydrostatic head of injection zone (length) measured from the base of the lowermost underground source of drinking water hw =Hydrostatic head of underground source of drinking water (length) measured from the base of the lowest underground source of drinking water Sp Gb =Specific gravity of fluid in the injection zone (dimensionless) π=3.142 (dimensionless)	47-13-5.3.b	Where "r" is equal to the square root of a quantity which consists of a numerator divided by the denominator where the numerator is equal to 2.25 multiplied by "K" multiplied by "H" multiplied by "t"; and, the denominator is equal to "S" multiplied by 10 to the "x" power. And, where "x" is equal to a numerator divided by a denominator, where the numerator is equal to four multiplied by "pi" multiplied by "K" multiplied by "H" multiplied [by the quantity equal to the product of ("h(subscript w)" minus "h(subscript bo)")] multiplied by "S(subscript p)G(subscript b)"; and, the denominator is equal to 2.3 multiplied by "Q". (See Figure 47-13-5 at the end of this rule) 1. Where "r" is equal to the radius of endangering influence from injection well (length): 1.A. "K" is equal to hydraulic conductivity of the injection zone (length/time); 1.B. "H" is equal to thickness of the injection zone (length); 1.C. "t" is equal to time of injection (time); 1.D. "S" is equal to storage coefficient (dimensionless); 1.E. "Q" is equal to injection rate (volume/time); 1.F. "h(subscript bo)" is equal to observed original hydrostatic head of injection zone (length) measured from the base of the lowermost underground source of drinking water; 1.G. "h(subscript w)" is equal to hydrostatic head of underground source of drinking water (length) measured from the base of the lowest underground source of drinking water; 1.H. "S(subscript p)G(sub-script b)" is equal to specific gravity of fluid in the injection zone (dimensionless); 1.I. "pi" is equal to 3.142 (dimensionless) **Figure 47-13-5**	Similar to CFR. WV writes out the equations in text form. The text accurately matches the formulas, and the formulas in Figure 47-13-5 match the CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
			$r = \sqrt{\frac{2.25KHt}{S10^{x}}}$ where: $x = \frac{4\pi KH(h_w - h_{bo})S_p G_b}{2.3Q}$	
40 CFR 146.6(a)(2) continued	The above equation is based on the following assumptions: (i) The injection zone is homogenous and isotropic; (ii) The injection zone has infinite area extent; (iii) The injection well penetrates the entire thickness of the injection zone; (iv) The well diameter is infinitesimal compared to "r" when injection time is longer than a few minutes; and (v) The emplacement of fluid into the injection zone creates instantaneous increase in pressure.	47-13-5.3.b.2	The above equation is based on the following assumptions: A. The injection zone is homogenous and isotrophic; B. The injection zone has infinite area extent; C. The injection well penetrates the entire thickness of the injection zone; D. The well diameter is infinitesimal compared to "r" when injection time is longer than a few minutes; and E. The emplacement of fluid into the injection zone creates instantaneous increase in pressure.	Same as CFR. Typo: "isotrophic"
40 CFR 146.6(b)(1)	Fixed radius. (1) In the case of application(s) for well permit(s) under § 122.38 a fixed radius around the well of not less than one-fourth (1⁄4) mile may be used.	47-13-5.3.c	Fixed radius: 1. In the case of application(s) for well permit(s), a fixed radius around the well may be used but not less than 1/4 mile, except for: 1.A. For Class1 hazardous waste wells, the area of review is a 2 mile radius.	Similar to CFR. WV specifies an area of review for Class I wells that is consistent with 40 CFR 146.63.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.6(b)(2)	In the case of an application for an area permit under § 122.39 a fixed width of not less than one-fourth (1⁄4) mile for the circumscribing area may be used. In determining the fixed radius, the following factors shall be taken into consideration: Chemistry of injected and formation fluids; hydrogeology; population and ground-water use and dependence; and historical practices in the area.	47-13-5.3.c	2. In the case of an application for an area permit, a fixed width may be used but not less than 1/4 mile for the circumscribing area. 3. In determining the fixed radius, the following factors shall be taken into consideration: the chemistry of the injected and formation fluids; geology; hydrogeology; population and groundwater use and dependence; and historical practices in the area.	Same as CFR. WV also includes geology as a factor in calculating the fixed radius.
40 CFR 146.6(c)	If the area of review is determined by a mathematical model pursuant to paragraph (a) of this section, the permissible radius is the result of such calculation even if it is less than one-fourth (1⁄4) mile.			Missing. Omission of this clarifying provision in the CFR may not affect stringency.
40 CFR 146.7	**40 CFR 146.7 Corrective action.** In determining the adequacy of corrective action proposed by the applicant under 40 CFR 144.55 and in determining the additional steps needed to prevent fluid movement into underground sources of drinking water, the following criteria and factors shall be considered by the Director:	47-13-6.1	Corrective Action. In determining the adequacy of corrective action proposed by the applicant and in determining the additional steps needed to prevent fluid migration into underground sources of drinking water, the Director shall consider the following criteria and factors:	Similar to CFR.
40 CFR 146.7(a)	Nature and volume of injected fluid;	47-13-6.1.a	Nature and volume of injected fluid;	Same as CFR.
40 CFR 146.7(b)	Nature of native fluids or by-products of injection;	47-13-6.1.b	Nature of native fluids or by-products of injection;	Same as CFR.
40 CFR 146.7(c)	Potentially affected population;	47-13-6.1.i	Potentially effected population.	Same as CFR.
40 CFR 146.7(d)	Geology;	47-13-6.1.c	Geology;	Same as CFR.
40 CFR 146.7(e)	Hydrology;	47-13-6.1.d	Hydrology;	Same as CFR.
40 CFR 146.7(f)	History of the injection operation;	47-13-6.1.e	History of the injection operation;	Same as CFR.
40 CFR 146.7(g)	Completion and plugging records;	47-13-6.1.f	Completion and plugging reports;	Same as CFR.
40 CFR 146.7(h)	Abandonment procedures in effect at the time the well was abandoned; and	47-13-6.1.g	Abandonment procedures in effect at the time the well was abandoned;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.7(i)	Hydraulic connections with underground sources of drinking water.	47-13-6.1.h	Hydraulic connections with the underground sources of drinking water; and	Same as CFR.
40 CFR 146.8(a)	**40 CFR 146.8 Mechanical integrity.** An injection well has mechanical integrity if:	47-13-6.2	Mechanical Integrity. a. An injection well has mechanical integrity if:	Same as CFR.
40 CFR 146.8(a)(1)	There is no significant leak in the casing, tubing or packer; and	47-13-6.2.a.1	There is no significant leak in the casing, tubing, or packer; and	Same as CFR.
40 CFR 146.8(a)(2)	There is no significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore.	47-13-6.2.a.2	There is no significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore.	Same as CFR.
40 CFR 146.8(b)	One of the following methods must be used to evaluate the absence of significant leaks under paragraph (a)(1) of this section:	47-13-6.2.b	One of the following methods must be used to evaluate the absence of significant leaks under paragraph 6.2.a.1 of this section:	Same as CFR.
40 CFR 146.8(b)(1)	Following an initial pressure test, monitoring of the tubing-casing annulus pressure with sufficient frequency to be representative, as determined by the Director, while maintaining an annulus pressure different from atmospheric pressure measured at the surface;	47-13-6.2.b.1	Monitoring of annulus pressure; or	WV does not describe annulus pressure monitoring at the level of detail in the CFR.
40 CFR 146.8(b)(2)	Pressure test with liquid or gas; or	47-13-6.2.b.2	Pressure test with liquid or gas.	Same as CFR.
40 CFR 146.8(b)(3)	Records of monitoring showing the absence of significant changes in the relationship between injection pressure and injection flow rate for the following Class II enhanced recovery wells:			Missing. WV does not allow submittal of monitoring records for Class II EOR wells. This may be more stringent than the CFR.
40 CFR 146.8(b)(3)(i)	Existing wells completed without a packer provided that a pressure test has been performed and the data is available and provided further that one pressure test shall be performed at a time when the well is shut down and if the running of such a test will not cause further loss of significant amounts of oil or gas; or			Missing (see above).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.8(b)(3)(ii)	Existing wells constructed without a long string casing, but with surface casing which terminates at the base of fresh water provided that local geological and hydrological features allow such construction and provided further that the annular space shall be visually inspected. For these wells, the Director shall prescribe a monitoring program which will verify the absence of significant fluid movement from the injection zone into an USDW.			Missing (see above).
40 CFR 146.8(c)	One of the following methods must be used to determine the absence of significant fluid movement under paragraph (a)(2) of this section:	47-13-6.2.c	The absence of significant fluid movement under paragraph 6.2.a.2 of this section may be demonstrated by:	Similar to CFR.
40 CFR 146.8(c)(1)	The results of a temperature or noise log; or	47-13-6.2.c.3	The results of a temperature or noise log;	Same as CFR.
40 CFR 146.8(c)(2)	For Class II only, cementing records demonstrating the presence of adequate cement to prevent such migration; or	47-13-6.2.c.1 47-13-9.1.a.	For Class 2 wells, any requirements determined necessary under subdivision 9.1.a; The criteria and standards applicable to Class 2 wells shall be those which are required pursuant to W. Va. Code §§22-6 et seq. and 22C-9-1 et seq. and the rules thereunder, including W. Va. Code of State Rules §35-4, this rule, and any other requirements that the Director considers reasonably necessary to ensure that no pollution of USDWs occurs.	Differs from CFR. WV references their oil and gas regulations (these were not reviewed in detail, but they do not have a section on MITs).
40 CFR 146.8(c)(3)	For Class III wells where the nature of the casing precludes the use of the logging techniques prescribed at paragraph (c)(1) of this section, cementing records demonstrating the presence of adequate cement to prevent such migration;	47-13-6.2.c.2	For Class 3 wells where the nature of the casing precludes the use of logging techniques prescribed at 6.2.c.3 of this section, cementing records demonstrating the presence of adequate cement to prevent such migration;	Same as CFR.
40 CFR 146.8(c)(4)	For Class III wells where the Director elects to rely on cementing records to demonstrate the absence of significant fluid movement, the monitoring program prescribed by § 146.33(b) shall be designed to verify the absence of significant fluid movement.	47-13-6.2.c.4	For Class 3 wells where the Director elects to rely on cementing records to demonstrate the absence of significant fluid movement, the monitoring program prescribed by subsection 10.4 shall be designed to verify the absence of significant fluid movement;	Same as CFR.

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Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.8(d)	The Director may allow the use of a test to demonstrate mechanical integrity other than those listed in paragraphs (b) and (c)(2) of this section with the written approval of the Administrator. To obtain approval, the Director shall submit a written request to the Administrator, which shall set forth the proposed test and all technical data supporting its use. The Administrator shall approve the request if it will reliably demonstrate the mechanical integrity of wells for which its use is proposed. Any alternate method approved by the Administrator shall be published in the Federal Register and may be used in all States unless its use is restricted at the time of approval by the Administrator.	47-13-6.2.d	The Director may allow the use of a test to demonstrate mechanical integrity other than those listed in subdivisions 6.2.b and 6.2.c of this section with the written approval of the Director of the U.S. Environmental Protection Agency.	Similar to CFR. WV refers to the EPA *Director* rather than the *Administrator* and does not describe the process for obtaining approval. However, because approvals are the responsibility of EPA, there is no concern for stringency.
40 CFR 146.8(e)	In conducting and evaluating the tests enumerated in this section or others to be allowed by the Director, the owner or operator and the Director shall apply methods and standards generally accepted in the industry. When the owner or operator reports the results of mechanical integrity tests to the Director, he shall include a description of the test(s) and the method(s) used. In making his/her evaluation, the Director shall review monitoring and other test data submitted since the previous evaluation.	47-13-6.2.e	In conducting and evaluating the tests enumerated in this section or others to be allowed by the Director, the owner or operator and the Director shall apply methods and standards generally accepted in the industry. When the owner or operator reports the results of mechanical integrity tests to the Director, he shall include a description of the test(s) and the method(s) used. In making his/her evaluation, the Director shall review monitoring and other test data submitted since the previous evaluation.	Same as CFR.
40 CFR 146.8(f)	The Director may require additional or alternative tests if the results presented by the owner or operator under § 146.8(e) are not satisfactory to the Director to demonstrate that there is no movement of fluid into or between USDWs resulting from the injection activity.	47-13-6.2.c.5.E	The Director may require additional or alternative tests if the results presented by the owner or operator under paragraphs A through D of this subsection are not satisfactory to the Director to demonstrate that there is no significant leak in the casing, tubing, or packer, or to demonstrate that there is no significant movement of fluid into a USDW resulting from the injection activity as stated in 6.2.a. of this section; or	This WV provision applies only to Class VI wells. this is less stringent than the CFR for other well classes.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.9	**40 CFR 146.9 Criteria for establishing permitting priorities.** In determining priorities for setting times for owners or operators to submit applications for authorization to inject under the procedures of § 144.31 (a), (c), (g) or § 144.22(f), the Director shall base these priorities upon consideration of the following factors:			Missing. WV does not identify criteria for establishing permitting priorities; this may be acceptable if this is described elsewhere in the primacy package or WV has no permitting backlog. (Applies to all of 146.9.)
40 CFR 146.9(a)	Injection wells known or suspected to be contaminating underground sources of drinking water;			
40 CFR 146.9(b)	Injection wells known to be injecting fluids containing hazardous contaminants;			
40 CFR 146.9(c)	Likelihood of contamination of underground sources of drinking water;			
40 CFR 146.9(d)	Potentially affected population;			
40 CFR 146.9(e)	Injection wells violating existing State requirements;			
40 CFR 146.9(f)	Coordination with the issuance of permits required by other State or Federal permit programs;			
40 CFR 146.9(g)	Age and depth of the injection well; and			
40 CFR 146.9(h)	Expiration dates of existing State permits, if any.			

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.10 (a)(1)	**40 CFR 146.10 Plugging and abandoning Class I-III wells.** Requirements for Class I, II and III wells. (1) Prior to abandoning Class I, II and III wells, the well shall be plugged with cement in a manner which will not allow the movement of fluids either into or between underground sources of drinking water. The Director may allow Class III wells to use other plugging materials if the Director is satisfied that such materials will prevent movement of fluids into or between underground sources of drinking water.	47-13-8.3.a 47-13-9.3.a 47-13-10-3.a	47-13-8.3.a Class 1 wells shall be abandoned in a manner to be prescribed by the Director under subdivision 14.7.f. At a minimum, the well shall be plugged with cement in a manner which will not allow the movement of fluids either into or between underground sources of drinking water. 47-13-9.3.a Class 2 wells shall be abandoned in a manner, prescribed by the Director, under subdivision 14.7.f, and W. Va. Code §22-6 et seq. and the rules thereunder. At a minimum the well shall be plugged with cement in a manner which will not allow movement of fluids either into or between underground sources of drinking water. The Director may allow Class 2 wells to use other plugging materials if he is satisfied that such materials will prevent movement of fluids into or between underground sources of drinking water. 47-13-10.3.a Class 3 wells shall be abandoned in a manner, prescribed by the Director, under subdivision 14.7.f. At a minimum the well shall be plugged with cement in a manner which will not allow movement of fluids either into or between underground sources of drinking water. The Director may allow Class 3 wells to use other plugging materials if he is satisfied that such materials will prevent movement of fluids into or between underground sources of drinking water.	WV establishes plugging requirements in the context of the well specific sections of the rule. Requirements are generally similar for Classes I, II, and III; see below. Each provision references 14.7.f., which is similar in intent to 146.10. For Class II wells, WV allows use of other plugging materials if the Director is satisfied of their use. This is less stringent than the CFR.
40 CFR 146.10 (a)(2)	Placement of the cement plugs shall be accomplished by one of the following:	47-13-8.3.b 47-13-9.3.b 47-13-10-3.b	Placement of cement plugs shall be accomplished by one of the following:	Same as CFR. Rule Text is the same for Well Classes I-III.
40 CFR 146.10 (a)(2)(i)	The Balance method;	47-13-8.3.b.1 47-13-9.3.b.1 47-13-10-3.b.1	The Balance Method;	Same as CFR. Rule Text is the same for Well Classes I-III.
40 CFR 146.10 (a)(2)(ii)	The Dump Bailer method;	47-13-8.3.b.2 47-13-9.3.b.2 47-13-10-3.b.2	The Dump Bailer Method;	Same as CFR. Rule Text is the same for Well Classes I-III.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.10 (a)(2)(iii)	The Two-Plug method; or	47-13-8.3.b.3 47-13-9.3.b.3 47-13-10-3.b.3	The Two-Plug method; or	Same as CFR. Rule Text is the same for Well Classes I-III.
40 CFR 146.10 (a)(2)(iv)	An alternative method approved by the Director, which will reliably provide a comparable level of protection to underground sources of drinking water.	47-13-8.3.b.4 47-13-9.3.b.4 47-13-10-3.b.4	An alternative method approved by the Director which will reliably provide a comparable level of protection to USDW'S.	Same as CFR. Rule Text is the same for Well Classes I-III.
40 CFR 146.10 (a)(3)	The well to be abandoned shall be in a state of static equilibrium with the mud weight equalized top to bottom, either by circulating the mud in the well at least once or by a comparable method prescribed by the Director, prior to the placement of the cement plug(s).	47-13-8.3.f 47-13-9.3.c 47-13-10.3.c	The well to be abandoned shall be in a state of static equilibrium with the mud weight equalized top to bottom, either by circulating the mud in the well at least once or a comparable method prescribed by the Director, prior to the placement of the cement plug(s).	Same as CFR. Rule Text is the same for Well Classes I-III.
40 CFR 146.10 (a)(4)	The plugging and abandonment plan required in 40 CFR 144.51(o) and 144.52(a)(6) shall, in the case of a Class III project which underlies or is in an aquifer which has been exempted under § 146.04, also demonstrate adequate protection of USDWs. The Director shall prescribe aquifer cleanup and monitoring where he deems it necessary and feasible to insure adequate protection of USDWs.	47-13-10.3.e	The plugging and abandonment plan required in subdivision 14.7.f shall, in the case of a Class 3 project which underlies or is in an aquifer which has been exempted under section 3, also demonstrate adequate protection of USDWs. The Director shall prescribe aquifer cleanup and monitoring where he deems it necessary and feasible to insure adequate protection of USDWs.	Same as CFR.
40 CFR 146.10(b)	Requirements for Class IV wells. Prior to abandoning a Class IV well, the owner or operator shall close the well in accordance with 40 CFR 144.23(b).	47-13-11.3.e	Class 4 Wells should not be in operation unless as part of an EPA administered program. Therefore, closure shall follow federal rules 40 CFR 144.23.	WV does not allow new Class IV wells, and defers to EPA and 40 CFR 144.23 for oversight. No concerns for stringency.
40 CFR 146.10(c)(1)	Requirements for Class V wells. (1) Prior to abandoning a Class V well, the owner or operator shall close the well in a manner that prevents the movement of fluid containing any contaminant into an underground source of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR part 141 or may otherwise adversely affect the health of persons. Closure requirements for motor vehicle waste disposal wells and large-capacity cesspools are reiterated at § 144.89.			Missing. While WV does not provide specific rules for Class V abandonment, 47-13-14.7.f contains requirements for plugging plans in the context of permitting. See 144.89.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.10(c)(2)	The owner or operator shall dispose of or otherwise manage any soil, gravel, sludge, liquids, or other materials removed from or adjacent to the well in accordance with all applicable Federal, State, and local regulations and requirements.			Missing. See previous row.
Subpart B—Criteria and Standards Applicable to Class I Wells				
40 CFR 146.11	**40 CFR 146.11 Criteria and standards applicable to Class I nonhazardous wells.** This subpart establishes criteria and standards for underground injection control programs to regulate Class I nonhazardous wells.	47-13-8.1	**47-13-8. Criteria and Standards Applicable to Class 1 Wells.** General. This section sets forth requirements for underground injection control programs to regulate Class 1 wells.	Similar to CFR. Note that WV has the same requirements for Class I hazardous and non-hazardous waste injection wells. This likely means that some requirements for Class I non-hazardous wells may be more stringent than the CFR. See also Subpart G.
40 CFR 146.12(a)	**40 CFR 146.12 Construction requirements.** All Class I wells shall be sited in such a fashion that they inject into a formation which is beneath the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water.	47-13-8.2.a	Each Class 1 well shall be sited in such a fashion that it injects into a formation which is below the lowermost formation containing within 1/4 mile of the well bore, an underground source of drinking water, and which has an overlying confining bed that is free of known faults or fractures within the area of review. The injection zone shall have sufficient permeability, porosity, thickness and areal extent to prevent migration of fluids into USDWs. The confining zone shall be laterally continuous and free of transecting, transmissive faults or fractures over an area sufficient to prevent the movement of fluids into a USDW. The siting shall contain at least one formation of sufficient thickness and with lithologic and stress characteristics capable of preventing vertical propagation of fractures.	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.12(b)	All Class I wells shall be cased and cemented to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well. In determining and specifying casing and cementing requirements, the following factors shall be considered:	47-13-8.2.b	Each Class 1 well shall be cased, and cemented to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well and post-closure period. <u>The well construction must permit use of appropriate testing devices and workover tools, and continuous monitoring of tubing and casing.</u> In determining and specifying casing and cementing requirements, the Director shall consider the following factors:	Similar to CFR. WV includes an additional construction requirement (underlined) that applies to hazardous and non-hazardous Class I wells. This is more stringent than the CFR.
40 CFR 146.12(b)(1)	Depth to the injection zone;	47-13-8.2.b.1	Depth to the injection zone;	Same as CFR.
40 CFR 146.12(b)(2)	Injection pressure, external pressure, internal pressure, and axial loading;	47-13-8.2.b.2	Injection pressure (external pressure, internal pressure, axial loading, etc.);	Same as CFR.
40 CFR 146.12(b)(3)	Hole size;	47-13-8.2.b.3	Hole size;	Same as CFR.
40 CFR 146.12(b)(4)	Size and grade of all casing strings (wall thickness, diameter, nominal weight, length, joint specification, and construction material);	47-13-8.2.b.4	Size and grade of all casing strings (wall thickness, diameter, nominal weight, length, joint specification, construction material, etc.);	Same as CFR.
40 CFR 146.12(b)(5)	Corrosiveness of injected fluid, formation fluids, and temperatures;	47-13-8.2.b.5	Corrosiveness of injected fluid, formation fluids, and temperatures;	Same as CFR.
40 CFR 146.12(b)(6)	Lithology of injection and confining intervals; and	47-13-8.2.b.6	Lithology of possible injection and confining intervals; and	Same as CFR.
40 CFR 146.12(b)(7)	Type or grade of cement.	47-13-8.2.b.7	Type or grade of cement.	Same as CFR.
40 CFR 146.12(c)	All Class I injection wells, except those municipal wells injecting non-corrosive wastes, shall inject fluids through tubing with a packer set immediately above the injection zone, or tubing with an approved fluid seal as an alternative. The tubing, packer, and fluid seal shall be designed for the expected service.	47-13-8.2.c	All Class 1 injection wells, except for those municipal wells injecting only non-corrosive wastes, shall inject fluids through tubing and packer set immediately above the injection zone. The tubing and packer shall be designed for the expected service.	Similar to CFR. WV does not allow for tubing with an approved fluid seal as an alternative to a packer (see subsection 47-13-8.2.c.3). This is more stringent than the CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.12(c)(1)	The use of other alternatives to a packer may be allowed with the written approval of the Director. To obtain approval, the operator shall submit a written request to the Director, which shall set forth the proposed alternative and all technical data supporting its use. The Director shall approve the request if the alternative method will reliably provide a comparable level of protection to underground sources of drinking water. The Director may approve an alternative method solely for an individual well or for general use.	47-13-8.2.c.1	The use of other alternatives to a packer may be allowed with the written approval of the Director. To obtain approval, the operator shall submit a written request to the Director, which shall set forth the proposed alternative and all technical data supporting its use. The Director shall approve the request only if the alternative method will reliably provide a comparable level of protection to underground sources of drinking water. The Director may approve an alternative method solely for an individual well or for general use.	Same as CFR.
40 CFR 146.12(c)(2)	In determining and specifying requirements for tubing, packer, or alternatives the following factors shall be considered:	47-13-8.2.c.2	In determining and specifying requirements for tubing and packer, the Director shall consider the following factors:	Similar to CFR. WV excludes *alternatives*. See above.
40 CFR 146.12(c)(2)(i)	Depth of setting;	47-13-8.2.c.2.A	Depth of setting;	Same as CFR.
40 CFR 146.12(c)(2)(ii)	Characteristics of injection fluid (chemical content, corrosiveness, and density);	47-13-8.2.c.2.B	Characteristics of injection fluid (chemical content, density, etc.);	Similar to CFR.
40 CFR 146.12(c)(2)(iii)	Injection pressure;	47-13-8.2.c.2.C	Injection pressure;	Same as CFR.
40 CFR 146.12(c)(2)(iv)	Annular pressure;	47-13-8.2.c.2.D	Annular pressure;	Same as CFR.
40 CFR 146.12(c)(2)(v)	Rate, temperature and volume of injected fluid; and	47-13-8.2.c.2.E	Rate, temperature and volume of injected fluid; and	Same as CFR.
40 CFR 146.12(c)(2)(vi)	Size of casing.	47-13-8.2.c.2.F	Size of casing; and	Same as CFR.
40 CFR 146.12(d)	Appropriate logs and other tests shall be conducted during the drilling and construction of new Class I wells. A descriptive report interpreting the results of such logs and tests shall be prepared by a knowledgeable log analyst and submitted to the Director. At a minimum, such logs and tests shall include:	47-13-8.2.e	Logs and other tests shall be conducted during the drilling and construction of new Class 1 wells. A descriptive report interpreting the results of such logs and tests shall be prepared by a knowledgeable log analyst and submitted to the Director. At a minimum such logs and tests shall include:	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.12(d)(1)	Deviation checks on all holes constructed by first drilling a pilot hole, and then enlarging the pilot hole by reaming or another method. Such checks shall be at sufficiently frequent intervals to assure that vertical avenues for fluid migration in the form of diverging holes are not created during drilling.	47-13-8.2.e.1	Directional surveys conducted on all holes, including pilot holes, at sufficiently frequent intervals to assure that vertical avenues for fluid migration in the form of diverging holes are not created during drilling.	Missing. WV refers to directional surveys instead of deviation checks, but the requirement is similar.
40 CFR 146.12(d)(2)	Such other logs and tests as may be needed after taking into account the availability of similar data in the area of the drilling site, the construction plan, and the need for additional information, that may arise from time to time as the construction of the well progresses. In determining which logs and tests shall be required, the following logs shall be considered for use in the following situations:			WV's rule does not include an introductory provision analogous to 146.12(d)(2); however the tests in the subparts below are required. This may be equivalent/more stringent.
40 CFR 146.12(d)(2)(i)	For surface casing intended to protect underground sources of drinking water:	47-13.8.2.e.2	For surface casing intended to protect underground sources of drinking water:	Same as CFR.
40 CFR 146.12(d)(2)(i)(A)	Resistivity, spontaneous potential, and caliper logs before the casing is installed; and	47-13.8.2.e.2.A	Resistivity, spontaneous potential and caliper logs before the casing is installed; and	Same as CFR.
40 CFR 146.12(d)(2)(i)(B)	A cement bond, temperature, or density log after the casing is set and cemented.	47-13.8.2.e.2.B	A cement bond, temperature, or density log after the casing is set and cemented.	Same as CFR.
40 CFR 146.12(d)(2)(ii)	For intermediate and long strings of casing intended to facilitate injection:	47-13.8.2.e.3	For intermediate and long strings of casing intended to facilitate injection:	Same as CFR.
40 CFR 146.12(d)(2)(ii)(A)	Resistivity, spontaneous potential, porosity, and gamma ray logs before the casing is installed;	47-13.8.2.e.3.A	Resistivity, spontaneous potential, porosity, and gamma ray logs before the casing is installed;	Same as CFR.
40 CFR 146.12(d)(2)(ii)(B)	Fracture finder logs; and	47-13.8.2.e.3.B	Fracture finder logs in appropriate situations as prescribed by the Director; and	Similar to CFR.
40 CFR 146.12(d)(2)(ii)(C)	A cement bond, temperature, or density log after the casing is set and cemented.	47-13.8.2.e.3.C	A cement bond, temperature, or density log after the casing is set and cemented.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.12(e)	At a minimum, the following information concerning the injection formation shall be determined or calculated for new Class I wells:	47-13.8.2.f	At a minimum, the measurements required in subsection 8.2.e.4 and the following information concerning the injection formation shall be determined for the new Class 1 wells, and submitted to the Director:	Similar to CFR. 8.2.e.4 requires cores to be taken, as well as fluid temperature, pH, conductivity, pressure, and static fluid level measurements. WV also requires information on compatibility of injected fluids with formation fluids; and fracture pressure and other physical and chemical characteristics of the confining zones (8.2.f.6 and 8.2.f.7).
40 CFR 146.12(e)(1)	Fluid pressure;	47-13.8.2.f.1	Fluid pressure;	Same as CFR.
40 CFR 146.12(e)(2)	Temperature;	47-13.8.2.f.2	Temperature;	Same as CFR.
40 CFR 146.12(e)(3)	Fracture pressure;	47-13.8.2.f.3	Fracture pressure;	Same as CFR.
40 CFR 146.12(e)(4)	Other physical and chemical characteristics of the injection matrix; and	47-13.8.2.f.4	Other physical and chemical characteristics of the injection matrix;	Same as CFR.
40 CFR 146.12(e)(5)	Physical and chemical characteristics of the formation fluids.	47-13.8.2.f.5	Physical and chemical characteristics of the formation fluids;	Same as CFR.
40 CFR 146.13(a)	**40 CFR 146.13 Operating, monitoring and reporting requirements.** Operating requirements. Operating requirements shall at a minimum, specify that:	47-13-8.4.a	**47-13-8.4. Operating, Monitoring, and Reporting Requirements.** Operating Requirements: The Director shall, under subdivision 14.7.c prescribe requirements governing the operation of injection wells in the permit. Requirements for Class 1 wells shall, at a minimum, specify that:	Similar to CFR. WV specifies that the Director must prescribe the operating, monitoring, and reporting requirements.
40 CFR 146.13(a)(1)	Except during stimulation injection pressure at the wellhead shall not exceed a maximum which shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone. In no case shall injection pressure initiate fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water.	47-13-8.4.a.1	Except during stimulation, injection pressure at the wellhead shall not exceed a maximum which shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone. In no case shall injection pressure initiate fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.13(a)(2)	Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.	47-13-8.4.a.2	Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited; and	Same as CFR.
40 CFR 146.13(a)(3)	Unless an alternative to a packer has been approved under § 146.12(c), the annulus between the tubing and the long string of casings shall be filled with a fluid approved by the Director and a pressure, also approved by the Director, shall be maintained on the annulus.	47-13-8.4.a.3	Unless alternative to tubing and packer has been approved, the annulus between the tubing and the long string of casings shall be filled with a fluid approved by the Director and a pressure, also approved by the Director, shall be maintained on the annulus that is greater than the injection pressure.	Similar to CFR. WV specifies that the pressure on the annulus must be greater than the injection pressure.
40 CFR 146.13 (b)	Monitoring requirements. Monitoring requirements shall, at a minimum, include:	47-13-8.4.b	Monitoring Requirements: The Director shall prescribe requirements for the monitoring of the injection fluids, the injection well, and the underground sources of drinking water that could potentially be affected by the injection. Monitoring requirements shall, at a minimum, include:	Similar to CFR. WV specifies that the Director must prescribe monitoring requirements.
40 CFR 146.13 (b)(1)	The analysis of the injected fluids with sufficient frequency to yield representative data of their characteristics;	47-13-8.4.b.1	Testing of the injected fluids with sufficient frequency to yield representative data of its characteristics;	Similar to CFR. WV substitutes *analysis* with *testing*.
40 CFR 146.13 (b)(2)	Installation and use of continuous recording devices to monitor injection pressure, flow rate and volume, and the pressure on the annulus between the tubing and the long string of casing;	47-13-8.4.b.2	Continuous recording devices to monitor injection pressure, temperature, flow rate and volume, and the pressure on the annulus between the tubing and the long strings of casing;	Similar to CFR.
40 CFR 146.13 (b)(3)	A demonstration of mechanical integrity pursuant to § 146.8 at least once every five years during the life of the well; and	47-13-8.4.b.3	Mechanical integrity must be maintained at all times. Demonstration of mechanical integrity at least every five (5) years during the life of the well;	Similar to CFR.
40 CFR 146.13 (b)(4)	The type, number and location of wells within the area of review to be used to monitor any migration of fluids into and pressure in the underground sources of drinking water, the parameters to be measured and the frequency of monitoring.	47-13-8.4.b.4	Type, number and location of wells within the area of review to monitor any migration of fluids into and pressure in the underground sources of drinking water with the parameters to be measured and the frequency of monitoring specified; and	Similar to CFR.
40 CFR 146.13(c)	Reporting requirements. Reporting requirements shall, at a minimum, include:	47-13-8.4.c	Reporting requirements: The Director shall prescribe the form, manner, content and frequency of reporting by the operator. The operator shall be required to identify the types of tests and methods used to generate the monitoring data. At a minimum, requirements shall include:	Similar to CFR. WV includes responsibilities of the Director and the operator.
40 CFR 146.13(c)(1)	Quarterly reports to the Director on:	47-13-8.4.c.1	Quarterly reports to the Director on:	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.13(c)(1)(i)	The physical, chemical and other relevant characteristics of injection fluids;	47-13-8.4.c.1.A	The physical, chemical, and other relevant characteristics of injection fluids;	Same as CFR.
40 CFR 146.13(c)(1)(ii)	Monthly average, maximum and minimum values for injection pressure, flow rate and volume, and annular pressure; and	47-13-8.4.c.1.A	Monthly average, maximum, and minimum values for injection pressure, flow rate and volume, and annular pressure;	Same as CFR.
40 CFR 146.13(c)(1)(iii)	The results of monitoring prescribed under paragraph (b)(4) of this section.			Missing, although monitoring is required. Clarification of this requirement is recommended, however.
40 CFR 146.13(c)(2)	Reporting the results, with the first quarterly report after the completion, of:	47-13-8.4.c.2	Reporting with the first quarterly report after the completion of:	Same as CFR.
40 CFR 146.13(c)(2)(i)	Periodic tests of mechanical integrity;	47-13-8.4.c.2.A	Periodic demonstration of mechanical integrity;	Same as CFR.
40 CFR 146.13(c)(2)(ii)	Any other test of the injection well conducted by the permittee if required by the Director; and	47-13-8.4.c.2.B	Any other test of injection well conducted by the permittee if required by the Director; and	Same as CFR.
40 CFR 146.13(c)(2)(iii)	Any well work over.	47-13-8.4.c.2.C	Any well workover results.	Similar to CFR.
40 CFR 146.13(d)(1)	Ambient monitoring. (1) Based on a site-specific assessment of the potential for fluid movement from the well or injection zone and on the potential value of monitoring wells to detect such movement, the Director shall require the owner or operator to develop a monitoring program. At a minimum, the Director shall require monitoring of the pressure buildup in the injection zone annually, including at a minimum, a shut down of the well for a time sufficient to conduct a valid observation of the pressure fall-off curve.	47-13-8.4.b.9	Owners shall develop an ambient monitoring program based on an assessment of the potential for fluid movement. At a minimum, the Director shall require monitoring of the pressure buildup in the injection zone annually, including a shut down of the well for a time sufficient to observe the pressure fall-off curve. The Director may also require:	Similar to CFR. WV includes less detail than the CFR about the purpose of the monitoring; however the same monitoring is required. No impact on stringency.
40 CFR 146.13(d)(2)	When prescribing a monitoring system the Director may also require:	47-13-8.4.b.9	Owners shall develop an ambient monitoring program based on an assessment of the potential for fluid movement. At a minimum, the Director shall require monitoring of the pressure buildup in the injection zone annually, including a shut down of the well for a time sufficient to observe the pressure fall-off curve. The Director may also require:	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.13(d)(2)(i)	Continuous monitoring for pressure changes in the first aquifer overlying the confining zone. When such a well is installed, the owner or operator shall, on a quarterly basis, sample the aquifer and analyze for constituents specified by the Director;	47-13-8.4.b.9.A	Continuous monitoring for pressure changes in the first aquifer overlying the confining zone. When such a well is installed, the owner or operator shall, sample the aquifer quarterly and analyze for constituents specified by the Director;	Similar to CFR.
40 CFR 146.13(d)(2)(ii)	The use of indirect, geophysical techniques to determine the position of the waste front, the water quality in a formation designated by the Director, or to provide other site specific data;	47-13-8.4.b.9.B	The use of geophysical techniques to determine the position of the waste front, the water quality in a formation designated by the Director, or to provide other site specific data;	Similar to CFR. WV does not specify the use of *indirect* geophysical techniques; the intent is similar, however.
40 CFR 146.13(d)(2)(iii)	Periodic monitoring of the ground water quality in the first aquifer overlying the injection zone;	47-13-8.4.b.9.C	Periodic monitoring of ground water quality in the first aquifer overlying the injection zone and in the lowermost USDW;	Similar to CFR.
40 CFR 146.13(d)(2)(iv)	Periodic monitoring of the ground water quality in the lowermost USDW; and	47-13-8.4.b.9.C	Periodic monitoring of ground water quality in the first aquifer overlying the injection zone and in the lowermost USDW;	Similar to CFR.
40 CFR 146.13(d)(2)(v)	Any additional monitoring necessary to determine whether fluids are moving into or between USDWs.	47-13-8.4.b.9.D	Any additional monitoring necessary to determine whether fluids are moving into or between USDWs; and	Same as CFR.
40 CFR 146.14	**40 CFR 146.14 Information to be considered by the Director.** This section sets forth the information which must be considered by the Director in authorizing Class I wells. For an existing or converted new Class I well the Director may rely on the existing permit file for those items of information listed below which are current and accurate in the file. For a newly drilled Class I well, the Director shall require the submission of all the information listed below. For both existing and new Class I wells certain maps, cross-sections, tabulations of wells within the area of review and other data may be included in the application by reference provided they are current, readily available to the Director (for example, in the permitting agency's files) and sufficiently identified to be retrieved.	47-13-8.5.a	**47-13-8.5. Information to be Considered by the Director Prior to the Issuance of a Permit.** Prior to the issuance of a permit for an existing or new Class 1 well, the Director shall consider the following information: For an existing Class 1 well the Director may rely on the existing State permit file for those items of information listed below which are current and accurate in the State file. For a new Class 1 well, the Director shall require the submission of all the information listed below. For both existing and new Class 1 wells, paragraphs 8.5.a.3, 8.5.a.4, and 8.5.a.6 of this section may be included in the application by reference if the reference is specific in identifying the maps in question and the maps are readily available to the Director. The following information is required:	Similar to CFR. WV does not explicitly state the applicability of this requirement to converted Class I wells. No impact on stringency, but including this may improve clarity.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.14(a)	Prior to the issuance of a permit for an existing Class I well to operate or the construction or conversion of a new Class I well the Director shall consider the following:	47-13-8.5.a	Prior to the issuance of a permit for an existing or new Class 1 well, the Director shall consider the following information: For an existing Class 1 well the Director may rely on the existing State permit file for those items of information listed below which are current and accurate in the State file. For a new Class 1 well, the Director shall require the submission of all the information listed below. For both existing and new Class 1 wells, paragraphs 8.5.a.3, 8.5.a.4, and 8.5.a.6 of this section may be included in the application by reference if the reference is specific in identifying the maps in question and the maps are readily available to the Director. The following information is required:	Similar to CFR. Applies to new and existing wells.
40 CFR 146.14(a)(1)	Information required in 40 CFR 144.31 and 144.31(g);			WV does not require submittal of this information; however most of the information in 144.31 is required in permit applications. (See above.) Including this may improve clarity.
40 CFR 146.14(a)(2)	A map showing the injection well(s) for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number, or name, and location of all producing wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of public record is required to be included on this map;	47-13-8.5.a.2	A map showing the injection well(s) for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of public record is required to be included on this map;	Similar to CFR. WV also requires that injection wells and abandoned wells be included on the map. This is more stringent/expansive than the CFR.
40 CFR 146.14(a)(3)	A tabulation of data on all wells within the area of review which penetrate into the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Director may require;	47-13-8.5.a.3	A tabulation of data on all wells within the area of review which penetrate into the proposed injection zone and/or confining zone. Such data shall include a description of each well's type, location, depth, record of plugging and/or completion, and any additional information on these wells as the Director may require;	Similar to CFR. WV requires the tabulation include wells that penetrate the injection or confining zone. This may not result in as extensive a tabulation as the CFR requires. WV also does not require a description of a well's construction. These affect the stringency of the requirement.

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ED_013399_00000014-00200

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.14(a)(4)	Maps and cross sections indicating the general vertical and lateral limits of all underground sources of drinking water within the area of review, their position relative to the injection formation and the direction of water movement, where known, in each underground source of drinking water which may be affected by the proposed injection;	47-13-8.5.a.4	Maps and cross sections indicating the general vertical and lateral limits of all underground source of drinking water within the area of review, their position relative to the injection formation and the direction of water movement, where known, in each underground source of drinking water which may be affected by the proposed injection;	Same as CFR.
40 CFR 146.14(a)(5)	Maps and cross sections detailing the geologic structure of the local area;	47-13-8.5.a.5	Maps and cross sections detailing the geologic structure of the local area;	Same as CFR.
40 CFR 146.14(a)(6)	Generalized maps and cross sections illustrating the regional geologic setting;	47-13-8.5.a.6	Generalized maps and cross sections illustrating the regional geologic setting;	Same as CFR.
40 CFR 146.14(a)(7)	Proposed operating data:	47-13-8.5.a.7	Operating data:	Same as CFR. WV omits *proposed* here and in subsequent rows. No impact on stringency.
40 CFR 146.14(a)(7)(i)	Average and maximum daily rate and volume of the fluid to be injected;	47-13-8.5.a.7.A	The anticipated average and maximum pressure and flow rate at which the permittee will operate; and	Similar to CFR. WV does not require the applicant to submit the anticipated *volume* or specify a daily injection rate. This is less stringent than the CFR.
40 CFR 146.14(a)(7)(ii)	Average and maximum injection pressure; and	47-13-8.5.a.7.A	The anticipated average and maximum pressure and flow rate at which the permittee will operate; and	Similar to CFR.
40 CFR 146.14(a)(7)(iii)	Source and an analysis of the chemical, physical, radiological and biological characteristics of injection fluids;	47-13-8.5.a.7.B	Source and an analysis of the chemical, physical, radiological and biological characteristics of injection fluids;	Same as CFR.
40 CFR 146.14(a)(8)	Proposed formation testing program to obtain an analysis of the chemical, physical and radiological characteristics of and other information on the receiving formation;	47-13-8.5.a.8	Formation testing program to obtain analysis of the chemical, physical, and radiological characteristics of and other information on the receiving formation;	Same as CFR.
40 CFR 146.14(a)(9)	Proposed stimulation program;	47-13-8.5.a.9	Stimulation program;	Similar to CFR.
40 CFR 146.14(a)(10)	Proposed injection procedure;	47-13-8.5.a.10	Injection procedure;	Similar to CFR.
40 CFR 146.14(a)(11)	Schematic or other appropriate drawings of the surface and subsurface construction details of the well.	47-13-8.5.a.11	Schematic or other appropriate drawings of the surface and subsurface construction details of the well;	Same as CFR.

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ED_013399_00000014-00201

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.14(a)(12)	Contingency plans to cope with all shut-ins or well failures so as to prevent migration of fluids into any underground source of drinking water;	47-13-8.5.a.12	Contingency plans to cope with all shut-ins or well failures so as to prevent migration of contaminating fluids into any underground source of drinking water;	WV limits the requirement to addressing *contaminating* fluids; this may be less stringent than the CFR.
40 CFR 146.14(a)(13)	Plans (including maps) for meeting the monitoring requirements in § 146.13(b);	47-13-8.5.a.14	Plans for meeting the monitoring requirements, including an Ambient monitoring plan. Owners/operators must develop a monitoring plan based on the site-specific assessment of the fluid migration potential. Pressure build up in the injection zone must be monitored annually;	Similar to CFR. WV reiterates some of the requirements here; no impact on stringency.
40 CFR 146.14(a)(14)	For wells within the area of review which penetrate the injection zone but are not properly completed or plugged, the corrective action proposed to be taken under 40 CFR 144.55;	47-13-8.5.a.15	For wells within the area of review which penetrate the injection zone and/or confining zone but are not properly completed or plugged, the corrective action proposed to be taken under subsections 6.1 and 14.9;	Similar to CFR. WV requires corrective action for wells that penetrate the injection or confining zone. This may result fewer wells needing extensive corrective action than the CFR requires, and therefore may be less stringent. See also 146.14 (a)(3).
40 CFR 146.14(a)(15)	Construction procedures including a cementing and casing program, logging procedures, deviation checks, and a drilling, testing, and coring program; and	47-13-8.5.a.16	Construction procedures including a cementing and casing program, logging procedures, directional survey, and a drilling, testing, and coring program;	Similar to CFR. WV refers to directional surveys instead of deviation checks, but the requirement is similar. No concerns for stringency.
40 CFR 146.14(a)(16)	A certificate that the applicant has assured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well as required by 40 CFR 122.42(g).	47-13-8.5.a.19	A certificate that the applicant has assured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well under subdivision 14.7.g and 8.5.b;	Same as CFR.
40 CFR 146.14(b)	Prior to granting approval for the operation of a Class I well the Director shall consider the following information:			Missing. WV does not specify information the director must consider before authorizing injection. This is less stringent than the CFR. This applies to all of 146.14(b).
40 CFR 146.14(b)(1)	All available logging and testing program data on the well;			Missing (see above).
40 CFR 146.14(b)(2)	A demonstration of mechanical integrity pursuant to § 146.8;			Missing (see above).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.14(b)(3)	The anticipated maximum pressure and flow rate at which the permittee will operate;			Missing (see above).
40 CFR 146.14(b)(4)	The results of the formation testing program;			Missing (see above).
40 CFR 146.14(b)(5)	The actual injection procedure;			Missing (see above).
40 CFR 146.14(b)(6)	The compatibility of injected waste with fluids in the injection zone and minerals in both the injection zone and the confining zone; and			Missing (see above).
40 CFR 146.14(b)(7)	The status of corrective action on defective wells in the area of review.			Missing (see above).
40 CFR 146.14(c)	Prior to granting approval for the plugging and abandonment of a Class I well the Director shall consider the following information:	47-13-8.5.b	Prior to granting approval for the plugging and abandonment of a Class 1 well the Director shall consider the following information:	Same as CFR.
40 CFR 146.14(c)(1)	The type and number of plugs to be used;	47-13-8.5.b.1	The type and number of plugs to be used;	Same as CFR.
40 CFR 146.14(c)(2)	The placement of each plug including the elevation of the top and bottom;	47-13-8.5.b.2	The placement of each plug including the elevation of the top and bottom;	Same as CFR.
40 CFR 146.14(c)(3)	The type and grade and quantity of cement to be used;	47-13-8.5.b.3	The type and grade and quantity of cement to be used;	Same as CFR.
40 CFR 146.14(c)(4)	The method for placement of the plugs; and	47-13-8.5.b.4	The method for placement of the plugs;	Same as CFR.
40 CFR 146.14(c)(5)	The procedure to be used to meet the requirement of § 146.10(c).	47-13-8.5.b.5	The procedure to be used to meet the requirements of subsection 8.3;	Same as CFR.
40 CFR 146.15	**40 CFR 146.15 Class I municipal disposal well alternative authorization in certain parts of Florida.** This section authorizes existing Class I municipal disposal wells that meet certain criteria in specific counties in Florida to continue to inject without violating the regulatory prohibitions in Parts 144 and 146 against the movement of injection or formation fluids into a USDW. [see 40 CFR 146.15 for full regulatory text]			Not relevant to WV.

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ED_013399_00000014-00203

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.16	**40 CFR 146.16 Requirements for new Class I municipal wells in certain parts of Florida.** Prior to commencing injection, any Class I municipal disposal well in one of the counties identified in § 146.15(f) that is not an existing Class I municipal disposal well as defined in § 146.15(b) of this section shall meet all of the requirements for existing wells seeking authorization to inject pursuant to § 146.15.			Not relevant to WV.
Subpart C—Criteria and Standards Applicable to Class II Wells				
40 CFR 146.21	**40 CFR 146.21 Applicability.** This subpart establishes criteria and standards for underground injection control programs to regulate Class II wells.	47-13-9.1	**47-13-9. Criteria and Standards Applicable to Class 2 Wells.** General a. The criteria and standards applicable to Class 2 wells shall be those which are required pursuant to W. Va. Code §§22-6 et seq. and 22C-9-1 et seq. and the rules thereunder, including W. Va. Code of State Rules §35-4, this rule, and any other requirements that the Director considers reasonably necessary to ensure that no pollution of USDWs occurs. b. Owners and operators of Class 2 wells shall obtain permits in accordance with the requirements of this section and section 14 of this rule.	Similar to CFR. WV also specifies that its oil and gas rules apply to Class II wells.

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ED_013399_00000014-00204

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.22(a)	**40 CFR 146.22 Construction requirements.** All new Class II wells shall be sited in such a fashion that they inject into a formation which is separated from any USDW by a confining zone that is free of known open faults or fractures within the area of review.	47-13-9.5.a.1	A map showing the injection well or project area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name and location of all existing producing wells, injection wells, abandoned wells, and water wells. The map should also show surface bodies of water, mines (surface and subsurface), quarries and other pertinent surface features including residence and roads, and faults if known. <u>All new class 2 injection wells shall be sited in such a manner that they inject into a formation which is separated from any USDW by a confining zone that is free of known open faults or fractures within the area of review.</u> Only information of public record and pertinent information known to the applicant is required to be included on this map;	Same as CFR. WV includes the construction requirements along with information to be considered by the Director. While explicitly requiring that this information be submitted would add clarity, the provision as written has no concerns for stringency.
40 CFR 146.22 (b)(1)	All Class II injection wells shall be cased and cemented to prevent movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well. In determining and specifying casing and cementing requirements, the following factors shall be considered:	47-13-9.2.a	All new Class 2 wells shall be cased and cemented to prevent the migration of fluids into or between underground sources of drinking water. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well. In determining and specifying casing and cementing requirements, the Director shall consider the following factors:	Similar to CFR.
40 CFR 146.22 (b)(1)(i)	Depth to the injection zone;	47-13-9.2.a.1	Depth to the injection zone;	Same as CFR.
40 CFR 146.22 (b)(1)(ii)	Depth to the bottom of all USDWs; and	47-13-9.2.a.3	Depth to the bottom of all USDWs.	Same as CFR.
40 CFR 146.22 (b)(1)(iii)	Estimated maximum and average injection pressures;	47-13-9.2.a.2	Estimated maximum and average injection pressures; and	Same as CFR.

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ED_013399_00000014-00205

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.22 (b)(2)	In addition the Director may consider information on: nature of formation fluids; lithology of injection and confining zones; external pressure, internal pressure, and axial loading; hole size; size and grade of all casing strings; and class of cement.			Missing in the Class II requirements; however, this is information the Director may consider in the CFR, so this may not affect stringency. Applies to all of 146.22(b).
40 CFR 146.22 (b)(2)(i)	Nature of formation fluids;			Missing (see above).
40 CFR 146.22 (b)(2)(ii)	Lithology of injection and confining zones;			Missing (see above).
40 CFR 146.22 (b)(2)(iii)	External pressure, internal pressure, and axial loading;			Missing (see above).
40 CFR 146.22 (b)(2)(iv)	Hole size;			Missing (see above).
40 CFR 146.22 (b)(2)(v)	Size and grade of all casing strings; and			Missing (see above).
40 CFR 146.22 (b)(2)(vi)	Class of cement.			Missing (see above).
40 CFR 146.22(c)	The requirements in paragraph (b) of this section need not apply to existing or newly converted Class II wells located in existing fields if:			Missing. See 146.22(b).
40 CFR 146.22(c)(1)	Regulatory controls for casing and cementing existed for those wells at the time of drilling and those wells are in compliance with those controls; and			Missing. See 146.22(b).
40 CFR 146.22(c)(2)	Well injection will not result in the movement of fluids into an underground source of drinking water so as to create a significant risk to the health of persons.			Missing. See 146.22(b).
40 CFR 146.22(d)	The requirements in paragraph (b) of this section need not apply to newly drilled wells in existing fields if;			Missing. See 146.22(b).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.22(d)(1)	They meet the requirements of the State for casing and cementing applicable to that field at the time of submission of the State program to the Administrator; and			Missing. See 146.22(b).
40 CFR 146.22(d)(2)	Well injection will not result in the movement of fluids into an underground source of drinking water so as to create a significant risk to the health of persons.			Missing. See 146.22(b).
40 CFR 146.22(e)	Where a State did not have regulatory controls for casing and cementing prior to the time of the submission of the State program to the Administrator, the Director need not apply the casing and cementing requirements in paragraph (b) of this section if he submits as a part of his application for primacy, an appropriate plan for casing and cementing of existing, newly converted, and newly drilled wells in existing fields, and the Administrator approves the plan.			Missing. May not be relevant to WV's situation. Clarification (e.g., in the primacy package) is recommended.
40 CFR 146.22(f)	Appropriate logs and other tests shall be conducted during the drilling and construction of new Class II wells. A descriptive report interpreting the results of that portion of those logs and tests which specifically relate to (1) an USDW and the confining zone adjacent to it, and (2) the injection and adjacent formations shall be prepared by a knowledgeable log analyst and submitted to the director. At a minimum, these logs and tests shall include:	47-13-9.2.b	Appropriate logs and other tests shall be conducted during the drilling and construction of new Class 2 wells. A descriptive report interpreting the results of such logs and tests shall be prepared by a knowledgeable log analyst and submitted to the Director. The Director may specify, as may be needed, the logs and tests appropriate to each type of Class 2 well based on the intended function, depth, construction and other characteristics of the well, availability of similar data in the area of the drilling site and the need for additional information that may arise from time to time as the construction of the well progresses. At a minimum, such logs and tests to be considered by the Director, may, as appropriate, include:	Similar to CFR. WV does not include which formations (USDW, injection and confining zone) the logs and tests must target; however, WV states that the Director may specify the appropriate logs and tests. No concerns for stringency.
40 CFR 146.22(f)(1)	Deviation checks on all holes constructed by first drilling a pilot hole and then enlarging the pilot hole, by reaming or another method. Such checks shall be at sufficiently frequent intervals to assure that vertical avenues for fluid movement in the form of diverging holes are not created during drilling.	47-13-9.2.b.1	Deviation checks at sufficiently frequent intervals to assure no fluid movement.	Differs from CFR. WV does not provide similar detail about the deviation checks. No concerns for stringency.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.22(f)(2)	Such other logs and tests as may be needed after taking into account the availability of similar data in the area of the drilling site, the construction plan, and the need for additional information that may arise from time to time as the construction of the well progresses. In determining which logs and tests shall be required the following shall be considered by the Director in setting logging and testing requirements:			Missing.
40 CFR 146.22(f)(2)(i)	For surface casing intended to protect underground sources of drinking water in areas where the lithology has not been determined:	47-13-9.2.b.2	For surface casing intended to protect underground sources of drinking water:	Similar to CFR. WV does not limit this provision to areas with undefined lithology (this may be more expansive/stringent than the CFR).
40 CFR 146.22(f)(2)(i)(A)	Electric and caliper logs before casing is installed; and	47-13-9.2.b.2.A	Resistivity, spontaneous potential, and caliper logs before the casing is installed; and	Similar to CFR.
40 CFR 146.22(f)(2)(i)(B)	A cement bond, temperature, or density log after the casing is set and cemented.	47-13-9.2.b.2.B	A cement bond, temperature, or density log after casing is set and cemented.	Same as CFR.
40 CFR 146.22(f)(2)(ii)	for intermediate and long strings of casing intended to facilitate injection:	47-13-9.2.b.3	For intermediate and long strings of casing intended to facilitate injection:	Same as CFR.
40 CFR 146.22(f)(2)(ii)(A)	Electric porosity and gamma ray logs before the casing is installed;	47-13-9.2.b.3.A	Resistivity, spontaneous potential, porosity, and gamma ray logs before the casing is installed;	Similar to CFR.
40 CFR 146.22(f)(2)(ii)(B)	Fracture finder logs; and	47-13-9.2.b.3.B	Fracture finder logs in appropriate situations as prescribed by the Director; and	Similar to CFR.
40 CFR 146.22(f)(2)(ii)(C)	A cement bond, temperature, or density log after the casing is set and cemented.	47-13-9.2.b.3.C	A cement bond, temperature, or density log after the casing is set and cemented.	Same as CFR.
40 CFR 146.22(g)	At a minimum, the following information concerning the injection formation shall be determined or calculated for new Class II wells or projects:	47-13-9.2.c	The following information concerning the injection zone shall be determined or calculated for new Class 2 wells or projects:	Similar to CFR.
40 CFR 146.22(g)(1)	Fluid pressure;	47-13-9.2.c.1	Fluid pressure;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.22(g)(2)	Estimated fracture pressure;	47-13-9.2.c.2	Fracture pressure; and	Same as CFR.
40 CFR 146.22(g)(3)	Physical and chemical characteristics of the injection zone.	47-13-9.2.c.3	Physical and chemical characteristics of the formation fluids.	Same as CFR.
40 CFR 146.23(a)	**40 CFR 146.23 Operating, monitoring, and reporting requirements.** Operating requirements. Operating requirements shall, at a minimum, specify that:	47-13-9.4.a	**47-13-9.4. Operating, Monitoring, and Reporting Requirements** Operating Requirements: The Director shall prescribe requirements governing the operation of injection wells in the permit. Requirements for Class 2 wells shall, at a minimum, include that:	Similar to CFR. WV specifies that the Director is responsible for prescribing requirements. Intent is similar to the CFR; no concerns for stringency.
40 CFR 146.23(a)(1)	Injection pressure at the wellhead shall not exceed a maximum which shall be calculated so as to assure that the pressure during injection does not initiate new fractures or propagate existing fractures in the confining zone adjacent to the USDWs. In no case shall injection pressure cause the movement of injection or formation fluids into an underground source of drinking water	47-13-9.4.a.1	Except during well stimulation the injection pressure at the wellhead shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone. In no case shall injection pressure initiate fractures in the confining zone or cause the migration of injection or formation fluids into an underground source of drinking water; and	Similar to CFR. WV allows injection pressures to exceed fracture pressure during well stimulation, which the CFR does not expressly allow for Class II wells. This is less stringent than the CFR.
40 CFR 146.23(a)(2)	Injection between the outermost casing protecting underground sources of drinking water and the well bore shall be prohibited.	47-13-9.4.a.2	Injection between the outermost casing protecting underground sources of drinking water and the well bore shall be prohibited.	Same as CFR.
40 CFR 146.23(b)	Monitoring requirements. Monitoring requirements shall, at a minimum, include:	47-13-9.4.b	Monitoring Requirements:	Similar to CFR.
40 CFR 146.23(b)(1)	Monitoring of the nature of injected fluids at time intervals sufficiently frequent to yield data representative of their characteristics;	47-13-9.4.b.1	Monitoring of the nature of injected fluids with sufficient frequency to yield representative data on its characteristics. Whenever the injection fluid is modified to the extent that the analysis required by subparagraph 9.5.a.6.B is incorrect or incomplete, a new analysis shall be provided to the Director;	Similar to CFR. WV also requires a new analysis when the injection fluid is modified. This is more stringent than the CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.23(b)(2)	Observation of injection pressure, flow rate, and cumulative volume at least with the following frequencies:	47-13-9.4.b.2	Monitoring of injection pressure, flow rate, and cumulative volume shall be conducted as follows: weekly for produced fluid disposal; monthly for enhanced recovery; daily during the injection of liquid hydrocarbons and injection for withdrawal of stored hydrocarbons; and daily during the injection phase of cyclic steam operations. Recording of one observation of injection pressure, flow rate, and cumulative volume shall be conducted at reasonable intervals not to exceed 30 days.	Similar to CFR.
40 CFR 146.23(b)(2)(i)	Weekly for produced fluid disposal operations;	47-13-9.4.b.2	Monitoring of injection pressure, flow rate, and cumulative volume shall be conducted as follows: weekly for produced fluid disposal; monthly for enhanced recovery; daily during the injection of liquid hydrocarbons and injection for withdrawal of stored hydrocarbons; and daily during the injection phase of cyclic steam operations. Recording of one observation of injection pressure, flow rate, and cumulative volume shall be conducted at reasonable intervals not to exceed 30 days.	Similar to CFR.
40 CFR 146.23(b)(2)(ii)	Monthly for enhanced recovery operations;	47-13-9.4.b.2	Monitoring of injection pressure, flow rate, and cumulative volume shall be conducted as follows: weekly for produced fluid disposal; monthly for enhanced recovery; daily during the injection of liquid hydrocarbons and injection for withdrawal of stored hydrocarbons; and daily during the injection phase of cyclic steam operations. Recording of one observation of injection pressure, flow rate, and cumulative volume shall be conducted at reasonable intervals not to exceed 30 days.	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.23(b)(2)(iii)	Daily during the injection of liquid hydrocarbons and injection for withdrawal of stored hydrocarbons; and	47-13-9.4.b.2	Monitoring of injection pressure, flow rate, and cumulative volume shall be conducted as follows: weekly for produced fluid disposal; monthly for enhanced recovery; daily during the injection of liquid hydrocarbons and injection for withdrawal of stored hydrocarbons; and daily during the injection phase of cyclic steam operations. Recording of one observation of injection pressure, flow rate, and cumulative volume shall be conducted at reasonable intervals not to exceed 30 days.	Similar to CFR.
40 CFR 146.23(b)(2)(iv)	Daily during the injection phase of cyclic steam operations And recording of one observation of injection pressure, flow rate and cumulative volume at reasonable intervals no greater than 30 days.	47-13-9.4.b.2	Monitoring of injection pressure, flow rate, and cumulative volume shall be conducted as follows: weekly for produced fluid disposal; monthly for enhanced recovery; daily during the injection of liquid hydrocarbons and injection for withdrawal of stored hydrocarbons; and daily during the injection phase of cyclic steam operations. Recording of one observation of injection pressure, flow rate, and cumulative volume shall be conducted at reasonable intervals not to exceed 30 days.	Similar to CFR.
40 CFR 146.23(b)(3)	A demonstration of mechanical integrity pursuant to § 146.8 at least once every five years during the life of the injection well;	47-13-9.4.b.3	Demonstration of mechanical integrity pursuant to subsection 6.2 shall be conducted at least every five (5) years during the life of the Class 2 injection well;	Similar to CFR.
40 CFR 146.23(b)(4)	Maintenance of the results of all monitoring until the next permit review (see 40 CFR 144.52(a)(5)); and	47-13-9.4.b.4	Facilities must keep monitoring results until the next permit review; and	Similar to CFR.
40 CFR 146.23(b)(5)	Hydrocarbon storage and enhanced recovery may be monitored on a field or project basis rather than on an individual well basis by manifold monitoring. Manifold monitoring may be used in cases of facilities consisting of more than one injection well, operating with a common manifold. Separate monitoring systems for each well are not required provided the owner/operator demonstrates that manifold monitoring is comparable to individual well monitoring.	47-13-9.4.b.5	All Class 2 hydrocarbon storage and enhanced recovery wells may be monitored on a field or project basis rather than an individual well basis by manifold monitoring. Manifold monitoring may be used in cases of facilities consisting of more than one injection well, operating with a common manifold. Separate monitoring systems for each well are not required provided the owner/operator demonstrates that manifold monitoring is comparable to individual well monitoring.	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.23(c)(1)	Reporting requirements. (1) Reporting requirements shall at a minimum include an annual report to the Director summarizing the results of monitoring required under paragraph (b) of this section. Such summary shall include monthly records of injected fluids, and any major changes in characteristics or sources of injected fluid. Previously submitted information may be included by reference.			Missing. While section 47-13-9.4 is titled "Operating, Monitoring, and Reporting Requirements," there is no explicit provision to submit annual reports. Adding this would improve clarity.
40 CFR 146.23(c)(2)	Owners or operators of hydrocarbon storage and enhanced recovery projects may report on a field or project basis rather than an individual well basis where manifold monitoring is used.			Missing (see above).
40 CFR 146.24	**40 CFR 146.24 Information to be considered by the Director.** This section sets forth the information which must be considered by the Director in authorizing Class II wells. Certain maps, cross-sections, tabulations of wells within the area of review, and other data may be included in the application by reference provided they are current, readily available to the Director (for example, in the permitting agency's files) and sufficiently identified to be retrieved.	47-13-9.5.a.	For an existing Class 2 injection operation the Director may rely upon the existing permit file for these items of information listed below which are current and accurate in the State file. For a new Class 2 injection well, the Director shall require the submission of all the information listed below. For both existing and new Class 2 wells, paragraphs 9.5.a.2, 9.5.a.3 and 9.5.a.6 of this section may be included by reference if the maps are specifically identified and readily available to the Director:	Similar to CFR.
40 CFR 146.24(a)	Prior to the issuance of a permit for an existing Class II well to operate or the construction or conversion of a new Class II well the Director shall consider the following:	47-13-9.5.a	Prior to the issuance of a permit for an existing or new Class 2 well, the Director shall consider the following information at a minimum.	Similar to CFR. The rest of the Rule Text describes information requirements for existing and new Class II wells.
40 CFR 146.24(a)(1)	Information required in 40 CFR 144.31 and 144.31(g);			Missing. WV does not require submittal of this information; however most of the information in 144.31 is required in permit applications. (See above.) Including this may improve clarity.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.24(a)(2)	A map showing the injection well or project area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name and location of all existing producing wells, injection wells, abandoned wells, dry holes, and water wells. The map may also show surface bodies of waters, mines (surface and subsurface), quarries and other pertinent surface features including residences and roads, and faults if known or *suspected*. Only information of public record and pertinent information known to the applicant is required to be included on this map. This requirement does not apply to existing Class II wells; and	47-13-9.5.a.1	A map showing the injection well or project area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name and location of all existing producing wells, injection wells, abandoned wells, and water wells. The map should also show surface bodies of water, mines (surface and subsurface), quarries and other pertinent surface features including residence and roads, and faults if known. All new class 2 injection wells shall be sited in such a manner that they inject into a formation which is separated from any USDW by a confining zone that is free of known open faults or fractures within the area of review. Only information of public record and pertinent information known to the applicant is required to be included on this map;	Similar to CFR. WV excludes a requirement to include *dry holes* and *suspected faults*. This is less stringent than the CFR.
40 CFR 146.24(a)(3)	A tabulation of data reasonably available from public records or otherwise known to the applicant on all wells within the area of review included on the map required under paragraph (a)(2) of this section which penetrate the proposed injection zone or, in the case of Class II wells operating over the fracture pressure of the injection formation, all known wells within the area of review which penetrate formations affected by the increase in pressure. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and complete, and any additional information the Director may require. In cases where the information would be repetitive and the wells are of similar age, type, and construction the Director may elect to only require data on a representative number of wells. This requirement does not apply to existing Class II wells.	47-13-9.5.a.5	A tabulation of data reasonably available for public records or otherwise known to the applicant on wells within the area of review. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and completion, and any additional information the Director may require.	WV includes less specific information, but does not allow that the Director may require a representative number of wells in the case of repetitive well information. No concerns for stringency.
40 CFR 146.24(a)(4)	Proposed operating data:	47-13-9.5.a.6	Operating data:	Same as CFR.
40 CFR 146.24(a)(4)(i)	Average and maximum daily rate and volume of fluids to be injected.	47-13-9.5.a.6.A	The anticipated average and maximum pressure and daily flow rate and injection volumes at which the permittee will operate;	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.24(a)(4)(ii)	Average and maximum injection pressure; and	47-13-9.5.a.6.A	The anticipated average and maximum pressure and daily flow rate and injection volumes at which the permittee will operate;	Similar to CFR.
40 CFR 146.24(a)(4)(iii)	Source and an appropriate analysis of the chemical and physical characteristics of the injection fluid.	47-13-9.5.a.6.B	Characteristics and source of the injection fluid; and	WV does not require consideration of the source of the fluid. This is less stringent than the CFR.
40 CFR 146.24(a)(5)	Appropriate geological data on the injection zone and confining zone including lithologic description, geological name, thickness and depth;	47-13-9.5.a.6.C	Geological data on the injection and confining zones	Similar to CFR. WV does not specify the types of geologic data that are in the CFR. Adding this information is recommended to improve clarity.
40 CFR 146.24(a)(6)	Geologic name and depth to bottom of all underground sources of drinking water which may be affected by the injection;	47-13-9.5.a.2	Geologic name and depth to bottom of all USDW's affected by the injection	Same as CFR.
40 CFR 146.24(a)(7)	Schematic or other appropriate drawings of the surface and subsurface construction details of the well;	47-13-9.5.a.7	Schematic or other appropriate drawings of the surface and subsurface construction details of the well;	Same as CFR.
40 CFR 146.24(a)(8)	In the case of new injection wells the corrective action proposed to be taken by the applicant under 40 CFR 122.44;	47-13-9.5.a.8	The corrective action proposed to be taken under subsection 6.1;	Similar to CFR. WV does not specify that this rule applies to new injection wells, but the subsections appears to apply to new or existing wells. No concerns for stringency.
40 CFR 146.24(a)(9)	A certificate that the applicant has assured through a performance bond or other appropriate means, the resources necessary to close plug or abandon the well as required by 40 CFR 122.42(g);	47-13-9.5.a.9	A certificate that the applicant has assured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well under subdivision 14.7.g; and	Same as CFR.
40 CFR 146.24(b)	In addition the Director may consider the following:			Missing; however, this is information the Director may consider in the CFR, so this may not affect stringency. Applies to all of 146.24(b).
40 CFR 146.24(b)(1)	Proposed formation testing program to obtain the information required by § 146.22(g);			Missing (see above).
40 CFR 146.24(b)(2)	Proposed stimulation program;			Missing (see above).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.24(b)(3)	Proposed injection procedure;			Missing (see above).
40 CFR 146.24(b)(4)	Proposed contingency plans, if any, to cope with well failures so as to prevent migration of contaminating fluids into an underground source of drinking water;			Missing (see above).
40 CFR 146.24(b)(5)	Plans for meeting the monitoring requirements of § 146.23(b).			Missing (see above).
40 CFR 146.24(c)	Prior to granting approval for the operation of a Class II well the Director shall consider the following information:			Missing. WV does not specify information the director must consider before authorizing injection. This is less stringent than the CFR. (Applies to all of 146.24(c).)
40 CFR 146.24(c)(1)	All available logging and testing program data on the well;			Missing (see above).
40 CFR 146.24(c)(2)	A demonstration of mechanical integrity pursuant to § 146.8;			Missing (see above).
40 CFR 146.24(c)(3)	The anticipated maximum pressure and flow rate at which the permittee will operate.			Missing (see above).
40 CFR 146.24(c)(4)	The results of the formation testing program;			Missing (see above).
40 CFR 146.24(c)(5)	The actual injection procedure; and			Missing (see above).
40 CFR 146.24(c)(6)	For new wells the status of corrective action on defective wells in the area of review.			Missing (see above).
40 CFR 146.24(d)	Prior to granting approval for the plugging and abandonment of a Class II well the Director shall consider the following information:			Missing. Although WV does not specify information the director must consider to approve plugging, it requires plugging procedures similar to 146.10. Including analogous provisions is recommended for clarity. Applies to all of 146.24(d).
40 CFR 146.24(d)(1)	The type, and number of plugs to be used;			Missing (see above).
40 CFR 146.24(d)(2)	The placement of each plug including the elevation of top and bottom;			Missing (see above).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.24(d)(3)	The type, grade, and quantity of cement to be used;			Missing (see above).
40 CFR 146.24(d)(4)	The method of placement of the plugs; and			Missing (see above).
40 CFR 146.24(d)(5)	The procedure to be used to meet the requirements of § 146.10(c).			Missing (see above).
Subpart D—Criteria and Standards Applicable to Class III Wells				
40 CFR 146.31	**40 CFR 146.31 Applicability.** This subpart establishes criteria and standards for underground injection control programs to regulate Class III wells.	47-13-10.1	**47-13-10. Criteria and Standards Applicable to Class 3 Wells.** General. This section sets forth requirements for underground injection control programs to regulate Class 3 wells.	Similar to CFR.
40 CFR 146.32(a)	**40 CFR 146.32 Construction requirements.** All new Class III wells shall be cased and cemented to prevent the migration of fluids into or between underground sources of drinking water. The Director may waive the cementing requirement for new wells in existing projects or portions of existing projects where he has substantial evidence that no contamination of underground sources of drinking water would result. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well. In determining and specifying casing and cementing requirements, the following factors shall be considered:	47-13-10.2.a	All new Class 3 wells shall be cased and cemented to prevent the migration of fluids into or between underground sources of drinking water. The Director may waive the cementing requirements for new wells in existing projects or portions of existing projects where he has substantial evidence that no contamination of underground sources of drinking water would result. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well. In determining and specifying casing and cementing requirements, the Director shall consider the following factors:	Similar to CFR.
40 CFR 146.32(a)(1)	Depth to the injection zone;	47-13-10.2.a.1	Depth to the injection zone;	Same as CFR.
40 CFR 146.32(a)(2)	Injection pressure, external pressure, internal pressure, axial loading, etc.;	47-13-10.2.a.2	Injection pressure (external pressure, internal pressure, axial loading, etc.);	Same as CFR.
40 CFR 146.32(a)(3)	Hole size;	47-13-10.2.a.3	Hole size;	Same as CFR.
40 CFR 146.32(a)(4)	Size and grade of all casing strings (wall thickness, diameter, nominal weight, length, joint specification, and construction material);	47-13-10.2.a.4	Size and grade of all casing strings (wall thickness, diameter, nominal weight, length, joint specification, construction material, etc.);	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.32(a)(5)	Corrosiveness of injected fluids and formation fluids;	47-13-10.2.a.5	Corrosiveness of injected and formation fields;	Same as CFR. Note: there is a typo: "formation fields" should read, "formation fluids."
40 CFR 146.32(a)(6)	Lithology of injection and confining zones; and	47-13-10.2.a.6	Lithology of possible injection and confining zones; and	Similar to CFR. WV adds *possible* as a qualifier, which would result in a more extensive consideration. No impact on stringency.
40 CFR 146.32(a)(7)	Type and grade of cement.	47-13-10.2.a.7	Type and grade of cement.	Same as CFR.
40 CFR 146.32(b)	Appropriate logs and other tests shall be conducted during the drilling and construction of new Class III wells. A descriptive report interpreting the results of such logs and tests shall be prepared by a knowledgeable log analyst and submitted to the Director. The logs and tests appropriate to each type of Class III well shall be determined based on the intended function, depth, construction and other characteristics of the well, availability of similar data in the area of the drilling site and the need for additional information that may arise from time to time as the construction of the well progresses. Deviation checks shall be conducted on all holes where pilot holes and reaming are used, unless the hole will be cased and cemented by circulating cement to the surface. Where deviation checks are necessary they shall be conducted at sufficiently frequent intervals to assure that vertical avenues for fluid migration in the form of diverging holes are not created during drillings.	47-13-10.2.c	Appropriate logs and other tests shall be conducted during the drilling and construction of new Class 3 wells. A descriptive report interpreting the results of such logs and tests shall be prepared by a knowledgeable log analyst and submitted to the Director. The Director shall specify the logs and tests appropriate to each type of Class 3 well based on the intended function, depth, construction and other characteristics of the well, availability of similar data in the area of the drilling site and the need for additional information that may arise from time to time as the construction of the well progresses. At a minimum, such logs and tests, shall, as appropriate, include: 1. Deviation checks conducted on all holes where pilot holes and reaming are used, unless the hole will be cased and cemented by circulating cement to the surface. Where deviation checks are necessary, they shall be conducted at sufficiently frequent intervals to assure that vertical avenues for fluid migration in the form of diverging holes are not created during drilling;	Similar to CFR.
40 CFR 146.32 (c)	Where the injection zone is a formation which is naturally water-bearing the following information concerning the injection zone shall be determined or calculated for new Class III wells or projects:	47-13-10.2.d	Where the injection zone is a formation which is naturally water bearing the following information concerning the injection zone shall be determined or calculated for new Class 3 wells or projects:	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.32 (c)(1)	Fluid pressure;	47-13-10.2.d.1	Fluid pressure;	Same as CFR.
40 CFR 146.32 (c)(2)	Fracture pressure; and	47-13-10.2.d.2	Fracture pressure;	Same as CFR.
40 CFR 146.32 (c)(3)	Physical and chemical characteristics of the formation fluids.	47-13-10.2.d.3	Physical and chemical characteristics of the formation fluids; and	Same as CFR.
40 CFR 146.32 (d)	Where the injection formation is not a water-bearing formation, the information in paragraph (c)(2) of this section must be submitted.	47-13-10.2.e	Where the injection formation is not a water bearing formation, the information in paragraph 10.2.d.2 of this section must be submitted.	Same as CFR.
40 CFR 146.32 (e)	Where injection is into a formation which contains water with less than 10,000 mg/l TDS monitoring wells shall be completed into the injection zone and into any underground sources of drinking water above the injection zone which could be affected by the mining operation. These wells shall be located in such a fashion as to detect any excursion of injection fluids, process by-products, or formation fluids outside the mining area or zone. If the operation may be affected by subsidence or catastrophic collapse the monitoring wells shall be located so that they will not be physically affected.	47-13-10.2.f	Where injection is into a formation which contains water with less than ten thousand (10,000) mg/1 TDS monitoring wells shall be completed into the injection zone and into any underground sources of drinking water above the injection zone which could be affected by the mining operation. These wells shall be located in such a fashion as to detect any excursion of injection fluids, process by-products, or formation fluids outside the mining area or zone. If the operation may be affected by subsidence or catastrophic collapse the monitoring wells shall be located so that they will not be physically affected.	Same as CFR.
40 CFR 146.32 (f)	Where injection is into a formation which does not contain water with less than 10,000 mg/l TDS, no monitoring wells are necessary in the injection stratum.	47-13-10.2.g	Where injection is into a formation which does not contain water with less than ten thousand (10,000) mg/1 TDS, no monitoring wells are necessary in the injection stratum.	Same as CFR.
40 CFR 146.32(g)	Where the injection wells penetrate an USDW in an area subject to subsidence or catastrophic collapse an adequate number of monitoring wells shall be completed into the USDW to detect any movement of injected fluids, process by-products or formation fluids into the USDW. The monitoring wells shall be located outside the physical influence of the subsidence or catastrophic collapse.	47-13-10.2.h	Where the injection wells penetrate an USDW in an area subject to subsidence or catastrophic collapse an adequate number of monitoring wells shall be completed into the USDW to detect any movement of injected fluids, process by-products or formation fluids into the USDW. The monitoring wells shall be located outside the physical influence of the subsidence or catastrophic collapse.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.32(h)	In determining the number, location, construction and frequency of monitoring of the monitoring wells the following criteria shall be considered:	47-13-10.2.i	Determining the number, location, construction and frequency of monitoring of the monitoring wells the following criteria shall be considered:	Same as CFR.
40 CFR 146.32(h)(1)	The population relying on the USDW affected or potentially affected by the injection operation;	47-13-10.2.i.1	The population relying on the USDW affected or potentially affected by the injection operation;	Same as CFR.
40 CFR 146.32(h)(2)	The proximity of the injection operation to points of withdrawal of drinking water;	47-13-10.2.i.2	The proximity of the injection operation to points of withdrawal of drinking water;	Same as CFR.
40 CFR 146.32(h)(3)	The local geology and hydrology;	47-13-10.2.i.3	The local geology and hydrology;	Same as CFR.
40 CFR 146.32(h)(4)	The operating pressures and whether a negative pressure gradient is being maintained;	47-13-10.2.i.4	The operating pressures and whether a negative pressure gradient is being maintained;	Same as CFR.
40 CFR 146.32(h)(5)	The nature and volume of the injected fluid, the formation water, and the process by-products; and	47-13-10.2.i.5	The nature and volume of the injected fluid, the formation water and the process by-products; and	Same as CFR.
40 CFR 146.32(h)(6)	The injection well density.	47-13-10.2.i.6	The injection well density.	Same as CFR.
40 CFR 146.33(a)	**40 CFR 146.33 Operating, monitoring, and reporting requirements.** Operating requirements. Operating requirements prescribed shall, at a minimum, specify that:	47-13-10.4.a	**47-13-10.4. Operating, Monitoring, and Reporting Requirements** Operating Requirements: The Director shall prescribe requirements governing the operation of injection wells in the permit. Requirements for Class 3 wells shall, at a minimum, include that:	Similar to CFR.
40 CFR 146.33(a)(1)	Except during well stimulation injection pressure at the wellhead shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone. In no case, shall injection pressure initiate fractures in the confining zone or cause the migration of injection or formation fluids into an underground source of drinking water.	47-13-10.4.a.1	Except during well stimulation the injection pressure at the wellhead shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone. In no case shall injection pressure initiate fractures in the confining zone or cause the migration of injection or formation fluids into an underground source of drinking water; and	Same as CFR.
40 CFR 146.33(a)(2)	Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.	47-13-10.4.a.2	Injection between the outermost casing protecting underground sources of drinking water and the well bore shall be prohibited.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.33(b)	Monitoring requirements. Monitoring requirements shall, at a minimum, specify:	47-13-10.4.b	Monitoring Requirements:	Similar to CFR.
40 CFR 146.33(b)(1)	Monitoring of the nature of injected fluids with sufficient frequency to yield representative data on its characteristics. Whenever the injection fluid is modified to the extent that the analysis required by § 146.34(a)(7)(iii) is incorrect or incomplete, a new analysis as required by § 146.34(a)(7)(iii) shall be provided to the Director.	47-13-10.4.b.1	Monitoring of the nature of injected fluids with sufficient frequency to yield representative data on its characteristics. Whenever the injection fluid is modified to the extent that the analysis required by subparagraph 10.5.a.6.B is incorrect or incomplete, a new analysis shall be provided to the Director;	Same as CFR.
40 CFR 146.33(b)(2)	Monitoring of injection pressure and either flow rate or volume semi-monthly, or metering and daily recording of injected and produced fluid volumes as appropriate.	47-13-10.4.b.2	Monitoring of injection pressure and either flow rate or volume semi-monthly, or metering and daily recording of injected and produced fluid volumes as appropriate;	Same as CFR.
40 CFR 146.33(b)(3)	Demonstration of mechanical integrity pursuant to § 146.08 at least once every five years during the life of the well for salt solution mining.	47-13-10.4.b.3	Demonstration of mechanical integrity pursuant to subsection 6.2 at least every five (5) years during the life of the well for salt solution mining;	Same as CFR.
40 CFR 146.33(b)(4)	Monitoring of the fluid level in the injection zone semi-monthly, where appropriate and monitoring of the parameters chosen to measure water quality in the monitoring wells required by § 146.32(e), semi-monthly.	47-13-10.4.b.4	Monitoring of the fluid level in the injection zone semi-monthly, where appropriate and monitoring of the parameters chosen to measure quality of water in the monitoring wells required by subdivision 10.2.f semi-monthly;	Same as CFR.
40 CFR 146.33(b)(5)	Quarterly monitoring of wells required by § 146.32(g).	47-13-10.4.b.5	Quarterly monitoring of wells required by subdivision 10.2.h; and	Same as CFR.
40 CFR 146.33(b)(6)	All Class III wells may be monitored on a field or project basis rather than an individual well basis by manifold monitoring. Manifold monitoring may be used in cases of facilities consisting of more than one injection well, operating with a common manifold. Separate monitoring systems for each well are not required provided the owner/operator demonstrates that manifold monitoring is comparable to individual well monitoring.	47-13-10.4.b.6	All Class 3 wells may be monitored on a field or project basis rather than an individual well basis by manifold monitoring. Manifold monitoring may be used in cases of facilities consisting of more than one injection well, operating with a common manifold. Separate monitoring systems for each well are not required provided the owner/operator demonstrates that manifold monitoring is comparable to individual well monitoring.	Same as CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.33(c)	Reporting requirements. Reporting requirements shall, at a minimum, include:	47-13-10.4.c	Reporting Requirements: The Director shall prescribe the form, manner, content, and frequency of reporting by the permittee. The permittee shall be required to identify the types of tests and methods used to generate the monitoring data. At a minimum, requirements shall include:	Similar to CFR. WV specifies the responsibilities of the Director and permittee, but the intent is similar to the CFR.
40 CFR 146.33(c)(1)	Quarterly reporting to the Director on required monitoring;	47-13-10.4.c.1	Quarterly monitoring of wells;	Differs from CFR; it is unclear if the intent is the same as the CFR. Revision to improve clarity is recommended.
40 CFR 146.33(c)(2)	Results of mechanical integrity and any other periodic test required by the Director reported with the first regular quarterly report after the completion of the test; and	47-13-10.4.c.2	Results of mechanical integrity and any other periodic test required by the Director reported with the first regular quarterly report after the completion of the test;	Same as CFR.
40 CFR 146.33(c)(3)	Monitoring may be reported on a project or field basis rather than individual well basis where manifold monitoring is used.			Missing; however, manifold monitoring is allowed (see 146.33 (b)(6)). There are no concerns for stringency, but clarification is recommended.
40 CFR 146.34	**40 CFR 146.34 Information to be considered by the Director.** This section sets forth the information which must be considered by the Director in authorizing Class III wells. Certain maps, cross sections, tabulations of wells within the area of review, and other data may be included in the application by reference provided they are current, readily available to the Director (for example, in the permitting agency's files) and sufficiently identified to be retrieved.	47-13-10.5.a	For both existing and new Class 3 wells, paragraphs 10.5.a.2, 10.5.a.3 and 10.5.a.6 of this section may be included by reference if the maps are specifically identified and readily available to the Director:	Missing. WV does not include some of the introductory text in the CFR, but the provisions below are things that must be considered by the Director. No concerns for stringency.
40 CFR 146.34(a)	Prior to the issuance of a permit for an existing Class III well or area to operate or the construction of a new Class III well the Director shall consider the following:	47-13-10.5.a	Prior to the issuance of a permit for an existing or new Class 3 well, the Director shall consider the following information. For an existing Class 3 injection operation the Director may rely upon the existing permit file for these items of information listed below which are current and accurate in the State file. For a new Class 3 injection well the Director shall require the submission of all the information listed below…	Similar to CFR.

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ED_013399_00000014-00221

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.34(a)(1)	Information required in 40 CFR 144.31 and 144.31(g);			Missing. WV does not require submittal of this information; however most of the information in 144.31 is required in permit applications. (See above.) Including this may improve clarity.
40 CFR 146.34(a)(2)	A map showing the injection well or project area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name and location of all existing producing wells, injection wells, abandoned wells, dry holes, public water systems and water wells. The map may also show surface bodies of waters, mines (surface and subsurface), quarries and other pertinent surface features including residences and roads, and faults if known or suspected. Only information of public record and pertinent information known to the applicant is required to be included on this map.	47-13-10.5.a.1	A map showing the injection well or project area for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name and location of all existing producing wells, injection wells, abandoned wells, and dry holes. The map may also show surface bodies of water, mines (surface and subsurface), quarries and other pertinent surface features including residence and roads, and faults if known or suspected. Only information of public record and pertinent information known to the applicant is required to be included on this map;	Similar to CFR. WV does not require public water systems and water wells to be included on the map. This is less stringent than the CFR.
40 CFR 146.34(a)(3)	A tabulation of data reasonably available from public records or otherwise known to the applicant on wells within the area of review included on the map required under paragraph (a)(2) of this section which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and completion, and any additional information the Director may require. In cases where the information would be repetitive and the wells are of similar age, type, and construction the Director may elect to only require data on a representative number of wells.	47-13-10.5.a.5	A tabulation of data reasonably available for public records or otherwise known to the applicant on all wells within the area of review included on the map which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and completion, and any additional information the Director may require. In cases where the information may be repetitive and the wells are of similar age, type and construction the Director may elect to only require data on a representative number of wells;	Same as CFR.
40 CFR 146.34(a)(4)	Maps and cross sections indicating the vertical limits of all underground sources of drinking water within the area of review, their position relative to the injection formation, and the direction of water movement, where known, in every underground source of drinking water which may be affected by the proposed injection:	47-13-10.5.a.2	Maps and cross sections indicating the vertical and lateral limits of all underground sources of drinking water within the area of review, their position relative to the injection formation, and the direction of water movement, where known, in every underground source of drinking water which may be affected by the proposed injection.;	Similar to CFR. WV also requires the maps and cross sections to show the lateral limits of USDWs within the area of review. This is more stringent/expansive than the CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.34(a)(5)	Maps and cross sections detailing the geologic structure of the local area;	47-13-10.5.a.3	Maps and cross sections detailing the geologic structure of the local area;	Same as CFR.
40 CFR 146.34(a)(6)	Generalized map and cross sections illustrating the regional geologic setting;	47-13-10.5.a.4	Generalized maps and cross sections illustrating the regional geologic setting;	Same as CFR.
40 CFR 146.34(a)(7)	Proposed operating data:	47-13-10.5.a.6	Operating data:	Same as CFR.
40 CFR 146.34(a)(7)(i)	Average and maximum daily rate and volume of fluid to be injected;	47-13-10.5.a.6.A	The anticipated average and maximum pressure and flow rate at which the permittee will operate;	Similar to CFR.
40 CFR 146.34(a)(7)(ii)	Average and maximum injection pressure; and	47-13-10.5.a.6.A	The anticipated average and maximum pressure and flow rate at which the permittee will operate;	Similar to CFR.
40 CFR 146.34(a)(7)(iii)	Qualitative analysis and ranges in concentrations of all constituents of injected fluids. The applicant may request Federal confidentiality as specified in 40 CFR part 2. If the information is proprietary an applicant may, in lieu of the ranges in concentrations, choose to submit maximum concentrations which shall not be exceeded. In such a case the applicant shall retain records of the undisclosed concentrations and provide them upon request to the Director as part of any enforcement investigation.	47-13-10.5.a.6.B	Qualitative analysis and ranges in concentrations of all constituents of injected fluids. The applicant may request confidentiality; If the information is proprietary an applicant may, in lieu of the ranges in concentrations, choose to submit maximum concentrations which shall not be exceeded. In such a case the applicant shall retain records of the undisclosed concentrations and provide them upon request to the Director as part of any enforcement investigation; and	Similar to CFR.
40 CFR 146.34(a)(8)	Proposed formation testing program to obtain the information required by § 146.32(c).	47-13-10.5.a.7	Formation testing program;	Same as CFR.
40 CFR 146.34(a)(9)	Proposed stimulation program;	47-13-10.5.a.8	Stimulation program;	Same as CFR.
40 CFR 146.34(a)(10)	Proposed injection procedure;	47-13-10.5.a.9	Injection procedure;	Same as CFR.

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ED_013399_00000014-00223

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.34(a)(11)	Schematic or other appropriate drawings of the surface and subsurface construction details of the well;	47-13-10.5.a.10	Schematic or other appropriate drawings of the surface and subsurface construction details of the well;	Same as CFR.
40 CFR 146.34(a)(12)	Plans (including maps) for meeting the monitoring requirements of § 146.33(b);	47-13-10.5.a.11	Plans (including maps) for meeting the monitoring requirements of subdivision 10.4.b;	Same as CFR.
40 CFR 146.34(a)(13)	Expected changes in pressure, native fluid displacement, direction of movement of injection fluid;	47-13-10.5.a.12	Expected changes in pressure, native fluid displacement, direction of movement of injection fluid;	Same as CFR.
40 CFR 146.34(a)(14)	Contingency plans to cope with all shut-ins or well failures so as to prevent the migration of contaminating fluids into underground sources of drinking water;	47-13-10.5.a.13	Contingency plans to cope with all shut-ins or well failures so as to prevent the migration of contaminating fluids into underground sources of drinking water;	Same as CFR.
40 CFR 146.34(a)(15)	A certificate that the applicant has assured, through a performance bond, or other appropriate means, the resources necessary to close, plug, or abandon the well as required by 40 CFR 144.52(a)(7) and	47-13-10.5.a.16	A certificate that the applicant has assured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well under subdivision 14.7.f; and	Same as CFR.
40 CFR 146.34(a)(16)	The corrective action proposed to be taken under 40 CFR 144.55.	47-13-10.5.a.15	The corrective action proposed to be taken under subsection 6.1;	Same as CFR.
40 CFR 146.34(b)	Prior to granting approval for the operation of a Class III well the Director shall consider the following information:			Missing. WV does not specify information the director must consider before authorizing injection. This is less stringent than the CFR. This applies to all of 146.34(b).
40 CFR 146.34(b)(1)	All available logging and testing data on the well;			Missing (see above).
40 CFR 146.34(b)(2)	A satisfactory demonstration of mechanical integrity for all new wells and for all existing salt solution wells pursuant to § 146.08;			Missing (see above).
40 CFR 146.34(b)(3)	The anticipated maximum pressure and flow rate at which the permittee will operate;			Missing (see above).
40 CFR 146.34(b)(4)	The results of the formation testing program;			Missing (see above).

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ED_013399_00000014-00224

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.34(b)(5)	The actual injection procedures; and			Missing (see above).
40 CFR 146.34(b)(6)	The status of corrective action on defective wells in the area of review.			Missing (see above).
40 CFR 146.34(c)	Prior to granting approval for the plugging and abandonment of a Class III well the Director shall consider the following information:	47-13-10.5.b	Prior to granting approval for the plugging and abandonment of a Class 3 well the Director shall consider the following information:	Same as CFR.
40 CFR 146.34(c)(1)	The type and number of plugs to be used;	47-13-10.5.b.1	The type and number of plugs to be used;	Same as CFR.
40 CFR 146.34(c)(3)	The placement of each plug including the elevation of the top and bottom;	47-13-10.5.b.2	The placement of each plug including the elevation of the top and bottom;	Same as CFR.
40 CFR 146.34(c)(3)	The type, grade, and quantity of cement to be used;	47-13-10.5.b.3	The type, grade and quantity of cement to be used;	Same as CFR.
40 CFR 146.34(c)(4)	The method of placement of the plugs; and	47-13-10.5.b.4	The method of placement of the plugs; and	Same as CFR.
40 CFR 146.34(c)(5)	The procedure to be used to meet the requirements of § 146.10(c).	47-13-10.5.b.5	The procedure to be used to meet the requirements of subsection 10.3.	Same as CFR.
Subpart E—Criteria and Standards Applicable to Class IV Injection Wells				
Subpart F—Criteria and Standards Applicable to Class V Injection Wells				

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ED_013399_00000014-00225

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.51	**40 CFR 146.51 Applicability.** This subpart sets forth criteria and standards for underground injection control programs to regulate all injection not regulated in subparts B, C, D, and E.	47-13-12.1	**47-13-12. Criteria and Standards Applicable to Class 5 Injection Wells.** General. <u>This section sets forth requirements for underground injection control programs to regulate all injection not regulated in sections 8, 9, 10, 11, and 13.</u> Generally, wells covered in this section inject non-hazardous fluids into strata that contain underground sources of drinking water. It includes, but is not limited to, the following types of injection wells: Waste disposal wells, such as drainage wells, cooling water return flow wells, air conditioning return flow wells, salt water barrier wells and subsidence control wells (not associated with oil and gas production).	Same as CFR.
40 CFR 146.51(a)	Generally, wells covered by this subpart inject non-hazardous fluids into or above formations that contain underground sources of drinking water. It includes all wells listed in § 146.5(e) but is not limited to those types of injection wells.	47-13-12.1	General. This section sets forth requirements for underground injection control programs to regulate all injection not regulated in sections 8, 9, 10, 11, and 13. <u>Generally, wells covered in this section inject non-hazardous fluids into strata that contain underground sources of drinking water. It includes, but is not limited to, the following types of injection wells: Waste disposal wells, such as drainage wells, cooling water return flow wells, air conditioning return flow wells, salt water barrier wells and subsidence control wells (not associated with oil and gas production).</u>	Similar to CFR. WV includes examples of well types included in this rule, but doesn't limit applicability to these. No concerns for stringency.
40 CFR 146.51(b)	It also includes wells not covered in Class IV that inject radioactive material listed in 10 CFR part 20, appendix B, table II, column 2.			Missing. The CFR text contains obsolete references to radioactive material, the disposal of which is prohibited in a Class V well. No concerns for stringency.
Subpart G—Criteria and Standards Applicable to Class I Hazardous Wells				

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ED_013399_00000014-00226

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.61(a)	**40 CFR 146.61 Applicability.** This subpart establishes criteria and standards for underground injection control programs to regulate Class I hazardous waste injection wells. Unless otherwise noted this subpart supplements the requirements of subpart A and applies instead of subpart B to Class I hazardous waste injection wells.	47-13-7.1	**47-13-7. Requirements for Wells Injecting Hazardous Waste.** Applicability. The rules in this section and section 8 apply to all generators of hazardous waste, and to the owners or operators of all hazardous waste management facilities, using any Class 1 well to inject hazardous waste accompanied by a manifest.	Similar to CFR. Note that WV does not have separate requirements for Class I non-hazardous and Class I hazardous waste disposal wells. WV requires additional procedures for Class I hazardous wells, but these primarily relate to reporting, manifests, etc. (and are not directly analogous to the CFR for UIC).
40 CFR 146.61(b)	*Definitions* Cone of influence means that area around the well within which increased injection zone pressures caused by injection into the hazardous waste injection well would be sufficient to drive fluids into an underground source of drinking water (USDW).			Missing. WV uses the term *cone of influence* in 47-13-8 but provides no definition. Addition of this definition is recommended for clarity.
	Existing well means a Class I well which was authorized prior to August 25, 1988, by an approved State program, or an EPA-administered program or a well which has become a Class I well as a result of a change in the definition of the injected waste which would render the waste hazardous under § 261.3 of this part.	47-13-8.1.a	Existing well means a Class I well which was authorized prior to August 25, 1988 or a well which has become a Class I well as a result of a change in the definition of the injected waste into a hazardous waste.	Similar to CFR.
	Injection interval means that part of the injection zone in which the well is screened, or in which the waste is otherwise directly emplaced.			Missing.
	New well means any Class I hazardous waste injection well which is not an existing well.			Missing. Addition of this definition is recommended for clarity.
	Transmissive fault or fracture is a fault or fracture that has sufficient permeability and vertical extent to allow fluids to move between formations.	47-13-2.76	"Transmissive Fault" is a type of fault or fracture that has sufficient permeability and vertical extent to allow fluids to move between formations.	Same as CFR.

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ED_013399_00000014-00227

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.62 (a)	**40 CFR 146.62 Minimum criteria for siting.** All Class I hazardous waste injection wells shall be sited such that they inject into a formation that is beneath the lowermost formation containing within one quarter mile of the well bore an underground source of drinking water.	47-13-8.2.a	Each Class 1 well shall be sited in such a fashion that it injects into a formation which is below the lowermost formation containing within 1/4 mile of the well bore, an underground source of drinking water, and which has an overlying confining bed that is free of known faults or fractures within the area of review. The injection zone shall have sufficient permeability, porosity, thickness and areal extent to prevent migration of fluids into USDWs. The confining zone shall be laterally continuous and free of transecting, transmissive faults or fractures over an area sufficient to prevent the movement of fluids into a USDW. The siting shall contain at least one formation of sufficient thickness and with lithologic and stress characteristics capable of preventing vertical propagation of fractures.	Similar to CFR.
40 CFR 146.62(b)	The siting of Class I hazardous waste injection wells shall be limited to areas that are geologically suitable. The Director shall determine geologic suitability based upon:			Missing. WV does not provide requirements for the siting of Class I hazardous wells beyond those for other Class I wells. Therefore, some elements of WV's hazardous well requirements are less stringent than the CFR. (This applies to all of 146.62(b).)
40 CFR 146.62(b)(1)	An analysis of the structural and stratigraphic geology, the hydrogeology, and the seismicity of the region;			Missing (see above). Note that 7.4.a prohibits siting Class I hazardous wells in identified seismic risk zones of the state.
40 CFR 146.62(b)(2)	An analysis of the local geology and hydrogeology of the well site, including, at a minimum, detailed information regarding stratigraphy, structure and rock properties, aquifer hydrodynamics and mineral resources; and			Missing (see above).
40 CFR 146.62(b)(3)	A determination that the geology of the area can be described confidently and that limits of waste fate and transport can be accurately predicted through the use of models.			Missing (see above).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.62(c)	Class I hazardous waste injection wells shall be sited such that:	47-13-8.2.a	Each Class 1 well shall be sited in such a fashion that it injects into a formation which is below the lowermost formation containing within 1/4 mile of the well bore, an underground source of drinking water, and which has an overlying confining bed that is free of known faults or fractures within the area of review. The injection zone shall have sufficient permeability, porosity, thickness and areal extent to prevent migration of fluids into USDWs. The confining zone shall be laterally continuous and free of transecting, transmissive faults or fractures over an area sufficient to prevent the movement of fluids into a USDW. The siting shall contain at least one formation of sufficient thickness and with lithologic and stress characteristics capable of preventing vertical propagation of fractures.	Similar to CFR. As noted above, 47-13-8.2.a applies to all Class I wells.
40 CFR 146.62(c)(1)	The injection zone has sufficient permeability, porosity, thickness and areal extent to prevent migration of fluids into USDWs.	47-13-8.2.a	Each Class 1 well shall be sited in such a fashion that it injects into a formation which is below the lowermost formation containing within 1/4 mile of the well bore, an underground source of drinking water, and which has an overlying confining bed that is free of known faults or fractures within the area of review. The injection zone shall have sufficient permeability, porosity, thickness and areal extent to prevent migration of fluids into USDWs. The confining zone shall be laterally continuous and free of transecting, transmissive faults or fractures over an area sufficient to prevent the movement of fluids into a USDW. The siting shall contain at least one formation of sufficient thickness and with lithologic and stress characteristics capable of preventing vertical propagation of fractures.	Same as CFR (see above).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.62(c)(2)	The confining zone:	47-13-8.2.a	Each Class 1 well shall be sited in such a fashion that it injects into a formation which is below the lowermost formation containing within 1/4 mile of the well bore, an underground source of drinking water, and which has an overlying confining bed that is free of known faults or fractures within the area of review. The injection zone shall have sufficient permeability, porosity, thickness and areal extent to prevent migration of fluids into USDWs. The confining zone shall be laterally continuous and free of transecting, transmissive faults or fractures over an area sufficient to prevent the movement of fluids into a USDW. The siting shall contain at least one formation of sufficient thickness and with lithologic and stress characteristics capable of preventing vertical propagation of fractures.	Same as CFR (see above).
40 CFR 146.62(c)(2)(i)	Is laterally continuous and free of transecting, transmissive faults or fractures over an area sufficient to *prevent* the movement of fluids into a USDW; and	47-13-8.2.a	Each Class 1 well shall be sited in such a fashion that it injects into a formation which is below the lowermost formation containing within 1/4 mile of the well bore, an underground source of drinking water, and which has an overlying confining bed that is free of known faults or fractures within the area of review. The injection zone shall have sufficient permeability, porosity, thickness and areal extent to prevent migration of fluids into USDWs. The confining zone shall be laterally continuous and free of transecting, transmissive faults or fractures over an area sufficient to prevent the movement of fluids into a USDW. The siting shall contain at least one formation of sufficient thickness and with lithologic and stress characteristics capable of preventing vertical propagation of fractures.	Same as CFR (see above).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.62(c)(2)(ii)	Contains at least one formation of sufficient thickness and with lithologic and stress characteristics capable of preventing vertical propagation of fractures.	47-13-8.2.a	Each Class 1 well shall be sited in such a fashion that it injects into a formation which is below the lowermost formation containing within 1/4 mile of the well bore, an underground source of drinking water, and which has an overlying confining bed that is free of known faults or fractures within the area of review. The injection zone shall have sufficient permeability, porosity, thickness and areal extent to prevent migration of fluids into USDWs. The confining zone shall be laterally continuous and free of transecting, transmissive faults or fractures over an area sufficient to prevent the movement of fluids into a USDW. The siting shall contain at least one formation of sufficient thickness and with lithologic and stress characteristics capable of preventing vertical propagation of fractures.	Same as CFR (see above).
40 CFR 146.62(d)	The owner or operator shall demonstrate to the satisfaction of the Director that:	47-13-8.2.a.1	Owners or operators must demonstrate that: 1) the confining zone is separated by at least one sequence of permeable and less permeable strata to prevent fluid migration; or 2) the piezometric surface of the fluid in the injection zone is less than the piezometric surface of the lowermost USDW; or 3) no USDW is present; or 4) would not endanger USDWs if the site does not meet the requirements in (1), (2), or (3).	Similar to CFR.
40 CFR 146.62(d)(1)	The confining zone is separated from the base of the lowermost USDW by at least one sequence of permeable and less permeable strata that will provide an added layer of protection for the USDW in the event of fluid movement in an unlocated borehole or transmissive fault; or	47-13-8.2.a.1	Owners or operators must demonstrate that: 1) the confining zone is separated by at least one sequence of permeable and less permeable strata to prevent fluid migration; or 2) the piezometric surface of the fluid in the injection zone is less than the piezometric surface of the lowermost USDW; or 3) no USDW is present; or 4) would not endanger USDWs if the site does not meet the requirements in (1), (2), or (3).	WV does not specify separation is from the USDW (although this is implied) or reference fluid movement via a unlocated borehole or transmissive fault. There are no concerns for stringency, but clarification is recommended.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.62(d)(2)	Within the area of review, the piezometric surface of the fluid in the injection zone is less than the piezometric surface of the lowermost USDW, considering density effects, injection pressures and any significant pumping in the overlying USDW; or	47-13-8.2.a.1	Owners or operators must demonstrate that: 1) the confining zone is separated by at least one sequence of permeable and less permeable strata to prevent fluid migration; or 2) the piezometric surface of the fluid in the injection zone is less than the piezometric surface of the lowermost USDW; or 3) no USDW is present; or 4) would not endanger USDWs if the site does not meet the requirements in (1), (2), or (3).	Similar to CFR.
40 CFR 146.62(d)(3)	There is no USDW present.	47-13-8.2.a.1	Owners or operators must demonstrate that: 1) the confining zone is separated by at least one sequence of permeable and less permeable strata to prevent fluid migration; or 2) the piezometric surface of the fluid in the injection zone is less than the piezometric surface of the lowermost USDW; or 3) no USDW is present; or 4) would not endanger USDWs if the site does not meet the requirements in (1), (2), or (3).	Similar to CFR.
40 CFR 146.62(d)(4)	The Director may approve a site which does not meet the requirements in paragraphs (d) (1), (2), or (3) of this section if the owner or operator can demonstrate to the Director that because of the geology, nature of the waste, or other considerations, abandoned boreholes or other conduits would not cause endangerment of USDWs.	47-13-8.2.a.1	Owners or operators must demonstrate that: 1) the confining zone is separated by at least one sequence of permeable and less permeable strata to prevent fluid migration; or 2) the piezometric surface of the fluid in the injection zone is less than the piezometric surface of the lowermost USDW; or 3) no USDW is present; or 4) would not endanger USDWs if the site does not meet the requirements in (1), (2), or (3).	Similar to CFR. WV does not specify that the owner or operator can demonstrate non-endangerment based on geology, nature of the waste, or other considerations. This may not affect stringency, but clarification is recommended.
40 CFR 146.63	**40 CFR 146.63 Area of review.** For the purposes of Class I hazardous waste wells, this section shall apply to the exclusion of § 146.6. The area of review for Class I hazardous waste injection wells shall be a 2-mile radius around the well bore. The Director may specify a larger area of review based on the calculated cone of influence of the well.	47-13-5.3.c.1	For Class1 hazardous waste wells, the area of review is a 2 mile radius.	Similar to CFR.
40 CFR 146.64	**40 CFR 146.64 Corrective action for wells in the area of review.** For the purposes of Class I hazardous waste wells, this section shall apply to the exclusion of §§ 144.55 and 146.07.			Missing. WV did not include corrective action requirements specific to Class I hazardous waste wells. However, the corrective action requirements for all Class I wells are similar to the CFR; see below.

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ED_013399_00000014-00232

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.64(a)	The owner or operator of a Class I hazardous waste well shall as part of the permit application submit a plan to the Director outlining the protocol used to:	47-13-8.5	8.5. Information to be Considered by the Director Prior to the Issuance of a Permit.	The provisions below in Section 47-13-8.5 are information "to be considered by the Director," but the section also states that the information is required. There are no concerns for stringency, but clarification is recommended.
40 CFR 146.64(a)(1)	Identify all wells penetrating the confining zone or injection zone within the area of review; and	47-13-8.5.a.3.A	The protocol used to identify all wells within the area of review, and to determine if the wells are properly plugged.	Similar to CFR.
40 CFR 146.64(a)(2)	Determine whether wells are adequately completed or plugged.	47-13-8.5.a.3.A	The protocol used to identify all wells within the area of review, and to determine if the wells are properly plugged.	Similar to CFR.
40 CFR 146.64 (b)	The owner or operator of a Class I hazardous waste well shall identify the location of all wells within the area of review that penetrate the injection zone or the confining zone and shall submit as required in § 146.70(a):	47-13-14.9.a	Applicants for Class 1, 2 (other than existing wells) or 3 injection well permits shall identify the location of all known wells within the injection well's area of review which penetrate the injection zone (or for Class 2, all wells penetrating formations affected by an increase in pressure) and/or confining zone. For such wells which are improperly sealed, completed, or abandoned, the applicant shall also submit a plan consisting of such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water ("corrective action") under subsection 6.1. Where the plan is adequate, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, he or she shall require the applicant to revise the plan, prescribe a plan for corrective action as a condition of the permit under subdivision 14.9.b of this section, or deny the application.	WV requires that the tabulation include wells that penetrate the injection or confining zone. This may not result in as extensive a tabulation as the CFR requires. Clarification is recommended.
40 CFR 146.64(b)(1)	A tabulation of all wells within the area of review that penetrate the injection zone or the confining zone; and	47-13-8.5.a.3	A tabulation of data on all wells within the area of review which penetrate into the proposed injection zone and/or confining zone. Such data shall include a description of each well's type, location, depth, record of plugging and/or completion, and any additional information on these wells as the Director may require;	Similar to CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00233

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.64(b)(2)	A description of each well or type of well and any records of its plugging or completion.	47-13-8.5.a.3	A tabulation of data on all wells within the area of review which penetrate into the proposed injection zone and/or confining zone. Such data shall include a description of each well's type, location, depth, record of plugging and/or completion, and any additional information on these wells as the Director may require;	Similar to CFR. WV requires additional information above that in the CFR. This is more stringent/expansive than the CFR.
40 CFR 146.64 (c)	For wells that the Director determines are improperly plugged, completed, or abandoned, or for which plugging or completion information is unavailable, the applicant shall also submit a plan consisting of such steps or modification as are necessary to prevent movement of fluids into or between USDWs. Where the plan is adequate, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate (based at a minimum on the factors in paragraph (e) of this section), the Director shall:	47-13-14.9.a	Applicants for Class 1, 2 (other than existing wells) or 3 injection well permits shall identify the location of all known wells within the injection well's area of review which penetrate the injection zone (or for Class 2, all wells penetrating formations affected by an increase in pressure) and/or confining zone. For such wells which are improperly sealed, completed, or abandoned, the applicant shall also submit a plan consisting of such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water ("corrective action") under subsection 6.1. Where the plan is adequate, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, he or she shall require the applicant to revise the plan, prescribe a plan for corrective action as a condition of the permit under subdivision 14.9.b of this section, or deny the application.	Similar to CFR. This provision applies to Class I, II, and III wells, but the intent is similar to the federal Class I hazardous requirements at 146.64 (c). No concerns for stringency.

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ED_013399_00000014-00234

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.64(c)(1)	Require the applicant to revise the plan;	47-13-14.9.a	Applicants for Class 1, 2 (other than existing wells) or 3 injection well permits shall identify the location of all known wells within the injection well's area of review which penetrate the injection zone (or for Class 2, all wells penetrating formations affected by an increase in pressure) and/or confining zone. For such wells which are improperly sealed, completed, or abandoned, the applicant shall also submit a plan consisting of such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water ("corrective action") under subsection 6.1. Where the plan is adequate, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, he or she shall require the applicant to revise the plan, prescribe a plan for corrective action as a condition of the permit under subdivision 14.9.b of this section, or deny the application.	Same as CFR (see above).
40 CFR 146.64(c)(2)	Prescribe a plan for corrective action as a condition of the permit; or	47-13-14.9.a	Applicants for Class 1, 2 (other than existing wells) or 3 injection well permits shall identify the location of all known wells within the injection well's area of review which penetrate the injection zone (or for Class 2, all wells penetrating formations affected by an increase in pressure) and/or confining zone. For such wells which are improperly sealed, completed, or abandoned, the applicant shall also submit a plan consisting of such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water ("corrective action") under subsection 6.1. Where the plan is adequate, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, he or she shall require the applicant to revise the plan, prescribe a plan for corrective action as a condition of the permit under subdivision 14.9.b of this section, or deny the application.	Same as CFR (see above).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.64(c)(3)	Deny the application.	47-13-14.9.a	Applicants for Class 1, 2 (other than existing wells) or 3 injection well permits shall identify the location of all known wells within the injection well's area of review which penetrate the injection zone (or for Class 2, all wells penetrating formations affected by an increase in pressure) and/or confining zone. For such wells which are improperly sealed, completed, or abandoned, the applicant shall also submit a plan consisting of such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water ("corrective action") under subsection 6.1. Where the plan is adequate, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, he or she shall require the applicant to revise the plan, prescribe a plan for corrective action as a condition of the permit under subdivision 14.9.b of this section, or deny the application.	Same as CFR (see above).
40 CFR 146.64 (d)(1)	Requirements: (1) Existing injection wells. Any permit issued for an existing Class I hazardous waste injection well requiring corrective action other than pressure limitations shall include a compliance schedule requiring any corrective action accepted or prescribed under paragraph (c) of this section. Any such compliance schedule shall provide for compliance no later than 2 years following issuance of the permit and shall require observance of appropriate pressure limitations under paragraph (d)(3) until all other corrective action measures have been implemented.	47-13-14.9.b	Requirements. 1. Existing injection wells. Any permit issued for an existing injection well (other than Class 2) requiring corrective action shall include a compliance schedule requiring any corrective action accepted or prescribed under subdivision 14.9.a of this section to be completed as soon as possible.	This provision (which is not specific to Class I hazardous wells) is similar to the CFR, but does not require completion of all activities under a compliance schedule within 2 years. This is less stringent than the CFR.
40 CFR 146.64 (d)(2)	New injection wells. No owner or operator of a new Class I hazardous waste injection well may begin injection until all corrective actions required under this section have been taken.	47-13-14.9.b.2	New injection wells. No permit for a new injection well may authorize injection until all required corrective action has been taken.	Similar to CFR.

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ED_013399_00000014-00236

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.64 (d)(3)	The Director may require pressure limitations in lieu of plugging. If pressure limitations are used in lieu of plugging, the Director shall require as a permit condition that injection pressure be so limited that pressure in the injection zone at the site of any improperly completed or abandoned well within the area of review would not be sufficient to drive fluids into or between USDWs. This pressure limitation shall satisfy the corrective action requirement. Alternatively, such injection pressure limitation may be made part of a compliance schedule and may be required to be maintained until all other required corrective actions have been implemented.	47-13-14.9.b.3	Injection pressure limitation. The Director may require as a permit condition that pressure be so limited that pressure in the injection zone does not exceed hydrostatic pressure at the site of any improperly completed or abandoned well within the area of review. This pressure limitation shall satisfy the corrective action requirement. Alternatively, such injection pressure limitation can be part of a compliance schedule and last until all other required corrective action has been taken.	Similar to CFR, but missing the provision that pressure limitations in lieu of plugging would not be sufficient to drive fluids into or between USDWs. Clarification is recommended.
40 CFR 146.64 (e)	In determining the adequacy of corrective action proposed by the applicant under paragraph (c) of this section and in determining the additional steps needed to prevent fluid movement into and between USDWs, the following criteria and factors shall be considered by the Director:	47-13-6.1	Corrective Action. In determining the adequacy of corrective action proposed by the applicant and in determining the additional steps needed to prevent fluid migration into underground sources of drinking water, the Director shall consider the following criteria and factors:	Similar to CFR. Section 47-13-6.1 applies to all injection wells.
40 CFR 146.64 (e)(1)	Nature and volume of injected fluid;	47-13-6.1.a	Nature and volume of injected fluid;	Same as CFR.
40 CFR 146.64 (e)(2)	Nature of native fluids or byproducts of injection;	47-13-6.1.b	Nature of native fluids or by-products of injection;	Same as CFR.
40 CFR 146.64 (e)(3)	Geology;	47-13-6.1.c	Geology;	Same as CFR.
40 CFR 146.64 (e)(4)	Hydrology;	47-13-6.1.d	Hydrology;	Same as CFR.
40 CFR 146.64 (e)(5)	History of the injection operation;	47-13-6.1.e	History of the injection operation;	Same as CFR.
40 CFR 146.64 (e)(6)	Completion and plugging records;	47-13-6.1.f	Completion and plugging reports;	Same as CFR.
40 CFR 146.64 (e)(7)	Closure procedures in effect at the time the well was closed;	47-13-6.1.g	Abandonment procedures in effect at the time the well was abandoned;	Same as CFR.
40 CFR 146.64 (e)(8)	Hydraulic connections with USDWs;	47-13-6.1.h	Hydraulic connections with the underground sources of drinking water; and	Same as CFR.
40 CFR 146.64 (e)(9)	Reliability of the procedures used to identify abandoned wells; and	47-13-6.1.j	Reliability of the procedures used to identify abandoned wells; and	Same as CFR.

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ED_013399_00000014-00237

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.64 (e)(10)	Any other factors which might affect the movement of fluids into or between USDWs.	47-13-6.1.k	Any other factors which might affect the movement of fluids into or between USDWs.	Same as CFR.
40 CFR 146.65 (a)	**40 CFR 146.65 Construction requirements.** General. All existing and new Class I hazardous waste injection wells shall be constructed and completed to:	47-13-8.2	Construction Requirements. The Director shall prescribe requirements for the construction of Class 1 injection wells. Existing wells shall achieve compliance with such requirements according to a specific compliance schedule established by the Director as a condition of the permit. New wells shall be in compliance with construction requirements before injection operations begin. The owner or operator of a proposed injection well shall submit plans to the Director for testing, drilling, and construction and obtain the approval of the initial plans as a condition of the permit. The Director's approval of any modifications of the plan shall be obtained before incorporating them into the construction of the injection well. At a minimum, such requirements shall prescribe that:	WV does not have construction provisions that are specific to Class 1 hazardous wells. Therefore, some elements of WV's hazardous well requirements are less stringent than the CFR. The requirements below apply to all Class I wells. (Applies to all of 146.65.)
40 CFR 146.65(a)(1)	Prevent the movement of fluids into or between USDWs or into any unauthorized zones;	47-13-8.2.b	Each Class 1 well shall be cased, and cemented to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well and post-closure period. The well construction must permit use of appropriate testing devices and workover tools, and continuous monitoring of tubing and casing. In determining and specifying casing and cementing requirements, the Director shall consider the following factors:	Same as CFR.

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ED_013399_00000014-00238

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.65(a)(2)	Permit the use of appropriate testing devices and workover tools; and	47-13-8.2.b	Each Class 1 well shall be cased, and cemented to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well and post-closure period. The well construction must permit use of appropriate testing devices and workover tools, and continuous monitoring of tubing and casing. In determining and specifying casing and cementing requirements, the Director shall consider the following factors:	Same as CFR.
40 CFR 146.65(a)(3)	Permit continuous monitoring of injection tubing and long string casing as required pursuant to § 146.67(f).	47-13-8.2.b	Each Class 1 well shall be cased, and cemented to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well and post-closure period. The well construction must permit use of appropriate testing devices and workover tools, and continuous monitoring of tubing and casing. In determining and specifying casing and cementing requirements, the Director shall consider the following factors:	Similar to CFR. WV refers generally to continuous monitoring of tubing and casing (not the long-string casing). The intent is the same as the CFR; no concerns for stringency.
40 CFR 146.65(b)	Compatibility. All well materials must be compatible with fluids with which the materials may be expected to come into contact. A well shall be deemed to have compatibility as long as the materials used in the construction of the well meet or exceed standards developed for such materials by the American Petroleum Institute, The American Society for Testing Materials, or comparable standards acceptable to the Director.	47-13-8.2.d	All parts of Class 1 wells which will come into contact with corrosive fluids (whether injected or in the native environment) shall be constructed of corrosion resistant material.	Similar to CFR. WV is less specific on what constitutes acceptable well construction materials, i.e., not referring to API, ASTM, etc. standards. No concerns for stringency, but clarification is recommended.

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ED_013399_00000014-00239

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.65 (c)(1)	Casing and Cementing of New Wells. (1) Casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well, including the post-closure care period. The casing and cementing program shall be designed to prevent the movement of fluids into or between USDWs, and to prevent potential leaks of fluids from the well. In determining and specifying casing and cementing requirements, the Director shall consider the following information as required by § 146.70:	47-13-8.2.b	Each Class 1 well shall be cased, and cemented to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of each newly drilled well shall be designed for the life expectancy of the well and post-closure period. The well construction must permit use of appropriate testing devices and workover tools, and continuous monitoring of tubing and casing. In determining and specifying casing and cementing requirements, the Director shall consider the following factors:	Similar to CFR. WV does not explicitly state that the well must be designed to prevent potential leaks of fluids from the well. This may be less stringent than the CFR, and clarification is recommended.
40 CFR 146.65 (c)(1)(i)	Depth to the injection zone;	47-13-8.2.b.1	Depth to the injection zone;	Same as CFR.
40 CFR 146.65 (c)(1)(ii)	Injection pressure, external pressure, internal pressure and axial loading;	47-13-8.2.b.2	Injection pressure (external pressure, internal pressure, axial loading, etc.);	Same as CFR.
40 CFR 146.65 (c)(1)(iii)	Hole size;	47-13-8.2.b.3	Hole size;	Same as CFR.
40 CFR 146.65 (c)(1)(iv)	Size and grade of all casing strings (well thickness, diameter, nominal weight, length, joint specification and construction material);	47-13-8.2.b.4	Size and grade of all casing strings (wall thickness, diameter, nominal weight, length, joint specification, construction material, etc.);	Same as CFR.
40 CFR 146.65 (c)(1)(v)	Corrosiveness of injected fluid, formation fluids and temperature;	47-13-8.2.b.5	Corrosiveness of injected fluid, formation fluids, and temperatures;	Same as CFR.
40 CFR 146.65 (c)(1)(vi)	Lithology of injection and confining zones;	47-13-8.2.b.6	Lithology of possible injection and confining intervals; and	Same as CFR. WV more broadly refers to *possible* injection and confining zones. This may be more expansive than the CFR.
40 CFR 146.65 (c)(1)(vii)	Type or grade of cement; and	47-13-8.2.b.7	Type or grade of cement.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.65 (c)(1)(viii)	Quantity and chemical composition of the injected fluid.			Missing. WV does not require consideration of the quantity and composition of the injected fluid.
40 CFR 146.65 (c)(2)	One surface casing string shall, at a minimum, extend into the confining bed below the lowest formation that contains a USDW and be cemented by circulating cement from the base of the casing to the surface, using a minimum of 120% of the calculated annual volume. The Director may require more than 120% when the geology or other circumstances warrant it.	47-13-8.2.c.4	One surface casing string shall extend into the confining bed below the lowest formation that contains a USDW and be cemented by circulating cement from the base of the casing to the surface, using a minimum of 120% of the calculated annular volume.	Similar to CFR. WV does not give the Director the flexibility to require more than 120% of the calculated volume. No concerns for stringency.
40 CFR 146.65 (c)(3)	At least one long string casing, using a sufficient number of centralizers, shall extend to the injection zone and shall be cemented by circulating cement to the surface in one or more stages:	47-13-8.2.c.5	At least one long string casing, using a sufficient number of centralizers, shall extend to the injection zone and shall be cemented by circulating cement to the surface in one or more stages of sufficient quantity and quality to withstand the maximum operating pressure; and in a quantity no less than 120% of the calculated volume necessary to fill the annular space. The Director may require more than 120% when the geology or other circumstances warrant it.	Same as CFR.
40 CFR 146.65 (c)(3)(i)	Of sufficient quantity and quality to withstand the maximum operating pressure; and	47-13-8.2.c.5	At least one long string casing, using a sufficient number of centralizers, shall extend to the injection zone and shall be cemented by circulating cement to the surface in one or more stages of sufficient quantity and quality to withstand the maximum operating pressure; and in a quantity no less than 120% of the calculated volume necessary to fill the annular space. The Director may require more than 120% when the geology or other circumstances warrant it.	Similar to CFR.
40 CFR 146.65 (c)(3)(ii)	In a quantity no less than 120% of the calculated volume necessary to fill the annular space. The Director may require more than 120% when the geology or other circumstances warrant it.	47-13-8.2.c.5	At least one long string casing, using a sufficient number of centralizers, shall extend to the injection zone and shall be cemented by circulating cement to the surface in one or more stages of sufficient quantity and quality to withstand the maximum operating pressure; and in a quantity no less than 120% of the calculated volume necessary to fill the annular space. The Director may require more than 120% when the geology or other circumstances warrant it.	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.65 (c)(4)	Circulation of cement may be accomplished by staging. The Director may approve an alternative method of cementing in cases where the cement cannot be recirculated to the surface, provided the owner or operator can demonstrate by using logs that the cement is continuous and does not allow fluid movement behind the well bore.	47-13-8.2.c.6	Circulation of cement may be accomplished by staging. The Director may approve an alternative method of cementing in cases where the cement cannot be recirculated to the surface, provided the cement is continuous and does not allow fluid movement behind the well bore.	Similar to CFR. WV does not specify that the owner or operator use logging to demonstrate that the cement is continuous. This may be less stringent than the CFR, and clarification is recommended.
40 CFR 146.65 (c)(5)	Casings, including any casing connections, must be rated to have sufficient structural strength to withstand, for the design life of the well:	47-13-8.2.c.7	Casings must be rated to have sufficient structural strength to withstand: First, the maximum burst and collapse pressures which may be experienced during construction, operation and closure of the well; and second, the maximum tensile stress which may be experienced at any point along the length of the casing during the construction, operation, and closure of the well. Cement and cement additives must be of sufficient quality and quantity to maintain integrity over the design life of the well.	Similar to CFR. WV does not specify that the casing connections be rated to have sufficient strength; however the intent is similar to the CFR.
40 CFR 146.65 (c)(5)(i)	The maximum burst and collapse pressures which may be experienced during the construction, operation and closure of the well; and	47-13-8.2.c.7	Casings must be rated to have sufficient structural strength to withstand: First, the maximum burst and collapse pressures which may be experienced during construction, operation and closure of the well; and second, the maximum tensile stress which may be experienced at any point along the length of the casing during the construction, operation, and closure of the well. Cement and cement additives must be of sufficient quality and quantity to maintain integrity over the design life of the well.	Similar to CFR.

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ED_013399_00000014-00242

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.65 (c)(5)(ii)	The maximum tensile stress which may be experienced at any point along the length of the casing during the construction, operation, and closure of the well.	47-13-8.2.c.7	Casings must be rated to have sufficient structural strength to withstand: First, the maximum burst and collapse pressures which may be experienced during construction, operation and closure of the well; and second, the maximum tensile stress which may be experienced at any point along the length of the casing during the construction, operation, and closure of the well. Cement and cement additives must be of sufficient quality and quantity to maintain integrity over the design life of the well.	Same as CFR.
40 CFR 146.65 (c)(6)	At a minimum, cement and cement *additives* must be of sufficient quality and quantity to maintain integrity over the design life of the well.	47-13-8.2.c.7	Casings must be rated to have sufficient structural strength to withstand: First, the maximum burst and collapse pressures which may be experienced during construction, operation and closure of the well; and second, the maximum tensile stress which may be experienced at any point along the length of the casing during the construction, operation, and closure of the well. Cement and cement additives must be of sufficient quality and quantity to maintain integrity over the design life of the well.	Same as CFR.
40 CFR 146.65 (d)(1)	Tubing and packer. (1) All Class I hazardous waste injection wells shall inject fluids through tubing with a packer set at a point specified by the Director.	47-13-8.2.c	All Class 1 injection wells, except for those municipal wells injecting only non-corrosive wastes, shall inject fluids through tubing and packer set immediately above the injection zone. The tubing and packer shall be designed for the expected service.	WV does not state that the Director will specify the setting point for the packer, but this is implied in 47-13-8.2.c.2 (see below). There are no concerns for stringency, but clarification is recommended.
40 CFR 146.65 (d)(2)	In determining and specifying requirements for tubing and packer, the following factors shall be considered:	47-13-8.2.c.2	In determining and specifying requirements for tubing and packer, the Director shall consider the following factors:	See above.
40 CFR 146.65 (d)(2)(i)	Depth of setting;	47-13-8.2.c.2.A	Depth of setting;	Same as CFR.

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ED_013399_00000014-00243

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.65 (d)(2)(ii)	Characteristics of injection fluid (chemical content, corrosiveness, temperature and density);	47-13-8.2.c.2.B	Characteristics of injection fluid (chemical content, density, etc.);	Similar to CFR. WV does not require consideration of corrosiveness and temperature. This (esp. corrosiveness) may be a concern for Class I hazardous wells. this is less stringent than the CFR.
40 CFR 146.65 (d)(2)(iii)	Injection pressure;	47-13-8.2.c.2.C	Injection pressure;	Same as CFR.
40 CFR 146.65 (d)(2)(iv)	Annular pressure;	47-13-8.2.c.2.D	Annular pressure;	Same as CFR.
40 CFR 146.65 (d)(2)(v)	Rate (intermittent or continuous), temperature and volume of injected fluid;	47-13-8.2.c.2.E	Rate, temperature and volume of injected fluid; and	Similar to CFR. WV does not reference intermittent or continuous rate. No concerns for stringency.
40 CFR 146.65 (d)(2)(vi)	Size of casing; and	47-13-8.2.c.2.F	Size of casing; and	Same as CFR.
40 CFR 146.65 (d)(2)(vii)	Tubing tensile, burst, and collapse strengths.	47-13-8.2.c.2.G	Tubing tensile, burst, and collapse strengths.	Same as CFR.
40 CFR 146.65 (e)(2)	The Director may approve the use of a fluid seal if he determines that the following conditions are met:	47-13-8.2.c.3	The Director may approve the use of a fluid seal if the conditions in this section are met.	Similar to CFR.
40 CFR 146.65 (e)(2)(i)	The operator demonstrates that the seal will provide a level of protection comparable to a packer;	47-13-8.2.c.3.A	Operator demonstrates that seal will provide a level of protection comparable to a packer;	Same as CFR.
40 CFR 146.65 (e)(2)(ii)	The operator demonstrates that the staff is, and will remain, adequately trained to operate and maintain the well and to identify and interpret variations in parameters of concern;	47-13-8.2.c.3.B	Operator demonstrates that staff is adequately trained to operate and maintain the well;	Similar to CFR. WV includes less detail on training requirements or ability to interpret the well data.
40 CFR 146.65 (e)(2)(iii)	The permit contains specific limitations on variations in annular pressure and loss of annular fluid;	47-13-8.2.c.3.C	The permit specifies limitations on variations in annular pressure and loss of annular fluid;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.65 (e)(2)(iv)	The design and construction of the well allows continuous monitoring of the annular pressure and mass balance of annular fluid; and	47-13-8.2.c.3.D	The design and construction of the well allow continuous monitoring of the annular pressure and mass balance of annular fluid; and	Same as CFR.
40 CFR 146.65 (e)(2)(v)	A secondary system is used to monitor the interface between the annulus fluid and the injection fluid and the permit contains requirements for testing the system every three months and recording the results.	47-13-8.2.c.3.E	A secondary system is used to monitor the interface between the annulus fluid and the injection fluid and the permit contains requirements for testing the system every three months and recording the results.	Same as CFR.
40 CFR 146.66(a)	**40 CFR 146.66 Logging, sampling, and testing prior to new well operation.** During the drilling and construction of a new Class I hazardous waste injection well, appropriate logs and tests shall be run to determine or verify the depth, thickness, porosity, permeability, and rock type of, and the salinity of any entrained fluids in, all relevant geologic units to assure conformance with performance standards in § 146.65, and to establish accurate baseline data against which future measurements may be compared. A descriptive report interpreting results of such logs and tests shall be prepared by a knowledgeable log analyst and submitted to the Director. At a minimum, such logs and tests shall include:	47-13-8.2.e	Logs and other tests shall be conducted during the drilling and construction of new Class 1 wells. A descriptive report interpreting the results of such logs and tests shall be prepared by a knowledgeable log analyst and submitted to the Director. At a minimum such logs and tests shall include:	The logging and sampling provisions in 47-13-8.2.e are less specific than the CFR as to the purpose (i.e., to describe subsurface formations). However this information must be interpreted and the provisions below are generally similar to the CFR. (Applies to all of 144.66.)
40 CFR 146.66(a)(1)	Deviation checks during drilling on all holes constructed by drilling a pilot hole which are enlarged by reaming or another method. Such checks shall be at sufficiently frequent intervals to determine the location of the borehole and to assure that vertical avenues for fluid movement in the form of diverging holes are not created during drilling; and	47-13-8.2.e.1	Directional surveys conducted on all holes, including pilot holes, at sufficiently frequent intervals to assure that vertical avenues for fluid migration in the form of diverging holes are not created during drilling.	WV refers to directional surveys instead of deviation checks, but the requirement is similar.
40 CFR 146.66(a)(2)	Such other logs and tests as may be needed after taking into account the availability of similar data in the area of the drilling site, the construction plan, and the need for additional information that may arise from time to time as the construction of the well progresses. At a minimum, the following logs shall be required in the following situations:			This introductory text about the purpose of the logs and tests is missing. However the specific tests required are generally the same as the CFR; see below. No concerns for stringency.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.66(a)(2)(i)	Upon installation of the surface casing:	47-13-8.2.e.2	For surface casing intended to protect underground sources of drinking water:	Similar to CFR.
40 CFR 146.66(a)(2)(i)(A)	Resistivity, spontaneous potential, and caliper logs before the casing is installed; and	47-13-8.2.e.2.A	Resistivity, spontaneous potential and caliper logs before the casing is installed; and	Same as CFR.
40 CFR 146.66(a)(2)(i)(B)	A cement bond and variable density log, and a temperature log after the casing is set and cemented.	47-13-8.2.e.2.B	A cement bond, temperature, or density log after the casing is set and cemented.	Same as CFR. WV requires a density log, rather than a variable density log.
40 CFR 146.66(a)(2)(ii)	Upon installation of the long string casing:	47-13-8.2.e.3	For intermediate and long strings of casing intended to facilitate injection:	Similar to CFR. The requirement is not specific as to the timing (i.e., upon installation of the long string casing); however the required tests are generally similar (see below).
40 CFR 146.66(a)(2)(ii)(A)	Resistivity, spontaneous potential, porosity, caliper, gamma ray, and fracture finder logs before the casing is installed; and	47-13-8.2.e.3	A. Resistivity, spontaneous potential, porosity, and gamma ray logs before the casing is installed; B. Fracture finder logs in appropriate situations as prescribed by the Director; and	WV does not require caliper logs.
40 CFR 146.66(a)(2)(ii)(B)	A cement bond and variable density log, and a temperature log after the casing is set and cemented.	47-13-8.2.e.3.C	A cement bond, temperature, or density log after the casing is set and cemented.	WV requires a density log, rather than a variable density log.
40 CFR 146.66(a)(2)(iii)	The Director may allow the use of an alternative to the above logs when an alternative will provide equivalent or better information; and			Missing. WV does not require alternative pre-operational logs or tests. However, this provision is optional in the CFR and there are no concerns for stringency.
40 CFR 146.66(a)(3)	A mechanical integrity test consisting of:			WV does not explicitly require an MIT during construction of a Class I hazardous well (although all wells must maintain MI at all times). For clarity, it is recommended that section 8.4.b.8. on MIT requirements for Class 1 wells injecting hazardous waste include pre-injection MITs.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.66(a)(3)(i)	A pressure test with liquid or gas;			Missing (see above).
40 CFR 146.66(a)(3)(ii)	A radioactive tracer survey;			Missing (see above).
40 CFR 146.66(a)(3)(iii)	A temperature or noise log;			Missing (see above).
40 CFR 146.66(a)(3)(iv)	A casing inspection log, if required by the Director; and			Missing (see above).
40 CFR 146.66(a)(3)(v)	Any other test required by the Director.			Missing (see above).
40 CFR 146.66(b)	Whole cores or sidewall cores of the confining and injection zones and formation fluid samples from the injection zone shall be taken. The Director may accept cores from nearby wells if the owner or operator can demonstrate that core retrieval is not possible and that such cores are representative of conditions at the well. The Director may require the owner or operator to core other formations in the borehole.	47-13-8.2.e.4	Cores of the injection and confining zones must be taken. Fluid temperature, pH, conductivity, pressure, and static fluid level must be measured in the injection zone.	WV does not specify the types of logs to be run; there is also no provision to require the applicant to collect cores of additional formations. This may be less stringent than the CFR.
40 CFR 146.66(c)	The fluid temperature, pH, conductivity, pressure and the static fluid level of the injection zone must be recorded.	47-13-8.2.e.4	Cores of the injection and confining zones must be taken. Fluid temperature, pH, conductivity, pressure, and static fluid level must be measured in the injection zone.	Similar to CFR.
40 CFR 146.66(d)	At a minimum, the following information concerning the injection and confining zones shall be determined or calculated for Class I hazardous waste injection wells:	47-13-8.2.f	At a minimum, the measurements required in subsection 8.2.e.4 and the following information concerning the injection formation shall be determined for the new Class 1 wells, and submitted to the Director:	Information on confining zones is not required; This is less stringent than the CFR. (Applies to all of 146.66(d).)
40 CFR 146.66(d)(1)	Fracture pressure;	47-13-8.2.f.3	Fracture pressure;	See above.
40 CFR 146.66(d)(2)	Other physical and chemical characteristics of the injection and confining zones; and	47-13-8.2.f.4	Other physical and chemical characteristics of the injection matrix;	See above.

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ED_013399_00000014-00247

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.66(d)(3)	Physical and chemical characteristics of the formation fluids in the injection zone.	47-13-8.2.f.5	Physical and chemical characteristics of the formation fluids;	See above.
40 CFR 146.66(e)	Upon completion, but prior to operation, the owner or operator shall conduct the following tests to verify hydrogeologic characteristics of the injection zone:	47-13-8.2.h	Hydrogeologic characteristics of the injection zone should be verified through pump or injectivity tests before injection begins. The Director may witness all logging and testing by this Subpart if desired.	Similar to CFR.
40 CFR 146.66(e)(1)	A pump test; or	47-13-8.2.h	Hydrogeologic characteristics of the injection zone should be verified through pump or injectivity tests before injection begins. The Director may witness all logging and testing by this Subpart if desired.	Similar to CFR.
40 CFR 146.66(e)(2)	Injectivity tests.	47-13-8.2.h	Hydrogeologic characteristics of the injection zone should be verified through pump or injectivity tests before injection begins. The Director may witness all logging and testing by this Subpart if desired.	Similar to CFR.
40 CFR 146.66(f)	The Director shall have the opportunity to witness all logging and testing by this subpart. The owner or operator shall submit a schedule of such activities to the Director 30 days prior to conducting the first test.	47-13-8.2.h	Hydrogeologic characteristics of the injection zone should be verified through pump or injectivity tests before injection begins. The Director may witness all logging and testing by this Subpart if desired.	Similar to CFR.
40 CFR 146.67 (a)	**40 CFR 146.67 Operating requirements.** Except during stimulation, the owner or operator shall assure that injection pressure at the wellhead does not exceed a maximum which shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone. The owner or operator shall assure that the injection pressure does not initiate fractures or propagate existing fractures in the confining zone, nor cause the movement of injection or formation fluids into a USDW.	47-13-8.4	**47-13-8.4. Operating, Monitoring, and Reporting Requirements.** a.1. Except during stimulation, injection pressure at the wellhead shall not exceed a maximum which shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the injection zone. In no case shall injection pressure initiate fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water;	Similar to CFR. WV does not have operating requirements that are specific to Class 1 hazardous wells. Therefore, some elements of WV's hazardous well requirements are less stringent than the CFR (see below).
40 CFR 146.67 (b)	Injection between the outermost casing protecting USDWs and the well bore is prohibited.	47-13-8.4.a.2	Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited; and	Same as CFR.
40 CFR 146.67 (c)	The owner or operator shall maintain an annulus pressure that exceeds the operating injection pressure, unless the Director determines that such a requirement might harm the integrity of the well. The fluid in the annulus shall be noncorrosive, or shall contain a corrosion inhibitor.			Missing. WV does not have requirements for maintaining annulus fluid pressure in Class I hazardous wells. This is less stringent than the CFR.

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ED_013399_00000014-00248

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.67 (d)	The owner or operator shall maintain mechanical integrity of the injection well at all times.	47-13-8.4.b.3	Mechanical integrity must be maintained at all times. Demonstration of mechanical integrity at least every five (5) years during the life of the well;	Similar to CFR. WV requires that all wells maintain MI in subsection 47-13-8.4.b.
40 CFR 146.67(e)	Permit requirements for owners or operators of hazardous waste wells which inject wastes which have the potential to react with the injection formation to generate gases shall include:	47-13-8.2.g.4	Permit requirements for hazardous waste wells which inject wastes which can react with the injection formation to generate gases shall include 1) Conditions limiting the temperature, pH or acidity of the injected waste and 2) Procedures necessary to assure that pressure imbalances which might cause a backflow or blowout do not occur.	Similar to CFR. This provision is part of the construction (not operating) requirements for Class 1 hazardous wells. No concerns for stringency.
40 CFR 146.67(e)(1)	Conditions limiting the temperature, pH or acidity of the injected waste; and	47-13-8.2.g.4	Permit requirements for hazardous waste wells which inject wastes which can react with the injection formation to generate gases shall include 1) Conditions limiting the temperature, pH or acidity of the injected waste and 2) Procedures necessary to assure that pressure imbalances which might cause a backflow or blowout do not occur.	Same as CFR (see above).
40 CFR 146.67(e)(2)	Procedures necessary to assure that pressure imbalances which might cause a backflow or blowout do not occur.	47-13-8.2.g.4	Permit requirements for hazardous waste wells which inject wastes which can react with the injection formation to generate gases shall include 1) Conditions limiting the temperature, pH or acidity of the injected waste and 2) Procedures necessary to assure that pressure imbalances which might cause a backflow or blowout do not occur.	Same as CFR (see above).
40 CFR 146.67(f)	The owner or operator shall install and use continuous recording devices to monitor: the injection pressure; the flow rate, volume, and temperature of injected fluids; and the pressure on the annulus between the tubing and the long string casing, and shall install and use:	47-13-8.4.b	Continuous recording devices to monitor injection pressure, temperature, flow rate and volume, and the pressure on the annulus between the tubing and the long strings of casing;	Similar to CFR.
40 CFR 146.67(f)(1)	Automatic alarm and automatic shut-off systems, designed to sound and shut-in the well when pressures and flow rates or other parameters approved by the Director exceed a range and/or gradient specified in the permit; or	47-13-8.4.b.6	The owner/operator must also install automatic alarms and shut off systems as described in this section…	WV generally requires installation of alarms, but does not describe them in the detail contained in the CFR. WV does not require automatic shut-off systems. This is less stringent than the CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.67(f)(2)	Automatic alarms, designed to sound when the pressures and flow rates or other parameters approved by the Director exceed a rate and/or gradient specified in the permit, in cases where the owner or operator certifies that a trained operator will be on-site at all times when the well is operating.	47-13-8.4.b.6	The owner/operator must also install automatic alarms and shut off systems as described in this section…	WV generally requires installation of alarms, but does not describe them in the detail contained in the CFR. No concerns for stringency, but clarification is recommended.
40 CFR 146.67(g)	If an automatic alarm or shutdown is triggered, the owner or operator shall immediately investigate and identify as expeditiously as possible the cause of the alarm or shutoff. If, upon such investigation, the well appears to be lacking mechanical integrity, or if monitoring required under paragraph (f) of this section otherwise indicates that the well may be lacking mechanical integrity, the owner or operator shall:	47-13-8.4.b.6	The owner/operator must also install automatic alarms and shut off systems as described in this section. If an automatic alarm or shutdown is triggered, the owner or operator shall immediately investigate the cause. If the well appears or is found to be lacking mechanical integrity, the owner or operator shall:	Similar to CFR. WV provision is less detailed, but the required actions are the same as the CFR; see below. No concerns for stringency.
40 CFR 146.67(g)(1)	Cease injection of waste fluids unless authorized by the Director to continue or resume injection.	47-13-8.4.b.6.A	Cease injection unless authorized by the Director to continue or resume injection;	Same as CFR.
40 CFR 146.67(g)(2)	Take all necessary steps to determine the presence or absence of a leak; and	47-13-8.4.b.6.B	Take all necessary steps to determine the presence or absence of a leak; and	Same as CFR.
40 CFR 146.67(g)(3)	Notify the Director within 24 hours after the alarm or shutdown.	47-13-8.4.b.6.C	Notify the Director within 24 hours after the alarm or shutdown.	Same as CFR.
40 CFR 146.67(h)	If a loss of mechanical integrity is discovered pursuant to paragraph (g) of this section or during periodic mechanical integrity testing, the owner or operator shall:	47-13-14.6.f	If a loss of mechanical integrity is discovered based on alarm shut off or during periodic mechanical integrity testing, the owner or operator shall:	Similar to CFR. This WV text applies to all UIC wells. (Applies to all of 146.67(h).)
40 CFR 146.67(h)(1)	Immediately cease injection of waste fluids;	47-13-14.6.f.1	Immediately cease injection of waste fluids;	Same as CFR.
40 CFR 146.67(h)(2)	Take all steps reasonably necessary to determine whether there may have been a release of hazardous wastes or hazardous waste constituents into any unauthorized zone;	47-13-14.6.f.2	Take steps to determine whether there may have been a release of hazardous wastes into any unauthorized zone;	Similar to CFR. WV includes less detail regarding hazardous waste constituents, but the intent is similar to the CFR.
40 CFR 146.67(h)(3)	Notify the Director within 24 hours after loss of mechanical integrity is discovered;	47-13-14.6.f.3	Notify the Director within 24 hours;	Similar to CFR.
40 CFR 146.67(h)(4)	Notify the Director when injection can be expected to resume; and	47-13-14.6.f.4	Notify the Director when injection can be expected to resume; and	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.67(h)(5)	Restore and demonstrate mechanical integrity to the satisfaction of the Director prior to resuming injection of waste fluids.	47-13-14.6.f.5	Restore and demonstrate mechanical integrity prior to resuming injection.	Similar to CFR. WV does not require the demonstration be to the Director's satisfaction (which may not imply requiring an authorization to inject). Clarification is recommended.
40 CFR 146.67(i)	Whenever the owner or operator obtains evidence that there may have been a release of injected wastes into an unauthorized zone:	47-13-14.6.g	Whenever the owner or operator obtains evidence that there may have been a release of injected wastes into an unauthorized zone, he shall:	Same as CFR. These provisions apply to all UIC wells (applies to all of 146.67(i)).
40 CFR 146.67(i)(1)	The owner or operator shall immediately case injection of waste fluids, and:	47-13-14.6.g.1	Immediately cease injection of waste fluids,	Same as CFR.
40 CFR 146.67(i)(1)(i)	Notify the Director within 24 hours of obtaining such evidence;	47-13-14.6.g.2	Notify the Director within 24 hours of obtaining such evidence;	Same as CFR.
40 CFR 146.67(i)(1)(ii)	Take all necessary steps to identify and characterize the extent of any release;	47-13-14.6.g.3	Take steps to identify and characterize the extent of any release;	Same as CFR.
40 CFR 146.67(i)(1)(iii)	Comply with any remediation plan specified by the Director;	47-13-14.6.g.4	Comply with any remediation plan specified by the Director;	Same as CFR.
40 CFR 146.67(i)(1)(iv)	Implement any remediation plan approved by the Director; and	47-13-14.6.g.5	Implement any remediation plan approved by the Director; and	Same as CFR.
40 CFR 146.67(i)(1)(v)	Where such release is into a USDW currently serving as a water supply, place a notice in a newspaper of general circulation.	47-13-14.6.g.6	Where such release is into a USDW currently serving as a water supply, place a notice in a newspaper of general circulation.	Same as CFR.
40 CFR 146.67(i)(2)	The Director may allow the operator to resume injection prior to completing cleanup action if the owner or operator demonstrates that the injection operation will not endanger USDWs.	47-13-14.6.h	Pursuant to 14.6.f. and 14.6.g. The Director may allow the operator to resume injection prior to completing cleanup if the injection operation will not endanger USDWs.	Similar to CFR.
40 CFR 146.67(j)	The owner or operator shall notify the Director and obtain his approval prior to conducting any well workover.	47-13-8.4.a.4	The owner/operator must notify the Director by writing at least 30 before conducting any workovers.	WV is more specific than the CFR in that it requires 30-day notification in writing. Typo: "days" is missing.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00251

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.68	**40 CFR 146.68 Testing and monitoring requirements.** Testing and monitoring requirements shall at a minimum include:	47-13-8.4.b	Monitoring Requirements: The Director shall prescribe requirements for the monitoring of the injection fluids, the injection well, and the underground sources of drinking water that could potentially be affected by the injection. Monitoring requirements shall, at a minimum, include:	These testing and monitoring requirements apply to all Class I wells. WV does not require a waste analysis plan for Class I hazardous wells. This is less stringent than the CFR. (Applies to all of 146.68 (a).)
40 CFR 146.68(a)(1)	Monitoring of the injected wastes. (1) The owner or operator shall develop and follow an approved written waste analysis plan that describes the procedures to be carried out to obtain a detailed chemical and physical analysis of a representative sample of the waste, including the quality assurance procedures used. At a minimum, the plan shall specify:			Missing (see above).
40 CFR 146.68(a)(1)(i)	The *parameters* for which the waste will be analyzed and the rationale for the selection of these parameters;			Missing (see above).
40 CFR 146.68(a)(1)(ii)	The test methods that will be used to test for these parameters; and			Missing (see above).
40 CFR 146.68(a)(1)(iii)	The sampling method that will be used to obtain a representative sample of the waste to be analyzed.			Missing (see above).
40 CFR 146.68(a)(2)	The owner or operator shall repeat the analysis of the injected wastes as described in the waste analysis plan at frequencies specified in the waste analysis plan and when process or operating changes occur that may significantly alter the characteristics of the waste stream.			Missing (see above).
40 CFR 146.68(a)(3)	The owner or operator shall conduct continuous or periodic monitoring of selected parameters as required by the Director.			Missing (see above).
40 CFR 146.68(a)(4)	The owner or operator shall assure that the plan remains accurate and the analyses remain representative.			Missing (see above).

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ED_013399_00000014-00252

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.68(b)	Hydrogeologic compatibility determination. The owner or operator shall submit information demonstrating to the satisfaction of the Director that the waste stream and its anticipated reaction products will not alter the permeability, thickness or other relevant characteristics of the confining or injection zones such that they would no longer meet the requirements specified in § 146.62.	47-13-8.5.a.18	Compatibility of injected waste with fluids in the injection zone and minerals in both the injection zone and the confining strata including proving that injection fluid will not react with formation fluids and change relevant characteristics if the confining or injection zones so they would no longer meet requirements in 8.5.a.;	WV requires information about compatibility of the waste with the injection zone for all Class I wells; however, this appears to be a less comprehensive/stringent requirement than the Class I hazardous compatibility determination required in the CFR. For example, it does not require addressing anticipated reaction products or interaction with the confining zone.
40 CFR 146.68(c)(1)	Compatibility of well materials. (1) The owner or operator shall demonstrate that the waste stream will be compatible with the well materials with which the waste is expected to come into contact, and submit to the Director a description of the methodology used to make that determination. Compatibility for purposes of this requirement is established if contact with injected fluids will not cause the well materials to fail to satisfy any design requirement imposed under § 146.65(b).	47-13-8.4.b.7	Owners/operators must show that well design will not be compromised by adverse reactions between well materials and waste stream. The Director shall require continuous corrosion monitoring of the construction materials in wells injecting corrosive waste by placing coupons of the well construction materials in contact with the waste stream; routing the waste stream through a loop constructed with well material; or using an alternative method approved by the Director….	WV requires that all Class I wells be designed to be compatible with the waste stream; however, it does not require the detailed description of the methodology used to make that determination that is in the CFR. This is less stringent than the CFR.
40 CFR 146.68(c)(2)	The Director shall require continuous corrosion monitoring of the construction materials used in the well for wells injecting corrosive waste, and may require such monitoring for other waste, by:	47-13-8.4.b.7	Owners/operators must show that well design will not be compromised by adverse reactions between well materials and waste stream. The Director shall require continuous corrosion monitoring of the construction materials in wells injecting corrosive waste by placing coupons of the well construction materials in contact with the waste stream; routing the waste stream through a loop constructed with well material; or using an alternative method approved by the Director...	WV does not provide that the Director may require monitoring for other wastes, which may be less stringent than the CFR. However the specific corrosion monitoring activities are the same as the CFR (see below).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.68(c)(2)(i)	Placing coupons of the well construction materials in contact with the waste stream; or	47-13-8.4.b.7	Owners/operators must show that well design will not be compromised by adverse reactions between well materials and waste stream. The Director shall require continuous corrosion monitoring of the construction materials in wells injecting corrosive waste <u>by placing coupons of the well construction materials in contact with the waste stream;</u> routing the waste stream through a loop constructed with well material; or using an alternative method approved by the Director...	Same as CFR.
40 CFR 146.68(c)(2)(ii)	Routing the waste stream through a loop constructed with the material used in the well; or	47-13-8.4.b.7	Owners/operators must show that well design will not be compromised by adverse reactions between well materials and waste stream. The Director shall require continuous corrosion monitoring of the construction materials in wells injecting corrosive waste by placing coupons of the well construction materials in contact with the waste stream; <u>routing the waste stream through a loop constructed with well material; or</u> using an alternative method approved by the Director...	Same as CFR.
40 CFR 146.68(c)(2)(iii)	Using an alternative method approved by the Director.	47-13-8.4.b.7	Owners/operators must show that well design will not be compromised by adverse reactions between well materials and waste stream. The Director shall require continuous corrosion monitoring of the construction materials in wells injecting corrosive waste by placing coupons of the well construction materials in contact with the waste stream; routing the waste stream through a loop constructed with well material; or <u>using an alternative method approved by the Director.</u> If a corrosion monitoring program is required: One, the test shall use materials identical to those used in well's construction, and such materials must be continuously exposed to the operating pressures and temperatures and flow rates; and Two, the owner or operator shall monitor the materials for loss of mass, thickness, cracking, pitting and other signs of corrosion quarterly.	Same as CFR.

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ED_013399_00000014-00254

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.68(c)(3)	If a corrosion monitoring program is required:	47-13-8.4.b.7	Owners/operators must show that well design will not be compromised by adverse reactions between well materials and waste stream. The Director shall require continuous corrosion monitoring of the construction materials in wells injecting corrosive waste by placing coupons of the well construction materials in contact with the waste stream; routing the waste stream through a loop constructed with well material; or using an alternative method approved by the Director. <u>If a corrosion monitoring program is required</u>: One, the test shall use materials identical to those used in well's construction, and such materials must be continuously exposed to the operating pressures and temperatures and flow rates; and Two, the owner or operator shall monitor the materials for loss of mass, thickness, cracking, pitting and other signs of corrosion quarterly	Same as CFR.
40 CFR 146.68(c)(3)(i)	The test shall use materials identical to those used in the construction of the well, and such materials must be continuously exposed to the operating pressures and temperatures (measured at the well head) and flow rates of the injection operation; and	47-13-8.4.b.7	Owners/operators must show that well design will not be compromised by adverse reactions between well materials and waste stream. The Director shall require continuous corrosion monitoring of the construction materials in wells injecting corrosive waste by placing coupons of the well construction materials in contact with the waste stream; routing the waste stream through a loop constructed with well material; or using an alternative method approved by the Director. If a corrosion monitoring program is required: <u>One, the test shall use materials identical to those used in well's construction, and such materials must be continuously exposed to the operating pressures and temperatures and flow rates; and</u> Two, the owner or operator shall monitor the materials for loss of mass, thickness, cracking, pitting and other signs of corrosion quarterly	WV does not require pressures and temperatures be measured at the well head. Clarification is recommended.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.68(c)(3)(ii)	The owner or operator shall monitor the materials for loss of mass, thickness, cracking, pitting and other signs of corrosion on a quarterly basis to ensure that the well components meet the minimum standards for material strength and performance set forth in § 146.65(b).	47-13-8.4.b.7	Owners/operators must show that well design will not be compromised by adverse reactions between well materials and waste stream. The Director shall require continuous corrosion monitoring of the construction materials in wells injecting corrosive waste by placing coupons of the well construction materials in contact with the waste stream; routing the waste stream through a loop constructed with well material; or using an alternative method approved by the Director. If a corrosion monitoring program is required: One, the test shall use materials identical to those used in well's construction, and such materials must be continuously exposed to the operating pressures and temperatures and flow rates; and Two, the owner or operator shall monitor the materials for loss of mass, thickness, cracking, pitting and other signs of corrosion quarterly	Similar to CFR.
40 CFR 146.68(d)	Periodic mechanical integrity testing. In fulfilling the requirements of § 146.8, the owner or operator of a Class I hazardous waste injection well shall conduct the mechanical integrity testing as follows:	47-13-8.4.b.8	Owners of Class 1 wells injecting hazardous waste shall conduct mechanical integrity testing as follows:	Same as CFR.
40 CFR 146.68(d)(1)	The long string casing, injection tube, and annular seal shall be tested by means of an approved pressure test with a liquid or gas annually and whenever there has been a well workover;	47-13-8.4.b.8.A	The long string casing, injection tube, and annular seal shall be tested by an approved pressure test with a liquid or gas annually and whenever there has been a well workover;	Same as CFR.
40 CFR 146.68(d)(2)	The bottom-hole cement shall be tested by means of an approved radioactive tracer survey annually;	47-13-8.4.b.8.B	The bottom-hole cement shall be tested by means of an approved radioactive tracer survey annually;	Same as CFR.
40 CFR 146.68(d)(3)	An approved temperature, noise, or other approved log shall be run at least once every five years to test for movement of fluid along the borehole. The Director may require such tests whenever the well is worked over;	47-13-8.4.b.8.C	An approved temperature, noise, or other approved log shall be run at least once every five years to test for movement of fluid along the borehole;	Similar to CFR. WV does not provide that the Director may require additional tests after a well workover.

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ED_013399_00000014-00256

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.68(d)(4)	Casing inspection logs shall be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the Director waives this requirement due to well construction or other factors which limit the test's reliability, or based upon the satisfactory results of a casing inspection log run within the previous five years. The Director may require that a casing inspection log be run every five years, if he has reason to believe that the integrity of the long string casing of the well may be adversely affected by naturally-occurring or man-made events;	47-13-8.4.b.8.D	Casing inspection logs shall be run whenever the owner or operator conducts a workover in which the injection string is pulled, unless the Director waives this requirement. The Director may require a casing inspection log every five years, if he is concerned about the integrity of the long string casing; and	Similar to CFR. WV includes less detail as to when the director may waive requirements or require more frequent casing inspection logs. This should be clarified in the regulations or the primacy package.
40 CFR 146.68(d)(5)	Any other test approved by the Director in accordance with the procedures in § 146.8(d) may also be used.	47-13-8.4.b.8.E	Any other test approved by the Director may also be used.	Same as CFR.
40 CFR 146.68 (e)(1)	Ambient monitoring. (1) Based on a site-specific assessment of the potential for fluid movement from the well or injection zone, and on the potential value of monitoring wells to detect such movement, the Director shall require the owner or operator to develop a monitoring program. At a minimum, the Director shall require monitoring of the pressure buildup in the injection zone annually, including at a minimum, a shut down of the well for a time sufficient to conduct a valid observation of the pressure fall-off curve.	47-13-8.4.b.9	Owners shall develop an ambient monitoring program based on an assessment of the potential for fluid movement. At a minimum, the Director shall require monitoring of the pressure buildup in the injection zone annually, including a shut down of the well for a time sufficient to observe the pressure fall-off curve. The Director may also require:	Similar to CFR. WV includes less detail about the considerations for developing monitoring programs. This should be clarified in the regulations or the primacy package.
40 CFR 146.68 (e)(2)	When prescribing a monitoring system the Director may also require:	47-13-8.4.b.9	Owners shall develop an ambient monitoring program based on an assessment of the potential for fluid movement. At a minimum, the Director shall require monitoring of the pressure buildup in the injection zone annually, including a shut down of the well for a time sufficient to observe the pressure fall-off curve. The Director may also require:	Similar to CFR.
40 CFR 146.68 (e)(2)(i)	Continuous monitoring for pressure changes in the first aquifer overlying the confining zone. When such a well is installed, the owner or operator shall, on a quarterly basis, sample the aquifer and analyze for constituents specified by the Director;	47-13-8.4.b.9.A	Continuous monitoring for pressure changes in the first aquifer overlying the confining zone. When such a well is installed, the owner or operator shall, sample the aquifer quarterly and analyze for constituents specified by the Director;	Same as CFR.
40 CFR 146.68 (e)(2)(ii)	The use of indirect, geophysical techniques to determine the position of the waste front, the water quality in a formation designated by the Director, or to provide other site specific data;	47-13-8.4.b.9.B	The use of geophysical techniques to determine the position of the waste front, the water quality in a formation designated by the Director, or to provide other site specific data;	Same as CFR. WV does not specify the use of indirect geophysical techniques. This may be equivalent to the CFR.

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ED_013399_00000014-00257

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.68 (e)(2)(iii)	Periodic monitoring of the ground water quality in the first aquifer overlying the injection zone;	47-13-8.4.b.9.C	Periodic monitoring of ground water quality in the first aquifer overlying the injection zone and in the lowermost USDW;	Similar to CFR.
40 CFR 146.68 (e)(2)(iv)	Periodic monitoring of the ground water quality in the lowermost USDW; and	47-13-8.4.b.9.D	Periodic monitoring of ground water quality in the first aquifer overlying the injection zone and in the lowermost USDW;	Similar to CFR.
40 CFR 146.68 (e)(2)(v)	Any additional monitoring necessary to determine whether fluids are moving into or between USDWs.	47-13-8.4.b.9.E	Any additional monitoring necessary to determine whether fluids are moving into or between USDWs; and	Same as CFR.
40 CFR 146.68 (f)	The Director may require seismicity monitoring when he has reason to believe that the injection activity may have the capacity to cause seismic disturbances.	47-13-8.4.b.9.F	The Director may require seismicity monitoring when he has reason to believe that the injection activity may cause seismic disturbances.	Same as CFR.
40 CFR 146.69	**40 CFR 146.69 Reporting requirements.** Reporting requirements shall, at a minimum, include:	47-13-8.4.c	Reporting requirements: The Director shall prescribe the form, manner, content and frequency of reporting by the operator. The operator shall be required to identify the types of tests and methods used to generate the monitoring data. At a minimum, requirements shall include:	Similar to CFR The reporting requirements below apply to all Class I wells.
40 CFR 146.69(a)	Quarterly reports to the Director containing:	47-13-8.4.c.1	Quarterly reports to the Director on:	Similar to CFR.
40 CFR 146.69(a)(1)	The maximum injection pressure;	47-13-8.4.c.1.B	Monthly average, maximum, and minimum values for injection pressure, flow rate and volume, and annular pressure;	Similar to CFR. WV also requires reporting average and minimum injection pressure. This is more stringent/expansive than the CFR.
40 CFR 146.69(a)(2)	A description of any event that exceeds operating parameters for annulus pressure or injection pressure as specified in the permit;	47-13-8.4.c.1.D	Descriptions of any event where operating parameters exceed permit requirements and/or any event that triggered an alarm or shut down device including the response taken.	WV is not specific as to the types of events to be described; although the events described in the CFR are required to be monitored. So the provision may be equivalent, but clarification is recommended.
40 CFR 146.69(a)(3)	A description of any event which triggers an alarm or shutdown device required pursuant to § 146.67(f) and the response taken;	47-13-8.4.c.1.D	Descriptions of any event where operating parameters exceed permit requirements and/or any event that triggered an alarm or shut down device including the response taken.	Similar to CFR.

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ED_013399_00000014-00258

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.69(a)(4)	The total volume of fluid injected;			WV does not require reporting of volumes of fluid injected. This is less stringent than the CFR.
40 CFR 146.69(a)(5)	Any change in the annular fluid volume;			WV does not require reporting of changes in the annular fluid volume. This is less stringent than the CFR.
40 CFR 146.69(a)(6)	The physical, chemical and other relevant characteristics of injected fluids; and	47-13-8.4.c.1.A	The physical, chemical, and other relevant characteristics of injection fluids;	Same as CFR.
40 CFR 146.69(a)(7)	The results of monitoring prescribed under § 146.68.			WV does not have a requirement analogous to 146.69(a)(7); however, it does appear to require reporting of all monitoring. As noted above, there are differences between the WV regulations and the monitoring requirements of § 146.68.
40 CFR 146.69(b)	Reporting, within 30 days or with the next quarterly report whichever comes later, the results of:	47-13-8.4.c.2	Reporting with the first quarterly report after the completion of:	WV does not specifically require that reporting be within 30 days; only in the next quarterly report. This may be less stringent than the CFR.
40 CFR 146.69(b)(1)	Periodic tests of mechanical integrity;	47-13-8.4.c.2.A	Periodic demonstration of mechanical integrity;	Similar to CFR.
40 CFR 146.69(b)(2)	Any other test of the injection well conducted by the permittee if required by the Director; and	47-13-8.4.c.2.B	Any other test of injection well conducted by the permittee if required by the Director; and	Same as CFR.
40 CFR 146.69(b)(3)	Any well workover.	47-13-8.4.c.2.C	Any well workover results.	Similar to CFR.

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ED_013399_00000014-00259

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.70	**40 CFR 146.70 Information to be evaluated by the Director.** This section sets forth the information which must be evaluated by the Director in authorizing Class I hazardous waste injection wells. For a new Class I hazardous waste injection well, the owner or operator shall submit all the information listed below as part of the permit application. For an existing or converted Class I hazardous waste injection well, the owner or operator shall submit all information listed below as part of the permit application except for those items of information which are current, accurate, and available in the existing permit file. For both existing and new Class I hazardous waste injection wells, certain maps, cross-sections, tabulations of wells within the area of review and other data may be included in the application by reference provided they are current and readily available to the Director (for example, in the permitting agency's files) and sufficiently identifiable to be retrieved.	47-13-8.5.a	…For an existing Class 1 well the Director may rely on the existing State permit file for those items of information listed below which are current and accurate in the State file. For a new Class 1 well, the Director shall require the submission of all the information listed below. For both existing and new Class 1 wells, paragraphs 8.5.a.3, 8.5.a.4, and 8.5.a.6 of this section may be included in the application by reference if the reference is specific in identifying the maps in question and the maps are readily available to the Director. The following information is required:	Differs from CFR. WV does not include the introductory language in 146.70; however, it contains similar requirements to the CFR regarding information that may be submitted for existing wells. No concerns for stringency.
40 CFR 146.70(a)	Prior to the issuance of a permit for an existing Class I hazardous waste injection well to operate or the construction or conversion of a new Class I hazardous waste injection well, the Director shall review the following to assure that the requirements of this part and part 144 are met:	47-13-8.5.a	Prior to the issuance of a permit for an existing or new Class 1 well, the Director shall consider the following information:	Similar to CFR. WV also includes references to State permit files.
40 CFR 146.70(a)(1)	Information required in § 144.31;			WV does not require submittal of this information; however most of the information in 144.31 is required in permit applications. (See above.) Including this may improve clarity.

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ED_013399_00000014-00260

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.70(a)(2)	A map showing the injection well for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells and other pertinent surface features, including residences and roads. The map should also show faults, if known or suspected;	47-13-8.5.a.2	A map showing the injection well(s) for which a permit is sought and the applicable area of review. Within the area of review, the map must show the number or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, mines (surface and subsurface), quarries, water wells and other pertinent surface features including residences and roads. The map should also show faults, if known or suspected. Only information of public record is required to be included on this map;	Similar to CFR. WV specifies that only public information is required to be included. WV does not require that springs be included on the map. This is less stringent than the CFR.
40 CFR 146.70(a)(3)	A tabulation of all wells within the area of review which penetrate the proposed injection zone or confining zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion and any additional information the Director may require;	47-13-8.5.a.3	A tabulation of data on all wells within the area of review which penetrate into the proposed injection zone and/or confining zone. Such data shall include a description of each well's type, location, depth, record of plugging and/or completion, and any additional information on these wells as the Director may require;	WV does not require information about the wells' construction be included on the table. Also, WV requires the tabulation include wells that penetrate the injection and/or confining zone. This may not result in as extensive a tabulation as the CFR requires. This is less stringent than the CFR.
40 CFR 146.70(a)(4)	The protocol followed to identify, locate and ascertain the condition of abandoned wells within the area of review which penetrate the injection or the confining zones;	47-13-8.5.a.3.A	The protocol used to identify all wells within the area of review, and to determine if the wells are properly plugged.	Similar to CFR.
40 CFR 146.70(a)(5)	Maps and cross-sections indicating the general vertical and lateral limits of all underground sources of drinking water within the area of review, their position relative to the injection formation and the direction of water movement, where known, in each underground source of drinking water which may be affected by the proposed injection;	47-13-8.5.a.4	Maps and cross sections indicating the general vertical and lateral limits of all underground source of drinking water within the area of review, their position relative to the injection formation and the direction of water movement, where known, in each underground source of drinking water which may be affected by the proposed injection;	Same as CFR.
40 CFR 146.70(a)(6)	Maps and cross-sections detailing the geologic structure of the local area;	47-13-8.5.a.5	Maps and cross sections detailing the geologic structure of the local area;	Similar to CFR.
40 CFR 146.70(a)(7)	Maps and cross-sections illustrating the regional geologic setting;	47-13-8.5.a.6	Generalized maps and cross sections illustrating the regional geologic setting;	Same as CFR.
40 CFR 146.70(a)(8)	Proposed operating data;	47-13-8.5.a.7	Operating data:	Same as CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00261

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.70(a)(8)(i)	Average and maximum daily rate and volume of the fluid to be injected; and	47-13-8.5.a.7.A	The anticipated average and maximum pressure and flow rate at which the permittee will operate; and	Similar to CFR. WV does not require information about the proposed volume. This is less stringent than the CFR.
40 CFR 146.70(a)(8)(ii)	Average and maximum injection pressure;	47-13-8.5.a.7.A	The anticipated average and maximum pressure and flow rate at which the permittee will operate; and	Similar to CFR.
40 CFR 146.70(a)(9)	Proposed formation testing program to obtain an analysis of the chemical, physical and radiological characteristics of and other information on the injection formation and the confining zone;	47-13-8.5.a.8	Formation testing program to obtain analysis of the chemical, physical, and radiological characteristics of and other information on the receiving formation;	WV does not require formation testing of the confining zone. This is less stringent than the CFR.
40 CFR 146.70(a)(10)	Proposed stimulation program;	47-13-8.5.a.9	Stimulation program;	Similar to CFR.
40 CFR 146.70(a)(11)	Proposed injection procedure;	47-13-8.5.a.10	Injection procedure;	Similar to CFR.
40 CFR 146.70(a)(12)	Schematic or other appropriate drawings of the surface and subsurface construction details of the well;	47-13-8.5.a.11	Schematic or other appropriate drawings of the surface and subsurface construction details of the well;	Same as CFR.
40 CFR 146.70(a)(13)	Contingency plans to cope with all shut-ins or well failures so as to prevent migration of fluids into any USDW;	47-13-8.5.a.12	Contingency plans to cope with all shut-ins or well failures so as to prevent migration of contaminating fluids into any underground source of drinking water;	Same as CFR.
40 CFR 146.70(a)(14)	Plans (including maps) for meeting monitoring requirements of § 146.68;	47-13-8.5.a.14	Plans for meeting the monitoring requirements, including an Ambient monitoring plan. Owners/operators must develop a monitoring plan based on the site-specific assessment of the fluid migration potential. Pressure build up in the injection zone must be monitored annually;	Similar to CFR. WV does not require inclusion of a map. This is less stringent than the CFR.
40 CFR 146.70(a)(15)	For wells within the area of review which penetrate the injection zone or the confining zone but are not properly completed or plugged, the corrective action to be taken under § 146.64;	47-13-8.5.a.15	For wells within the area of review which penetrate the injection zone and/or confining zone but are not properly completed or plugged, the corrective action proposed to be taken under subsections 6.1 and 14.9;	Same as CFR.
40 CFR 146.70(a)(16)	Construction procedures including a cementing and casing program, well materials specifications and their life expectancy, logging procedures, deviation checks, and a drilling, testing and coring program; and	47-13-8.5.a.16	Construction procedures including a cementing and casing program, logging procedures, directional survey, and a drilling, testing, and coring program;	WV refers to directional surveys instead of deviation checks. It also does not require information on well materials specifications and their life expectancy. This is less stringent than the CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00262

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.70(a)(17)	A demonstration pursuant to part 144, subpart F, that the applicant has the resources necessary to close, plug or abandon the well and for post-closure care.	47-13-8.5.a.19	A certificate that the applicant has assured, through a performance bond or other appropriate means, the resources necessary to close, plug or abandon the well under subdivision 14.7.g and 8.5.b;	WV does not require that financial responsibility cover post-closure care. Note also WV does not include financial responsibility requirements specific to Class I wells. (See Subpart F of part 144.)
40 CFR 146.70(b)	Prior to the Director's granting approval for the operation of a Class I hazardous waste injection well, the owner or operator shall submit and the Director shall review the following information, which shall be included in the completion report:			Missing. WV does not specify information the director must consider before authorizing injection. This is less stringent than the CFR. This applies to all of 146.70(b).
40 CFR 146.70(b)(1)	All available logging and testing program data on the well;			Missing (see above).
40 CFR 146.70(b)(2)	A demonstration of mechanical integrity pursuant to § 146.68;			Missing (see above).
40 CFR 146.70(b)(3)	The anticipated maximum pressure and flow rate at which the permittee will operate;			Missing (see above).
40 CFR 146.70(b)(4)	The results of the injection zone and confining zone testing program as required in § 146.70(a)(9);			Missing (see above).
40 CFR 146.70(b)(5)	The actual injection procedure;			Missing (see above).
40 CFR 146.70(b)(6)	The compatibility of injected waste with fluids in the injection zone and minerals in both the injection zone and the confining zone and with the materials used to construct the well;			Missing (see above).
40 CFR 146.70(b)(7)	The calculated area of review based on data obtained during logging and testing of the well and the formation, and where necessary revisions to the information submitted under § 146.70(a) (2) and (3).			Missing (see above).
40 CFR 146.70(b)(8)	The status of corrective action on wells identified in § 146.70(a)(15).			Missing (see above).
40 CFR 146.70(c)	Prior to granting approval for the plugging and abandonment (i.e. , closure) of a Class I hazardous waste injection well, the Director shall review the information required in §§ 146.71(a)(4) and 146.72(a).	47-13-8.5.b	Prior to granting approval for the plugging and abandonment of a Class 1 well the Director shall consider the following information:	Similar to CFR. See notes at 146.71(a)(4) and 146.72(a) regarding the information that would be reviewed.

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ED_013399_00000014-00263

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.70(d)	Any permit issued for a Class I hazardous waste injection well for disposal on the premises where the waste is generated shall contain a certification by the owner or operator that:	47-13-8.5.a.22	Owner/operator must have certification that the hazardous waste generator has a program to reduce the volume and toxicity of waste stream to the extent economically feasible; and injection of such waste minimizes the present and future threats to human health and the environment; and	Similar to CFR.
40 CFR 146.70(d)(1)	The generator of the hazardous waste has a program to reduce the volume or quantity and toxicity of such waste to the degree determined by the generator to be economically practicable; and	47-13-8.5.a.22	Owner/operator must have certification that the hazardous waste generator has a program to reduce the volume and toxicity of waste stream to the extent economically feasible; and injection of such waste minimizes the present and future threats to human health and the environment; and	Similar to CFR.
40 CFR 146.70(d)(2)	Injection of the waste is that practicable method of disposal currently available to the generator which minimizes the present and future threat to human health and the environment.	47-13-8.5.a.22	Owner/operator must have certification that the hazardous waste generator has a program to reduce the volume and toxicity of waste stream to the extent economically feasible; and injection of such waste minimizes the present and future threats to human health and the environment; and	Similar to CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.71 (a)	**40 CFR 146.71 Closure.** Closure Plan. The owner or operator of a Class I hazardous waste injection well shall prepare, maintain, and comply with a plan for closure of the well that meets the requirements of paragraph (d) of this section and is acceptable to the Director. The obligation to implement the closure plan survives the termination of a permit or the cessation of injection activities. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit.	47-13-14.7.f	Plugging and abandonment. Any Class 1, 2, 3, or 6 permit shall include, and any Class 5 permit may include, conditions to ensure that plugging and abandonment of the well will not allow the movement of fluids either into an underground source of drinking water or from one underground source of drinking water to another. Any applicant for a UIC permit shall be required to submit a plan for plugging and abandonment. Where the plugging and abandonment plan meets the requirements of this paragraph, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, the Director shall require the applicant to revise the plan, prescribe conditions meeting the requirements of this paragraph, or deny the application. For purposes of this paragraph, temporary intermittent cessation of injection operations is not abandonment. The owner or operator shall submit revisions to the method of closure no later than the date on which closure notification is required. The Director should be notified at least 45 days prior to the abandonment of any Class 5 injection well.	WV provides the same closure requirements for all wells in Section 47-13-14.7.f is the most comparable section. WV does not explicitly require preparing a plugging plan as part of a permit application or that the plan is directly enforceable regardless of whether the requirement is a condition of the permit. This is less stringent than the CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00265

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.71(a)(1)	The owner or operator shall submit the plan as a part of the permit application and, upon approval by the Director, such plan shall be a condition of any permit issued.	47-13-14.7.f	Plugging and abandonment. Any Class 1, 2, 3, or 6 permit shall include, and any Class 5 permit may include, conditions to ensure that plugging and abandonment of the well will not allow the movement of fluids either into an underground source of drinking water or from one underground source of drinking water to another. Any applicant for a UIC permit shall be required to submit a plan for plugging and abandonment. Where the plugging and abandonment plan meets the requirements of this paragraph, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, the Director shall require the applicant to revise the plan, prescribe conditions meeting the requirements of this paragraph, or deny the application. For purposes of this paragraph, temporary intermittent cessation of injection operations is not abandonment. The owner or operator shall submit revisions to the method of closure no later than the date on which closure notification is required. The Director should be notified at least 45 days prior to the abandonment of any Class 5 injection well.	Similar to CFR.

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ED_013399_00000014-00266

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.71(a)(2)	The owner or operator shall submit any proposed significant revision to the method of closure reflected in the plan for approval by the Director no later than the date on which notice of closure is required to be submitted to the Director under paragraph (b) of this section.	47-13-14.7.f	Plugging and abandonment. Any Class 1, 2, 3, or 6 permit shall include, and any Class 5 permit may include, conditions to ensure that plugging and abandonment of the well will not allow the movement of fluids either into an underground source of drinking water or from one underground source of drinking water to another. Any applicant for a UIC permit shall be required to submit a plan for plugging and abandonment. Where the plugging and abandonment plan meets the requirements of this paragraph, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, the Director shall require the applicant to revise the plan, prescribe conditions meeting the requirements of this paragraph, or deny the application. For purposes of this paragraph, temporary intermittent cessation of injection operations is not abandonment. <u>The owner or operator shall submit revisions to the method of closure no later than the date on which closure notification is required.</u> The Director should be notified at least 45 days prior to the abandonment of any Class 5 injection well.	Similar to CFR.
40 CFR 146.71(a)(3)	The plan shall assure financial responsibility as required in § 144.52(a)(7).	47-13-8.3.g	The owner or operator shall assure, through a performance bond or other appropriate means, the availability of resources necessary for the proper abandonment of the well as required in subdivision 14.7.g.	Similar to CFR (WV's 47-13-14.7.g is similar to 144.52(a)(7)).
40 CFR 146.71(a)(4)	The plan shall include the following information:	47-13-8.5.b	Prior to granting approval for the plugging and abandonment of a Class 1 well the Director shall consider the following information:	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.71(a)(4)(i)	The type and number of plugs to be used;	47-13-8.5.b.1	The type and number of plugs to be used;	Same as CFR. Note: the elements below are requirements for approving plugging of a well and are similar to the CFR. Subsection 47-13-14.7.f requires the submittal of a plan for plugging and abandonment with every UIC permit application, but does not specify the content of the plan in the level of detail below. Clarification is recommended.
40 CFR 146.71(a)(4)(ii)	The placement of each plug including the elevation of the top and bottom of each plug;	47-13-8.5.b.2	The placement of each plug including the elevation of the top and bottom;	Same as CFR (see above).
40 CFR 146.71(a)(4)(iii)	The type and grade and quantity of material to be used in plugging;	47-13-8.5.b.3	The type and grade and quantity of cement to be used;	Similar to CFR (see above).
40 CFR 146.71(a)(4)(iv)	The method of placement of the plugs;	47-13-8.5.b.4	The method for placement of the plugs;	Same as CFR (see above).
40 CFR 146.71(a)(4)(v)	Any proposed test or measure to be made;	47-13-8.5.b.6	Any proposed test or measure to be made;	Same as CFR (see above).
40 CFR 146.71(a)(4)(vi)	The amount, size, and location (by depth) of casing and any other materials to be left in the well;	47-13-8.5.b.7	The amount, size, and location (by depth) of casing and any other materials to be left in the well;	Same as CFR (see above).
40 CFR 146.71(a)(4)(vii)	The method and location where casing is to be parted, if applicable;	47-13-8.5.b.8	The method and location where casing is to be parted, if applicable; and	Same as CFR.
40 CFR 146.71(a)(4)(viii)	The procedure to be used to meet the requirements of paragraph (d)(5) of this section;			Missing; however WV does have the same plugging requirements as the CFR. Adding a requirement that this be documented in a plugging plan as part of the permit application is recommended to improve clarity.
40 CFR 146.71(a)(4)(ix)	The estimated cost of closure; and	47-13-8.5.b.9	The estimated cost of closure;	Same as CFR (see above).

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.71(a)(4)(x)	Any proposed test or measure to be made.	47-13-8.5.b.6	Any proposed test or measure to be made;	Same as CFR (see above).
40 CFR 146.71(a)(5)	The Director may modify a closure plan following the procedures of § 124.5.	47-13-14.7.f	Plugging and abandonment. Any Class 1, 2, 3, or 6 permit shall include, and any Class 5 permit may include, conditions to ensure that plugging and abandonment of the well will not allow the movement of fluids either into an underground source of drinking water or from one underground source of drinking water to another. Any applicant for a UIC permit shall be required to submit a plan for plugging and abandonment. Where the plugging and abandonment plan meets the requirements of this paragraph, the Director shall incorporate it into the permit as a condition. Where the Director's review of an application indicates that the permittee's plan is inadequate, the Director shall require the applicant to revise the plan, prescribe conditions meeting the requirements of this paragraph, or deny the application. For purposes of this paragraph, temporary intermittent cessation of injection operations is not abandonment. The owner or operator shall submit revisions to the method of closure no later than the date on which closure notification is required. The Director should be notified at least 45 days prior to the abandonment of any Class 5 injection well.	Missing. The underlined portion (which applies to all wells/permit applications) is the most comparable to the CFR. However, WV does not require public notice for a modification, e.g., after a permit is issued. This is less stringent than the CFR.
40 CFR 146.71(a)(6)	An owner or operator of a Class I hazardous waste injection well who ceases injection temporarily, may keep the well open provided he:	47-13-14.7.f.1	An owner or operator of a Class I hazardous waste injection well who ceases injection temporarily, may keep the well open provided he has received authorization from the Director and has described actions to be taken to ensure that the well will not endanger USDWs during disuse. These actions include compliance with the technical requirements applicable to active injection wells unless waived by the Director.	Same as CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.71(a)(6)(i)	Has received authorization from the Director; and	47-13-14.7.f.1	An owner or operator of a Class I hazardous waste injection well who ceases injection temporarily, may keep the well open provided he has received authorization from the Director and has described actions to be taken to ensure that the well will not endanger USDWs during disuse. These actions include compliance with the technical requirements applicable to active injection wells unless waived by the Director.	Same as CFR.
40 CFR 146.71(a)(6)(ii)	Has described actions or procedures, satisfactory to the Director, that the owner or operator will take to ensure that the well will not endanger USDWs during the period of temporary disuse. These actions and procedures shall include compliance with the technical requirements applicable to active injection wells unless waived by the Director.	47-13-14.7.f.1	An owner or operator of a Class I hazardous waste injection well who ceases injection temporarily, may keep the well open provided he has received authorization from the Director and has described actions to be taken to ensure that the well will not endanger USDWs during disuse. These actions include compliance with the technical requirements applicable to active injection wells unless waived by the Director.	Similar to CFR.
40 CFR 146.71(a)(7)	The owner or operator of a well that has ceased operations for more than two years shall notify the Director 30 days prior to resuming operation of the well.			Missing. WV does not require notification to the director. This is less stringent than the CFR.
40 CFR 146.71(b)	Notice of intent to close, The owner or operator shall notify the director at least 60 days before closure of a well. At the discretion of the Director, a shorter notice period may be allowed.			Missing. WV does not require notification to the director of closure. This is less stringent than the CFR.
40 CFR 146.71(c)	Closure report. Within 60 days after closure or at the time of the next quarterly report (whichever is less) the owner or operator shall submit a closure report to the Director. If the quarterly report is due less than 15 days after completion of closure, then the report shall be submitted within 60 days after closure. The report shall be certified as accurate by the owner or operator and by the person who performed the closure operation (if other than the owner or operator). Such report shall consist of either:	47-13-7.3.i.	Certification of closure. When abandonment is completed, the owner or operator must submit to the Director certification by the owner or operator and certification by an independent registered professional engineer that the facility has been closed in accordance with the specifications in subsection 14.7.f of this rule.	The closure report provision for Class I hazardous wells is less specific than the CFR and has no timing requirement. This is less stringent than the CFR.
40 CFR 146.71(c)(1)	A statement that the well was closed in accordance with the closure plan previously submitted and approved by the Director; or			Missing.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.71(c)(2)	Where actual closure differed from the plan previously submitted, a written statement specifying the differences between the previous plan and the actual closure.			Missing.
40 CFR 146.71(d)(1)	Standards for well closure. (1) Prior to closing the well, the owner or operator shall observe and record the pressure decay for a time specified by the Director. The Director shall analyze the pressure decay and the transient pressure observations conducted pursuant to § 146.68(e)(1)(i) and determine whether the injection activity has conformed with predicted values.	47-13-8.3.c	Prior to closure, the owner or operator shall observe and record the pressure decay for a time specified by the Director. The Director shall determine whether the injection activity has conformed with predicted values.	Similar to CFR. WV is less specific as to the responsibilities of the Director.
40 CFR 146.71(d)(2)	Prior to well closure, appropriate mechanical integrity testing shall be conducted to ensure the integrity of that portion of the long string casing and cement that will be left in the ground after closure. Testing methods may include:	47-13-8.3.d	Prior to closure, MIT is required to ensure integrity of the long string casing and cement that will be left in the ground. Testing methods may include pressure tests with liquid or gas; radioactive tracer surveys; noise, temperature, pipe evaluation, or cement bond logs; and any other test required by the Director.	Similar to CFR.
40 CFR 146.71(d)(2)(i)	Pressure tests with liquid or gas;	47-13-8.3.d	Prior to closure, MIT is required to ensure integrity of the long string casing and cement that will be left in the ground. Testing methods may include pressure tests with liquid or gas; radioactive tracer surveys; noise, temperature, pipe evaluation, or cement bond logs; and any other test required by the Director.	Same as CFR.
40 CFR 146.71(d)(2)(ii)	Radioactive tracer surveys;	47-13-8.3.d	Prior to closure, MIT is required to ensure integrity of the long string casing and cement that will be left in the ground. Testing methods may include pressure tests with liquid or gas; radioactive tracer surveys; noise, temperature, pipe evaluation, or cement bond logs; and any other test required by the Director.	Same as CFR.
40 CFR 146.71(d)(2)(iii)	Noise, temperature, pipe evaluation, or cement bond logs; and	47-13-8.3.d	Prior to closure, MIT is required to ensure integrity of the long string casing and cement that will be left in the ground. Testing methods may include pressure tests with liquid or gas; radioactive tracer surveys; noise, temperature, pipe evaluation, or cement bond logs; and any other test required by the Director.	Same as CFR.

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ED_013399_00000014-00271

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.71(d)(2)(iv)	Any other test required by the Director.	47-13-8.3.d	Prior to closure, MIT is required to ensure integrity of the long string casing and cement that will be left in the ground. Testing methods may include pressure tests with liquid or gas; radioactive tracer surveys; noise, temperature, pipe evaluation, or cement bond logs; and any other test required by the Director.	Same as CFR.
40 CFR 146.71(d)(3)	Prior to well closure, the well shall be flushed with a buffer fluid.	47-13-8.3.e	Prior to closure, the well shall be flushed with a buffer fluid. Each plug used shall be appropriately tagged and tested before closure is completed.	Similar to CFR.
40 CFR 146.71(d)(4)	Upon closure, a Class I hazardous waste well shall be plugged with cement in a manner that will not allow the movement of fluids into or between USDWs.	47-13-8.3.a	Class 1 wells shall be abandoned in a manner to be prescribed by the Director under subdivision 14.7.f. At a minimum, the well shall be plugged with cement in a manner which will not allow the movement of fluids either into or between underground sources of drinking water.	Similar to CFR.
40 CFR 146.71(d)(5)	Placement of the cement plugs shall be accomplished by one of the following:	47-13-8.3.b	Placement of cement plugs shall be accomplished by one of the following:	Same as CFR.
40 CFR 146.71(d)(5)(i)	(i) The Balance Method;	47-13-8.3.b.1	The Balance Method;	Same as CFR.
40 CFR 146.71(d)(5)(ii)	The Dump Bailer Method;	47-13-8.3.b.2	The Dump Bailer Method;	Same as CFR.
40 CFR 146.71(d)(5)(iii)	The Two-Plug Method; or	47-13-8.3.b.3	The Two-Plug method; or	Same as CFR.
40 CFR 146.71(d)(5)(iv)	An alternate method, approved by the Director, that will reliably provide a comparable level of protection.	47-13-8.3.b.4	An alternative method approved by the Director which will reliably provide a comparable level of protection to USDW'S.	Same as CFR.
40 CFR 146.71(d)(6)	Each plug used shall be appropriately tagged and tested for seal and stability before closure is completed.		Prior to closure, the well shall be flushed with a buffer fluid. Each plug used shall be appropriately tagged and tested before closure is completed.	Similar to CFR. WV does not require each plug be tested for seal and stability. This is less stringent than the CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.71(d)(7)	The well to be closed shall be in a state of static equilibrium with the mud weight equalized top to bottom, either by circulating the mud in the well at least once or by a comparable method prescribed by the Director, prior to the placement of the cement plug(s).	47-13-8.3.f	The well to be abandoned shall be in a state of static equilibrium with the mud weight equalized top to bottom, either by circulating the mud in the well at least once or a comparable method prescribed by the Director, prior to the placement of the cement plug(s).	Similar to CFR.
40 CFR 146.72(a)	**40 CFR 146.72 Post-closure care.** The owner or operator of a Class I hazardous waste well shall prepare, maintain, and comply with a plan for post-closure care that meets the requirements of paragraph (b) of this section and is acceptable to the Director. The obligation to implement the post-closure plan survives the termination of a permit or the cessation of injection activities. The requirement to maintain an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit.	47-13-8.6.a	47-13-8.6. Post-Closure Care The owner or operator of a Class 1 hazardous waste well shall prepare, maintain, and comply with a plan for post-closure care. The obligation to implement the plan survives the termination of a permit or the cessation of injection activities. Any revision to the plan must be submitted no later than the date of the closure report. The plan shall assure financial responsibility. The plan shall include the following information:	Similar to CFR. WV does not require that the plan be directly enforceable regardless of whether the requirement is a condition of the permit. This is less stringent than the CFR, And should be clarified.
40 CFR 146.72(a)(1)	The owner or operator shall submit the plan as a part of the permit application and, upon approval by the Director, such plan shall be a condition of any permit issued.			Missing. WV does not explicitly require post closure plans be included with a permit application. This is less stringent than the CFR.
40 CFR 146.72(a)(2)	The owner or operator shall submit any proposed significant revision to the plan as appropriate over the life of the well, but no later than the date of the closure report required under § 146.71(c).	47-13-8.6.a	The owner or operator of a Class 1 hazardous waste well shall prepare, maintain, and comply with a plan for post-closure care. The obligation to implement the plan survives the termination of a permit or the cessation of injection activities. Any revision to the plan must be submitted no later than the date of the closure report. The plan shall assure financial responsibility. The plan shall include the following information:	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.72(a)(3)	The plan shall assure financial responsibility as required in § 146.73.	47-13-8.6.a	The owner or operator of a Class 1 hazardous waste well shall prepare, maintain, and comply with a plan for post-closure care. The obligation to implement the plan survives the termination of a permit or the cessation of injection activities. Any revision to the plan must be submitted no later than the date of the closure report. The plan shall assure financial responsibility. The plan shall include the following information:	WV does not explicitly reference financial responsibility for post closure care. This is less stringent than the CFR.
40 CFR 146.72(a)(4)	The plan shall include the following information:	47-13-8.6.a	The owner or operator of a Class 1 hazardous waste well shall prepare, maintain, and comply with a plan for post-closure care. The obligation to implement the plan survives the termination of a permit or the cessation of injection activities. Any revision to the plan must be submitted no later than the date of the closure report. The plan shall assure financial responsibility. The plan shall include the following information:	Same as CFR.
40 CFR 146.72(a)(4)(i)	The pressure in the injection zone before injection began;	47-13-8.6.a.1	The pressure in the injection zone before injection began;	Same as CFR.
40 CFR 146.72(a)(4)(ii)	The anticipated pressure in the injection zone at the time of closure;	47-13-8.6.a.2	The anticipated pressure in the injection zone at the time of closure;	Same as CFR.
40 CFR 146.72(a)(4)(iii)	The predicted time until pressure in the injection zone decays to the point that the well's cone of influence no longer intersects the base of the lowermost USDW;	47-13-8.6.a.3	The predicted time until pressure in the injection zone decays to the point that the well's cone of influence no longer intersects the base of the lowermost USDW;	Same as CFR.
40 CFR 146.72(a)(4)(iv)	Predicted position of the waste front at closure;	47-13-8.6.a.4	Predicted position of waste front at closure;	Same as CFR.
40 CFR 146.72(a)(4)(v)	The status of any cleanups required under § 146.64; and	47-13-8.6.a.5	The status of any cleanups; and	Similar to CFR.
40 CFR 146.72(a)(4)(vi)	The estimated cost of proposed post-closure care.	47-13-8.6.a.6	The estimated cost of post-closure care.	Same as CFR.

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ED_013399_00000014-00274

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.72(a)(5)	At the request of the owner or operator, or on his own initiative, the Director may modify the post-closure plan after submission of the closure report following the procedures in § 124.5.	47-13-8.6.a.6.A	The Director may modify the post-closure plan after submission of the closure report.	WV does not describe what may prompt the Director to modify the post-closure plan or require public notice. This is less stringent than the CFR, and should be clarified.
40 CFR 146.72(b)	The owner or operator shall:	47-13-8.6.b	Owners/operators shall:	Same as CFR.
40 CFR 146.72(b)(1)	Continue and complete any cleanup action required under § 146.64, if applicable;	47-13-8.6.b.1	Continue any clean up actions and ground water monitoring until the cone of influence no longer intersects the base of the lowermost USDW;	Similar to CFR.
40 CFR 146.72(b)(2)	Continue to conduct any groundwater monitoring required under the permit until pressure in the injection zone decays to the point that the well's cone of influence no longer intersects the base of the lowermost USDW. The Director may extend the period of post-closure monitoring if he determines that the well may endanger a USDW.	47-13-8.6.b.1	Continue any clean up actions and ground water monitoring until the cone of influence no longer intersects the base of the lowermost USDW;	Similar to CFR. WV does not provide that the Director may extend the period of post-closure monitoring. No concerns for stringency.
40 CFR 146.72(b)(3)	Submit a survey plat to the local zoning authority designated by the Director. The plat shall indicate the location of the well relative to permanently surveyed benchmarks. A copy of the plat shall be submitted to the Regional Administrator of the appropriate EPA Regional Office.	47-13-8.6.b.3	Submit a survey plat to the local zoning authority as well as to the Regional Administrator indicating the location of the well;	Similar to CFR. WV includes less detail as to the content of the plat. This is less stringent than the CFR, and clarification is recommended.
40 CFR 146.72(b)(4)	Provide appropriate notification and information to such State and local authorities as have cognizance over drilling activities to enable such State and local authorities to impose appropriate conditions on subsequent drilling activities that may penetrate the well's confining or injection zone.	47-13-8.6.b.4	Notify appropriate State agencies responsible for drilling activities; and	WV does not describe the purpose of providing State and local authorities with this information. However, the requirement on the operator is the same as the CFR. No impact on stringency.
40 CFR 146.72(b)(5)	Retain, for a period of three years following well closure, records reflecting the nature, composition and volume of all injected fluids. The Director shall require the owner or operator to deliver the records to the Director at the conclusion of the retention period, and the records shall thereafter be retained at a location designated by the Director for that purpose.	47-13-8.6.b.2	Retain records for 3 years;	WV does not describe what records should be retained.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.72(c)	Each owner of a Class I hazardous waste injection well, and the owner of the surface or subsurface property on or in which a Class I hazardous waste injection well is located, must record a notation on the deed to the facility property or on some other instrument which is normally examined during title search that will in perpetuity provide any potential purchaser of the property the following information:	47-13-8.6.c	Each owner of a Class I hazardous waste injection well, and the owner of the property on which the well is located, must record a notation on the deed to the facility property that will in perpetuity provide the following information:	Similar to CFR. WV does not allow flexibility to record on alternative instruments to the deed. No impact on stringency.
40 CFR 146.72(c)(1)	The fact that land has been used to manage hazardous waste;	47-13-8.6.c.1	The fact that land has been used to manage hazardous waste;	Same as CFR.
40 CFR 146.72(c)(2)	The name of the State agency or local authority with which the plat was filed, as well as the address of the Regional Environmental Protection Agency Office to which it was submitted;	47-13-8.6.c.2	The name of the Agency or local authority with which the plat was filed; and	Similar to CFR. WV does not specifically require the address of the EPA regional office. This is unlikely to affect the protectiveness of the requirement. No concerns for stringency.
40 CFR 146.72(c)(3)	The type and volume of waste injected, the injection interval or intervals into which it was injected, and the period over which injection occurred.	47-13-8.6.c.3	The type and volume of waste injected, the injection interval or intervals into which it was injected, and the period over which injection occurred.	Same as CFR.
40 CFR 146.73	**40 CFR 146.73 Financial responsibility for post-closure care.** The owner or operator shall demonstrate and maintain financial responsibility for post-closure by using a trust fund, surety bond, letter of credit, financial test, insurance or corporate guarantee that meets the specifications for the mechanisms and instruments revised as appropriate to cover closure and post-closure care in 40 CFR part 144, subpart F. The amount of the funds available shall be no less than the amount identified in § 146.72(a)(4)(vi). The obligation to maintain financial responsibility for post-closure care survives the termination of a permit or the cessation of injection. The requirement to maintain financial responsibility is enforceable regardless of whether the requirement is a condition of the permit.	47-13-8.6.d 47-13-8.6.a	8.6.d The owner/operator must maintain financial responsibility for post-closure care by using a trust fund, surety bond, letter of credit, financial test, insurance or corporate guarantee. This requirement is enforceable regardless of the fact that it is a permit condition. 8.6.a. The owner or operator of a Class 1 hazardous waste well shall prepare, maintain, and comply with a plan for post-closure care. <u>The obligation to implement the plan survives the termination of a permit or the cessation of injection activities.</u> Any revision to the plan must be submitted no later than the date of the closure report. The plan shall assure financial responsibility. The plan shall include the following information:	Similar to CFR. WV does not include requirements regarding the amount of funds to be available, or explicitly require a demonstration of financial responsibility (although this is implied). The obligation that the requirement survives permit termination or cessation of operations is described in section 47-13-8.6.a. This is less stringent than the CFR. WV has no provisions similar to 40 CFR part 144, subpart F.
Subpart H - Criteria and Standards Applicable to Class VI Wells				

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.81(a)	**40 CFR 146.81 Applicability.** This subpart establishes criteria and standards for underground injection control programs to regulate any Class VI carbon dioxide geologic sequestration injection wells.	47-13-13.1	**47-13-13. Criteria and Standards Applicable to Class 6 Wells.** General. This section sets forth requirements for underground injection control programs to regulate Class 6 carbon dioxide geologic sequestration wells. This section establishes criteria and standards for underground injection control programs to regulate any Class 6 carbon dioxide geologic sequestration injection wells, for long-term containment of a gaseous, liquid, or supercritical carbon dioxide stream in subsurface geologic formations.	Similar to CFR.
40 CFR 146.81(b)	This subpart applies to any wells used to inject carbon dioxide specifically for the purpose of geologic sequestration, i.e., the long-term containment of a gaseous, liquid, or supercritical carbon dioxide stream in subsurface geologic formations.			Similar to CFR. See above row.
40 CFR 146.81(c)	This subpart also applies to owners or operators of permit- or rule-authorized Class I, Class II, or Class V experimental carbon dioxide injection projects who seek to apply for a Class VI geologic sequestration permit for their well or wells. Owners or operators seeking to convert existing Class I, Class II, or Class V experimental wells to Class VI geologic sequestration wells must demonstrate to the Director that the wells were engineered and constructed to meet the requirements at 40 CFR 146.86(a) and ensure protection of USDWs, in lieu of requirements at 40 CFR 146.86(b) and 146.87(a). By December 10, 2011, owners or operators of either Class I wells previously permitted for the purpose of geologic sequestration or Class V experimental technology wells no longer being used for experimental purposes that will continue injection of carbon dioxide for the purpose of GS must apply for a Class VI permit. A converted well must still meet all other requirements under part 146.	47-13-13.1.a	This subpart also applies to owners or operators of permit or rule-authorized Class 1, Class 2, or Class 5 experimental carbon dioxide injection projects who seek to apply for a Class 6 geologic sequestration permit for their well or wells. Owners or operators seeking to convert existing Class 1, Class 2, or Class 5 experimental wells to Class 6 geologic sequestration wells must demonstrate to the Director that the wells were engineered and constructed to meet the requirements at subsection 13.3.a.and ensure protection of USDWs, in lieu of requirements at subsection 13.3.b., 13.3.b.1. and 13.5. By December 10, 2011, owners or operators of either Class 1 wells previously permitted for the purpose of geologic sequestration or Class 5 experimental technology wells no longer being used for experimental purposes that will continue injection of carbon dioxide for the purpose of GS must apply for a Class 6 permit. A converted well must still meet all other requirements under section 13-13.	Same as CFR.

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ED_013399_00000014-00277

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.81(d)	*Definitions*. The following definitions apply to this subpart. To the extent that these definitions conflict with those in 40 CFR 144.3 or 146.3, these definitions govern for Class VI wells:			The following definitions are from section 47-13-2 (for all wells). No concerns for stringency.
	Area of review means the region surrounding the geologic sequestration project where USDWs may be endangered by the injection activity. The area of review is delineated using computational modeling that accounts for the physical and chemical properties of all phases of the injected carbon dioxide stream and displaced fluids, and is based on available site characterization, monitoring, and operational data as set forth in § 146.84.	47-13-2.5.a	For Class 6 well types, "area of review" means the region surrounding the geologic sequestration project where underground sources of drinking water (USDWs) may be endangered by the injection activity. The area of review is delineated using computational modeling that accounts for the physical and chemical properties of all phases of the injected carbon dioxide stream and displaced fluids, and is based on available site characterization, monitoring, and operational data as set forth in section 5.4.	Same as CFR.
	Carbon dioxide plume means the extent underground, in three dimensions, of an injected carbon dioxide stream.	47-13-2.7	"Carbon dioxide plume" means the extent underground, in three dimensions, of an injected carbon dioxide stream.	Same as CFR.
	Carbon dioxide stream means carbon dioxide that has been captured from an emission source (e.g., a power plant), plus incidental associated substances derived from the source materials and the capture process, and any substances added to the stream to enable or improve the injection process. This subpart does not apply to any carbon dioxide stream that meets the definition of a hazardous waste under 40 CFR part 261.	47-13-2.8	"Carbon dioxide stream" means carbon dioxide that has been captured from an emission source (e.g., a power plant), plus incidental associated substances derived from the source materials and the capture process, and any substances added to the stream to enable or improve the injection process. This subpart does not apply to any carbon dioxide stream that meets the definition of a hazardous waste under 40 CFR part 261.	Same as CFR.
	Confining zone means a geologic formation, group of formations, or part of a formation stratigraphically overlying the injection zone(s) that acts as 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).	47-13-2.14	"Confining zone" means a geological formation, group of formations, or part of a formation stratigraphically overlying the injection zone(s) that acts as barrier to fluid movement above an injection zone. For Class 6 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).	Same as CFR.
	Corrective action means the use of Director-approved methods to ensure that wells within the area of review do not serve as conduits for the movement of fluids into underground sources of drinking water (USDW).	47-13-2.17	"Corrective action" means the use of Director-approved methods to ensure that wells within the area of review do not serve as conduits for the movement of fluids into USDWs.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
	Geologic sequestration means the long-term containment of a gaseous, liquid, or supercritical carbon dioxide stream in subsurface geologic formations. This term does not apply to carbon dioxide capture or transport.	47-13-2.32	"Geologic sequestration" means the long-term containment of a gaseous, liquid, or supercritical carbon dioxide stream in subsurface geologic formations. This term does not apply to carbon dioxide capture or transport.	Same as CFR.
	Geologic sequestration project means an injection well or wells used to emplace a carbon dioxide stream beneath the lowermost formation containing a USDW; or, wells used for geologic sequestration of carbon dioxide that have been granted a waiver of the injection depth requirements pursuant to requirements at § 146.95; or, wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to §§ 146.4 and 144.7(d) of this chapter. It includes the subsurface three-dimensional extent of the carbon dioxide plume, associated area of elevated pressure, and displaced fluids, as well as the surface area above that delineated region.	47-13-2.33	"Geologic sequestration project" means an injection well or wells used to emplace a carbon dioxide stream beneath the lowermost formation containing a USDW; or, wells used for geologic sequestration of carbon dioxide that have been granted a waiver of the injection depth requirements pursuant to requirements at § 47CSR13.14.8.d.; or, wells used for geologic sequestration of carbon dioxide that have received an expansion to the areal extent of an existing Class II enhanced oil recovery or enhanced gas recovery aquifer exemption pursuant to 47CSR13-3 and 47CSR13-14.22. It includes the subsurface three-dimensional extent of the carbon dioxide plume, associated area of elevated pressure, and displaced fluids, as well as the surface area above that delineated region.	Same as CFR.
	Injection zone means a geologic formation, group of formations, or part of a formation that is of sufficient areal extent, thickness, porosity, and permeability to receive carbon dioxide through a well or wells associated with a geologic sequestration project.	47-13-2.39	"Injection zone" means a geological "formation", group of formations or part of a formation receiving fluids through a "well" and for Class 6 Wells, the formation that is of sufficient areal extent, thickness, porosity, and permeability to receive carbon dioxide through a well or wells associated with a geologic sequestration project.	Similar to CFR.
	Post-injection site care means appropriate monitoring and other actions (including corrective action) needed following cessation of injection to ensure that USDWs are not endangered, as required under § 146.93.	47-13-2.53	"Post-injection site care" means appropriate monitoring and other actions (including corrective action) needed following cessation of injection to ensure that USDWs are not endangered by Class 6 wells, as required under subsection 13.9.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
	Pressure front means the zone of elevated pressure that is created by the injection of carbon dioxide into the subsurface. For the purposes of this subpart, the pressure front of a carbon dioxide plume refers to a zone where there is a pressure differential sufficient to cause the movement of injected fluids or formation fluids into a USDW.	47-13-2.55	"Pressure front" means the zone of elevated pressure that is created by the injection of carbon dioxide into the subsurface. For the purposes of this subpart, the pressure front of a carbon dioxide plume refers to a zone where there is a pressure differential sufficient to cause the movement of injected fluids or formation fluids into a USDW.	Same as CFR.
	Site closure means the point/time, as determined by the Director following the requirements under § 146.93, at which the owner or operator of a geologic sequestration site is released from post-injection site care responsibilities.	47-13-2.66	"Site closure" means the point/time, as determined by the Director following the requirements under subsection 13.9., at which the owner or operator of a geologic sequestration site is released from post-injection site care responsibilities.	Same as CFR.
	Transmissive fault or fracture means a fault or fracture that has sufficient permeability and vertical extent to allow fluids to move between formations.	47-13-2.76	"Transmissive Fault" is a type of fault or fracture that has sufficient permeability and vertical extent to allow fluids to move between formations.	Same as CFR.
40 CFR 146.82	**40 CFR 146.82 Required Class VI permit information.** This section sets forth the information which must be considered by the Director in authorizing Class VI wells. For converted Class I, Class II, or Class V experimental wells, certain maps, cross-sections, tabulations of wells within the area of review and other data may be included in the application by reference provided they are current, readily available to the Director, and sufficiently identified to be retrieved.	47-13-13.8.	**47-13-13.8. Required Class 6 Permit Information.**	WV did not include this introductory description or provide flexibility to use existing information. No concerns for stringency.
40 CFR 146.82(a)	Prior to the issuance of a permit for the construction of a new Class VI well or the conversion of an existing Class I, Class II, or Class V well to a Class VI well, the owner or operator shall submit, pursuant to 40 CFR 146.91(e), and the Director shall consider the following:	47-13-13.8.a	Prior to the issuance of a permit for the construction of a new Class 6 well or the conversion of an existing Class I, Class 2, or Class 5 well to a Class 6 well, the owner or operator shall submit, pursuant to 13.6.c.1.E., and the Director shall consider the following:	Same as CFR.
40 CFR 146.82(a)(1)	Information required in 40 CFR 144.31 (e)(1) through (6);	47-13-13.8.a.1	Information required in section 10.d. of this rule;	Similar to CFR. 10.d is similar to 144.31.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.82(a)(2)	A map showing the injection well for which a permit is sought and the applicable area of review consistent with 40 CFR 146.84. Within the area of review, the map must show the number or name, and location of all injection wells, producing wells, abandoned wells, plugged wells or dry holes, deep stratigraphic boreholes, State- or EPA-approved subsurface cleanup sites, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells, other pertinent surface features including structures intended for human occupancy, State, Tribal, and Territory boundaries, and roads. The map should also show faults, if known or suspected. Only information of public record is required to be included on this map;	47-13-13.8.a.2	A map showing the injection well for which a permit is sought and the applicable area of review consistent with section 5.4. and subsection 14.9.b.5. Within the area of review, the map must show the number or name, and location of all injection wells, producing wells, abandoned wells, plugged wells or dry holes, deep stratigraphic boreholes, State- or EPA-approved subsurface cleanup sites, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells, other pertinent surface features including structures intended for human occupancy, State, Tribal, and Territory boundaries, and roads. The map should also show faults, if known or suspected. Only information of public record is required to be included on this map;	Same as CFR.
40 CFR 146.82(a)(3)	Information on the geologic structure and hydrogeologic properties of the proposed storage site and overlying formations, including:	47-13-13.8.a.3	Information on the geologic structure and hydrogeologic properties of the proposed storage site and overlying formations, including:	Same as CFR.
40 CFR 146.82(a)(3)(i)	Maps and cross sections of the area of review;	47-13-13.8.a.3.A	Maps and cross sections of the area of review;	Same as CFR.
40 CFR 146.82(a)(3)(ii)	The location, orientation, and properties of known or suspected faults and fractures that may transect the confining zone(s) in the area of review and a determination that they would not interfere with containment;	47-13-13.8.a.3.B	The location, orientation, and properties of known or suspected faults and fractures that may transect the confining zone(s) in the area of review and a determination that they would not interfere with containment;	Same as CFR.
40 CFR 146.82(a)(3)(iii)	Data on the depth, areal extent, thickness, mineralogy, porosity, permeability, and capillary pressure of the injection and confining zone(s); including geology/facies changes based on field data which may include geologic cores, outcrop data, seismic surveys, well logs, and names and lithologic descriptions;	47-13-13.8.a.3.C	Data on the depth, areal extent, thickness, mineralogy, porosity, permeability, and capillary pressure of the injection and confining zone(s); including geology/facies changes based on field data which may include geologic cores, outcrop data, seismic surveys, well logs, and names and lithologic descriptions;	Same as CFR.
40 CFR 146.82(a)(3)(iv)	Geomechanical information on fractures, stress, ductility, rock strength, and in situ fluid pressures within the confining zone(s);	47-13-13.8.a.3.D	Geo-mechanical information on fractures, stress, ductility, rock strength, and in situ fluid pressures within the confining zone(s);	Same as CFR.
40 CFR 146.82(a)(3)(v)	Information on the seismic history including the presence and depth of seismic sources and a determination that the seismicity would not interfere with containment; and	47-13-13.8.a.3.E	Information on the seismic history including the presence and depth of seismic sources and a determination that the seismicity would not interfere with containment; and	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.82(a)(3)(vi)	Geologic and topographic maps and cross sections illustrating regional geology, hydrogeology, and the geologic structure of the local area.	47-13-13.8.a.3.F	Geologic and topographic maps and cross sections illustrating regional geology, hydrogeology, and the geologic structure of the local area.	Same as CFR.
40 CFR 146.82(a)(4)	A tabulation of all wells within the area of review which penetrate the injection or confining zone(s). Such data must include a description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Director may require;	47-13-13.8.a.4	A tabulation of all wells within the area of review which penetrate the injection or confining zone(s). Such data must include a description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Director may require;	Same as CFR.
40 CFR 146.82(a)(5)	Maps and stratigraphic cross sections indicating the general vertical and lateral limits of all USDWs, water wells and springs within the area of review, their positions relative to the injection zone(s), and the direction of water movement, where known;	47-13-13.8.a.5	Maps and stratigraphic cross sections indicating the general vertical and lateral limits of all USDWs, water wells and springs within the area of review, their positions relative to the injection zone(s), and the direction of water movement, where known;	Same as CFR.
40 CFR 146.82(a)(6)	Baseline geochemical data on subsurface formations, including all USDWs in the area of review;	47-13-13.8.a.6	Baseline geochemical data on subsurface formations, including all USDWs in the area of review;	Same as CFR.
40 CFR 146.82(a)(7)	Proposed operating data for the proposed geologic sequestration site:	47-13-13.8.a.7	Proposed operating data for the proposed geologic sequestration site:	Same as CFR.
40 CFR 146.82(a)(7)(i)	Average and maximum daily rate and volume and/or mass and total anticipated volume and/or mass of the carbon dioxide stream;	47-13-13.8.a.7.A	Average and maximum daily rate and volume and/or mass and total anticipated volume and/or mass of the carbon dioxide stream;	Same as CFR.
40 CFR 146.82(a)(7)(ii)	Average and maximum injection pressure;	47-13-13.8.a.7.B	Average and maximum injection pressure;	Same as CFR.
40 CFR 146.82(a)(7)(iii)	The source(s) of the carbon dioxide stream; and	47-13-13.8.a.7.C	The source(s) of the carbon dioxide stream; and	Same as CFR.
40 CFR 146.82(a)(7)(iv)	An analysis of the chemical and physical characteristics of the carbon dioxide stream.	47-13-13.8.a.7.D	An analysis of the chemical and physical characteristics of the carbon dioxide stream.	Same as CFR.
40 CFR 146.82(a)(8)	Proposed pre-operational formation testing program to obtain an analysis of the chemical and physical characteristics of the injection zone(s) and confining zone(s) and that meets the requirements at 40 CFR 146.87;	47-13-13.8.a.8	Proposed pre-operational formation testing program to obtain an analysis of the chemical and physical characteristics of the injection zone(s) and confining zone(s) and that meets the requirements at section 13.5.;	Same as CFR.
40 CFR 146.82(a)(9)	Proposed stimulation program, a description of stimulation fluids to be used and a determination that stimulation will not interfere with containment;	47-13-13.8.a.9	Proposed stimulation program, a description of stimulation fluids to be used and a determination that stimulation will not interfere with containment;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.82(a)(10)	Proposed procedure to outline steps necessary to conduct injection operation;	47-13-13.8.a.10	Proposed procedure to outline steps necessary to conduct injection operation;	Same as CFR.
40 CFR 146.82(a)(11)	Schematics or other appropriate drawings of the surface and subsurface construction details of the well;	47-13-13.8.a.11	Schematics or other appropriate drawings of the surface and subsurface construction details of the well;	Same as CFR.
40 CFR 146.82(a)(12)	Injection well construction procedures that meet the requirements of 40 CFR 146.86;	47-13-13.8.a.12	Injection well construction procedures that meet the requirements of section 13.3;	Same as CFR.
40 CFR 146.82(a)(13)	Proposed area of review and corrective action plan that meets the requirements under 40 CFR 146.84;	47-13-13.8.a.13	Proposed area of review and corrective action plan that meets the requirements under section 5.4. and subsection 14.9.b.5.;	Same as CFR.
40 CFR 146.82(a)(14)	A demonstration, satisfactory to the Director, that the applicant has met the financial responsibility requirements under 40 CFR 146.85;	47-13-13.8.a.14	A demonstration, satisfactory to the Director, that the applicant has met the financial responsibility requirements under subsection 14.7.g.;	Same as CFR.
40 CFR 146.82(a)(15)	Proposed testing and monitoring plan required by 40 CFR 146.90;	47-13-13.8.a.15	Proposed testing and monitoring plan required by subsection 13.6.b.;	Same as CFR.
40 CFR 146.82(a)(16)	Proposed injection well plugging plan required by 40 CFR 146.92(b);	47-13-13.8.a.16	Proposed injection well plugging plan required by subsection 13.4.b.;	Same as CFR.
40 CFR 146.82(a)(17)	Proposed post-injection site care and site closure plan required by 40 CFR 146.93(a);	47-13-13.8.a.17	Proposed post-injection site care and site closure plan required by subsection 13.9.a.;	Same as CFR.
40 CFR 146.82(a)(18)	At the Director's discretion, a demonstration of an alternative post-injection site care timeframe required by 40 CFR 146.93(c);	47-13-13.8.a.18	At the Director's discretion, a demonstration of an alternative post-injection site care timeframe required by subsection 13.9.c.;	Same as CFR.
40 CFR 146.82(a)(19)	Proposed emergency and remedial response plan required by 40 CFR 146.94(a);	47-13-13.8.a.19	Proposed emergency and remedial response plan required by subsection 13.7.a.;	Same as CFR.
40 CFR 146.82(a)(20)	A list of contacts, submitted to the Director, for those States, Tribes, and Territories identified to be within the area of review of the Class VI project based on information provided in paragraph (a)(2) of this section; and	47-13-13.8.a.20	A list of contacts, submitted to the Director, for those States, Tribes, and Territories identified to be within the area of review of the Class 6 project based on information provided in subsection 13.8.a.2. of this section; and	Same as CFR.
40 CFR 146.82(a)(21)	Any other information requested by the Director.	47-13-13.8.a.21	Any other information requested by the Director.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.82(b)	The Director shall notify, in writing, any States, Tribes, or Territories within the area of review of the Class VI project based on information provided in paragraphs (a)(2) and (a)(20) of this section of the permit application and pursuant to the requirements at 40 CFR 145.23(f)(13).	47-13-13.8.b	The Director shall notify, in writing, any States, Tribes, or Territories within the area of review of the Class 6 project based on information provided in paragraphs (a)(2) and (a)(20) of this section of the permit application and pursuant to the requirements at § 40CFR 145.23(f)(13).	Same as CFR.
40 CFR 146.82(c)	Prior to granting approval for the operation of a Class VI well, the Director shall consider the following information:	47-13-13.8.c	Prior to granting approval for the operation of a Class 6 well, the Director shall consider the following information:	Same as CFR.
40 CFR 146.82(c)(1)	The final area of review based on modeling, using data obtained during logging and testing of the well and the formation as required by paragraphs (c)(2), (3), (4), (6), (7), and (10) of this section;	47-13-13.8.c.1	The final area of review based on modeling, using data obtained during logging and testing of the well and the formation as required by subsections 13.8.c.2., 13.8.c.3., 13.8.c.4., 13.8.c.6., 13.8.c.7., and 13.8.c.10.;	Same as CFR.
40 CFR 146.82(c)(2)	Any relevant updates, based on data obtained during logging and testing of the well and the formation as required by paragraphs (c)(3), (4), (6), (7), and (10) of this section, to the information on the geologic structure and hydrogeologic properties of the proposed storage site and overlying formations, submitted to satisfy the requirements of paragraph (a)(3) of this section;	47-13-13.8.c.2	Any relevant updates, based on data obtained during logging and testing of the well and the formation as required by subsections 13.8.c.3., 13.8.c.4., 13.8.c.6., 13.8.c.7., and 13.8.c.10., to the information on the geologic structure and hydrogeologic properties of the proposed storage site and overlying formations, submitted to satisfy the requirements of subsection 13.8.a.3.;	Same as CFR.
40 CFR 146.82(c)(3)	Information on the compatibility of the carbon dioxide stream with fluids in the injection zone(s) and minerals in both the injection and the confining zone(s), based on the results of the formation testing program, and with the materials used to construct the well;	47-13-13.8.c.3	Information on the compatibility of the carbon dioxide stream with fluids in the injection zone(s) and minerals in both the injection and the confining zone(s), based on the results of the formation testing program, and with the materials used to construct the well;	Same as CFR.
40 CFR 146.82(c)(4)	The results of the formation testing program required at paragraph (a)(8) of this section;	47-13-13.8.c.4	The results of the formation testing program required at subsection 13.8.a.8.;	Same as CFR.
40 CFR 146.82(c)(5)	Final injection well construction procedures that meet the requirements of 40 CFR 146.86;	47-13-13.8.c.5	Final injection well construction procedures that meet the requirements of section 13.3.;	Same as CFR.
40 CFR 146.82(c)(6)	The status of corrective action on wells in the area of review;	47-13-13.8.c.6	The status of corrective action on wells in the area of review;	Same as CFR.
40 CFR 146.82(c)(7)	All available logging and testing program data on the well required by 40 CFR 146.87;	47-13-13.8.c.7	All available logging and testing program data on the well required by section 13.5.;	Same as CFR.
40 CFR 146.82(c)(8)	A demonstration of mechanical integrity pursuant to 40 CFR 146.89;	47-13-13.8.c.8	A demonstration of mechanical integrity pursuant to section 6.2;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.82(c)(9)	Any updates to the proposed area of review and corrective action plan, testing and monitoring plan, injection well plugging plan, post-injection site care and site closure plan, or the emergency and remedial response plan submitted under paragraph (a) of this section, which are necessary to address new information collected during logging and testing of the well and the formation as required by all paragraphs of this section, and any updates to the alternative post-injection site care timeframe demonstration submitted under paragraph (a) of this section, which are necessary to address new information collected during the logging and testing of the well and the formation as required by all paragraphs of this section; and	47-13-13.8.c.9	Any updates to the proposed area of review and corrective action plan, testing and monitoring plan, injection well plugging plan, post-injection site care and site closure plan, or the emergency and remedial response plan submitted under subsection 13.8.a., which are necessary to address new information collected during logging and testing of the well and the formation as required by all paragraphs of this section, and any updates to the alternative post-injection site care timeframe demonstration submitted under subsection 13.8.a., which are necessary to address new information collected during the logging and testing of the well and the formation as required by all paragraphs of this section; and	Same as CFR.
40 CFR 146.82(c)(10)	Any other information requested by the Director.	47-13-13.8.c.10	Any other information requested by the Director.	Same as CFR.
40 CFR 146.82(d)	Owners or operators seeking a waiver of the requirement to inject below the lowermost USDW must also refer to 40 CFR 146.95 and submit a supplemental report, as required at 40 CFR 146.95(a). The supplemental report is not part of the permit application.	47-13-13.8.d	Owners or operators seeking a waiver of the requirement to inject below the lowermost USDW must also refer to subsection 14.8.d. and submit a supplemental report, as required at subsection 14.8.d.1. The supplemental report is not part of the permit application.	Same as CFR.
40 CFR 146.83(a)	**40 CFR 146.83 Minimum criteria for siting.** Owners or operators of Class VI wells must demonstrate to the satisfaction of the Director that the wells will be sited in areas with a suitable geologic system. The owners or operators must demonstrate that the geologic system comprises:	47-13-13.2.a	**47-13-13.2. Minimum Criteria for Siting.** Owners or operators of Class 6 wells must demonstrate to the satisfaction of the Director that the wells will be sited in areas with a suitable geologic system. The owners or operators must demonstrate that the geologic system comprises:	Same as CFR.
40 CFR 146.83(a)(1)	An injection zone(s) of sufficient areal extent, thickness, porosity, and permeability to receive the total anticipated volume of the carbon dioxide stream;	47-13-13.2.a.1	An injection zone(s) of sufficient areal extent, thickness, porosity, and permeability to receive the total anticipated volume of the carbon dioxide stream;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.83(a)(2)	Confining zone(s) free of transmissive faults or fractures and of sufficient areal extent and integrity to contain the injected carbon dioxide stream and displaced formation fluids and allow injection at proposed maximum pressures and volumes without initiating or propagating fractures in the confining zone(s).	47-13-13.2.a.2	Confining zone(s) free of transmissive faults or fractures and of sufficient areal extent and integrity to contain the injected carbon dioxide stream and displaced formation fluids and allow injection at proposed maximum pressures and volumes without initiating or propagating fractures in the confining zone(s).	Same as CFR.
40 CFR 146.83(b)	The Director may require owners or operators of Class VI wells to identify and characterize additional zones that will impede vertical fluid movement, are free of faults and fractures that may interfere with containment, allow for pressure dissipation, and provide additional opportunities for monitoring, mitigation, and remediation.	47-13-13.2.b	The Director may require owners or operators of Class 6 wells to identify and characterize additional zones that will impede vertical fluid movement, are free of faults and fractures that may interfere with containment, allow for pressure dissipation, and provide additional opportunities for monitoring, mitigation, and remediation.	Same as CFR.
40 CFR 146.84(a)	**40 CFR 146.84 Area of review and corrective action.** The area of review is the region surrounding the geologic sequestration project where USDWs may be endangered by the injection activity. The area of review is delineated using computational modeling that accounts for the physical and chemical properties of all phases of the injected carbon dioxide stream and is based on available site characterization, monitoring, and operational data.	47-13-5.4	For Class 6 wells, the area of review is the region surrounding the geologic sequestration project where USDWs may be endangered by the injection activity. The area of review is delineated using computational modeling that accounts for the physical and chemical properties of all phases of the injected carbon dioxide stream and is based on available site characterization, monitoring, and operational data.	Same as CFR.
40 CFR 146.84(b)	The owner or operator of a Class VI well must prepare, maintain, and comply with a plan to delineate the area of review for a proposed geologic sequestration project, periodically reevaluate the delineation, and perform corrective action that meets the requirements of this section and is acceptable to the Director. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. As a part of the permit application for approval by the Director, the owner or operator must submit an area of review and corrective action plan that includes the following information:	47-13-14.9.b.5	Class 6 wells only. When setting corrective action requirements, the Director shall require the owner or operator of the well to prepare, maintain, and comply with a plan to delineate the area of review for a proposed geologic sequestration project, periodically reevaluate the delineation, and perform corrective action that meets the requirements of this section and is acceptable to the Director. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. As a part of the permit application for approval by the Director, the owner or operator must submit an area of review and corrective action plan that includes the following information:	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.84(b)(1)	The method for delineating the area of review that meets the requirements of paragraph (c) of this section, including the model to be used, assumptions that will be made, and the site characterization data on which the model will be based;	47-13-14.9.b.5.A	The method for delineating the area of review that meets the requirements of 14.9.c. of this section, including the model to be used, assumptions that will be made, and the site characterization data on which the model will be based;	Same as CFR.
40 CFR 146.84(b)(2)	A description of:	47-13-14.9.b.5.B	A description of:	Same as CFR.
40 CFR 146.84(b)(2)(i)	The minimum fixed frequency, not to exceed five years, at which the owner or operator proposes to reevaluate the area of review;	47-13-14.9.b.5.B.i	The minimum fixed frequency, not to exceed five years, at which the owner or operator proposes to reevaluate the area of review;	Same as CFR.
40 CFR 146.84(b)(2)(ii)	The monitoring and operational conditions that would warrant a reevaluation of the area of review prior to the next scheduled reevaluation as determined by the minimum fixed frequency established in paragraph (b)(2)(i) of this section.	47-13-14.9.b.5.B.ii	The monitoring and operational conditions that would warrant a reevaluation of the area of review prior to the next scheduled reevaluation as determined by the minimum fixed frequency established in 14.9.b.5.B.i. of this section.	Same as CFR.
40 CFR 146.84(b)(2)(iii)	How monitoring and operational data (e.g., injection rate and pressure) will be used to inform an area of review reevaluation; and	47-13-14.9.b.5.B.iii	How monitoring and operational data (e.g., injection rate and pressure) will be used to inform an area of review reevaluation; and	Same as CFR.
40 CFR 146.84(b)(2)(iv)	How corrective action will be conducted to meet the requirements of paragraph (d) of this section, including what corrective action will be performed prior to injection and what, if any, portions of the area of review will have corrective action addressed on a phased basis and how the phasing will be determined; how corrective action will be adjusted if there are changes in the area of review; and how site access will be guaranteed for future corrective action.	47-13-14.9.b.5.B.iv	How corrective action will be conducted to meet the requirements of 14.9.d. of this section, including what corrective action will be performed prior to injection and what, if any, portions of the area of review will have corrective action addressed on a phased basis and how the phasing will be determined; how corrective action will be adjusted if there are changes in the area of review; and how site access will be guaranteed for future corrective action.	Same as CFR.
40 CFR 146.84(c)	Owners or operators of Class VI wells must perform the following actions to delineate the area of review and identify all wells that require corrective action:	47-13-14.9.c	Owners or operators of Class 6 wells must perform the following actions to delineate the area of review and identify all wells that require corrective action:	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.84(c)(1)	Predict, using existing site characterization, monitoring and operational data, and computational modeling, the projected lateral and vertical migration of the carbon dioxide plume and formation fluids in the subsurface from the commencement of injection activities until the plume movement ceases, until pressure differentials sufficient to cause the movement of injected fluids or formation fluids into a USDW are no longer present, or until the end of a fixed time period as determined by the Director. The model must:	47-13-14.9.c.1	Predict, using existing site characterization, monitoring and operational data, and computational modeling, the projected lateral and vertical migration of the carbon dioxide plume and formation fluids in the subsurface from the commencement of injection activities until the plume movement ceases, until pressure differentials sufficient to cause the movement of injected fluids or formation fluids into a USDW are no longer present, or until the end of a fixed time period as determined by the Director. The model must:	Same as CFR.
40 CFR 146.84(c)(1)(i)	Be based on detailed geologic data collected to characterize the injection zone(s), confining zone(s) and any additional zones; and anticipated operating data, including injection pressures, rates, and total volumes over the proposed life of the geologic sequestration project;	47-13-14.9.c.1.A	Be based on detailed geologic data collected to characterize the injection zone(s), confining zone(s) and any additional zones; and anticipated operating data, including injection pressures, rates, and total volumes over the proposed life of the geologic sequestration project;	Same as CFR.
40 CFR 146.84(c)(1)(ii)	Take into account any geologic heterogeneities, other discontinuities, data quality, and their possible impact on model predictions; and	47-13-14.9.c.1.B	Take into account any geologic heterogeneities, other discontinuities, data quality, and their possible impact on model predictions; and	Same as CFR.
40 CFR 146.84(c)(1)(iii)	Consider potential migration through faults, fractures, and artificial penetrations.	47-13-14.9.c.1.C	Consider potential migration through faults, fractures, and artificial penetrations.	Same as CFR.
40 CFR 146.84(c)(2)	Using methods approved by the Director, identify all penetrations, including active and abandoned wells and underground mines, in the area of review that may penetrate the confining zone(s). Provide a description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Director may require; and	47-13-14.9.c.2	Using methods approved by the Director, identify all penetrations, including active and abandoned wells and underground mines, in the area of review that may penetrate the confining zone(s). Provide a description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Director may require; and	Same as CFR.
40 CFR 146.84(c)(3)	Determine which abandoned wells in the area of review have been plugged in a manner that prevents the movement of carbon dioxide or other fluids that may endanger USDWs, including use of materials compatible with the carbon dioxide stream.	47-13-14.9.c.3	Determine which abandoned wells in the area of review have been plugged in a manner that prevents the movement of carbon dioxide or other fluids that may endanger USDWs, including use of materials compatible with the carbon dioxide stream.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.84(d)	Owners or operators of Class VI wells must perform corrective action on all wells in the area of review that are determined to need corrective action, using methods designed to prevent the movement of fluid into or between USDWs, including use of materials compatible with the carbon dioxide stream, where appropriate.	47-13-14.9.d	Owners or operators of Class 6 wells must perform corrective action on all wells in the area of review that are determined to need corrective action, using methods designed to prevent the movement of fluid into or between USDWs, including use of materials compatible with the carbon dioxide stream, where appropriate.	Same as CFR.
40 CFR 146.84(e)	At the minimum fixed frequency, not to exceed five years, as specified in the area of review and corrective action plan, or when monitoring and operational conditions warrant, owners or operators must:	47-13-14.9.e	At the minimum fixed frequency, not to exceed five years, as specified in the area of review and corrective action plan, or when monitoring and operational conditions warrant, owners or operators must:	Same as CFR.
40 CFR 146.84(e)(1)	Reevaluate the area of review in the same manner specified in paragraph (c)(1) of this section;	47-13-14.9.e.1	Reevaluate the area of review in the same manner specified in 14.9.c.1. of this section;	Same as CFR.
40 CFR 146.84(e)(2)	Identify all wells in the reevaluated area of review that require corrective action in the same manner specified in paragraph (c) of this section;	47-13-14.9.e.2	Identify all wells in the reevaluated area of review that require corrective action in the same manner specified in 14.9.c. of this section;	Same as CFR.
40 CFR 146.84(e)(3)	Perform corrective action on wells requiring corrective action in the reevaluated area of review in the same manner specified in paragraph (d) of this section; and	47-13-14.9.e.3	Perform corrective action on wells requiring corrective action in the reevaluated area of review in the same manner specified in 14.9.d. of this section; and	Same as CFR.
40 CFR 146.84(e)(4)	Submit an amended area of review and corrective action plan or demonstrate to the Director through monitoring data and modeling results that no amendment to the area of review and corrective action plan is needed. Any amendments to the area of review and corrective action plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at 40 CFR 144.39 or 144.41, as appropriate.	47-13-14.9.e.4	Submit an amended area of review and corrective action plan or demonstrate to the Director through monitoring data and modeling results that no amendment to the area of review and corrective action plan is needed. Any amendments to the area of review and corrective action plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at sections 14.18 or 14.20, as appropriate.	Same as CFR.
40 CFR 146.84(f)	The emergency and remedial response plan (as required by 40 CFR 146.94) and the demonstration of financial responsibility (as described by 40 CFR 146.85) must account for the area of review delineated as specified in paragraph (c)(1) of this section or the most recently evaluated area of review delineated under paragraph (e) of this section, regardless of whether or not corrective action in the area of review is phased.	47-13-14.9.f	The emergency and remedial response plan (as required by section 13.7.) and the demonstration of financial responsibility (as described by 14.7.g.) must account for the area of review delineated as specified in 14.9.c.1. of this section or the most recently evaluated area of review delineated under 14.9.e of this section, regardless of whether or not corrective action in the area of review is phased.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.84(g)	All modeling inputs and data used to support area of review reevaluations under paragraph (e) of this section shall be retained for 10 years.	47-13-14.9.g	All modeling inputs and data used to support area of review reevaluations under 14.9.e of this section shall be retained for 10 years.	Same as CFR.
40 CFR 146.85(a)	**40 CFR 146.85 Financial responsibility.** The owner or operator must demonstrate and maintain financial responsibility as determined by the Director that meets the following conditions:	47-13-14.7.g	Financial responsibility. The permit shall require the permittee, including the transferor of a permit, to demonstrate and maintain financial responsibility and resources to close, plug, and abandon underground injection wells in a manner prescribed by the Director until: the well has been plugged and abandoned and the report submitted; or the well has been converted; or the transferor of the permit receives notice that the transferee has demonstrated financial responsibility. The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Director. For Class 6 permits the following provisions also apply:	Similar to CFR. WV requires operators to demonstrate and maintain financial responsibility and provides requirements specific for Class VI wells.
40 CFR 146.85(a)(1)	The financial responsibility instrument(s) used must be from the following list of qualifying instruments:	47-13-14.7.g.1	The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, trust fund, insurance, irrevocable standby letter of credit, escrow account, or other adequate assurance, such as a financial statement or other material acceptable to the Director.	Similar to CFR.
40 CFR 146.85(a)(1)(i)	Trust Funds	47-13-14.7.g.1	The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, trust fund, insurance, irrevocable standby letter of credit, escrow account, or other adequate assurance, such as a financial statement or other material acceptable to the Director.	Same as CFR.
40 CFR 146.85(a)(1)(ii)	Surety Bonds	47-13-14.7.g.1	The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, trust fund, insurance, irrevocable standby letter of credit, escrow account, or other adequate assurance, such as a financial statement or other material acceptable to the Director.	Same as CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00290

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.85(a)(1)(iii)	Letter of Credit	47-13-14.7.g.1	The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, trust fund, insurance, irrevocable standby letter of credit, escrow account, or other adequate assurance, such as a financial statement or other material acceptable to the Director.	Similar to CFR. WV refers to an "irrevocable standby letter of credit," which we believe is equivalent to a letter of credit.
40 CFR 146.85(a)(1)(iv)	Insurance	47-13-14.7.g.1	The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, trust fund, insurance, irrevocable standby letter of credit, escrow account, or other adequate assurance, such as a financial statement or other material acceptable to the Director.	Same as CFR.
40 CFR 146.85(a)(1)(v)	Self Insurance (i.e., Financial Test and Corporate Guarantee)	47-13-14.7.g.1	The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, trust fund, insurance, irrevocable standby letter of credit, escrow account, or other adequate assurance, such as a financial statement or other material acceptable to the Director.	WV does not allow self insurance; this may be more stringent than the CFR.
40 CFR 146.85(a)(1)(vi)	Escrow Account	47-13-14.7.g.1	The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, trust fund, insurance, irrevocable standby letter of credit, escrow account, or other adequate assurance, such as a financial statement or other material acceptable to the Director.	Same as CFR.
40 CFR 146.85(a)(1)(vii)	Any other instrument(s) satisfactory to the Director	47-13-14.7.g.1	The permittee must show evidence of financial responsibility to the Director by submission of a surety bond, trust fund, insurance, irrevocable standby letter of credit, escrow account, or other adequate assurance, such as a financial statement or other material acceptable to the Director.	WV may allow the use of financial statements, which may be less stringent than the CFR. Additional information in the primacy package about how this determination would be made may be appropriate.
40 CFR 146.85(a)(2)	The qualifying instrument(s) must be sufficient to cover the cost of:	47-13-14.7.g.2	The qualifying instrument(s) must be sufficient to cover the cost of:	Same as CFR.
40 CFR 146.85(a)(2)(i)	Corrective action (that meets the requirements of 40 CFR 146.84);	47-13-14.7.g.2.A	Corrective action (that meets the requirements of section 14.9.);	Same as CFR.
40 CFR 146.85(a)(2)(ii)	Injection well plugging (that meets the requirements of 40 CFR 146.92);	47-13-14.7.g.2.B	Injection well plugging (that meets the requirements of section 13.4);	Same as CFR.

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ED_013399_00000014-00291

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.85(a)(2)(iii)	Post injection site care and site closure (that meets the requirements of 40 CFR 146.93); and	47-13-14.7.g.2.C	Post injection site care and site closure (that meets the requirements of 13.9.); and	Same as CFR.
40 CFR 146.85(a)(2)(iv)	Emergency and remedial response (that meets the requirements of 40 CFR 146.94).	47-13-14.7.g.2.D	Emergency and remedial response (that meets the requirements of 13.7).	Same as CFR.
40 CFR 146.85(a)(3)	The financial responsibility instrument(s) must be sufficient to address endangerment of underground sources of drinking water.	47-13-14.7.g.3	The financial responsibility instrument(s) must be sufficient to address endangerment of underground sources of drinking water.	Same as CFR.
40 CFR 146.85(a)(4)	The qualifying financial responsibility instrument(s) must comprise protective conditions of coverage.	47-13-14.7.g.4	The qualifying financial responsibility instrument(s) must comprise protective conditions of coverage.	Same as CFR.
40 CFR 146.85(a)(4)(i)	Protective conditions of coverage must include at a minimum cancellation, renewal, and continuation provisions, specifications on when the provider becomes liable following a notice of cancellation if there is a failure to renew with a new qualifying financial instrument, and requirements for the provider to meet a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.	47-13-14.7.g.4.A	Protective conditions of coverage must include at a minimum cancellation, renewal, and continuation provisions, specifications on when the provider becomes liable following a notice of cancellation if there is a failure to renew with a new qualifying financial instrument, and requirements for the provider to meet a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.	Same as CFR.
40 CFR 146.85(a)(4)(i)(A)	Cancellation – for purposes of this part, an owner or operator must provide that their financial mechanism may not cancel, terminate or fail to renew except for failure to pay such financial instrument. If there is a failure to pay the financial instrument, the financial institution may elect to cancel, terminate, or fail to renew the instrument by sending notice by certified mail to the owner or operator and the Director. The cancellation must not be final for 120 days after receipt of cancellation notice. The owner or operator must provide an alternate financial responsibility demonstration within 60 days of notice of cancellation, and if an alternate financial responsibility demonstration is not acceptable (or possible), any funds from the instrument being cancelled must be released within 60 days of notification by the Director.	47-13-14.7.g.5	Cancellation - for purposes of this part, an owner or operator must provide that their financial mechanism may not cancel, terminate or fail to renew except for failure to pay such financial instrument. If there is a failure to pay the financial instrument, the financial institution may elect to cancel, terminate, or fail to renew the instrument by sending notice by certified mail to the owner or operator and the Director. The cancellation must not be final for 120 days after receipt of cancellation notice. The owner or operator must provide an alternate financial responsibility demonstration within 60 days of notice of cancellation, and if an alternate financial responsibility demonstration is not acceptable (or possible), any funds from the instrument being cancelled must be released within 60 days of notification by the Director.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.85(a)(4)(i)(B)	Renewal – for purposes of this part, owners or operators must renew all financial instruments, if an instrument expires, for the entire term of the geologic sequestration project. The instrument may be automatically renewed as long as the owner or operator has the option of renewal at the face amount of the expiring instrument. The automatic renewal of the instrument must, at a minimum, provide the holder with the option of renewal at the face amount of the expiring financial instrument.	47-13-14.7.g.6	Renewal - for purposes of this part, owners or operators must renew all financial instruments, if an instrument expires, for the entire term of the geologic sequestration project. The instrument may be automatically renewed as long as the owner or operator has the option of renewal at the face amount of the expiring instrument. The automatic renewal of the instrument must, at a minimum, provide the holder with the option of renewal at the face amount of the expiring financial instrument.	Same as CFR.
40 CFR 146.85(a)(4)(i)(C)	Cancellation, termination, or failure to renew may not occur and the financial instrument will remain in full force and effect in the event that on or before the date of expiration: the Director deems the facility abandoned; or the permit is terminated or revoked or a new permit is denied; or closure is ordered by the Director or a U.S. district court or other court of competent jurisdiction; or the owner or operator is named as debtor in a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code; or the amount due is paid.	47-13-14.7.g.7	Cancellation, termination, or failure to renew may not occur and the financial instrument will remain in full force and effect in the event that on or before the date of expiration: The Director deems the facility abandoned; or the permit is terminated or revoked or a new permit is denied; or closure is ordered by the Director or a U.S. district court or other court of competent jurisdiction; or the owner or operator is named as debtor in a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code; or the amount due is paid.	Same as CFR.
40 CFR 146.85(a)(5)	The qualifying financial responsibility instrument(s) must be approved by the Director.	47-13-14.7.g.8	The qualifying financial responsibility instrument(s) must be approved by the Director.	Same as CFR.
40 CFR 146.85(a)(5)(i)	The Director shall consider and approve the financial responsibility demonstration for all the phases of the geologic sequestration project prior to issue a Class VI permit (40 CFR 146.82).	47-13-14.7.g.8.A	The Director shall consider and approve the financial responsibility demonstration for all the phases of the geologic sequestration project prior to issue a Class 6 permit (13.8).	Same as CFR.
40 CFR 146.85(a)(5)(ii)	The owner or operator must provide any updated information related to their financial responsibility instrument(s) on an annual basis and if there are any changes, the Director must evaluate, within a reasonable time, the financial responsibility demonstration to confirm that the instrument(s) used remain adequate for use. The owner or operator must maintain financial responsibility requirements regardless of the status of the Director's review of the financial responsibility demonstration.	47-13-14.7.g.8.B	The owner or operator must provide any updated information related to their financial responsibility instrument(s) on an annual basis and if there are any changes, the Director must evaluate, within a reasonable time, the financial responsibility demonstration to confirm that the instrument(s) used remain adequate for use. The owner or operator must maintain financial responsibility requirements regardless of the status of the Director's review of the financial responsibility demonstration.	Same as CFR.

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ED_013399_00000014-00293

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.85(a)(5)(iii)	The Director may disapprove the use of a financial instrument if he determines that it is not sufficient to meet the requirements of this section.	47-13-14.7.g.8.C	The Director may disapprove the use of a financial instrument if he determines that it is not sufficient to meet the requirements of this section.	Same as CFR.
40 CFR 146.85(a)(6)	The owner or operator may demonstrate financial responsibility by using one or multiple qualifying financial instruments for specific phases of the geologic sequestration project.	47-13-14.7.g.9	The owner or operator may demonstrate financial responsibility by using one or multiple qualifying financial instruments for specific phases of the geologic sequestration project.	Same as CFR.
40 CFR 146.85(a)(6)(i)	In the event that the owner or operator combines more than one instrument for a specific geologic sequestration phase (e.g., well plugging), such combination must be limited to instruments that are not based on financial strength or performance (i.e., self insurance or performance bond), for example trust funds, surety bonds guaranteeing payment into a trust fund, letters of credit, escrow account, and insurance. In this case, it is the combination of mechanisms, rather than the single mechanism, which must provide financial responsibility for an amount at least equal to the current cost estimate.	47-13-14.7.g.9.A	In the event that the owner or operator combines more than one instrument for a specific geologic sequestration phase (e.g., well plugging), such combination must be limited to instruments that are not based on financial strength or performance (i.e., self-insurance or performance bond), for example trust funds, surety bonds guaranteeing payment into a trust fund, letters of credit, escrow account, and insurance. In this case, it is the combination of mechanisms, rather than the single mechanism, which must provide financial responsibility for an amount at least equal to the current cost estimate.	Same as CFR.
40 CFR 146.85(a)(6)(ii)	When using a third-party instrument to demonstrate financial responsibility, the owner or operator must provide a proof that the third-party providers either have passed financial strength requirements based on credit ratings; or has met a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.	47-13-14.7.g.10	When using a third-party instrument to demonstrate financial responsibility, the owner or operator must provide a proof that the third-party providers either have passed financial strength requirements based on credit ratings; or have met a minimum rating, minimum capitalization, and ability to pass the bond rating when applicable.	Same as CFR.
40 CFR 146.85(a)(6)(iii)	An owner or operator using certain types of third party instruments must establish a standby trust to enable EPA to be party to the financial responsibility agreement without EPA being the beneficiary of any funds. The standby trust fund must be used along with other financial responsibility instruments (e.g., surety bonds, letters of credit, or escrow accounts) to provide a location to place funds if needed.	47-13-14.7.g.10.A	An owner or operator using certain types of third-party instruments must establish a standby trust to enable the Department and/or EPA to be party to the financial responsibility agreement without the Department and/or EPA being the beneficiary of any funds. The standby trust fund must be used along with other financial responsibility instruments (e.g., surety bonds, letters of credit, or escrow accounts) to provide a location to place funds if needed.	Similar to CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.85(a)(6)(iv)	An owner or operator may deposit money to an escrow account to cover financial responsibility requirements; this account must segregate funds sufficient to cover estimated costs for Class VI (geologic sequestration) financial responsibility from other accounts and uses.	47-13-14.7.g.11	An owner or operator may deposit money to an escrow account to cover financial responsibility requirements; this account must segregate funds sufficient to cover estimated costs for Class 6 (geologic sequestration) financial responsibility from other accounts and uses.	Same as CFR.
40 CFR 146.85(a)(6)(v)	An owner or operator or its guarantor may use self insurance to demonstrate financial responsibility for geologic sequestration projects. In order to satisfy this requirement the owner or operator must meet a Tangible Net Worth of an amount approved by the Director, have a Net working capital and tangible net worth each at least six times the sum of the current well plugging, post injection site care and site closure cost, have assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the current well plugging, post injection site care and site closure cost, and must submit a report of its bond rating and financial information annually. In addition the owner or operator must either: have a bond rating test of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or meet all of the following five financial ratio thresholds: a ratio of total liabilities to net worth less than 2.0; a ratio of current assets to current liabilities greater than 1.5; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; a ratio of current assets minus current liabilities to total assets greater than -0.1; and a net profit (revenues minus expenses) greater than 0.	47-13-14.7.g.12	An owner or operator or its guarantor may use self-insurance to demonstrate financial responsibility for geologic sequestration projects. In order to satisfy this requirement the owner or operator must meet a Tangible Net Worth of an amount approved by the Director, have a Net working capital and tangible net worth each at least six times the sum of the current well plugging, post injection site care and site closure cost, have assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the current well plugging, post injection site care and site closure cost, and must submit a report of its bond rating and financial information annually. In addition the owner or operator must either: Have a bond rating test of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or meet all of the following five financial ratio thresholds: A ratio of total liabilities to net worth less than 2.0; a ratio of current assets to current liabilities greater than 1.5; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; A ratio of current assets minus current liabilities to total assets greater than −0.1; and a net profit (revenues minus expenses) greater than 0.	Same as CFR,
40 CFR 146.85(a)(6)(vi)	An owner or operator who is not able to meet corporate financial test criteria may arrange a corporate guarantee by demonstrating that its corporate parent meets the financial test requirements on its behalf. The parent's demonstration that it meets the financial test requirement is insufficient if it has not also guaranteed to fulfill the obligations for the owner or operator.	47-13-14.7.g.12.A	An owner or operator who is not able to meet corporate financial test criteria may arrange a corporate guarantee by demonstrating that its corporate parent meets the financial test requirements on its behalf. The parent's demonstration that it meets the financial test requirement is insufficient if it has not also guaranteed to fulfill the obligations for the owner or operator.	Same as CFR.

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ED_013399_00000014-00295

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.85(a)(6)(vii)	An owner or operator may obtain an insurance policy to cover the estimated costs of geologic sequestration activities requiring financial responsibility. This insurance policy must be obtained from a third party provider.	47-13-14.7.g.13	An owner or operator may obtain an insurance policy to cover the estimated costs of geologic sequestration activities requiring financial responsibility. This insurance policy must be obtained from a third-party provider.	Same as CFR.
40 CFR 146.85(b)	The requirement to maintain adequate financial responsibility and resources is directly enforceable regardless of whether the requirement is a condition of the permit.	47-13-14.7.g.14	The requirement to maintain adequate financial responsibility and resources is directly enforceable regardless of whether the requirement is a condition of the permit.	Same as CFR.
40 CFR 146.85(b)(1)	The owner or operator must maintain financial responsibility and resources until:	47-13-14.7.g.14.A	The owner or operator must maintain financial responsibility and resources until:	Same as CFR.
40 CFR 146.85(b)(1)(i)	The Director receives and approves the completed post-injection site care and site closure plan; and	47-13-14.7.g.14.A.i	The Director receives and approves the completed post-injection site care and site closure plan; and	Same as CFR.
40 CFR 146.85(b)(1)(ii)	The Director approves site closure.	47-13-14.7.g.14.A.ii	The Director approves site closure.	Same as CFR.
40 CFR 146.85(b)(2)	The owner or operator may be released from a financial instrument in the following circumstances:	47-13-14.7.g.14.B	The owner or operator may be released from a financial instrument in the following circumstances:	Same as CFR.
40 CFR 146.85(b)(2)(i)	The owner or operator has completed the phase of the geologic sequestration project for which the financial instrument was required and has fulfilled all its financial obligations as determined by the Director, including obtaining financial responsibility for the next phase of the GS project, if required; or	47-13-14.7.g.14.B.i	The owner or operator has completed the phase of the geologic sequestration project for which the financial instrument was required and has fulfilled all its financial obligations as determined by the Director, including obtaining financial responsibility for the next phase of the GS project, if required; or	Same as CFR.
40 CFR 146.85(b)(2)(ii)	The owner or operator has submitted a replacement financial instrument and received written approval from the Director accepting the new financial instrument and releasing the owner or operator from the previous financial instrument.	47-13-14.7.g.14.B.ii	The owner or operator has submitted a replacement financial instrument and received written approval from the Director accepting the new financial instrument and releasing the owner or operator from the previous financial instrument.	Same as CFR.
40 CFR 146.85(c)	The owner or operator must have a detailed written estimate, in current dollars, of the cost of performing corrective action on wells in the area of review, plugging the injection well(s), post-injection site care and site closure, and emergency and remedial response.	47-13-14.7.g.15	The owner or operator must have a detailed written estimate, in current dollars, of the cost of performing corrective action on wells in the area of review, plugging the injection well(s), post-injection site care and site closure, and emergency and remedial response.	Same as CFR.

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ED_013399_00000014-00296

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.85(c)(1)	The cost estimate must be performed for each phase separately and must be based on the costs to the regulatory agency of hiring a third party to perform the required activities. A third party is a party who is not within the corporate structure of the owner or operator.	47-13-14.7.g.15.A	The cost estimate must be performed for each phase separately and must be based on the costs to the regulatory agency of hiring a third party to perform the required activities. A third party is a party who is not within the corporate structure of the owner or operator.	Same as CFR.
40 CFR 146.85(c)(2)	During the active life of the geologic sequestration project, the owner or operator must adjust the cost estimate for inflation within 60 days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with paragraph (a) of this section and provide this adjustment to the Director. The owner or operator must also provide to the Director written updates of adjustments to the cost estimate within 60 days of any amendments to the area of review and corrective action plan (40 CFR 146.84), the injection well plugging plan (146.92), the post-injection site care and site closure plan (40 CFR 146.93), and the emergency and remedial response plan (40 CFR 146.94).	47-13-14.7.g.15.B	During the active life of the geologic sequestration project, the owner or operator must adjust the cost estimate for inflation within 60 days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with paragraph (a) of this section and provide this adjustment to the Director. The owner or operator must also provide to the Director written updates of adjustments to the cost estimate within 60 days of any amendments to the area of review and corrective action plan (6.1), the injection well plugging plan (13.4), the post-injection site care and site closure plan (13.9), and the emergency and remedial response plan (13.7).	Same as CFR.
40 CFR 146.85(c)(3)	The Director must approve any decrease or increase to the initial cost estimate. During the active life of the geologic sequestration project, the owner or operator must revise the cost estimate no later than 60 days after the Director has approved the request to modify the area of review and corrective action plan (40 CFR 146.84), the injection well plugging plan (40 CFR 146.92), the post-injection site care and site closure plan (40 CFR 146.93), and the emergency and response plan (40 CFR 146.94), if the change in the plan increases the cost. If the change to the plans decreases the cost, any withdrawal of funds must be approved by the Director. Any decrease to the value of the financial assurance instrument must first be approved by the Director. The revised cost estimate must be adjusted for inflation as specified at paragraph (c)(2) of this section.	47-13-14.7.g.15.C	The Director must approve any decrease or increase to the initial cost estimate. During the active life of the geologic sequestration project, the owner or operator must revise the cost estimate no later than 60 days after the Director has approved the request to modify the area of review and corrective action plan (6.1), the injection well plugging plan (13.4), the post-injection site care and site closure plan (13.9), and the emergency and response plan (13.7), if the change in the plan increases the cost. If the change to the plans decreases the cost, any withdrawal of funds must be approved by the Director. Any decrease to the value of the financial assurance instrument must first be approved by the Director. The revised cost estimate must be adjusted for inflation as specified at 14.7.g.15.B of this section.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.85(c)(4)	Whenever the current cost estimate increases to an amount greater than the face amount of a financial instrument currently in use, the owner or operator, within 60 days after the increase, must either cause the face amount to be increased to an amount at least equal to the current cost estimate and submit evidence of such increase to the Director, or obtain other financial responsibility instruments to cover the increase. Whenever the current cost estimate decreases, the face amount of the financial assurance instrument may be reduced to the amount of the current cost estimate only after the owner or operator has received written approval from the Director.	47-13-14.7.g.15.D	Whenever the current cost estimate increases to an amount greater than the face amount of a financial instrument currently in use, the owner or operator, within 60 days after the increase, must either cause the face amount to be increased to an amount at least equal to the current cost estimate and submit evidence of such increase to the Director, or obtain other financial responsibility instruments to cover the increase. Whenever the current cost estimate decreases, the face amount of the financial assurance instrument may be reduced to the amount of the current cost estimate only after the owner or operator has received written approval from the Director.	Same as CFR.
40 CFR 146.85(d)	The owner or operator must notify the Director by certified mail of adverse financial conditions such as bankruptcy that may affect the ability to carry out injection well plugging and post-injection site care and site closure.	47-13-14.7.g.16	The owner or operator must notify the Director by certified mail of adverse financial conditions such as bankruptcy that may affect the ability to carry out injection well plugging and post-injection site care and site closure.	Same as CFR.
40 CFR 146.85(d)(1)	In the event that the owner or operator or the third party provider of a financial responsibility instrument is going through a bankruptcy, the owner or operator must notify the Director by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor, within 10 days after commencement of the proceeding.	47-13-14.7.g.16.A	In the event that the owner or operator or the third party provider of a financial responsibility instrument is going through a bankruptcy, the owner or operator must notify the Director by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor, within 10 days after commencement of the proceeding.	Same as CFR.
40 CFR 146.85(d)(2)	A guarantor of a corporate guarantee must make such a notification to the Director if he/she is named as debtor, as required under the terms of the corporate guarantee.	47-13-14.7.g.16.B	A guarantor of a corporate guarantee must make such a notification to the Director if he/she is named as debtor, as required under the terms of the corporate guarantee.	Same as CFR.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.85(d)(3)	An owner or operator who fulfills the requirements of paragraph (a) of this section by obtaining a trust fund, surety bond, letter of credit, escrow account, or insurance policy will be deemed to be without the required financial assurance in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee of the institution issuing the trust fund, surety bond, letter of credit, escrow account, or insurance policy. The owner or operator must establish other financial assurance within 60 days after such an event.	47-13-14.7.g.16.C	An owner or operator who fulfills the requirements of 14.7.g. of this section by obtaining a trust fund, surety bond, letter of credit, escrow account, or insurance policy will be deemed to be without the required financial assurance in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee of the institution issuing the trust fund, surety bond, letter of credit, escrow account, or insurance policy. The owner or operator must establish other financial assurance within 60 days after such an event.	Same as CFR.
40 CFR 146.85(e)	The owner or operator must provide an adjustment of the cost estimate to the Director within 60 days of notification by the Director, if the Director determines during the annual evaluation of the qualifying financial responsibility instrument(s) that the most recent demonstration is no longer adequate to cover the cost of corrective action (as required by 40 CFR 146.84), injection well plugging (as required by 40 CFR 146.92), post-injection site care and site closure (as required by 40 CFR 146.93), and emergency and remedial response (as required by 40 CFR 146.94).	47-13-14.7.g.17	The owner or operator must provide an adjustment of the cost estimate to the Director within 60 days of notification by the Director, if the Director determines during the annual evaluation of the qualifying financial responsibility instrument(s) that the most recent demonstration is no longer adequate to cover the cost of corrective action (as required by section 6.1), injection well plugging (as required by section 13.4), post-injection site care and site closure (as required by section 13.9), and emergency and remedial response (as required by section 13.7).	Same as CFR.
40 CFR 146.85(f)	The Director must approve the use and length of pay-in-periods for trust funds or escrow accounts.	47-13-14.7.g.18	The Director must approve the use and length of pay-in-periods for trust funds or escrow accounts.	Same as CFR.
40 CFR 146.86(a)	**40 CFR 146.86 Injection well construction requirements.** *General*. The owner or operator must ensure that all Class VI wells are constructed and completed to:	47-13-13.3.a	Each Class 6 well is constructed and completed to:	Similar to CFR.
40 CFR 146.86(a)(1)	Prevent the movement of fluids into or between USDWs or into any unauthorized zones;	47-13-13.3.a.1	Prevent the movement of fluids into or between USDWs or into any unauthorized zones;	Same as CFR.
40 CFR 146.86(a)(2)	Permit the use of appropriate testing devices and workover tools; and	47-13-13.3.a.2	Permit the use of appropriate testing devices and workover tools; and	Same as CFR.
40 CFR 146.86(a)(3)	Permit continuous monitoring of the annulus space between the injection tubing and long string casing.	47-13-13.3.a.3	Permit continuous monitoring of the annulus space between the injection tubing and long string casing.	Same as CFR.
40 CFR 146.86(b)	*Casing and Cementing of Class VI Wells.*	47-13-13.3.b	Casing and cementing of Class 6 wells.	Same as CFR.

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ED_013399_00000014-00299

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.86(b)(1)	Casing and cement or other materials used in the construction of each Class VI well must have sufficient structural strength and be designed for the life of the geologic sequestration project. All well materials must be compatible with fluids with which the materials may be expected to come into contact and must meet or exceed standards developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Director. The casing and cementing program must be designed to prevent the movement of fluids into or between USDWs. In order to allow the Director to determine and specify casing and cementing requirements, the owner or operator must provide the following information:	47-13-13.3.b.1	Casing and cement or other materials used in the construction of each Class 6 well must have sufficient structural strength and be designed for the life of the geologic sequestration project. All well materials must be compatible with fluids with which the materials may be expected to come into contact and must meet or exceed standards developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Director. The casing and cementing program must be designed to prevent the movement of fluids into or between USDWs. In order to allow the Director to determine and specify casing and cementing requirements, the owner or operator must provide the following information:	Same as CFR.
40 CFR 146.86(b)(1)(i)	Depth to the injection zone(s);	47-13-13.3.b.1.A	Depth to the injection zone(s);	Same as CFR.
40 CFR 146.86(b)(1)(ii)	Injection pressure, external pressure, internal pressure, and axial loading;	47-13-13.3.b.1.B	Injection pressure, external pressure, internal pressure, and axial loading;	Same as CFR.
40 CFR 146.86(b)(1)(iii)	Hole size;	47-13-13.3.b.1.C	Hole size;	Same as CFR.
40 CFR 146.86(b)(1)(iv)	Size and grade of all casing strings (wall thickness, external diameter, nominal weight, length, joint specification, and construction material);	47-13-13.3.b.1.D	Size and grade of all casing strings (wall thickness, external diameter, nominal weight, length, joint specification, and construction material);	Same as CFR.
40 CFR 146.86(b)(1)(v)	Corrosiveness of the carbon dioxide stream and formation fluids;	47-13-13.3.b.1.E	Corrosiveness of the carbon dioxide stream and formation fluids;	Same as CFR.
40 CFR 146.86(b)(1)(vi)	Down-hole temperatures;	47-13-13.3.b.1.F	Down-hole temperatures;	Same as CFR.
40 CFR 146.86(b)(1)(vii)	Lithology of injection and confining zone(s);	47-13-13.3.b.1.G	Lithology of injection and confining zone(s);	Same as CFR.
40 CFR 146.86(b)(1)(viii)	Type or grade of cement and cement additives; and	47-13-13.3.b.1.H	Type or grade of cement and cement additives; and	Same as CFR.

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ED_013399_00000014-00300

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.86(b)(1)(ix)	Quantity, chemical composition, and temperature of the carbon dioxide stream.	47-13-13.3.b.1.I	Quantity, chemical composition, and temperature of the carbon dioxide stream.	Same as CFR.
40 CFR 146.86(b)(2)	Surface casing must extend through the base of the lowermost USDW and be cemented to the surface through the use of a single or multiple strings of casing and cement.	47-13-13.3.b.2	Surface casing must extend through the base of the lowermost USDW and be cemented to the surface through the use of a single or multiple strings of casing and cement.	Same as CFR.
40 CFR 146.86(b)(3)	At least one long string casing, using a sufficient number of centralizers, must extend to the injection zone and must be cemented by circulating cement to the surface in one or more stages.	47-13-13.3.b.3	At least one long string casing, using a sufficient number of centralizers, must extend to the injection zone and must be cemented by circulating cement to the surface in one or more stages.	Same as CFR.
40 CFR 146.86(b)(4)	Circulation of cement may be accomplished by staging. The Director may approve an alternative method of cementing in cases where the cement cannot be recirculated to the surface, provided the owner or operator can demonstrate by using logs that the cement does not allow fluid movement behind the well bore.	47-13-13.3.b.4	Circulation of cement may be accomplished by staging. The Director may approve an alternative method of cementing in cases where the cement cannot be recirculated to the surface, provided the owner or operator can demonstrate by using logs that the cement does not allow fluid movement behind the well bore.	Same as CFR.
40 CFR 146.86(b)(5)	Cement and cement additives must be compatible with the carbon dioxide stream and formation fluids and of sufficient quality and quantity to maintain integrity over the design life of the geologic sequestration project. The integrity and location of the cement shall be verified using technology capable of evaluating cement quality radially and identifying the location of channels to ensure that USDWs are not endangered.	47-13-13.3.b.5	Cement and cement additives must be compatible with the carbon dioxide stream and formation fluids and of sufficient quality and quantity to maintain integrity over the design life of the geologic sequestration project. The integrity and location of the cement shall be verified using technology capable of evaluating cement quality radially and identifying the location of channels to ensure that USDWs are not endangered.	Same as CFR.
40 CFR 146.86(c)	*Tubing and packer.*	47-13-13.3.c	Tubing and packer.	Same as CFR.
40 CFR 146.86(c)(1)	Tubing and packer materials used in the construction of each Class VI well must be compatible with fluids with which the materials may be expected to come into contact and must meet or exceed standards developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Director.	47-13-13.3.c.1	Tubing and packer materials used in the construction of each Class 6 well must be compatible with fluids with which the materials may be expected to come into contact and must meet or exceed standards developed for such materials by the American Petroleum Institute, ASTM International, or comparable standards acceptable to the Director.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.86(c)(2)	All owners or operators of Class VI wells must inject fluids through tubing with a packer set at a depth opposite a cemented interval at the location approved by the Director.	47-13-13.3.c.2	All owners or operators of Class 6 wells must inject fluids through tubing with a packer set at a depth opposite a cemented interval at the location approved by the Director.	Same as CFR.
40 CFR 146.86(c)(3)	In order for the Director to determine and specify requirements for tubing and packer, the owner or operator must submit the following information:	47-13-13.3.c.3	In order for the Director to determine and specify requirements for tubing and packer, the owner or operator must submit the following information:	Same as CFR.
40 CFR 146.86(c)(3)(i)	Depth of setting;	47-13-13.3.c.3.A	Depth of setting;	Same as CFR.
40 CFR 146.86(c)(3)(ii)	Characteristics of the carbon dioxide stream (chemical content, corrosiveness, temperature, and density) and formation fluids;	47-13-13.3.c.3.B	Characteristics of the carbon dioxide stream (chemical content, corrosiveness, temperature, and density) and formation fluids;	Same as CFR.
40 CFR 146.86(c)(3)(iii)	Maximum proposed injection pressure;	47-13-13.3.c.3.C	Maximum proposed injection pressure;	Same as CFR.
40 CFR 146.86(c)(3)(iv)	Maximum proposed annular pressure;	47-13-13.3.c.3.D	Maximum proposed annular pressure;	Same as CFR.
40 CFR 146.86(c)(3)(v)	Proposed injection rate (intermittent or continuous) and volume and/or mass of the carbon dioxide stream;	47-13-13.3.c.3.F	Proposed injection rate (intermittent or continuous) and volume and/or mass of the carbon dioxide stream;	Same as CFR. WV appears to have skipped 47-13-13.3.c.3.E; renumbering is recommended.
40 CFR 146.86(c)(3)(vi)	Size of tubing and casing; and	47-13-13.3.c.3.G	Size of tubing and casing; and	Same as CFR.
40 CFR 146.86(c)(3)(vii)	Tubing tensile, burst, and collapse strengths.	47-13-13.3.c.3.H	Tubing tensile, burst, and collapse strengths.	Same as CFR.

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ED_013399_00000014-00302

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.87(a)	**40 CFR 146.87 Logging, sampling, and testing prior to injection well operation.** During the drilling and construction of a Class VI injection well, the owner or operator must run appropriate logs, surveys and tests to determine or verify the depth, thickness, porosity, permeability, and lithology of, and the salinity of any formation fluids in all relevant geologic formations to ensure conformance with the injection well construction requirements under 40 CFR 146.86 and to establish accurate baseline data against which future measurements may be compared. The owner or operator must submit to the Director a descriptive report prepared by a knowledgeable log analyst that includes an interpretation of the results of such logs and tests. At a minimum, such logs and tests must include:	47-13-13.5.a	**47-13-13.5. Logging, Sampling, and Testing Prior to Injection Well Operation.** During the drilling and construction of a Class 6 injection well, the owner or operator must run appropriate logs, surveys and tests to determine or verify the depth, thickness, porosity, permeability, and lithology of, and the salinity of any formation fluids in all relevant geologic formations to ensure conformance with the injection well construction requirements under section 13.3 and to establish accurate baseline data against which future measurements may be compared. The owner or operator must submit to the Director a descriptive report prepared by a knowledgeable log analyst that includes an interpretation of the results of such logs and tests. At a minimum, such logs and tests must include:	Same as CFR.
40 CFR 146.87(a)(1)	Deviation checks during drilling on all holes constructed by drilling a pilot hole which is enlarged by reaming or another method. Such checks must be at sufficiently frequent intervals to determine the location of the borehole and to ensure that vertical avenues for fluid movement in the form of diverging holes are not created during drilling; and	47-13-13.5.a.1	Deviation checks during drilling on all holes constructed by drilling a pilot hole which is enlarged by reaming or another method. Such checks must be at sufficiently frequent intervals to determine the location of the borehole and to ensure that vertical avenues for fluid movement in the form of diverging holes are not created during drilling; and	Same as CFR.
40 CFR 146.87(a)(2)	Before and upon installation of the surface casing:	47-13-13.5.a.2	Before and upon installation of the surface casing:	Same as CFR.
40 CFR 146.87(a)(2)(i)	Resistivity, spontaneous potential, and caliper logs before the casing is installed; and	47-13-13.5.a.2.A	Resistivity, spontaneous potential, and caliper logs before the casing is installed; and	Same as CFR.
40 CFR 146.87(a)(2)(ii)	A cement bond and variable density log to evaluate cement quality radially, and a temperature log after the casing is set and cemented.	47-13-13.5.a.2.B	A cement bond and variable density log to evaluate cement quality radially, and a temperature log after the casing is set and cemented.	Same as CFR.
40 CFR 146.87(a)(3)	Before and upon installation of the long string casing:	47-13-13.5.a.3	Before and upon installation of the long string casing:	Same as CFR.
40 CFR 146.87(a)(3)(i)	Resistivity, spontaneous potential, porosity, caliper, gamma ray, fracture finder logs, and any other logs the Director requires for the given geology before the casing is installed; and	47-13-13.5.a.3.A	Resistivity, spontaneous potential, porosity, caliper, gamma ray, fracture finder logs, and any other logs the Director requires for the given geology before the casing is installed; and	Same as CFR.

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ED_013399_00000014-00303

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.87(a)(3)(ii)	A cement bond and variable density log, and a temperature log after the casing is set and cemented.	47-13-13.5.a.3.B	A cement bond and variable density log, and a temperature log after the casing is set and cemented.	Same as CFR.
40 CFR 146.87(a)(4)	A series of tests designed to demonstrate the internal and external mechanical integrity of injection wells, which may include:	47-13-13.5.a.4	A series of tests designed to demonstrate the internal and external mechanical integrity of injection wells, which may include:	Same as CFR.
40 CFR 146.87(a)(4)(i)	A pressure test with liquid or gas;	47-13-13.5.a.4.A	A pressure test with liquid or gas;	Same as CFR.
40 CFR 146.87(a)(4)(ii)	A tracer survey such as oxygen-activation logging;	47-13-13.5.a.4.B	A tracer survey such as oxygen-activation logging;	Same as CFR.
40 CFR 146.87(a)(4)(iii)	A temperature or noise log;	47-13-13.5.a.4.C	A temperature or noise log;	Same as CFR.
40 CFR 146.87(a)(4)(iv)	A casing inspection log; and	47-13-13.5.a.4.D	A casing inspection log; and	Same as CFR.
40 CFR 146.87(a)(5)	Any alternative methods that provide equivalent or better information and that are required by and/or approved of by the Director.	47-13-13.5.a.5	Any alternative methods that provide equivalent or better information and that are required by and/or approved of by the Director.	Same as CFR.
40 CFR 146.87(b)	The owner or operator must take whole cores or sidewall cores of the injection zone and confining system and formation fluid samples from the injection zone(s), and must submit to the Director a detailed report prepared by a log analyst that includes: well log analyses (including well logs), core analyses, and formation fluid sample information. The Director may accept information on cores from nearby wells if the owner or operator can demonstrate that core retrieval is not possible and that such cores are representative of conditions at the well. The Director may require the owner or operator to core other formations in the borehole.	47-13-13.5.b	The owner or operator must take whole cores or sidewall cores of the injection zone and confining system and formation fluid samples from the injection zone(s), and must submit to the Director a detailed report prepared by a log analyst that includes: Well log analyses (including well logs), core analyses, and formation fluid sample information. The Director may accept information on cores from nearby wells if the owner or operator can demonstrate that core retrieval is not possible and that such cores are representative of conditions at the well. The Director may require the owner or operator to core other formations in the borehole.	Same as CFR.
40 CFR 146.87(c)	The owner or operator must record the fluid temperature, pH, conductivity, reservoir pressure, and static fluid level of the injection zone(s).	47-13-13.5.c	The owner or operator must record the fluid temperature, pH, conductivity, reservoir pressure, and static fluid level of the injection zone(s).	Same as CFR.

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ED_013399_00000014-00304

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.87(d)	At a minimum, the owner or operator must determine or calculate the following information concerning the injection and confining zone(s):	47-13-13.5.d	At a minimum, the owner or operator must determine or calculate the following information concerning the injection and confining zone(s):	Same as CFR.
40 CFR 146.87(d)(1)	Fracture pressure;	47-13-13.5.d.1	Fracture pressure;	Same as CFR.
40 CFR 146.87(d)(2)	Other physical and chemical characteristics of the injection and confining zone(s); and	47-13-13.5.d.2	Other physical and chemical characteristics of the injection and confining zone(s); and	Same as CFR.
40 CFR 146.87(d)(3)	Physical and chemical characteristics of the formation fluids in the injection zone(s).	47-13-13.5.d.3	Physical and chemical characteristics of the formation fluids in the injection zone(s).	Same as CFR.
40 CFR 146.87(e)	Upon completion, but prior to operation, the owner or operator must conduct the following tests to verify hydrogeologic characteristics of the injection zone(s):	47-13-13.5.e	Upon completion, but prior to operation, the owner or operator must conduct the following tests to verify hydrogeologic characteristics of the injection zone(s):	Same as CFR.
40 CFR 146.87(e)(1)	A pressure fall-off test; and,	47-13-13.5.e.1	A pressure fall-off test; and,	Same as CFR.
40 CFR 146.87(e)(2)	A pump test; or	47-13-13.5.e.2	A pump test; or	Same as CFR.
40 CFR 146.87(e)(3)	Injectivity tests.	47-13-13.5.e.3	Injectivity tests.	Same as CFR.
40 CFR 146.87(f)	The owner or operator must provide the Director with the opportunity to witness all logging and testing by this subpart. The owner or operator must submit a schedule of such activities to the Director 30 days prior to conducting the first test and submit any changes to the schedule 30 days prior to the next scheduled test.	47-13-13.5.f	The owner or operator must provide the Director with the opportunity to witness all logging and testing by this subpart. The owner or operator must submit a schedule of such activities to the Director 30 days prior to conducting the first test and submit any changes to the schedule 30 days prior to the next scheduled test.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.88(a)	**40 CFR 146.88 Injection well operating requirements.** Except during stimulation, the owner or operator must ensure that injection pressure does not exceed 90 percent of the fracture pressure of the injection zone(s) so as to ensure that the injection does not initiate new fractures or propagate existing fractures in the injection zone(s). In no case may injection pressure initiate fractures in the confining zone(s) or cause the movement of injection or formation fluids that endangers a USDW. Pursuant to requirements at 40 CFR 146.82(a)(9), all stimulation programs must be approved by the Director as part of the permit application and incorporated into the permit.	47-13-13.6.a.1	**47-13-13.6. Operating, Monitoring, and Reporting Requirements.** Except during stimulation, the owner or operator must ensure that injection pressure does not exceed 90 percent of the fracture pressure of the injection zone(s) so as to ensure that the injection does not initiate new fractures or propagate existing fractures in the injection zone(s). In no case may injection pressure initiate fractures in the confining zone(s) or cause the movement of injection or formation fluids that endangers a USDW. Pursuant to requirements at subsection 13.8.a.9., all stimulation programs must be approved by the Director as part of the permit application and incorporated into the permit.	Same as CFR.
40 CFR 146.88(b)	Injection between the outermost casing protecting USDWs and the well bore is prohibited.	47-13-13.6.a.2	Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited; and	Same as CFR.
40 CFR 146.88(c)	The owner or operator must fill the annulus between the tubing and the long string casing with a non-corrosive fluid approved by the Director. The owner or operator must maintain on the annulus a pressure that exceeds the operating injection pressure, unless the Director determines that such requirement might harm the integrity of the well or endanger USDWs.	47-13-13.6.a.2.A	The owner or operator must fill the annulus between the tubing and the long string casing with a non-corrosive fluid approved by the Director. The owner or operator must maintain on the annulus a pressure that exceeds the operating injection pressure, unless the Director determines that such requirement might harm the integrity of the well or endanger USDWs.	Same as CFR.
40 CFR 146.88(d)	Other than during periods of well workover (maintenance) approved by the Director in which the sealed tubing-casing annulus is disassembled for maintenance or corrective procedures, the owner or operator must maintain mechanical integrity of the injection well at all times.	47-13-13.6.a.3	Other than during periods of well workover (maintenance) approved by the Director in which the sealed tubing-casing annulus is disassembled for maintenance or corrective procedures, the owner or operator must maintain mechanical integrity of the injection well at all times.	Same as CFR.
40 CFR 146.88(e)	The owner or operator must install and use:	47-13-13.6.a.4	The owner or operator must install and use:	Same as CFR.
40 CFR 146.88(e)(1)	Continuous recording devices to monitor: the injection pressure; the rate, volume and/or mass, and temperature of the carbon dioxide stream; and the pressure on the annulus between the tubing and the long string casing and annulus fluid volume; and	47-13-13.6.a.4.A	Continuous recording devices to monitor: The injection pressure; the rate, volume and/or mass, and temperature of the carbon dioxide stream; and the pressure on the annulus between the tubing and the long string casing and annulus fluid volume; and	Same as CFR.

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ED_013399_00000014-00306

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.88(e)(2)	Alarms and automatic surface shut-off systems or, at the discretion of the Director, down-hole shut-off systems (e.g., automatic shut-off, check valves) for onshore wells or, other mechanical devices that provide equivalent protection; and	47-13-13.6.a.4.B	Alarms and automatic surface shut-off systems or, at the discretion of the Director, down-hole shut-off systems (e.g., automatic shut-off, check valves) for onshore wells or, other mechanical devices that provide equivalent protection; and	Same as CFR.
40 CFR 146.88(e)(3)	Alarms and automatic down-hole shut-off systems for wells located offshore but within State territorial waters, designed to alert the operator and shut-in the well when operating parameters such as annulus pressure, injection rate, or other parameters diverge beyond permitted ranges and/or gradients specified in the permit.	47-13-13.6.a.4.C	Alarms and automatic down-hole shut-off systems for wells located offshore but within State territorial waters, designed to alert the operator and shut-in the well when operating parameters such as annulus pressure, injection rate, or other parameters diverge beyond permitted ranges and/or gradients specified in the permit.	Same as CFR.
40 CFR 146.88(f)	If a shutdown (i.e., down-hole or at the surface) is triggered or a loss of mechanical integrity is discovered, the owner or operator must immediately investigate and identify as expeditiously as possible the cause of the shutoff. If, upon such investigation, the well appears to be lacking mechanical integrity, or if monitoring required under paragraph (e) of this section otherwise indicates that the well may be lacking mechanical integrity, the owner or operator must:	47-13-13.6.a.5	If a shutdown (i.e., down-hole or at the surface) is triggered or a loss of mechanical integrity is discovered, the owner or operator must immediately investigate and identify as expeditiously as possible the cause of the shutoff. If, upon such investigation, the well appears to be lacking mechanical integrity, or if monitoring required under paragraph (e) of this section otherwise indicates that the well may be lacking mechanical integrity, the owner or operator must:	Same as CFR. However, there is no paragraph (e) in Section 47-13-13.6 of the Rule Text. This should refer to 13.6.a.4.
40 CFR 146.88(f)(1)	Immediately cease injection;	47-13-13.6.a.5.A	Immediately cease injection;	Same as CFR.
40 CFR 146.88(f)(2)	Take all steps reasonably necessary to determine whether there may have been a release of the injected carbon dioxide stream or formation fluids into any unauthorized zone;	47-13-13.6.a.5.B	Take all steps reasonably necessary to determine whether there may have been a release of the injected carbon dioxide stream or formation fluids into any unauthorized zone;	Same as CFR.
40 CFR 146.88(f)(3)	Notify the Director within 24 hours;	47-13-13.6.a.5.C	Notify the Director within 24 hours;	Same as CFR.
40 CFR 146.88(f)(4)	Restore and demonstrate mechanical integrity to the satisfaction of the Director prior to resuming injection; and	47-13-13.6.a.5.D	Restore and demonstrate mechanical integrity to the satisfaction of the Director prior to resuming injection; and	Same as CFR.
40 CFR 146.88(f)(5)	Notify the Director when injection can be expected to resume.	47-13-13.6.a.5.E	Notify the Director when injection can be expected to resume.	Same as CFR.
40 CFR 146.89(a)	**40 CFR 146.89 Mechanical integrity.** A Class VI well has mechanical integrity if:	47-13-6.2.a	**47-13-6.2. Mechanical Integrity.** An injection well has mechanical integrity if:	Same as CFR. This section is not specific to Class VI wells.

*** Section 145.11 does not specify that States must have legal authority to implement the highlighted provisions, but some of these provisions may be necessary to clarify State program requirements. Other highlighted provisions describe applicable requirements if States choose to adopt "optional" program elements such as authorization by rule.**

ED_013399_00000014-00307

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.89(a)(1)	There is no significant leak in the casing, tubing, or packer; and	47-13-6.2.a.1	There is no significant leak in the casing, tubing, or packer; and	Same as CFR.
40 CFR 146.89(a)(2)	There is no significant fluid movement into a USDW through channels adjacent to the injection well bore.	47-13-6.2.a.2	There is no significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore.	Similar to CFR. WV specifies *vertical* channels. No concern for stringency.
40 CFR 146.89(b)	To evaluate the absence of significant leaks under paragraph (a)(1) of this section, owners or operators must, following an initial annulus pressure test, continuously monitor injection pressure, rate, injected volumes; pressure on the annulus between tubing and long-string casing; and annulus fluid volume as specified in 40 CFR 146.88 (e);	47-13-6.2.c.5	For Class 6 wells, to evaluate the absence of significant leaks under 6.2.a. of this section, owners or operators must, following an initial annulus pressure test, continuously monitor injection pressure, rate, injected volumes; pressure on the annulus between tubing and long-string casing; and annulus fluid volume as specified in subsection 13.6.a.5.;	Same as CFR.
40 CFR 146.89(c)	At least once per year, the owner or operator must use one of the following methods to determine the absence of significant fluid movement under paragraph (a)(2) of this section:	47-13-6.2.c.5.A	At least once per year, the owner or operator must use an approved tracer survey such as an oxygen-activation log or a temperature or noise log to determine the absence of significant fluid movement under 6.2.b. of this section.	Similar to CFR.
40 CFR 146.89(c)(1)	An approved tracer survey such as an oxygen-activation log; or	47-13-6.2.c.5.A	At least once per year, the owner or operator must use an approved tracer survey such as an oxygen-activation log or a temperature or noise log to determine the absence of significant fluid movement under 6.2.b. of this section.	Same as CFR.
40 CFR 146.89(c)(2)	A temperature or noise log.	47-13-6.2.c.5.A	At least once per year, the owner or operator must use an approved tracer survey such as an oxygen-activation log or a temperature or noise log to determine the absence of significant fluid movement under 6.2.b. of this section.	Same as CFR.
40 CFR 146.89(d)	If required by the Director, at a frequency specified in the testing and monitoring plan required at 40 CFR 146.90, the owner or operator must run a casing inspection log to determine the presence or absence of corrosion in the long-string casing.	47-13-6.2.c.5.B	If required by the Director, at a frequency specified in the testing and monitoring plan required at subsection 13.6.b., the owner or operator must run a casing inspection log to determine the presence or absence of corrosion in the long-string casing.	Same as CFR.

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ED_013399_00000014-00308

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.89(e)	The Director may require any other test to evaluate mechanical integrity under paragraphs (a)(1) or (a)(2) of this section. Also, the Director may allow the use of a test to demonstrate mechanical integrity other than those listed above with the written approval of the Administrator. To obtain approval for a new mechanical integrity test, the Director must submit a written request to the Administrator setting forth the proposed test and all technical data supporting its use. The Administrator may approve the request if he or she determines that it will reliably demonstrate the mechanical integrity of wells for which its use is proposed. Any alternate method approved by the Administrator will be published in the *Federal Register* and may be used in all States in accordance with applicable State law unless its use is restricted at the time of approval by the Administrator.	47-13-6.2.c.5.C	The Director may require any other test to evaluate mechanical integrity under 6.2.c.5. of this section. Also, the Director may allow the use of a test to demonstrate mechanical integrity other than those listed above with the written approval of the Administrator. To obtain approval for a new mechanical integrity test (MIT), the Director must submit a written request to the Administrator setting forth the proposed test and all technical data supporting its use. The Administrator may approve the request if he or she determines that it will reliably demonstrate the mechanical integrity of wells for which its use is proposed. Any alternate method approved by the Administrator will be published in the FEDERAL REGISTER and may be used in all States in accordance with applicable State law unless its use is restricted at the time of approval by the Administrator.	Same as CFR.
40 CFR 146.89(f)	In conducting and evaluating the tests enumerated in this section or others to be allowed by the Director, the owner or operator and the Director must apply methods and standards generally accepted in the industry. When the owner or operator reports the results of mechanical integrity tests to the Director, he/she shall include a description of the test(s) and the method(s) used. In making his/her evaluation, the Director must review monitoring and other test data submitted since the previous evaluation.	47-13-6.2.c.5.D	In conducting and evaluating the tests enumerated in this section or others to be allowed by the Director, the owner or operator and the Director must apply methods and standards generally accepted in the industry. When the owner or operator reports the results of mechanical integrity tests to the Director, he/she shall include a description of the test(s) and the method(s) used. In making his/her evaluation, the Director must review monitoring and other test data submitted since the previous evaluation.	Same as CFR.
40 CFR 146.89(g)	The Director may require additional or alternative tests if the results presented by the owner or operator under paragraphs (a) through (d) of this section are not satisfactory to the Director to demonstrate that there is no significant leak in the casing, tubing, or packer, or to demonstrate that there is no significant movement of fluid into a USDW resulting from the injection activity as stated in paragraphs (a)(1) and (2) of this section.	47-13-6.2.c.5.E	The Director may require additional or alternative tests if the results presented by the owner or operator under paragraphs A through D of this subsection are not satisfactory to the Director to demonstrate that there is no significant leak in the casing, tubing, or packer, or to demonstrate that there is no significant movement of fluid into a USDW resulting from the injection activity as stated in 6.2.a. of this section; or	Same as CFR.

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ED_013399_00000014-00309

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.90	**40 CFR 146.90 Testing and monitoring requirements.** The owner or operator of a Class VI well must prepare, maintain, and comply with a testing and monitoring plan to verify that the geologic sequestration project is operating as permitted and is not endangering USDWs. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. The testing and monitoring plan must be submitted with the permit application, for Director approval, and must include a description of how the owner or operator will meet the requirements of this section, including accessing sites for all necessary monitoring and testing during the life of the project. Testing and monitoring associated with geologic sequestration projects must, at a minimum, include:	47-13-13.6.b	Testing and monitoring requirements. The owner or operator of a Class 6 well must prepare, maintain, and comply with a testing and monitoring plan to verify that the geologic sequestration project is operating as permitted and is not endangering USDWs. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. The testing and monitoring plan must be submitted with the permit application, for Director approval, and must include a description of how the owner or operator will meet the requirements of this section, including accessing sites for all necessary monitoring and testing during the life of the project. Testing and monitoring associated with geologic sequestration projects must, at a minimum, include:	Same as CFR.
40 CFR 146.90(a)	Analysis of the carbon dioxide stream with sufficient frequency to yield data representative of its chemical and physical characteristics;	47-13-13.6.b.1	Analysis of the carbon dioxide stream with sufficient frequency to yield data representative of its chemical and physical characteristics;	Same as CFR.
40 CFR 146.90(b)	Installation and use, except during well workovers as defined in 40 CFR 146.88(d), of continuous recording devices to monitor injection pressure, rate, and volume; the pressure on the annulus between the tubing and the long string casing; and the annulus fluid volume added;	47-13-13.6.b.2	Installation and use, except during well workovers as defined in subsection 13.6.a.3., of continuous recording devices to monitor injection pressure, rate, and volume; the pressure on the annulus between the tubing and the long string casing; and the annulus fluid volume added;	Same as CFR.
40 CFR 146.90(c)	Corrosion monitoring of the well materials for loss of mass, thickness, cracking, pitting, and other signs of corrosion, which must be performed on a quarterly basis to ensure that the well components meet the minimum standards for material strength and performance set forth in 40 CFR 146.86(b), by:	47-13-13.6.b.3	Corrosion monitoring of the well materials for loss of mass, thickness, cracking, pitting, and other signs of corrosion, which must be performed on a quarterly basis to ensure that the well components meet the minimum standards for material strength and performance set forth in subsection 13.3.b. and 13.3.b.1., by:	Same as CFR.
40 CFR 146.90(c)(1)	Analyzing coupons of the well construction materials placed in contact with the carbon dioxide stream; or	47-13-13.6.b.3.A	Analyzing coupons of the well construction materials placed in contact with the carbon dioxide stream; or	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.90(c)(2)	Routing the carbon dioxide stream through a loop constructed with the material used in the well and inspecting the materials in the loop; or	47-13-13.6.b.3.B	Routing the carbon dioxide stream through a loop constructed with the material used in the well and inspecting the materials in the loop; or	Same as CFR.
40 CFR 146.90(c)(3)	Using an alternative method approved by the Director;	47-13-13.6.b.3.C	Using an alternative method approved by the Director;	Same as CFR.
40 CFR 146.90(d)	Periodic monitoring of the ground water quality and geochemical changes above the confining zone(s) that may be a result of carbon dioxide movement through the confining zone(s) or additional identified zones including:	47-13-13.6.b.4	Periodic monitoring of the ground water quality and geochemical changes above the confining zone(s) that may be a result of carbon dioxide movement through the confining zone(s) or additional identified zones including:	Same as CFR.
40 CFR 146.90(d)(1)	The location and number of monitoring wells based on specific information about the geologic sequestration project, including injection rate and volume, geology, the presence of artificial penetrations, and other factors; and	47-13-13.6.b.4.A	The location and number of monitoring wells based on specific information about the geologic sequestration project, including injection rate and volume, geology, the presence of artificial penetrations, and other factors; and	Same as CFR.
40 CFR 146.90(d)(2)	The monitoring frequency and spatial distribution of monitoring wells based on baseline geochemical data that has been collected under 40 CFR 146.82(a)(6) and on any modeling results in the area of review evaluation required by 40 CFR 146.84(c).	47-13-13.6.b.4.B	The monitoring frequency and spatial distribution of monitoring wells based on baseline geochemical data that has been collected under subsection 13.8.a.6. and on any modeling results in the area of review evaluation required by subsection 14.9.c.	Same as CFR.
40 CFR 146.90(e)	A demonstration of external mechanical integrity pursuant to 40 CFR 146.89(c) at least once per year until the injection well is plugged; and, if required by the Director, a casing inspection log pursuant to requirements at 40 CFR 146.89(d) at a frequency established in the testing and monitoring plan;	47-13-13.6.b.5	A demonstration of external mechanical integrity pursuant to subsection 6.2.c. at least once per year until the injection well is plugged; and, if required by the Director, a casing inspection log pursuant to requirements at subsection 6.2.c.5.A. at a frequency established in the testing and monitoring plan;	Same as CFR.
40 CFR 146.90(f)	A pressure fall-off test at least once every five years unless more frequent testing is required by the Director based on site-specific information;	47-13-13.6.b.6	A pressure fall-off test at least once every five years unless more frequent testing is required by the Director based on site-specific information;	Same as CFR.
40 CFR 146.90(g)	Testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using:	47-13-13.6.b.7	Testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using:	Same as CFR.
40 CFR 146.90(g)(1)	Direct methods in the injection zone(s); and,	47-13-13.6.b.7.A	Direct methods in the injection zone(s); and,	Same as CFR.
40 CFR 146.90(g)(2)	Indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Director determines, based on site-specific geology, that such methods are not appropriate;	47-13-13.6.b.7.B	Indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Director determines, based on site-specific geology, that such methods are not appropriate;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.90(h)	The Director may require surface air monitoring and/or soil gas monitoring to detect movement of carbon dioxide that could endanger a USDW.	47-13-13.6.b.8	The Director may require surface air monitoring and/or soil gas monitoring to detect movement of carbon dioxide that could endanger a USDW.	Same as CFR.
40 CFR 146.90(h)(1)	Design of Class VI surface air and/or soil gas monitoring must be based on potential risks to USDWs within the area of review;	47-13-13.6.b.8.A	Design of Class 6 surface air and/or soil gas monitoring must be based on potential risks to USDWs within the area of review;	Same as CFR.
40 CFR 146.90(h)(2)	The monitoring frequency and spatial distribution of surface air monitoring and/or soil gas monitoring must be decided using baseline data, and the monitoring plan must describe how the proposed monitoring will yield useful information on the area of review delineation and/or compliance with standards under 40 CFR 144.12;	47-13-13.6.b.8.B	The monitoring frequency and spatial distribution of surface air monitoring and/or soil gas monitoring must be decided using baseline data, and the monitoring plan must describe how the proposed monitoring will yield useful information on the area of review delineation and/or compliance with standards under § 47 CSR 13-14.1.;	Same as CFR.
40 CFR 146.90(h)(3)	If an owner or operator demonstrates that monitoring employed under 40 CFR 98.440 to 98.449 of this chapter (Clean Air Act, 42 U.S.C. 7401 et seq.) accomplishes the goals of (h)(1) and (2) of this section, and meets the requirements pursuant to 40 CFR 146.91(c)(5), a Director that requires surface air/soil gas monitoring must approve the use of monitoring employed under 98.440 to 98.449 of this chapter. Compliance with 40 CFR 98.440 to 98.449 of this chapter pursuant to this provision is considered a condition of the Class VI permit;	47-13-13.6.b.8.C	If an owner or operator demonstrates that monitoring employed under § 40 CFR 98.440 to 98.449 of this chapter (Clean Air Act, 42 U.S.C. 7401 et seq.) accomplishes the goals of 13.6.b.8.A. and 13.6.b.8.B. above, and meets the requirements pursuant to 13.6.c.1.C.v., a Director that requires surface air/soil gas monitoring must approve the use of monitoring employed under § 40 CFR 98.440 to 98.449 of this chapter. Compliance with § 40 CFR 98.440 to 98.449 of this chapter pursuant to this provision is considered a condition of the Class 6 permit;	Same as CFR. Reference to "§ 40 CFR 98.440 to 98.449 of this chapter" is slightly unclear, since § 40 CFR 98.440 to 98.449 are federal, not WV requirements. No concerns for stringency, however.
40 CFR 146.90(i)	Any additional monitoring, as required by the Director, necessary to support, upgrade, and improve computational modeling of the area of review evaluation required under 40 CFR 146.84(c) and to determine compliance with standards under 40 CFR 144.12;	47-13-13.6.b.9	Any additional monitoring, as required by the Director, necessary to support, upgrade, and improve computational modeling of the area of review evaluation required under subsection 14.9.c. and to determine compliance with standards under section 14.1 of this rule;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.90(j)	The owner or operator shall periodically review the testing and monitoring plan to incorporate monitoring data collected under this subpart, operational data collected under 40 CFR 146.88, and the most recent area of review reevaluation performed under 40 CFR 146.84(e). In no case shall the owner or operator review the testing and monitoring plan less often than once every five years. Based on this review, the owner or operator shall submit an amended testing and monitoring plan or demonstrate to the Director that no amendment to the testing and monitoring plan is needed. Any amendments to the testing and monitoring plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at 40 CFR 144.39 or 144.41, as appropriate. Amended plans or demonstrations shall be submitted to the Director as follows:	47-13-13.6.b.10	The owner or operator shall periodically review the testing and monitoring plan to incorporate monitoring data collected under this subpart, operational data collected under section 13.6., and the most recent area of review reevaluation performed under subsection 14.9.e. In no case shall the owner or operator review the testing and monitoring plan less often than once every five years. Based on this review, the owner or operator shall submit an amended testing and monitoring plan or demonstrate to the Director that no amendment to the testing and monitoring plan is needed. Any amendments to the testing and monitoring plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at sections 14.8 and 14.20 of this rule, as appropriate. Amended plans or demonstrations shall be submitted to the Director as follows:	Same as CFR.
40 CFR 146.90(j)(1)	Within one year of an area of review reevaluation;	47-13-13.6.b.10.A	Within one year of an area of review reevaluation;	Same as CFR.
40 CFR 146.90(j)(2)	Following any significant changes to the facility, such as addition of monitoring wells or newly permitted injection wells within the area of review, on a schedule determined by the Director; or	47-13-13.6.b.10.B	Following any significant changes to the facility, such as addition of monitoring wells or newly permitted injection wells within the area of review, on a schedule determined by the Director; or	Same as CFR.
40 CFR 146.90(j)(3)	When required by the Director.	47-13-13.6.b.10.C	When required by the Director.	Same as CFR.
40 CFR 146.90(k)	A quality assurance and surveillance plan for all testing and monitoring requirements.	47-13-13.6.b.11	A quality assurance and surveillance plan for all testing and monitoring requirements.	Same as CFR.
40 CFR 146.91	**40 CFR 146.91 Reporting requirements.** The owner or operator must, at a minimum, provide, as specified in paragraph (e) of this section, the following reports to the Director, for each permitted Class VI well:	47-13-13.6.c.1	The owner or operator must, at a minimum, provide, as specified in 13.6.c.1.E., the following reports to the Director, for each permitted Class 6 well:	Same as CFR.
40 CFR 146.91(a)	Semi-annual reports containing:	47-13-13.6.c.1.A	Semi-annual reports containing:	Same as CFR.
40 CFR 146.91(a)(1)	Any changes to the physical, chemical, and other relevant characteristics of the carbon dioxide stream from the proposed operating data;	47-13-13.6.c.1.A.i	Any changes to the physical, chemical, and other relevant characteristics of the carbon dioxide stream from the proposed operating data;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.91(a)(2)	Monthly average, maximum, and minimum values for injection pressure, flow rate and volume, and annular pressure;	47-13-13.6.c.1.A.ii	Monthly average, maximum, and minimum values for injection pressure, flow rate and volume, and annular pressure;	Same as CFR.
40 CFR 146.91(a)(3)	A description of any event that exceeds operating parameters for annulus pressure or injection pressure specified in the permit;	47-13-13.6.c.1.A.ii	A description of any event that exceeds operating parameters for annulus pressure or injection pressure specified in the permit;	Same as CFR.
40 CFR 146.91(a)(4)	A description of any event which triggers a shut-off device required pursuant to 40 CFR 146.88(e) and the response taken;	47-13-13.6.c.1.A.iv	A description of any event which triggers a shut-off device required pursuant to subsection 13.6.a.4. and the response taken;	Same as CFR.
40 CFR 146.91(a)(5)	The monthly volume and/or mass of the carbon dioxide stream injected over the reporting period and the volume injected cumulatively over the life of the project;	47-13-13.6.c.1.A.v	The monthly volume and/or mass of the carbon dioxide stream injected over the reporting period and the volume injected cumulatively over the life of the project;	Same as CFR.
40 CFR 146.91(a)(6)	Monthly annulus fluid volume added; and	47-13-13.6.c.1.A.vi	Monthly annulus fluid volume added; and	Same as CFR.
40 CFR 146.91(a)(7)	The results of monitoring prescribed under 40 CFR 146.90.	47-13-13.6.c.1.A.vii	The results of monitoring prescribed under subsection 13.6.b.	Same as CFR.
40 CFR 146.91(b)	Report, within 30 days, the results of:	47-13-13.6.c.1.B	Report, within 30 days, the results of:	Same as CFR.
40 CFR 146.91(b)(1)	Periodic tests of mechanical integrity;	47-13-13.6.c.1.B.i	Periodic tests of mechanical integrity;	Same as CFR.
40 CFR 146.91(b)(2)	Any well workover; and,	47-13-13.6.c.1.B.ii	Any well workover; and,	Same as CFR.
40 CFR 146.91(b)(3)	Any other test of the injection well conducted by the permittee if required by the Director.	47-13-13.6.c.1.B.iii	Any other test of the injection well conducted by the permittee if required by the Director.	Same as CFR.
40 CFR 146.91(c)	Report, within 24 hours:	47-13-13.6.c.1.C	Report, within 24 hours:	Same as CFR.
40 CFR 146.91(c)(1)	Any evidence that the injected carbon dioxide stream or associated pressure front may cause an endangerment to a USDW;	47-13-13.6.c.1.C.i	Any evidence that the injected carbon dioxide stream or associated pressure front may cause an endangerment to a USDW;	Same as CFR.
40 CFR 146.91(c)(2)	Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between USDWs;	47-13-13.6.c.1.C.ii	Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between USDWs;	Same as CFR.
40 CFR 146.91(c)(3)	Any triggering of a shut-off system (i.e., down-hole or at the surface);	47-13-13.6.c.1.C.iii	Any triggering of a shut-off system (i.e., down-hole or at the surface);	Same as CFR.
40 CFR 146.91(c)(4)	Any failure to maintain mechanical integrity; or.	47-13-13.6.c.1.C.iv	Any failure to maintain mechanical integrity; or.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.91(c)(5)	Pursuant to compliance with the requirement at 40 CFR 146.90(h) for surface air/soil gas monitoring or other monitoring technologies, if required by the Director, any release of carbon dioxide to the atmosphere or biosphere.	47-13-13.6.c.1.C.v	Pursuant to compliance with the requirement at subsection 13.6.b.8. for surface air/soil gas monitoring or other monitoring technologies, if required by the Director, any release of carbon dioxide to the atmosphere or biosphere.	Same as CFR.
40 CFR 146.91(d)	Owners or operators must notify the Director in writing 30 days in advance of:	47-13-13.6.c.1.D	Owners or operators must notify the Director in writing 30 days in advance of:	Same as CFR.
40 CFR 146.91(d)(1)	Any planned well workover;	47-13-13.6.c.1.D.i	Any planned well workover;	Same as CFR.
40 CFR 146.91(d)(2)	Any planned stimulation activities, other than stimulation for formation testing conducted under 40 CFR 146.82; and	47-13-13.6.c.1.D.i	Any planned stimulation activities, other than stimulation for formation testing conducted under subsection 13.8.c.4., and	Same as CFR.
40 CFR 146.91(d)(3)	Any other planned test of the injection well conducted by the permittee.	47-13-13.6.c.1.D.ii	Any other planned test of the injection well conducted by the permittee.	Same as CFR.
40 CFR 146.91(e)	Regardless of whether a State has primary enforcement responsibility, owners or operators must submit all required reports, submittals, and notifications under subpart H of this part to EPA in an electronic format approved by EPA.	47-13-13.6.c.1.E	Regardless of whether a State has primary enforcement responsibility, owners or operators must submit all required reports, submittals, and notifications under subpart H of § 40 CFR 146 to EPA in an electronic format approved by EPA.	Same as CFR.
40 CFR 146.91(f)	Records shall be retained by the owner or operator as follows:	47-13-13.6.c.1.F	Records shall be retained by the owner or operator as follows:	Same as CFR.
40 CFR 146.91(f)(1)	All data collected under 40 CFR 146.82 for Class VI permit applications shall be retained throughout the life of the geologic sequestration project and for 10 years following site closure.	47-13-13.6.c.1.F.i	All data collected under §47-13-13.8. for Class permit applications shall be retained throughout the life of the geologic sequestration project and for 10 years following site closure.	Same as CFR. Note typo: missing well class number.
40 CFR 146.91(f)(2)	Data on the nature and composition of all injected fluids collected pursuant to 40 CFR 146.90(a) shall be retained until 10 years after site closure. The Director may require the owner or operator to deliver the records to the Director at the conclusion of the retention period.	47-13-13.6.c.1.F.ii	Data on the nature and composition of all injected fluids collected pursuant to subsection 13.6.b.1. shall be retained until 10 years after site closure. The Director may require the owner or operator to deliver the records to the Director at the conclusion of the retention period.	Same as CFR.
40 CFR 146.91(f)(3)	Monitoring data collected pursuant to 40 CFR 146.90(b) through (i) shall be retained for 10 years after it is collected.	47-13-13.6.c.1.F.iii	Monitoring data collected pursuant to subsections 13.6.b.2. through 13.6.b.9. shall be retained for 10 years after it is collected.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.91(f)(4)	Well plugging reports, post-injection site care data, including, if appropriate, data and information used to develop the demonstration of the alternative post-injection site care timeframe, and the site closure report collected pursuant to requirements at 40 CFR 146.93(f) and (h) shall be retained for 10 years following site closure.	47-13-13.6.c.1.F.iv	Well plugging reports, post-injection site care data, including, if appropriate, data and information used to develop the demonstration of the alternative post-injection site care timeframe, and the site closure report collected pursuant to requirements at subsections 13.9.f. and 13.9.h. shall be retained for 10 years following site closure.	Same as CFR.
40 CFR 146.91(f)(5)	The Director has authority to require the owner or operator to retain any records required in this subpart for longer than 10 years after site closure.	47-13-13.6.c.1.F.v	The Director has authority to require the owner or operator to retain any records required in this subpart for longer than 10 years after site closure.	Same as CFR.
40 CFR 146.92(a)	**40 CFR 146.92 Injection well plugging.** Prior to the well plugging, the owner or operator must flush each Class VI injection well with a buffer fluid, determine bottomhole reservoir pressure, and perform a final external mechanical integrity test.	47-13-13.4.a	Prior to the well plugging, the owner or operator must flush each Class 6 injection well with a buffer fluid, determine bottomhole reservoir pressure, and perform a final external mechanical integrity test.	Same as CFR.
40 CFR 146.92(b)	*Well Plugging Plan.* The owner or operator of a Class VI well must prepare, maintain, and comply with a plan that is acceptable to the Director. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. The well plugging plan must be submitted as part of the permit application and must include the following information:	47-13-13.4.b	Well plugging plan. The owner or operator of a Class 6 well must prepare, maintain, and comply with a plan that is acceptable to the Director. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. The well plugging plan must be submitted as part of the permit application and must include the following information:	Same as CFR.
40 CFR 146.92(b)(1)	Appropriate tests or measures for determining bottomhole reservoir pressure;	47-13-13.4.b.1	Appropriate tests or measures for determining bottomhole reservoir pressure;	Same as CFR.
40 CFR 146.92(b)(2)	Appropriate testing methods to ensure external mechanical integrity as specified in 40 CFR 146.89;	47-13-13.4.b.2	Appropriate testing methods to ensure external mechanical integrity as specified in section 6.2;	Same as CFR.
40 CFR 146.92(b)(3)	The type and number of plugs to be used;	47-13-13.4.b.3	The type and number of plugs to be used;	Same as CFR.
40 CFR 146.92(b)(4)	The placement of each plug, including the elevation of the top and bottom of each plug;	47-13-13.4.b.4	The placement of each plug, including the elevation of the top and bottom of each plug;	Same as CFR.
40 CFR 146.92(b)(5)	The type, grade, and quantity of material to be used in plugging. The material must be compatible with the carbon dioxide stream; and	47-13-13.4.b.5	The type, grade, and quantity of material to be used in plugging. The material must be compatible with the carbon dioxide stream; and	Same as CFR.
40 CFR 146.92(b)(6)	The method of placement of the plugs.	47-13-13.4.b.6	The method of placement of the plugs.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.92(c)	*Notice of intent to plug*. The owner or operator must notify the Director in writing pursuant to 40 CFR 146.91(e), at least 60 days before plugging of a well. At this time, if any changes have been made to the original well plugging plan, the owner or operator must also provide the revised well plugging plan. The Director may allow for a shorter notice period. Any amendments to the injection well plugging plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at 40 CFR 144.39 or 144.41, as appropriate.	47-13-13.4.c	Notice of intent to plug. The owner or operator must notify the Director in writing pursuant to subsection 13.6.c.1.E., at least 60 days before plugging of a well. At this time, if any changes have been made to the original well plugging plan, the owner or operator must also provide the revised well plugging plan. The Director may allow for a shorter notice period. Any amendments to the injection well plugging plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at sections 14.18 and 14.20 of this rule, as appropriate.	Same as CFR.
40 CFR 146.92(d)	*Plugging report.* Within 60 days after plugging, the owner or operator must submit, pursuant to 40 CFR 146.91(e), a plugging report to the Director. The report must be certified as accurate by the owner or operator and by the person who performed the plugging operation (if other than the owner or operator.) The owner or operator shall retain the well plugging report for 10 years following site closure.	47-13-13.4.d	Plugging report. Within 60 days after plugging, the owner or operator must submit, pursuant to subsection 13.6.c.1.E, a plugging report to the Director. The report must be certified as accurate by the owner or operator and by the person who performed the plugging operation (if other than the owner or operator.) The owner or operator shall retain the well plugging report for 10 years following site closure.	Same as CFR.
40 CFR 146.93(a)	**40 CFR 146.93 Post-injection site care and site closure.** The owner or operator of a Class VI well must prepare, maintain, and comply with a plan for post-injection site care and site closure that meets the requirements of paragraph (a)(2) of this section and is acceptable to the Director. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit.	47-13-13.9.a	**47-13-13.9. Post-injection Site Care and Site Closure.** The owner or operator of a Class 6 well must prepare, maintain, and comply with a plan for post-injection site care and site closure that meets the requirements of subsection 13.9.a.2. and is acceptable to the Director. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit.	Same as CFR.
40 CFR 146.93(a)(1)	The owner or operator must submit the post-injection site care and site closure plan as a part of the permit application to be approved by the Director.	47-13-13.9.a.1	The owner or operator must submit the post-injection site care and site closure plan as a part of the permit application to be approved by the Director.	Same as CFR.
40 CFR 146.93(a)(2)	The post-injection site care and site closure plan must include the following information:	47-13-13.9.a.2	The post-injection site care and site closure plan must include the following information:	Same as CFR.
40 CFR 146.93(a)(2)(i)	The pressure differential between pre-injection and predicted post-injection pressures in the injection zone(s);	47-13-13.9.a.2.A	The pressure differential between pre-injection and predicted post-injection pressures in the injection zone(s);	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.93(a)(2)(ii)	The predicted position of the carbon dioxide plume and associated pressure front at site closure as demonstrated in the area of review evaluation required under 40 CFR 146.84(c)(1);	47-13-13.9.a.2.B	The predicted position of the carbon dioxide plume and associated pressure front at site closure as demonstrated in the area of review evaluation required under subsection 14.9.c.1.;	Same as CFR.
40 CFR 146.93(a)(2)(iii)	A description of post-injection monitoring location, methods, and proposed frequency;	47-13-13.9.a.2.C	A description of post-injection monitoring location, methods, and proposed frequency;	Same as CFR.
40 CFR 146.93(a)(2)(iv)	A proposed schedule for submitting post-injection site care monitoring results to the Director pursuant to 40 CFR 146.91(e); and,	47-13-13.9.a.2.D	A proposed schedule for submitting post-injection site care monitoring results to the Director pursuant to subsection 13.6.c.1.E.; and,	Same as CFR.
40 CFR 146.93(a)(2)(v)	The duration of the post-injection site care timeframe and, if approved by the Director, the demonstration of the alternative post-injection site care timeframe that ensures non-endangerment of USDWs.	47-13-13.9.a.2.E	The duration of the post-injection site care timeframe and, if approved by the Director, the demonstration of the alternative post-injection site care timeframe that ensures non-endangerment of USDWs.	Same as CFR.
40 CFR 146.93(a)(3)	Upon cessation of injection, owners or operators of Class VI wells must either submit an amended post-injection site care and site closure plan or demonstrate to the Director through monitoring data and modeling results that no amendment to the plan is needed. Any amendments to the post-injection site care and site closure plan must be approved by the Director, be incorporated into the permit, and are subject to the permit modification requirements at 40 CFR 144.39 or 144.41, as appropriate.	47-13-13.9.a.3	Upon cessation of injection, owners or operators of Class 6 wells must either submit an amended post-injection site care and site closure plan or demonstrate to the Director through monitoring data and modeling results that no amendment to the plan is needed. Any amendments to the post-injection site care and site closure plan must be approved by the Director, be incorporated into the permit, and are subject to the permit modification requirements at sections 14.18 and 14.20 of this rule, as appropriate.	Same as CFR.
40 CFR 146.93(a)(4)	At any time during the life of the geologic sequestration project, the owner or operator may modify and resubmit the post-injection site care and site closure plan for the Director's approval within 30 days of such change.	47-13-13.9.a.4	At any time during the life of the geologic sequestration project, the owner or operator may modify and resubmit the post-injection site care and site closure plan for the Director's approval within 30 days of such change.	Same as CFR.
40 CFR 146.93(b)	The owner or operator shall monitor the site following the cessation of injection to show the position of the carbon dioxide plume and pressure front and demonstrate that USDWs are not being endangered.	47-13-13.9.b	The owner or operator shall monitor the site following the cessation of injection to show the position of the carbon dioxide plume and pressure front and demonstrate that USDWs are not being endangered.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.93(b)(1)	Following the cessation of injection, the owner or operator shall continue to conduct monitoring as specified in the Director-approved post-injection site care and site closure plan for at least 50 years or for the duration of the alternative timeframe approved by the Director pursuant to requirements in paragraph (c) of this section, unless he/she makes a demonstration under (b)(2) of this section. The monitoring must continue until the geologic sequestration project no longer poses an endangerment to USDWs and the demonstration under (b)(2) of this section is submitted and approved by the Director.	47-13-13.9.b.1	Following the cessation of injection, the owner or operator shall continue to conduct monitoring as specified in the Director-approved post-injection site care and site closure plan for at least 50 years or for the duration of the alternative timeframe approved by the Director pursuant to requirements in subsection 13.9.c., unless he/she makes a demonstration under subsection 13.9.b.2.. The monitoring must continue until the geologic sequestration project no longer poses an endangerment to USDWs and the demonstration under subsection 13.9.b.2. is submitted and approved by the Director.	Same as CFR.
40 CFR 146.93(b)(2)	If the owner or operator can demonstrate to the satisfaction of the Director before 50 years or prior to the end of the approved alternative timeframe based on monitoring and other site-specific data, that the geologic sequestration project no longer poses an endangerment to USDWs, the Director may approve an amendment to the post-injection site care and site closure plan to reduce the frequency of monitoring or may authorize site closure before the end of the 50-year period or prior to the end of the approved alternative timeframe, where he or she has substantial evidence that the geologic sequestration project no longer poses a risk of endangerment to USDWs.	47-13-13.9.b.2	If the owner or operator can demonstrate to the satisfaction of the Director before 50 years or prior to the end of the approved alternative timeframe based on monitoring and other site-specific data, that the geologic sequestration project no longer poses an endangerment to USDWs, the Director may approve an amendment to the post-injection site care and site closure plan to reduce the frequency of monitoring or may authorize site closure before the end of the 50-year period or prior to the end of the approved alternative timeframe, where he or she has substantial evidence that the geologic sequestration project no longer poses a risk of endangerment to USDWs.	Same as CFR.
40 CFR 146.93(b)(3)	Prior to authorization for site closure, the owner or operator must submit to the Director for review and approval a demonstration, based on monitoring and other site-specific data, that no additional monitoring is needed to ensure that the geologic sequestration project does not pose an endangerment to USDWs.	47-13-13.9.b.3	Prior to authorization for site closure, the owner or operator must submit to the Director for review and approval a demonstration, based on monitoring and other site-specific data, that no additional monitoring is needed to ensure that the geologic sequestration project does not pose an endangerment to USDWs.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.93(b)(4)	If the demonstration in paragraph (b)(3) of this section cannot be made (i.e., additional monitoring is needed to ensure that the geologic sequestration project does not pose an endangerment to USDWs) at the end of the 50-year period or at the end of the approved alternative timeframe, or if the Director does not approve the demonstration, the owner or operator must submit to the Director a plan to continue post-injection site care until a demonstration can be made and approved by the Director.	47-13-13.9.b.4	If the demonstration in subsection 13.9.b.3. cannot be made (i.e., additional monitoring is needed to ensure that the geologic sequestration project does not pose an endangerment to USDWs) at the end of the 50-year period or at the end of the approved alternative timeframe, or if the Director does not approve the demonstration, the owner or operator must submit to the Director a plan to continue post-injection site care until a demonstration can be made and approved by the Director.	Same as CFR.
40 CFR 146.93(c)	*Demonstration of alternative post-injection site care timeframe*. At the Director's discretion, the Director may approve, in consultation with EPA, an alternative post-injection site care timeframe other than the 50 year default, if an owner or operator can demonstrate during the permitting process that an alternative post-injection site care timeframe is appropriate and ensures non-endangerment of USDWs. The demonstration must be based on significant, site-specific data and information including all data and information collected pursuant to 40 CFR 146.82 and 146.83, and must contain substantial evidence that the geologic sequestration project will no longer pose a risk of endangerment to USDWs at the end of the alternative post-injection site care timeframe.	47-13-13.9.c	Demonstration of alternative post-injection site care timeframe. At the Director's discretion, the Director may approve, in consultation with EPA, an alternative post-injection site care timeframe other than the 50 year default, if an owner or operator can demonstrate during the permitting process that an alternative post-injection site care timeframe is appropriate and ensures non-endangerment of USDWs. The demonstration must be based on significant, site-specific data and information including all data and information collected pursuant to section 13.8. and subsection 13.2.a., and must contain substantial evidence that the geologic sequestration project will no longer pose a risk of endangerment to USDWs at the end of the alternative post-injection site care timeframe.	Same as CFR.
40 CFR 146.93(c)(1)	A demonstration of an alternative post-injection site care timeframe must include consideration and documentation of:	47-13-13.9.c.1	A demonstration of an alternative post-injection site care timeframe must include consideration and documentation of:	Same as CFR.
40 CFR 146.93(c)(1)(i)	The results of computational modeling performed pursuant to delineation of the area of review under 40 CFR 146.84;	47-13-13.9.c.1.A	The results of computational modeling performed pursuant to delineation of the area of review under section 5.4.;	Same as CFR.
40 CFR 146.93(c)(1)(ii)	The predicted timeframe for pressure decline within the injection zone, and any other zones, such that formation fluids may not be forced into any USDWs; and/or the timeframe for pressure decline to pre-injection pressures;	47-13-13.9.c.1.B	The predicted timeframe for pressure decline within the injection zone, and any other zones, such that formation fluids may not be forced into any USDWs; and/or the timeframe for pressure decline to pre-injection pressures;	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.93(c)(1)(iii)	The predicted rate of carbon dioxide plume migration within the injection zone, and the predicted timeframe for the cessation of migration;	47-13-13.9.c.1.C	The predicted rate of carbon dioxide plume migration within the injection zone, and the predicted timeframe for the cessation of migration;	Same as CFR.
40 CFR 146.93(c)(1)(iv)	A description of the site-specific processes that will result in carbon dioxide trapping including immobilization by capillary trapping, dissolution, and mineralization at the site;	47-13-13.9.c.1.D	A description of the site-specific processes that will result in carbon dioxide trapping including immobilization by capillary trapping, dissolution, and mineralization at the site;	Same as CFR.
40 CFR 146.93(c)(1)(v)	The predicted rate of carbon dioxide trapping in the immobile capillary phase, dissolved phase, and/or mineral phase;	47-13-13.9.c.1.E	The predicted rate of carbon dioxide trapping in the immobile capillary phase, dissolved phase, and/or mineral phase;	Same as CFR.
40 CFR 146.93(c)(1)(vi)	The results of laboratory analyses, research studies, and/or field or site-specific studies to verify the information required in paragraphs (iv) and (v) of this section;	47-13-13.9.c.1.G	The results of laboratory analyses, research studies, and/or field or site-specific studies to verify the information required in subsections 13.9.c.1.D. and 13.9.c.1.E.;	Same as CFR. WV appears to have skipped 47-13-13.9.c.1.F. Renumbering is recommended.
40 CFR 146.93(c)(1)(vii)	A characterization of the confining zone(s) including a demonstration that it is free of transmissive faults, fractures, and micro-fractures and of appropriate thickness, permeability, and integrity to impede fluid (e.g., carbon dioxide, formation fluids) movement;	47-13-13.9.c.1.H	A characterization of the confining zone(s) including a demonstration that it is free of transmissive faults, fractures, and micro-fractures and of appropriate thickness, permeability, and integrity to impede fluid (e.g., carbon dioxide, formation fluids) movement;	Same as CFR.
40 CFR 146.93(c)(1)(viii)	The presence of potential conduits for fluid movement including planned injection wells and project monitoring wells associated with the proposed geologic sequestration project or any other projects in proximity to the predicted/modeled, final extent of the carbon dioxide plume and area of elevated pressure;	47-13-13.9.c.1.I	The presence of potential conduits for fluid movement including planned injection wells and project monitoring wells associated with the proposed geologic sequestration project or any other projects in proximity to the predicted/modeled, final extent of the carbon dioxide plume and area of elevated pressure;	Same as CFR.
40 CFR 146.93(c)(1)(ix)	A description of the well construction and an assessment of the quality of plugs of all abandoned wells within the area of review;	47-13-13.9.c.1.J	A description of the well construction and an assessment of the quality of plugs of all abandoned wells within the area of review;	Same as CFR.
40 CFR 146.93(c)(1)(x)	The distance between the injection zone and the nearest USDWs above and/or below the injection zone; and	47-13-13.9.c.1.K	The distance between the injection zone and the nearest USDWs above and/or below the injection zone; and	Same as CFR.
40 CFR 146.93(c)(1)(xi)	Any additional site-specific factors required by the Director.	47-13-13.9.c.1.L	Any additional site-specific factors required by the Director.	Same as CFR.
40 CFR 146.93(c)(2)	Information submitted to support the demonstration in paragraph (c)(1) of this section must meet the following criteria:	47-13-13.9.c.2	Information submitted to support the demonstration in subsection 13.9.c.1. must meet the following criteria:	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.93(c)(2)(i)	All analyses and tests performed to support the demonstration must be accurate, reproducible, and performed in accordance with the established quality assurance standards;	47-13-13.9.c.2.A	All analyses and tests performed to support the demonstration must be accurate, reproducible, and performed in accordance with the established quality assurance standards;	Same as CFR.
40 CFR 146.93(c)(2)(ii)	Estimation techniques must be appropriate and EPA-certified test protocols must be used where available;	47-13-13.9.c.2.B	Estimation techniques must be appropriate and EPA-certified test protocols must be used where available;	Same as CFR.
40 CFR 146.93(c)(2)(iii)	Predictive models must be appropriate and tailored to the site conditions, composition of the carbon dioxide stream and injection and site conditions over the life of the geologic sequestration project;	47-13-13.9.c.2.C	Predictive models must be appropriate and tailored to the site conditions, composition of the carbon dioxide stream and injection and site conditions over the life of the geologic sequestration project;	Same as CFR.
40 CFR 146.93(c)(2)(iv)	Predictive models must be calibrated using existing information (e.g., at Class I, Class II, or Class V experimental technology well sites) where sufficient data are available;	47-13-13.9.c.2.D	Predictive models must be calibrated using existing information (e.g., at Class 1, Class 2, or Class 5 experimental technology well sites) where sufficient data are available;	Same as CFR.
40 CFR 146.93(c)(2)(v)	Reasonably conservative values and modeling assumptions must be used and disclosed to the Director whenever values are estimated on the basis of known, historical information instead of site-specific measurements;	47-13-13.9.c.2.E	Reasonably conservative values and modeling assumptions must be used and disclosed to the Director whenever values are estimated on the basis of known, historical information instead of site-specific measurements;	Same as CFR.
40 CFR 146.93(c)(2)(vi)	An analysis must be performed to identify and assess aspects of the alternative post-injection site care timeframe demonstration that contribute significantly to uncertainty. The owner or operator must conduct sensitivity analyses to determine the effect that significant uncertainty may contribute to the modeling demonstration.	47-13-13.9.c.2.F	An analysis must be performed to identify and assess aspects of the alternative post-injection site care timeframe demonstration that contribute significantly to uncertainty. The owner or operator must conduct sensitivity analyses to determine the effect that significant uncertainty may contribute to the modeling demonstration.	Same as CFR.
40 CFR 146.93(c)(2)(vii)	An approved quality assurance and quality control plan must address all aspects of the demonstration; and,	47-13-13.9.c.2.G	An approved quality assurance and quality control plan must address all aspects of the demonstration; and,	Same as CFR.
40 CFR 146.93(c)(2)(viii)	Any additional criteria required by the Director.	47-13-13.9.c.2.H	Any additional criteria required by the Director.	Same as CFR.

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Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.93(d)	*Notice of intent for site closure.* The owner or operator must notify the Director in writing at least 120 days before site closure. At this time, if any changes have been made to the original post-injection site care and site closure plan, the owner or operator must also provide the revised plan. The Director may allow for a shorter notice period.	47-13-13.9.d	Notice of intent for site closure. The owner or operator must notify the Director in writing at least 120 days before site closure. At this time, if any changes have been made to the original post-injection site care and site closure plan, the owner or operator must also provide the revised plan. The Director may allow for a shorter notice period.	Same as CFR.
40 CFR 146.93(e)	After the Director has authorized site closure, the owner or operator must plug all monitoring wells in a manner which will not allow movement of injection or formation fluids that endangers a USDW.	47-13-13.9.e	After the Director has authorized site closure, the owner or operator must plug all monitoring wells in a manner which will not allow movement of injection or formation fluids that endangers a USDW.	Same as CFR.
40 CFR 146.93(f)	The owner or operator must submit a site closure report to the Director within 90 days of site closure, which must thereafter be retained at a location designated by the Director for 10 years. The report must include:	47-13-13.9.f	The owner or operator must submit a site closure report to the Director within 90 days of site closure, which must thereafter be retained at a location designated by the Director for 10 years. The report must include:	Same as CFR.
40 CFR 146.93(f)(1)	Documentation of appropriate injection and monitoring well plugging as specified in 40 CFR 146.92 and paragraph (e) of this section. The owner or operator must provide a copy of a survey plat which has been submitted to the local zoning authority designated by the Director. The plat must indicate the location of the injection well relative to permanently surveyed benchmarks. The owner or operator must also submit a copy of the plat to the Regional Administrator of the appropriate EPA Regional Office;	47-13-13.9.f.1	Documentation of appropriate injection and monitoring well plugging as specified in section 13.4. and subsection 13.9.e. The owner or operator must provide a copy of a survey plat which has been submitted to the local zoning authority designated by the Director. The plat must indicate the location of the injection well relative to permanently surveyed benchmarks. The owner or operator must also submit a copy of the plat to the Regional Administrator of the appropriate EPA Regional Office;	Same as CFR.
40 CFR 146.93(f)(2)	Documentation of appropriate notification and information to such State, local and Tribal authorities that have authority over drilling activities to enable such State, local, and Tribal authorities to impose appropriate conditions on subsequent drilling activities that may penetrate the injection and confining zone(s); and	47-13-13.9.f.2	Documentation of appropriate notification and information to such State, local and Tribal authorities that have authority over drilling activities to enable such State, local, and Tribal authorities to impose appropriate conditions on subsequent drilling activities that may penetrate the injection and confining zone(s); and	Same as CFR.
40 CFR 146.93(f)(3)	Records reflecting the nature, composition, and volume of the carbon dioxide stream.	47-13-13.9.f.3	Records reflecting the nature, composition, and volume of the carbon dioxide stream.	Same as CFR.

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ED_013399_00000014-00323

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.93(g)	Each owner or operator of a Class VI injection well must record a notation on the deed to the facility property or any other document that is normally examined during title search that will in perpetuity provide any potential purchaser of the property the following information:	47-13-13.9.g	Each owner or operator of a Class 6 injection well must record a notation on the deed to the facility property or any other document that is normally examined during title search that will in perpetuity provide any potential purchaser of the property the following information:	Same as CFR.
40 CFR 146.93(g)(1)	The fact that land has been used to sequester carbon dioxide;	47-13-13.9.g.1	The fact that land has been used to sequester carbon dioxide;	Same as CFR.
40 CFR 146.93(g)(2)	The name of the State agency, local authority, and/or Tribe with which the survey plat was filed, as well as the address of the Environmental Protection Agency Regional Office to which it was submitted; and	47-13-13.9.g.2	The name of the State agency, local authority, and/or Tribe with which the survey plat was filed, as well as the address of the Environmental Protection Agency Regional Office to which it was submitted; and	Same as CFR.
40 CFR 146.93(g)(3)	The volume of fluid injected, the injection zone or zones into which it was injected, and the period over which injection occurred.	47-13-13.9.g.3	The volume of fluid injected, the injection zone or zones into which it was injected, and the period over which injection occurred.	Same as CFR.
40 CFR 146.93(h)	The owner or operator must retain for 10 years following site closure, records collected during the post-injection site care period. The owner or operator must deliver the records to the Director at the conclusion of the retention period, and the records must thereafter be retained at a location designated by the Director for that purpose.	47-13-13.9.h	The owner or operator must retain for 10 years following site closure, records collected during the post-injection site care period. The owner or operator must deliver the records to the Director at the conclusion of the retention period, and the records must thereafter be retained at a location designated by the Director for that purpose.	Same as CFR.
40 CFR 146.94(a)	**40 CFR 146.94 Emergency and remedial response.** As part of the permit application, the owner or operator must provide the Director with an emergency and remedial response plan that describes actions the owner or operator must take to address movement of the injection or formation fluids that may cause an endangerment to a USDW during construction, operation, and post-injection site care periods. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit.	47-13-13.7.a	**47-13-13.7. Emergency and Remedial Response.** As part of the permit application, the owner or operator must provide the Director with an emergency and remedial response plan that describes actions the owner or operator must take to address movement of the injection or formation fluids that may cause an endangerment to a USDW during construction, operation, and post-injection site care periods. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit.	Same as CFR.
40 CFR 146.94(b)	If the owner or operator obtains evidence that the injected carbon dioxide stream and associated pressure front may cause an endangerment to a USDW, the owner or operator must:	47-13-13.7.b	If the owner or operator obtains evidence that the injected carbon dioxide stream and associated pressure front may cause an endangerment to a USDW, the owner or operator must:	Same as CFR.

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ED_013399_00000014-00324

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.94(b)(1)	Immediately cease injection;	47-13-13.7.b.1	Immediately cease injection;	Same as CFR.
40 CFR 146.94(b)(2)	Take all steps reasonably necessary to identify and characterize any release;	47-13-13.7.b.2	Take all steps reasonably necessary to identify and characterize any release;	Same as CFR.
40 CFR 146.94(b)(3)	Notify the Director within 24 hours; and	47-13-13.7.b.3	Notify the Director within 24 hours; and	Same as CFR.
40 CFR 146.94(b)(4)	Implement the emergency and remedial response plan approved by the Director.	47-13-13.7.b.4	Implement the emergency and remedial response plan approved by the Director.	Same as CFR.
40 CFR 146.94(c)	The Director may allow the operator to resume injection prior to remediation if the owner or operator demonstrates that the injection operation will not endanger USDWs.	47-13-13.7.c	The Director may allow the operator to resume injection prior to remediation if the owner or operator demonstrates that the injection operation will not endanger USDWs.	Same as CFR.
40 CFR 146.94(d)	The owner or operator shall periodically review the emergency and remedial response plan developed under paragraph (a) of this section. In no case shall the owner or operator review the emergency and remedial response plan less often than once every five years. Based on this review, the owner or operator shall submit an amended emergency and remedial response plan or demonstrate to the Director that no amendment to the emergency and remedial response plan is needed. Any amendments to the emergency and remedial response plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at 40 CFR 144.39 or 144.41, as appropriate. Amended plans or demonstrations shall be submitted to the Director as follows:	47-13-13.7.d	The owner or operator shall periodically review the emergency and remedial response plan developed under paragraph (a) of this section. In no case shall the owner or operator review the emergency and remedial response plan less often than once every five years. Based on this review, the owner or operator shall submit an amended emergency and remedial response plan or demonstrate to the Director that no amendment to the emergency and remedial response plan is needed. Any amendments to the emergency and remedial response plan must be approved by the Director, must be incorporated into the permit, and are subject to the permit modification requirements at sections 14.8 and 14.20 of this rule, as appropriate. Amended plans or demonstrations shall be submitted to the Director as follows:	Same as CFR. WV may have mistakenly included *paragraph (a)* instead of a reference to 13.7.a.
40 CFR 146.94(d)(1)	Within one year of an area of review reevaluation;	47-13-13.7.d.1	Within one year of an area of review reevaluation;	Same as CFR.
40 CFR 146.94(d)(2)	Following any significant changes to the facility, such as addition of injection or monitoring wells, on a schedule determined by the Director; or	47-13-13.7.d.2	Following any significant changes to the facility, such as addition of injection or monitoring wells, on a schedule determined by the Director; or	Same as CFR.
40 CFR 146.94(d)(3)	When required by the Director.	47-13-13.7.d.3	When required by the Director.	Same as CFR.

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ED_013399_00000014-00325

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.95	**40 CFR 146.95 Class VI injection depth waiver requirements.** This section sets forth information which an owner or operator seeking a waiver of the Class VI injection depth requirements must submit to the Director; information the Director must consider in consultation with all affected Public Water System Supervision Directors; the procedure for Director – Regional Administrator communication and waiver issuance; and the additional requirements that apply to owners or operators of Class VI wells granted a waiver of the injection depth requirements.	47-13-14.8.d	**47-13-14.8. Waiver of Requirements by the Director.** When an owner or operator submits a waiver of the Class 6 injection depth requirements, the Director must consult with all affected Public Water System Directors and the Regional Administrator after considering the following:	Similar to CFR. This introductory language differs from the CFR; however, the requirements for requesting and operating under an injection depth waiver are generally the same as the CFR (see below).
40 CFR 146.95(a)	In seeking a waiver of the requirement to inject below the lowermost USDW, the owner or operator must submit a supplemental report concurrent with permit application. The supplemental report must include the following,	47-13-14.8.d.1	Owner/Operator Requirements. In seeking a waiver of the requirement to inject below the lowermost USDW, the owner or operator must submit a supplemental report concurrent with permit application. The supplemental report must include the following,	Same as CFR.
40 CFR 146.95(a)(1)	A demonstration that the injection zone(s) is/are laterally continuous, is not a USDW, and is not hydraulically connected to USDWs; does not outcrop; has adequate injectivity, volume, and sufficient porosity to safely contain the injected carbon dioxide and formation fluids; and has appropriate geochemistry.	47-13-14.8.d.1.A	A demonstration that the injection zone(s) is/are laterally continuous, is not a USDW, and is not hydraulically connected to USDWs; does not outcrop; has adequate injectivity, volume, and sufficient porosity to safely contain the injected carbon dioxide and formation fluids; and has appropriate geochemistry.	Same as CFR.
40 CFR 146.95(a)(2)	A demonstration that the injection zone(s) is/are bounded by laterally continuous, impermeable confining units above and below the injection zone(s) adequate to prevent fluid movement and pressure buildup outside of the injection zone(s); and that the confining unit(s) is/are free of transmissive faults and fractures. The report shall further characterize the regional fracture properties and contain a demonstration that such fractures will not interfere with injection, serve as conduits, or endanger USDWs.	47-13-14.8.d.1.B	A demonstration that the injection zone(s) is/are bounded by laterally continuous, impermeable confining units above and below the injection zone(s) adequate to prevent fluid movement and pressure buildup outside of the injection zone(s); and that the confining unit(s) is/are free of transmissive faults and fractures. The report shall further characterize the regional fracture properties and contain a demonstration that such fractures will not interfere with injection, serve as conduits, or endanger USDWs.	Same as CFR.

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ED_013399_00000014-00326

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.95(a)(3)	A demonstration, using computational modeling, that USDWs above and below the injection zone will not be endangered as a result of fluid movement. This modeling should be conducted in conjunction with the area of review determination, as described in 40 CFR 146.84, and is subject to requirements, as described in 40 CFR 146.84(c), and periodic reevaluation, as described in 40 CFR 146.84(e).	47-13-14.8.d.1.C	A demonstration, using computational modeling, that USDWs above and below the injection zone will not be endangered as a result of fluid movement. This modeling should be conducted in conjunction with the area of review determination, as described in 5.4 and 14.9, and is subject to requirements, as described in 14.9.c., and periodic reevaluation, as described in 14.9.e.	Same as CFR.
40 CFR 146.95(a)(4)	A demonstration that well design and construction, in conjunction with the waiver, will ensure isolation of the injectate in lieu of requirements at 146.86(a)(1) and will meet well construction requirements in paragraph (f) of this section.	47-13-14.8.d.1.D	A demonstration that well design and construction, in conjunction with the waiver, will ensure isolation of the injectate in lieu of requirements at 13.3.a.1. and will meet well construction requirements in 14.8.d.6. of this section.	Same as CFR.
40 CFR 146.95(a)(5)	A description of how the monitoring and testing and any additional plans will be tailored to the geologic sequestration project to ensure protection of USDWs above and below the injection zone(s), if a waiver is granted.	47-13-14.8.d.1.E	A description of how the monitoring and testing and any additional plans will be tailored to the geologic sequestration project to ensure protection of USDWs above and below the injection zone(s), if a waiver is granted.	Same as CFR.
40 CFR 146.95(a)(6)	Information on the location of all the public water supplies affected, reasonably likely to be affected, or served by USDWs in the area of review.	47-13-14.8.d.1.F	Information on the location of all the public water supplies affected, reasonably likely to be affected, or served by USDWs in the area of review.	Same as CFR.
40 CFR 146.95(a)(7)	Any other information requested by the Director to inform the Regional Administrator's decision to issue a waiver.	47-13-14.8.d.1.G	Any other information requested by the Director to inform the Regional Administrator's decision to issue a waiver.	Same as CFR.
40 CFR 146.95(b)	To inform the Regional Administrator's decision on whether to grant a waiver of the injection depth requirements at 40 CFR 144.6, 146.5(f), and 146.86(a)(1), the Director must submit, to the Regional Administrator, documentation of the following:	47-13-14.8.d.2	Consultation. The Director must inform the Regional Administrator of a pending decision on whether to grant a waiver of the injection depth requirements at section 4.6, 14.8.d.6, and 13.3.a.1. the Director must submit, to the Regional Administrator, documentation of the following:	Similar to CFR. WV specifies that the Director is responsible for informing the Regional Administrator, commensurate with EPA procedures.
40 CFR 146.95(b)(1)	An evaluation of the following information as it relates to siting, construction, and operation of a geologic sequestration project with a waiver:	47-13-14.8.d.2.A	An evaluation of the following information as it relates to siting, construction, and operation of a geologic sequestration project with a waiver:	Same as CFR.
40 CFR 146.95(b)(1)(i)	The integrity of the upper and lower confining units;	47-13-14.8.d.2.A.i	The integrity of the upper and lower confining units;	Same as CFR.

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ED_013399_00000014-00327

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.95(b)(1)(ii)	The suitability of the injection zone(s) (e.g., lateral continuity; lack of transmissive faults and fractures; knowledge of current or planned artificial penetrations into the injection zone(s) or formations below the injection zone);	47-13-14.8.d.2.A.ii	The suitability of the injection zone(s) (e.g., lateral continuity; lack of transmissive faults and fractures; knowledge of current or planned artificial penetrations into the injection zone(s) or formations below the injection zone);	Same as CFR.
40 CFR 146.95(b)(1)(iii)	The potential capacity of the geologic formation(s) to sequester carbon dioxide, accounting for the availability of alternative injection sites;	47-13-14.8.d.2.A.iii	The potential capacity of the geologic formation(s) to sequester carbon dioxide, accounting for the availability of alternative injection sites;	Same as CFR.
40 CFR 146.95(b)(1)(iv)	All other site characterization data, the proposed emergency and remedial response plan, and a demonstration of financial responsibility;	47-13-14.8.d.2.A.iv	All other site characterization data, the proposed emergency and remedial response plan, and a demonstration of financial responsibility;	Same as CFR.
40 CFR 146.95(b)(1)(v)	Community needs, demands, and supply from drinking water resources;	47-13-14.8.d.2.A.v	Community needs, demands, and supply from drinking water resources;	Same as CFR.
40 CFR 146.95(b)(1)(vi)	Planned needs, potential and/or future use of USDWs and non-USDWs in the area;	47-13-14.8.d.2.A.vi	Planned needs, potential and/or future use of USDWs and non-USDWs in the area;	Same as CFR.
40 CFR 146.95(b)(1)(vii)	Planned or permitted water, hydrocarbon, or mineral resource exploitation potential of the proposed injection formation(s) and other formations both above and below the injection zone to determine if there are any plans to drill through the formation to access resources in or beneath the proposed injection zone(s)/formation(s);	47-13-14.8.d.2.A.vii	Planned or permitted water, hydrocarbon, or mineral resource exploitation potential of the proposed injection formation(s) and other formations both above and below the injection zone to determine if there are any plans to drill through the formation to access resources in or beneath the proposed injection zone(s)/formation(s);	Same as CFR.
40 CFR 146.95(b)(1)(viii)	The proposed plan for securing alternative resources or treating USDW formation waters in the event of contamination related to the Class VI injection activity; and,	47-13-14.8.d.2.A.viii	The proposed plan for securing alternative resources or treating USDW formation waters in the event of contamination related to the Class 6 injection activity; and,	Same as CFR.
40 CFR 146.95(b)(1)(ix)	Any other applicable considerations or information requested by the Director.	47-13-14.8.d.2.A.ix	Any other applicable considerations or information requested by the Director.	Same as CFR.
40 CFR 146.95(b)(2)	Consultation with the Public Water System Supervision Directors of all States and Tribes having jurisdiction over lands within the area of review of a well for which a waiver is sought.	47-13-14.8.d.2.B	Consultation with the Public Water System Supervision Directors of all States and Tribes having jurisdiction over lands within the area of review of a well for which a waiver is sought.	Same as CFR.
40 CFR 146.95(b)(3)	Any written waiver-related information submitted by the Public Water System Supervision Director(s) to the (UIC) Director.	47-13-14.8.d.2.B.i	Any written waiver-related information submitted by the Public Water System Supervision Director(s) to the (UIC) Director.	Same as CFR.

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ED_013399_00000014-00328

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.95(c)	Pursuant to requirements at 40 CFR 124.10 of this chapter and concurrent with the Class VI permit application notice process, the Director shall give public notice that a waiver application has been submitted. The notice shall clearly state:	47-13-14.8.d.3.A	Pursuant to requirements at 47 CSR 10-12 and concurrent with the Class 6 permit application notice process, the Director shall give public notice that a waiver application has been submitted. The notice shall clearly state:	Same as CFR.
40 CFR 146.95(c)(1)	The depth of the proposed injection zone(s);	47-13-14.8.d.3.A.i	The depth of the proposed injection zone(s);	Same as CFR.
40 CFR 146.95(c)(2)	The location of the injection well(s);	47-13-14.8.d.3.A.ii	The location of the injection well(s);	Same as CFR.
40 CFR 146.95(c)(3)	The name and depth of all USDWs within the area of review;	47-13-14.8.d.3.A.iii	The name and depth of all USDWs within the area of review;	Same as CFR.
40 CFR 146.95(c)(4)	A map of the area of review;	47-13-14.8.d.3.A.iv	A map of the area of review;	Same as CFR.
40 CFR 146.95(c)(5)	The names of any public water supplies affected, reasonably likely to be affected, or served by USDWs in the area of review; and,	47-13-14.8.d.3.A.v	The names of any public water supplies affected, reasonably likely to be affected, or served by USDWs in the area of review; and,	Same as CFR.
40 CFR 146.95(c)(6)	The results of UIC-Public Water System Supervision consultation required under paragraph (b)(2) of this section.	47-13-14.8.d.3.A.vi	The results of UIC-Public Water System Supervision consultation required under 14.8.d.2.B.	Same as CFR.
40 CFR 146.95(d)	Following public notice, the Director shall provide all information received through the waiver application process to the Regional Administrator. Based on the information provided, the Regional Administrator shall provide written concurrence or non-concurrence regarding waiver issuance.	47-13-14.8.d.3.B	Following public notice, the Director shall provide all information received through the waiver application process to the Regional Administrator. Based on the information provided, the Regional Administrator shall provide written concurrence or non-concurrence regarding waiver issuance.	Same as CFR.
40 CFR 146.95(d)(1)	If the Regional Administrator determines that additional information is required to support a decision, the Director shall provide the information. At his or her discretion, the Regional Administrator may require that public notice of the new information be initiated.	47-13-14.8.d.3.B.i	If the Regional Administrator determines that additional information is required to support a decision, the Director shall provide the information. At his or her discretion, the Regional Administrator may require that public notice of the new information be initiated.	Same as CFR.
40 CFR 146.95(d)(2)	In no case shall a Director of a State-approved program issue a waiver without receipt of written concurrence from the Regional Administrator.	47-13-14.8.d.3.C	In no case shall a Director of a State-approved program issue a waiver without receipt of written concurrence from the Regional Administrator.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.95(e)	If a waiver is issued, within 30 days of waiver issuance, EPA shall post the following information on the Office of Water's Web site:	47-13-14.8.d.3.D	If a waiver is issued, within 30 days of waiver issuance, the Director shall post the following information on the Department's Division of Water and Waste Management's web site:	Similar to CFR. WV indicates that it will post information on its state website. It is assumed that EPA would also post information on the OW website per its review under 146.95(e). No concerns for stringency.
40 CFR 146.95(e)(1)	The depth of the proposed injection zone(s);	47-13-14.8.d.3.D.i	The depth of the proposed injection zone(s);	Same as CFR.
40 CFR 146.95(e)(2)	The location of the injection well(s);	47-13-14.8.d.3.D.ii	The location of the injection well(s);	Same as CFR.
40 CFR 146.95(e)(3)	The name and depth of all USDWs within the area of review;	47-13-14.8.d.3.D.iii	The name and depth of all USDWs within the area of review;	Same as CFR.
40 CFR 146.95(e)(4)	A map of the area of review;	47-13-14.8.d.3.D.iv	A map of the area of review;	Same as CFR.
40 CFR 146.95(e)(5)	The names of any public water supplies affected, reasonably likely to be affected, or served by USDWs in the area of review; and	47-13-14.8.d.3.D.v	The names of any public water supplies affected, reasonably likely to be affected, or served by USDWs in the area of review; and	Same as CFR.
40 CFR 146.95(e)(6)	The date of waiver issuance.	47-13-14.8.d.3.D.vi	The date of waiver issuance.	Same as CFR.
40 CFR 146.95(f)	Upon receipt of a waiver of the requirement to inject below the lowermost USDW for geologic sequestration, the owner or operator of the Class VI well must comply with:	47-13-14.8.d.4	Additional requirements. Upon receipt of a waiver of the requirement to inject below the lowermost USDW for geologic sequestration, the owner or operator of the Class 6 well must comply with:	Same as CFR.
40 CFR 146.95(f)(1)	All requirements at 40 CFR 146.84, 146.85, 146.87, 146.88, 146.89, 146.91, 146.92, and 146.94;	47-13-14.8.d.4.A	All requirements at 14.9.b.5., 14.7.g., 13.5, 13.6., 6.2., 13.6.c.1., 13.4., and 13.7. of this rule;	Same as CFR.
40 CFR 146.95(f)(2)	All requirements at 40 CFR 146.86 with the following modified requirements:	47-13-14.8.d.4.B	All requirements at section 13.3. with the following modified requirements:	Same as CFR.
40 CFR 146.95(f)(2)(i)	The owner or operator must ensure that Class VI wells with a waiver are constructed and completed to prevent movement of fluids into any unauthorized zones including USDWs, in lieu of requirements at 40 CFR 146.86(a)(1).	47-13-14.8.d.4.B.i	The owner or operator must ensure that Class 6 wells with a waiver are constructed and completed to prevent movement of fluids into any unauthorized zones including USDWs, in lieu of requirements at 13.3.a.1.	Same as CFR.
40 CFR 146.95(f)(2)(ii)	The casing and cementing program must be designed to prevent the movement of fluids into any unauthorized zones including USDWs in lieu of requirements at 40 CFR 146.86(b)(1).	47-13-14.8.d.4.B.ii	The casing and cementing program must be designed to prevent the movement of fluids into any unauthorized zones including USDWs in lieu of requirements at 13.3.b.1.A.	Same as CFR.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.95(f)(2)(iii)	The surface casing must extend through the base of the nearest USDW directly above the injection zone and be cemented to the surface; or, at the Director's discretion, another formation above the injection zone and below the nearest USDW above the injection zone.	47-13-14.8.d.4.B.iii	The surface casing must extend through the base of the nearest USDW directly above the injection zone and be cemented to the surface; or, at the Director's discretion, another formation above the injection zone and below the nearest USDW above the injection zone.	Same as CFR.
40 CFR 146.95(f)(3)	All requirements at 40 CFR 146.90 with the following modified requirements:	47-13-14.8.d.4.C	All requirements at 13.6.b. with the following modified requirements:	Same as CFR.
40 CFR 146.95(f)(3)(i)	The owner or operator shall monitor the groundwater quality, geochemical changes, and pressure in the first USDWs immediately above and below the injection zone(s); and in any other formations at the discretion of the Director.	47-13-14.8.d.4.C.i	The owner or operator shall monitor the groundwater quality, geochemical changes, and pressure in the first USDWs immediately above and below the injection zone(s); and in any other formations at the discretion of the Director.	Same as CFR.
40 CFR 146.95(f)(3)(ii)	Testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using direct methods to monitor for pressure changes in the injection zone(s); and, indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Director determines, based on site-specific geology, that such methods are not appropriate.	47-13-14.8.d.4.C.ii	Testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using direct methods to monitor for pressure changes in the injection zone(s); and, indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Director determines, based on site-specific geology, that such methods are not appropriate.	Same as CFR.
40 CFR 146.95(f)(4)	All requirements at 40 CFR 146.93 with the following, modified post-injection site care monitoring requirements:	47-13-14.8.d.4.D	All requirements at 13.9. with the following, modified post-injection site care monitoring requirements:	Same as CFR.
40 CFR 146.95(f)(4)(i)	The owner or operator shall monitor the groundwater quality, geochemical changes and pressure in the first USDWs immediately above and below the injection zone; and in any other formations at the discretion of the Director.	47-13-14.8.d.4.D.i	The owner or operator shall monitor the groundwater quality, geochemical changes and pressure in the first USDWs immediately above and below the injection zone; and in any other formations at the discretion of the Director.	Same as CFR.
40 CFR 146.95(f)(4)(ii)	Testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using direct methods in the injection zone(s); and indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Director determines based on site-specific geology, that such methods are not appropriate;	47-13-14.8.d.4.D.ii	Testing and monitoring to track the extent of the carbon dioxide plume and the presence or absence of elevated pressure (e.g., the pressure front) by using direct methods in the injection zone(s); and indirect methods (e.g., seismic, electrical, gravity, or electromagnetic surveys and/or down-hole carbon dioxide detection tools), unless the Director determines based on site-specific geology, that such methods are not appropriate;	Same as CFR.

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ED_013399_00000014-00331

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 146.95(f)(5)	Any additional requirements requested by the Director designed to ensure protection of USDWs above and below the injection zone(s).	47-13-14.8.d.4.E	Any additional requirements requested by the Director designed to ensure protection of USDWs above and below the injection zone(s).	Same as CFR.
40 CFR 148 - Hazardous Waste Injection Restrictions **Subpart A - General Program Requirements**				
40 CFR 148.1(a)	**40 CFR 148.1 Purpose, scope and applicability.** This part identifies wastes that are restricted from disposal into Class I wells and defines those circumstances under which a waste, otherwise prohibited from injection, may be injected.			Missing. WV does not include requirements similar to Subpart A of 40 CFR 148 in its UIC rules. Note that 47-13-7.3 requires Class I hazardous well operators to comply with several provisions of WV's Hazardous Waste Management Rule for: notification, identification number, manifest system/ discrepancies, operating record, annual report, unmanifested waste report, and training. These do not appear to be analogous to Subpart A of Part 148.
40 CFR 148.1(b)	The requirements of this part apply to owners or operators of Class I hazardous waste injection wells used to inject hazardous waste.			Missing.
40 CFR 148.1(c)	Wastes otherwise prohibited from injection may continue to be injected:			Missing.
40 CFR 148.1(c)(1)	If an extension from the effective date of a prohibition has been granted pursuant to § 148.4 with respect to such wastes; or			Missing.
40 CFR 148.1(c)(2)	If an exemption from a prohibition has been granted in response to a petition filed under § 148.20 to allow injection of restricted wastes with respect to those wastes and wells covered by the exemption; or			Missing.
40 CFR 148.1(c)(3)	If the waste is generated by a conditionally exempt small quantity generator, as defined in § 261.5; or			Missing.
40 CFR 148.1(d)	Wastes that are hazardous only because they exhibit a hazardous characteristic, and which are otherwise prohibited under this part, or part 268 of this chapter, are not prohibited if the wastes:			Missing.

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ED_013399_00000014-00332

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.1(d)(1)	Are disposed into a nonhazardous or hazardous injection well as defined under 40 CFR § 146.6(a); and			Missing.
40 CFR 148.1(d)(2)	Do not exhibit any prohibited characteristic of hazardous waste identified in 40 CFR part 261, subpart C at the point of injection.			Missing.
40 CFR 148.2	**40 CFR 148.2 Definitions.** *Injection interval* means that part of the injection zone in which the well is screened, or in which the waste is otherwise directly emplaced.			Missing.
40 CFR 148.2	*Transmissive fault or fracture* is a fault or fracture that has sufficient permeability and vertical extent to allow fluids to move between formations.			Missing.
40 CFR 148.3	**40 CFR 148.3 Dilution prohibited as a substitute for treatment.** The prohibition of § 268.3 shall apply to owners or operators of Class I hazardous waste injection wells.			Missing.
40 CFR 148.4	**40 CFR 148.4 Procedures for case-by-case extensions to an effective date.** The owner or operator of a Class I hazardous waste injection well may submit an application to the Administrator for an extension of the effective date of any applicable prohibition established under subpart B of this part according to the procedures of § 268.5.			Missing.
40 CFR 148.5	**40 CFR 148.5 Waste analysis.** Generators of hazardous wastes that are disposed of into Class I injection wells must comply with the applicable requirements of § 268.7 (a) and (b). Owners or operators of Class I hazardous waste injection wells must comply with the applicable requirements of § 268.7(c).			Missing.
Subpart B—Prohibitions on Injection				

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ED_013399_00000014-00333

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.10(a)	**40 CFR 148.10 Waste specific prohibitions—solvent wastes.** Effective August 8, 1988, the spent solvent wastes specified in § 261.31 as EPA Hazardous Waste Nos. F001, F002, F003, F004, and F005 are prohibited from underground injection unless the solvent waste is a solvent-water mixture or solvent-containing sludge containing less than 1 percent total F001-F005 solvent constituents listed in Table A of this section.			Missing.
40 CFR 148.10(b)	Effective August 8, 1990, all spent F001-F005 solvent wastes containing less than 1 percent total F001-F005 solvent constituents listed in Table A of this section are prohibited from injection.			Missing.
40 CFR 148.10(c)	Effective August 8, 1990, all spent F002 and F005 wastes containing solvent constituents listed in Table B of this section are prohibited from underground injection at off-site injection facilities.			Missing.
40 CFR 148.10(d)	Effective November 8, 1990, the wastes specified in paragraph (c) of this section are prohibited from underground injection at on-site injection facilities.			Missing.
40 CFR 148.10(e)	The requirements of paragraphs (a) and (b) of this section do not apply:			Missing.
40 CFR 148.10(e)(1)	If the wastes meet or are treated to meet the applicable standards specified in subpart D of part 268; or			Missing.
40 CFR 148.10(e)(2)	If an exemption from a prohibition has been granted in response to a petition under subpart C of this part; or			Missing.
40 CFR 148.10(e)(3)	During the period of extension of the applicable effective date, if an extension has been granted under § 148.4 of this part.			Missing.
40 CFR 148.11(a)	**40 CFR 148.11 Waste specific prohibitions—dioxin containing wastes.** Effective August 8, 1988, the dioxin-containing wastes specified in § 261.31 as EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, F027, and F028, and prohibited from underground injection.			Missing.

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ED_013399_00000014-00334

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.11(b)	The requirements of paragraph (a) of this section do not apply:			Missing.
40 CFR 148.11(b)(1)	If the wastes meet or are treated to meet the applicable standards specified in subpart D of part 268; or			Missing.
40 CFR 148.11(b)(2)	If an exemption from a prohibition has been granted in response to a petition under subpart C of this part; or			Missing.
40 CFR 148.11(b)(3)	During the period of extension of the applicable effective date, if an extension has been granted under § 148.4 of this part.			Missing.
40 CFR 148.12(a)	**40 CFR148.12 Waste specific prohibitions—California list wastes.** Effective August 8, 1988, the hazardous wastes listed in 40 CFR 268.32 containing polychlorinated biphenyls at concentrations greater than or equal to 50 ppm or halogenated organic compounds at concentrations greater than or equal to 10,000 mg/kg are prohibited from underground injection.			Missing.
40 CFR 148.12(b)	Effective August 8, 1990, the following hazardous wastes are prohibited from underground injection:			Missing.
40 CFR 148.12(b)(1)	Liquid hazardous wastes, including free liquids associated with any solid or sludge, containing free cyanides at concentrations greater than or equal to 1,000 mg/l;			Missing.
40 CFR 148.12(b)(2)	Liquid hazardous wastes, including free liquids associated with any solid or sludge, containing the following metals (or elements) or compounds of these metals (or elements) at concentrations greater than or equal to those specified below: (i) Arsenic and/or compounds (as As) 500 mg/l; (ii) Cadmium and/or compounds (as Cd) 100 mg/l; (iii) Chromium (VI) and/or compounds (as Cr VI) 500 mg/l; (iv) Lead and/or compounds (as Pb) 500 mg/l; (v) Mercury and/or compounds (as Hg) 20 mg/l; (vi) Nickel and/or compounds (as Ni) 134 mg/l; (vii) Selenium and/or compounds (as Se) 100 mg/l; and (viii) Thallium and/or compounds (as Tl) 130 mg/l;			Missing.

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ED_013399_00000014-00335

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.12(b)(3)	Liquid hazardous waste having a pH less than or equal to two (2.0); and			Missing.
40 CFR 148.12(b)(4)	Hazardous wastes containing halogenated organic compounds in total concentration less than 10,000 mg/kg but greater than or equal to 1,000 mg/kg.			Missing.
40 CFR 148.12(c)	The requirements of paragraphs (a) and (b) of this section do not apply:			Missing.
40 CFR 148.12(c)(1)	If the wastes meet or are treated to meet the applicable standards specified in subpart D of part 268; or			Missing.
40 CFR 148.12(c)(2)	If an exemption from a prohibition has been granted in response to a petition under subpart C of this part; or			Missing.
40 CFR 148.12(c)(3)	During the period of extension of the applicable effective date, if an extension is granted under § 148.4 of this part.			Missing.

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ED_013399_00000014-00336

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.14(a)	**40 CFR 148.14 Waste specific prohibitions—first third wastes** Effective June 7, 1989, the wastes specified in 40 CFR 261.31 as EPA Hazardous Waste numbers F006 (nonwastewaters) and the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste numbers K001, K015 (wastewaters), K016 (at concentrations greater than or equal to 1%), K018, K019, K020, K021 (nonwastewaters generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes), K022 (nonwastewaters), K024, K030, K036 (nonwastewaters generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes), K037, K044, K045, nonexplosive K046 (nonwastewaters), K047, K048, K060 (nonwastewaters generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes), K061 (nonwastewaters), noncalcium sulfate K069 (nonwastewaters generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes), K086 solvent washes, K087, K099, K101 (all wastewaters and less than 1% total arsenic nonwastewaters), K102 (all wastewaters and less than 1% total arsenic nonwastewaters), and K103 are prohibited from underground injection.			Missing.
40 CFR 148.14(b)	Effective June 8, 1989, the waste specified in 40 CFR 261.32 as EPA Hazardous Waste number K036 (wastewaters); and the wastes specified in 40 CFR 261.33 as P030, P039, P041, P063, P071, P089, P094, P097, U221, and U223 are prohibited from underground injection.			Missing.

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ED_013399_00000014-00337

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.14(c)	Effective July 8, 1989, the wastes specified in 40 CFR 261.31 as EPA Hazardous Waste numbers F008 and F009 are prohibited from underground injection.			Missing.
40 CFR 148.14(d)	Effective August 8, 1990, the wastes specified in 40 CFR 261.31 as EPA Hazardous Waste Number F006 (wastewaters) and F019; the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste Numbers K004, K008, K015 (nonwastewaters), K017, K021 (wastewaters), K022 (wastewaters), K031, K035, K046 (reactive nonwastewaters and all wastewaters), K060 (wastewaters), K061 (wastewaters), K069 (calcium sulfate nonwastewaters and all wastewaters), K073, K083, K084, K085, K086 (all but solvent washes), K101 (high arsenic nonwastewaters), K102 (high arsenic nonwastewaters), and K106; and the wastes specified in 40 CFR part 261.33 as EPA Hazardous Waste Numbers P001, P004, P005, P010, P011, P012, P015, P016, P018, P020, P036, P037, P048, P050, P058, P059, P068, P069, P070, P081, P082, P084, P087, P092, P102, P105, P108, P110, P115, P120, P122, P123, U007, U009, U010, U012, U016, U018, U019, U022, U029, U031, U036, U037, U041, U043, U044, U046, U050, U051, U053, U061, U063, U064, U066, U067, U074, U077, U078, U086, U089, U103, U105, U108, U115, U122, U124, U129, U130, U133, U134, U137, U151, U154, U155, U157, U158, U159, U171, U177, U180, U185, U188, U192, U200, U209, U210, U211, U219, U220, U226, U227, U228, U237, U238, U248, and U249 are prohibited from underground injection at off-site injection facilities.			Missing.
40 CFR 148.14(e)	Effective August 8, 1990, the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste numbers K049, K050, K051, K052, K062, K071, and K104 are prohibited from underground injection.			Missing.
40 CFR 148.14(f)	Effective November 8, 1990, the wastes specified in paragraph (d) of this section are prohibited from underground injection at on-site injection facilities.			Missing.

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ED_013399_00000014-00338

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.14(g)	Effective June 7, 1991, the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste numbers K016 (at concentrations less than 1%) are prohibited from underground injection.			Missing.
40 CFR 148.14(h)	Effective June 8, 1991, the waste specified in 40 CFR 261.31 as EPA Hazardous Waste number F007; and the wastes specified in 40 CFR 261.32 as K011 (nonwastewaters) and K013 (nonwastewaters) are prohibited from underground injection.			Missing.
40 CFR 148.14(i)	Effective May 8, 1992, the wastes specified in 40 CFR 261.32 and 261.33 as EPA Hazardous Waste Numbers K011 (wastewaters), K013 (wastewaters), and K014 are prohibited from underground injection.			Missing.
40 CFR 148.14(j)	The requirements of paragraphs (a) through (i) of this section do not apply:			Missing.
40 CFR 148.14(j)(1)	If the wastes meet or are treated to meet the applicable standards specified in subpart D of part 268; or			Missing.
40 CFR 148.14(j)(2)	If an exemption from a prohibition has been granted in response to a petition under subpart C of this part; or			Missing.
40 CFR 148.14(j)(3)	During the period of extension of the applicable effective date, if an extension has been granted under § 148.4 of this part.			Missing.
40 CFR 148.15(a)	**40 CFR 148.15 Waste specific prohibitions—second third wastes.** Effective June 7, 1989, the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste numbers K025 (nonwastewaters generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes) are prohibited from underground injection.			Missing.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.15(b)	Effective June 8, 1989, the wastes specified in 40 CFR 261.31 as EPA Hazardous Waste numbers F010, F024; the wastes specified in 40 CFR 261.32 as K009 (nonwastewaters), K010, K027, K028, K029 (nonwastewaters), K038, K039, K040, K043, K095 (nonwastewaters), K096 (nonwastewaters), K113, K114, K115, K116; and wastes specified in 40 CFR 261.33 as P029, P040, P043, P044, P062, P074, P085, P098, P104, P106, P111, U028, U058, U107, and U235 are prohibited from underground injection.			Missing.
40 CFR 148.15(c)	Effective July 8, 1989, and continuing until December 8, 1989, the wastes specified in 40 CFR 261.31 as EPA Hazardous Waste numbers F011 and F012 are prohibited from underground injection pursuant to the treatment standards specified in §§ 268.41 and 268.43 applicable to F007, F008, and F009 wastewaters and nonwastewaters. Effective December 8, 1989, F011 (nonwastewaters) and F012 (nonwastewaters) are prohibited pursuant to the treatment standards specified in §§ 268.41 and 268.43 applicable to F011 and F012 wastewaters and nonwastewaters.			Missing.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.15(d)	Effective August 8, 1990, the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste Number K025 (wastewaters), K029 (wastewaters), K041, K042, K095 (wastewaters), K096 (wastewaters), K097, K098, and K105; and the wastes specified in 40 CFR part 261.33 as P002, P003, P007, P008, P014, P026, P027, P049, P054, P057, P060, P066, P067, P072, P107, P112, P113, P114, U002, U003, U005, U008, U011, U014, U015, U020, U021, U023, U025, U026, U032, U035, U047, U049, U057, U059, U060, U062, U070, U073, U080, U083, U092, U093, U094, U095, U097, U098, U099, U101, U106, U109, U110, U111, U114, U116, U119, U127, U128, U131, U135, U138, U140, U142, U143, U144, U146, U147, U149, U150, U161, U162, U163, U164, U165, U168, U169, U170, U172, U173, U174, U176, U178, U179, U189, U193, U196, U203, U205, U206, U208, U213, U214, U215, U216, U217, U218, U239, and U244 are prohibited from underground injection at off-site injection facilities.			Missing.
40 CFR 148.15(e)	Effective June 8, 1991, the waste specified in 40 CFR 261.32 as EPA Hazardous Waste number K009 (wastewaters) is prohibited from underground injection.			Missing.
40 CFR 148.15(f)	Effective November 8, 1990, the wastes specified in paragraph (d) of this section are prohibited from underground injection at on-site injection facilities.			Missing.
40 CFR 148.15(g)	The requirements of paragraphs (a) through (f) of this section do not apply:			Missing.
40 CFR 148.15(g)(1)	If the wastes meet or are treated to meet the applicable standards specified in subpart D of part 268; or			Missing.
40 CFR 148.15(g)(2)	If an exemption from a prohibition has been granted in response to a petition under subpart C of this part; or			Missing.
40 CFR 148.15(g)(3)	During the period of extension of the applicable effective date, if an extension has been granted under § 148.4 of this part.			Missing.

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ED_013399_00000014-00341

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.16(a)	**40 CFR 148.16 Waste specific prohibitions—third third wastes.** Effective June 7, 1989, the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste numbers K100 (nonwastewaters generated by the process described in the waste listing description and disposed after August 17, 1988, and not generated in the course of treating wastewater forms of these wastes) are prohibited from underground injection.			Missing.
40 CFR 148.16(b)	Effective June 8, 1989, the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste numbers K005 (nonwastewaters), K007 (nonwastewaters), K023, K093, K094; and the wastes specified in 40 CFR 261.33 as P013, P021, P099, P109, P121, U069, U087, U088, U102, and U190 are prohibited from underground injection.			Missing.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.16(c)	Effective August 8, 1990, the wastes identified in 40 CFR 261.31 as EPA Hazardous Waste Number F039 (nonwastewaters); the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste Numbers K002, K003, K005 (wastewaters), K006, K007 (wastewaters), K026, K032, K033, K034, and K100 (wastewaters); the wastes specified in 40 CFR 261.33 as P006, P009, P017, P022, P023, P024, P028, P031, P033, P034, P038, P042, P045, P046, P047, P051, P056, P064, P065, P073, P075, P076, P077, P078, P088, P093, P095, P096, P101, P103, P116, P118, P119, U001, U004, U006, U017, U024, U027, U030, U033, U034, U038, U039, U042, U045, U048, U052, U055, U056, U068, U071, U072, U075, U076, U079, U081, U082, U084, U085, U090, U091, U096, U112, U113, U117, U118, U120, U121, U123, U125, U126, U132, U136, U141, U145, U148, U152, U153, U156, U160, U166, U167, U181, U182, U183, U184, U186, U187, U191, U194, U197, U201, U202, U204, U207, U222, U225, U234, U236, U240, U243, U246, and U247; and the wastes identified in 40 CFR 261.21, 261.23 or 261.24 as hazardous based on a characteristic alone, designated as D001, D004, D005, D006, D008, D009 (wastewaters), D010, D011, D012, D013, D014, D015, D016, D017, and newly listed waste F025 are prohibited from underground injection at off-site injection facilities.			Missing.
40 CFR 148.16(d)	Effective August 8, 1990, mixed radioactive/hazardous waste in 40 CFR 268.10, 268.11, and 268.12, that are mixed radioactive and hazardous wastes, are prohibited from underground injection.			Missing.
40 CFR 148.16(e)	Effective November 8, 1990, the wastes specified in paragraph (c) of this section are prohibited from underground injection at on-site injection facilities. These effective dates do not apply to the wastes listed in 40 CFR 148.12(b) which are prohibited from underground injection on August 8, 1990.			Missing.

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ED_013399_00000014-00343

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.16(f)	Effective May 8, 1992, the waste identified in 40 CFR 261.31 as EPA Hazardous Waste Number F039 (wastewaters); the wastes identified in 40 CFR 261.22, 261.23 or 261.24 as hazardous based on a characteristic alone, designated as D002 (wastewaters and nonwastewaters), D003 (wastewaters and nonwastewaters), D007 (wastewaters and nonwastewaters), and D009 (nonwastewaters) are prohibited from underground injection. These effective dates do not apply to the wastes listed in 40 CFR 148.12(b) which are prohibited from underground injection on August 8, 1990.			Missing.
40 CFR 148.16(g)	The requirements of paragraphs (a) through (f) of this section do not apply:			Missing.
40 CFR 148.16(g)(1)	If the wastes meet or are treated to meet the applicable standards specified in subpart D of part 268; or			Missing.
40 CFR 148.16(g)(2)	If an exemption from a prohibition has been granted in response to a petition under subpart C of this part; or			Missing.
40 CFR 148.16(g)(3)	During the period of extension of the applicable effective date, if an extension has been granted under § 148.4 of this part.			Missing.
40 CFR 148.17(a)	**40 CFR 148.17 Waste specific prohibitions; newly listed wastes.** Effective November 9, 1992, the wastes specified in 40 CFR part 261 as EPA hazardous waste numbers F037, F038, K107, K108, K109, K110, K111, K112, K117, K118, K123, K124, K125, K126, K131, K136, U328, U353, and U359 are prohibited from underground injection.			Missing.
40 CFR 148.17(b)	Effective December 19, 1994 the wastes specified in 40 CFR 261.32 as EPA Hazardous waste numbers K141, K142, K143, K144, K145, K147, K148, K149, K150, and K151, are prohibited from underground injection.			Missing.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.17(d)	Effective June 30, 1995, the wastes specified in 40 CFR part 261 as EPA Hazardous waste numbers K117, K118, K131, and K132 are prohibited from underground injection.			Missing.
40 CFR 148.17(e)	The requirements of paragraphs (a) and (b) of this section do not apply:			Missing.
40 CFR 148.17(e)(1)	If the wastes meet or are treated to meet the applicable standards specified in subpart D of part 268; or			Missing.
40 CFR 148.17(e)(2)	If an exemption from a prohibition has been granted in response to a petition under subpart C of this part; or			Missing.
40 CFR 148.17(e)(3)	During the period of extension of the applicable effective date, if an extension has been granted under § 148.4 of this part.			Missing.
40 CFR 148.18(a)	**40 CFR 148.18 Waste specific prohibitions-newly listed and identified wastes.** Effective August 24, 1998, all newly identified D004-D011 wastes and characteristic mineral processing wastes, except those identified in paragraph (b) of this section, are prohibited from underground injection.			Missing.
40 CFR 148.18(b)	Effective May 26, 2000, characteristic hazardous wastes from titanium dioxide mineral processing, and radioactive wastes mixed with newly identified D004-D011 or mixed with newly identified characteristic mineral processing wastes, are prohibited from underground injection.			Missing.
40 CFR 148.18(c)	Effective August 11, 1997, the wastes specified in 40 CFR part 261 as EPA Hazardous waste numbers F032, F034, F035 are prohibited from underground injection.			Missing.
40 CFR 148.18(d)	Effective May 12, 1999, the wastes specified in 40 CFR part 261 as EPA Hazardous waste numbers F032, F034, F035 that are mixed with radioactive wastes are prohibited from underground injection.			Missing.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.18(e)	On July 8, 1996, the wastes specified in 40 CFR 261.32 as EPA Hazardous waste numbers K156-K161, P127, P128, P185, P188-P192, P194, P196-P199, P201-P205, U271, U277-U280, U364-U367, U372, U373, U375-U379, U381-387, U389-U396, U400-U404, U407, and U409-U411 are prohibited from underground injection.			Missing.
40 CFR 148.18(f)	On January 8, 1997, the wastes specified in 40 CFR 261.32 as EPA Hazardous waste number K088 is prohibited from underground injection.			Missing.
40 CFR 148.18(g)	On April 8, 1998, the wastes specified in 40 CFR part 261 as EPA Hazardous waste numbers D018-043, and Mixed TC/Radioactive wastes, are prohibited from underground injection.			Missing.
40 CFR 148.18(i)	Effective February 8, 1999, the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste Numbers K169, K170, K171, and K172 are prohibited from underground injection.			Missing.
40 CFR 148.18(j)	Effective May 8, 2001, the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste Numbers K174 and K175 are prohibited from underground injection.			Missing.
40 CFR 148.18(k)	Effective May 20, 2002, the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste Numbers K176, K177, and K178 are prohibited from underground injection.			Missing.
40 CFR 148.18(l)	Effective August 23, 2005, the waste specified in 40 CFR 261.32 as EPA Hazardous Waste Number K181 is prohibited from underground injection.			Missing.
40 CFR 148.18(m)	The requirements of paragraphs (a) through (l) of this section do not apply:			Missing.
40 CFR 148.18(m)(1)	If the wastes meet or are treated to meet the applicable standards specified in subpart D of 40 CFR part 268; or			Missing.
40 CFR 148.18(m)(2)	If an exemption from a prohibition has been granted in response to a petition under subpart C of this part; or			Missing.

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ED_013399_00000014-00346

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.18(m)(3)	During the period of extension of the applicable effective date, if an extension has been granted under § 148.4.			Missing.
Subpart C—Petition Standards and Procedures				
40 CFR 148.20 (a)	**40 CFR 148.20 Petitions to allow injection of a waste prohibited under subpart B.** Any person seeking an exemption from a prohibition under subpart B of this part for the injection of a restricted hazardous waste into an injection well or wells shall submit a petition to the Director demonstrating that, to a reasonable degree of certainty, there will be no migration of hazardous constituents from the injection zone for as long as the waste remains hazardous. This demonstration requires a showing that:			Missing.
40 CFR 148.20 (a)(1)	The hydrogeological and geochemical conditions at the sites and the physiochemical nature of the waste stream(s) are such that reliable predictions can be made that:			Missing.
40 CFR 148.20 (a)(1)(i)	Fluid movement conditions are such that the injected fluids will not migrate within 10,000 years:			Missing.
40 CFR 148.20 (a)(1)(i)(a)	Vertically upward out of the injection zone; or			Missing.
40 CFR 148.20 (a)(1)(i)(b)	Laterally within the injection zone to a point of discharge or interface with an Underground Source of Drinking Water (USDW) as defined in 40 CFR part 146; or			Missing.
40 CFR 148.20 (a)(1)(ii)	Before the injected fluids migrate out of the injection zone or to a point of discharge or interface with USDW, the fluid will no longer be hazardous because of attenuation, transformation, or immobilization of hazardous constituents within the injection zone by hydrolysis, chemical interactions or other means; and			Missing.
40 CFR 148.20 (a)(2)	For each well the petition has:			Missing.

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ED_013399_00000014-00347

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.20 (a)(2)(i)	Demonstrated that the injection well's area of review complies with the substantive requirements of § 146.63;			Missing.
40 CFR 148.20 (a)(2)(ii)	Located, identified, and ascertained the condition of all wells within the injection well's area of review (as specified in § 146.63) that penetrate the injection zone or the confining zone by use of a protocol acceptable to the Director that meets the substantive requirements of § 146.64;			Missing.
40 CFR 148.20 (a)(2)(iii)	Submitted a corrective action plan that meets the substantive requirements of § 146.64, the implementation of which shall become a condition of petition approval; and			Missing.
40 CFR 148.20 (a)(2)(iv)	Submitted the results of pressure and radioactive tracer tests performed within one year prior to submission of the petition demonstrating the mechanical integrity of the well's long string casing, injection tube, annular seal, and bottom hole cement. In cases where the petition has not been approved or denied within one year after the initial demonstration of mechanical integrity, the Director may require the owner or operator to perform the tests again and submit the results of the new tests.			Missing.
40 CFR 148.20(b)	A demonstration under § 148.20(a)(1)(i) shall identify the strata within the injection zone which will confine fluid movement above the injection interval and include a showing that this strata is free of known transmissive faults of fractures and that there is a confining zone above the injection zone.			Missing.
40 CFR 148.20(c)	A demonstration under § 148.20(a)(1)(ii) shall identify the strata within the injection zone where waste transformation will be accomplished and include a showing that this strata is free of known transmissive faults or fractures and that there is a confining zone above the injection zone.			Missing.
40 CFR 148.20(d)	A demonstration may include a showing that:			Missing.

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ED_013399_00000014-00348

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.20(d)(1)	Treatment methods, the implementation of which shall become a condition of petition approval, will be utilized that reduce the toxicity or mobility of the wastes; or			Missing.
40 CFR 148.20(d)(2)	A monitoring plan, the implementation of which shall become a condition of petition approval, will be utilized to enhance confidence in one or more aspects of the demonstration.			Missing.
40 CFR 148.20(e)	Any person who has been granted an exemption pursuant to this section may submit a petition for reissuance of the exemption to include an additional restricted waste or wastes or to modify any conditions placed on the exemption by the Director. The Director shall reissue the petition if the petitioner complies with the requirements of paragraphs (a), (b) and (c) of this section.			Missing.
40 CFR 148.20(f)	Any person who has been granted an exemption pursuant to this section may submit a petition to modify an exemption to include an additional (hazardous) waste or wastes. The Director may grant the modification if he determines, to a reasonable degree of certainty, that the additional waste or wastes will behave hydraulically and chemically in a manner similar to previously included wastes and that it will not interfere with the containment capability of the injection zone.			Missing.
40 CFR 148.21(a)	**40 CFR 148.21 Information to be submitted in support of petitions.** Information submitted in support of § 148.20 must meet the following criteria:			Missing.
40 CFR 148.21(a)(1)	All waste analysis and any new testing performed by the petitioner shall be accurate and reproducible and performed in accordance with quality assurance standards;			Missing.
40 CFR 148.21(a)(2)	Estimation techniques shall be appropriate, and EPA-certified test protocols shall be used where available and appropriate;			Missing.

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ED_013399_00000014-00349

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.21(a)(3)	Predictive models shall have been verified and validated, shall be appropriate for the specific site, waste streams, and injection conditions of the operation, and shall be calibrated for existing sites where sufficient data are available;			Missing.
40 CFR 148.21(a)(4)	An approved quality assurance and quality control plan shall address all aspects of the demonstration;			Missing.
40 CFR 148.21(a)(5)	Reasonably conservative values shall be used whenever values taken from the literature or estimated on the basis of known information are used instead of site-specific measurements; and			Missing.
40 CFR 148.21(a)(6)	An analysis shall be performed to identify and assess aspects of the demonstration that contribute significantly to uncertainty. The petitioner shall conduct a sensitivity analysis to determine the effect that significant uncertainty may contribute to the demonstration. The demonstration shall then be based on conservative assumptions identified in the analysis.			Missing.
40 CFR 148.21(b)	Any petitioner under § 148.20(a)(1)(i) shall provide sufficient site-specific information to support the demonstration, such as:			Missing.
40 CFR 148.21(b)(1)	Thickness, porosity, permeability and extent of the various strata in the injection zone;			Missing.
40 CFR 148.21(b)(2)	Thickness, porosity, permeability, extent, and continuity of the confining zone;			Missing.
40 CFR 148.21(b)(3)	Hydraulic gradient in the injection zone;			Missing.
40 CFR 148.21(b)(4)	Hydrostatic pressure in the injection zone; and			Missing.
40 CFR 148.21(b)(5)	Geochemical conditions of the site.			Missing.
40 CFR 148.21(c)	In addition to the information in § 148.21(b), any petitioner under § 148.20(a)(1)(ii) shall provide sufficient waste-specific information to ensure reasonably reliant predictions about the waste transformation. The petitioner shall provide the information necessary to support the demonstration, such as:			Missing.

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ED_013399_00000014-00350

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.21(c)(1)	Description of the chemical processes or other means that will lead to waste transformation; and			Missing.
40 CFR 148.21(c)(2)	Results of laboratory experiments verifying the waste transformation.			Missing.
40 CFR 148.22(a)	**40 CFR 148.22 Requirements for petition submission, review and approval or denial.** Any petition submitted to the Director pursuant to § 148.20(a) shall include the following components:			Missing.
40 CFR 148.22(a)(1)	An identification of the specific waste or wastes and the specific injection well or wells for which the demonstration will be made;			Missing.
40 CFR 148.22(a)(2)	A waste analysis to describe fully the chemical and physical characteristics of the subject wastes;			Missing.
40 CFR 148.22(a)(3)	Such additional information as is required by the Director to support the petition under §§ 148.20 and 148.21; and			Missing.
40 CFR 148.22(a)(4)	This statement signed by the petitioner or an authorized representative: I certify under penalty of law that I have personally examined and am familiar with the information submitted in this petition and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.			Missing.
40 CFR 148.22.(b)	The Director shall provide public notice and an opportunity for public comment in accordance with the procedures in § 124.10 of the intent to approve or deny a petition. The final decision on a petition will be published in the Federal Register.			Missing.

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[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.22(c)	If an exemption is granted it will apply only to the underground injection of the specific restricted waste or wastes identified in the petition into a Class I hazardous waste injection well or wells specifically identified in the petition (unless the exemption is modified or reissued pursuant to § 148.20(e) or (f).			Missing.
40 CFR 148.22(d)	Upon request by any petitioner who obtains an exemption for a well under this subpart, the Director shall initiate and reasonably expedite the necessary procedures to issue or reissue a permit or permits for the hazardous waste well or wells covered by the exemption for a term not to exceed ten years.			Missing.
40 CFR 148.23(a)	**40 CFR 148.23 Review of exemptions granted pursuant to a petition.** When considering whether to reissue a permit for the operation of a Class I hazardous waste injection well, the Director shall review any petition filed pursuant to § 148.20 and require a new demonstration if information shows that the basis for granting the exemption may no longer be valid.			Missing.
40 CFR 148.23(b)	Whenever the Director determines that the basis for approval of a petition may no longer be valid, the Director shall require a new demonstration in accordance with § 148.20.			Missing.
40 CFR 148.24(a)	**40 CFR 148.24 Termination of approved petition** The Director may terminate an exemption granted under § 148.20 for the following causes:			Missing.
40 CFR 148.24(a)(1)	Noncompliance by the petitioner with any condition of the exemption;			Missing.
40 CFR 148.24(a)(2)	The petitioner's failure in the petition or during the review and approval to disclose fully all relevant facts, or the petitioner's misrepresentation of any relevant facts at any time; or			Missing.
40 CFR 148.24(a)(3)	A determination that new information shows that the basis for approval of the petition is no longer valid.			Missing.
40 CFR 148.24(b)	The Director shall terminate an exemption granted under § 148.20 for the following causes:			Missing.

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ED_013399_00000014-00352

[SEQ CHAPTER \h \r 1]**40 CFR Parts 124, 144, 146, and 148 vs. West Virginia UIC Regulations**				
Code of Federal Regulations		**Current West Virginia Statutes and Regulations**		
Citation	**CFR Text**	**Citation**	**Rule Text**	**Difference**
40 CFR 148.24(b)(1)	The petitioner's willful withholding during the review and approval of the petition of facts directly and materially relevant to the Director's decision on the petition;			Missing.
40 CFR 148.24(b)(2)	A determination that there has been migration from the injection zone or the well that is not in accordance with the terms of the exemption, except that the Director may at his discretion decide not to terminate where:			Missing.
40 CFR 148.24(b)(2)(i)	The migration resulted from a mechanical failure of the well that can be corrected promptly through a repair to the injection well itself or from an undetected well or conduit that can be plugged promptly; and			Missing.
40 CFR 148.24(b)(2)(ii)	The requirements of § 146.67(i) are satisfied.			Missing.
40 CFR 148.24(c)	The Director shall follow the procedures in § 124.5 in terminating any exemption under this section.			Missing.

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