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**Title 40 CFR Part 191  
Subparts B and C  
Compliance Recertification  
Application  
for the  
Waste Isolation Pilot Plant  
Active Institutional Controls  
(40 CFR § 194.41)**



**United States Department of Energy  
Waste Isolation Pilot Plant**

**Carlsbad Field Office  
Carlsbad, New Mexico**

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**Active Institutional Controls  
(40 CFR § 194.41)**

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### **Acronyms and Abbreviations**

AIC	active institutional control
CARD	Compliance Application Review Document
CCA	Compliance Certification Application
CRA	Compliance Recertification Application
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
PA	performance assessment
WIPP	Waste Isolation Pilot Plant

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1 **41.1 Requirements**

§ 194.41 Active Institutional Controls

(a) Any compliance application shall include detailed descriptions of proposed active institutional controls, the controls' location, and the period of time the controls are proposed to remain active. Assumptions pertaining to active institutional controls and their effectiveness in terms of preventing or reducing radionuclide releases shall be supported by such descriptions.

(b) Performance assessments shall not consider any contributions from active institutional controls for more than 100 years after disposal.

2  
3 **41.2 Background**

4 One of the six assurance requirements is found in 40 CFR § 194.41 (U.S. Environmental  
5 Protection Agency 1996) which contains the compliance criteria. Assurance requirements are  
6 included in the disposal regulations to compensate in a qualitative manner for the inherent  
7 uncertainties in projecting the behavior of natural and engineered components of the Waste  
8 Isolation Pilot Plant (WIPP) for many thousands of years (U.S. Environmental Protection  
9 Agency 1985, p. 38072, and Compliance Application Review Document [CARD] 41, U.S.  
10 Environmental Protection Agency 1998a, Section 41.A.1). Section 194.41 is one of the six  
11 assurance requirements in the Compliance Criteria. Active institutional controls (AICs) are  
12 defined in 40 CFR § 191.12 (U.S. Environmental Protection Agency 1993) as “controlling access  
13 to a disposal site by any means other than passive institutional controls, performing maintenance  
14 operations or remedial actions at a site, controlling or cleaning up releases from a site, or  
15 monitoring parameters related to disposal system performance.” Section 194.41 requires AICs to  
16 be maintained for as long a period of time as practicable after disposal; however, contributions  
17 from AICs for reducing the rate of human intrusion in the performance assessment (PA) may not  
18 be considered for more than 100 years after disposal.

19 **41.3 1998 Certification Decision**

20 To meet the requirements for section 194.41, the U.S. Environmental Protection Agency (EPA)  
21 expected the Compliance Certification Application (CCA) (U.S. Department of Energy 1996) to  
22 describe in detail the proposed AICs and their location and function and to identify the period of  
23 time they are expected to remain active. The EPA also expected the U.S. Department of Energy  
24 (DOE) to provide detailed information regarding implementation of the controls, any  
25 assumptions pertaining to the effectiveness of active controls, a justification for any credit for the  
26 AICs used in the PA, and the method for determining the credit. The EPA specified that the PA  
27 could not assume that the AICs would be effective for a period longer than 100 years after  
28 disposal.

29 In the CCA, Chapter 7.0 and Appendix AIC, the DOE describes its plan for the AICs, including  
30 constructing a fence and roadway around the surface footprint of the repository, posting warning  
31 signs, and performing routine patrols and surveillance. The DOE states that the AICs will be  
32 maintained for 100 years after closure of the WIPP facility and would effectively prevent human  
33 intrusion during that time.

1 The EPA reviewed the DOE's proposed plans for the AICs in connection with the types of  
2 activities (U.S. Environmental Protection Agency 1998a, Section 41.A.3) that may be expected  
3 to occur in the vicinity of the WIPP site during the first 100 years after disposal (i.e., ranching,  
4 farming, hunting, scientific activities, utilities and transportation, groundwater pumping, surface  
5 excavation, potash exploration, construction, and hostile or illegal activities). The EPA also  
6 examined the assumptions made by the DOE to justify the assertion that the AICs will be  
7 completely effective for 100 years.

8 The EPA found that the DOE adequately described the proposed AICs and the basis for their  
9 assumed effectiveness and did not assume in the PA that the AICs would be effective for more  
10 than 100 years, and thus found the DOE to be in compliance with section 194.41.

11 A complete description of the EPA's 1998 Certification Decision for section 194.41 can be  
12 found in U.S. Environmental Protection Agency (1998b).

#### 13 **41.4 Changes in the CRA-2004**

14 The 2004 Compliance Recertification Application (CRA-2004), Chapter 7.0 contains the  
15 changes related to AICs since 1998. The DOE reported that the CCA, Appendix AIC was  
16 unchanged since 1998; however, the following changes were included in CRA-2004:

- 17 • A new timeline for implementation of AICs
- 18 • DOE's approach to maintaining and replacing AICs
- 19 • Minimum standards to apply during construction and maintenance of AICs

#### 20 **41.5 EPA's Evaluation of Compliance for the 2004 Recertification**

21 Based on the EPA's review of the activities and conditions in and around the WIPP site, the EPA  
22 did not identify any significant changes in the planning and execution of the DOE's AICs plan  
23 since the 1998 Certification Decision (U.S. Environmental Protection Agency 2006a, p. 41-2,  
24 paragraph 2 and paragraph 4).

25 The EPA concluded that the CRA-2004 adequately describes, in detail, the proposed AICs and  
26 their location and function, and identifies the basis for the DOE's assumed effectiveness. The  
27 EPA confirmed that the DOE's CRA-2004 Performance Assessment Baseline Calculations used  
28 the maximum allowable credit for the AICs against human intrusion (100 years). The EPA  
29 found reasonable the DOE's assertion that the AICs will completely prevent human intrusion for  
30 100 years.

31 The EPA approved the removal of Appendix LMP from recertification applications. The EPA  
32 found that information from Appendix LMP was not used as a basis for the EPA's 1998  
33 Compliance Decision on section 194.41 (U.S. Environmental Protection Agency 1998b).  
34 Because it does not directly support compliance demonstrations for the EPA's disposal  
35 regulations, its removal from the CRA-2004 was not significant; nor did it affect the EPA's  
36 evaluation of continued compliance.

1 During its review of the CRA-2004, the EPA received no public comments on the DOE's  
2 continued compliance with the AICs requirements of section 194.41. The EPA found (U.S.  
3 Environmental Protection Agency 2006c) the DOE to be in continued compliance with the  
4 requirements of section 194.41.

#### 5 **41.6 Changes or New Information Since the 2004 Recertification**

6 In the 2009 CRA (CRA-2009), the DOE is not proposing any changes to the AICs program for  
7 the WIPP. Information pertaining to the program as provided in the CCA and the CRA-2004  
8 remains unchanged. The DOE believes it has demonstrated continued compliance with the  
9 provisions of section 194.41.

#### 10 **41.7 References**

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