40 CFR Part 191
Subparts B and C
Compliance Recertification Application 2026
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

Compliance Recertification Application 2026
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ACRONYMS AND ABBREVIATIONS

AIC	Active Institutional Control
CARD	Compliance Application Review Document
CCA	Compliance Certification Application
CFR	Code of Federal Regulations
CRA	Compliance Recertification Application
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
RPPCR	Replacement Panels Planned Change Request
WIPP	Waste Isolation Pilot Plant

41.0 ACTIVE INSTITUTIONAL CONTROLS (40 CFR § 194.41)

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.

41.2 Background

Assurance requirements are included in the disposal regulations "to compensate in a qualitative manner for the inherent uncertainties in projecting the behavior of natural and engineered components of the disposal system for many thousands of years" (Compliance Application Review Document [CARD] 41, U.S. EPA 1998, Section 41.A.1). Active institutional control (AIC), an assurance requirement, is defined in 40 Code of Federal Regulations (CFR) 191.12 (U.S. EPA 1993) as controlling access to a disposal site by any means other than passive institutional controls, performing maintenance operations or remedial actions at a site, or monitoring parameters related to disposal system performance. Contributions from AICs to reduce the rate of human intrusion in the performance assessment shall not be considered for more than 100 years after disposal. However, AICs should be in place for as long as such controls are useful and practical.

In the 2004 Compliance Recertification Application (CRA) (U.S. DOE 2004), the U.S. Department of Energy (DOE) reported only minor changes since the initial 1996 Compliance Certification Application (CCA). These changes included: (1) a new timeline for implementation of AICs, (2) the DOE's approach to maintaining and replacing AICs, and (3) minimum standards to apply during construction and maintenance of AICs. In the CRA-2009, CRA-2014, and CRA-2019, there were no changes to the AIC program. Post-closure AICs will include the following:

- A fence and roadway around the surface footprint of the repository
- Posted warning signs
- Routine patrols and surveillance

The AICs will be maintained for the first 100 years after the closure of the Waste Isolation Pilot Plant (WIPP) and will effectively prevent human intrusion during that time.

Information and data from previous compliance certification and recertification applications, which form the basis of past DOE compliance positions and U.S. Environmental Protection Agency (EPA) decision documents, are found in the CRA-2019 (U.S. DOE 2019).

41.3 Changes or New Information Since the CRA-2019

The DOE issued a Planned Change Notification for the excavation of five new main access drifts located to the west of the currently mined area of the WIPP (U.S. DOE 2021). On October 13, 2021, the EPA acknowledged the DOE's plans for the mining of the west main access drifts, stating that although there were no "concerns resulting in the facility being out of compliance with 40 CFR Part 194," the EPA expected the DOE to appropriately incorporate the new drifts in future performance assessments to capture their impact on projected releases from the repository (U.S. EPA 2021). In March 2024, the DOE submitted a Planned Change Request for the use of Replacement Panels 11 and 12 (U.S DOE 2024) to the EPA. The updated AIC information described in this section addresses the addition of the five new west main access drifts and is also consistent with the AIC changes described in the March 2024 Replacement Panels Planned Change Request (RPPCR).

Replacement Panels 11 and 12 are to be located to the west of the existing repository and represent an interim repository state that recovers lost disposal capacity from Panels 1, 7, and 9, thereby ensuring uninterrupted transuranic waste-disposal operations upon the completion of waste emplacement in Panel 8 (U.S. DOE 2024). Continued compliance with the criteria of 40 CFR 194.41 will be achieved by extending the current AIC approach over the surface expression area for Panels 11 and 12. The expanded footprint consists of two adjoining rectangular areas. One rectangular area is approximately 2,780 feet by 2,360 feet (875 meters by 720 meters), covering Panels 1 through 10. The second (adjoining) rectangular area, as it applies to Replacement Panels 11 and 12, is approximately 1,040 feet by 1,210 feet (317 meters by 369 meters). Figure 41-1 provides an illustration of the fence and roadway in relation to the repository footprint. Minor changes to the placement and width of gates along the fence were described in the RPPCR.

Panels 1 through 12 will not accommodate the entire waste volume of 6.2 million cubic feet of transuranic waste authorized by the Land Withdrawal Act (U.S. Congress 1992). As a result, the DOE may request the use of additional waste panels in the future. The final-state repository would continue to comply with the criteria in 40 CFR 194.41 by applying the current AIC approach to any added repository footprint.

Other information pertaining to the program as provided in the CCA (U.S. DOE 1996), CRA-2004 (U.S. DOE 2004), CRA-2009 (U.S. DOE 2009), CRA-2014 (U.S. DOE 2014), and CRA-2019 (U.S. DOE 2019) remains unchanged. Based on the changes to the AIC program described in this section and prior CCA and CRA information, the DOE continues to demonstrate compliance with the provisions of 40 CFR 194.41.

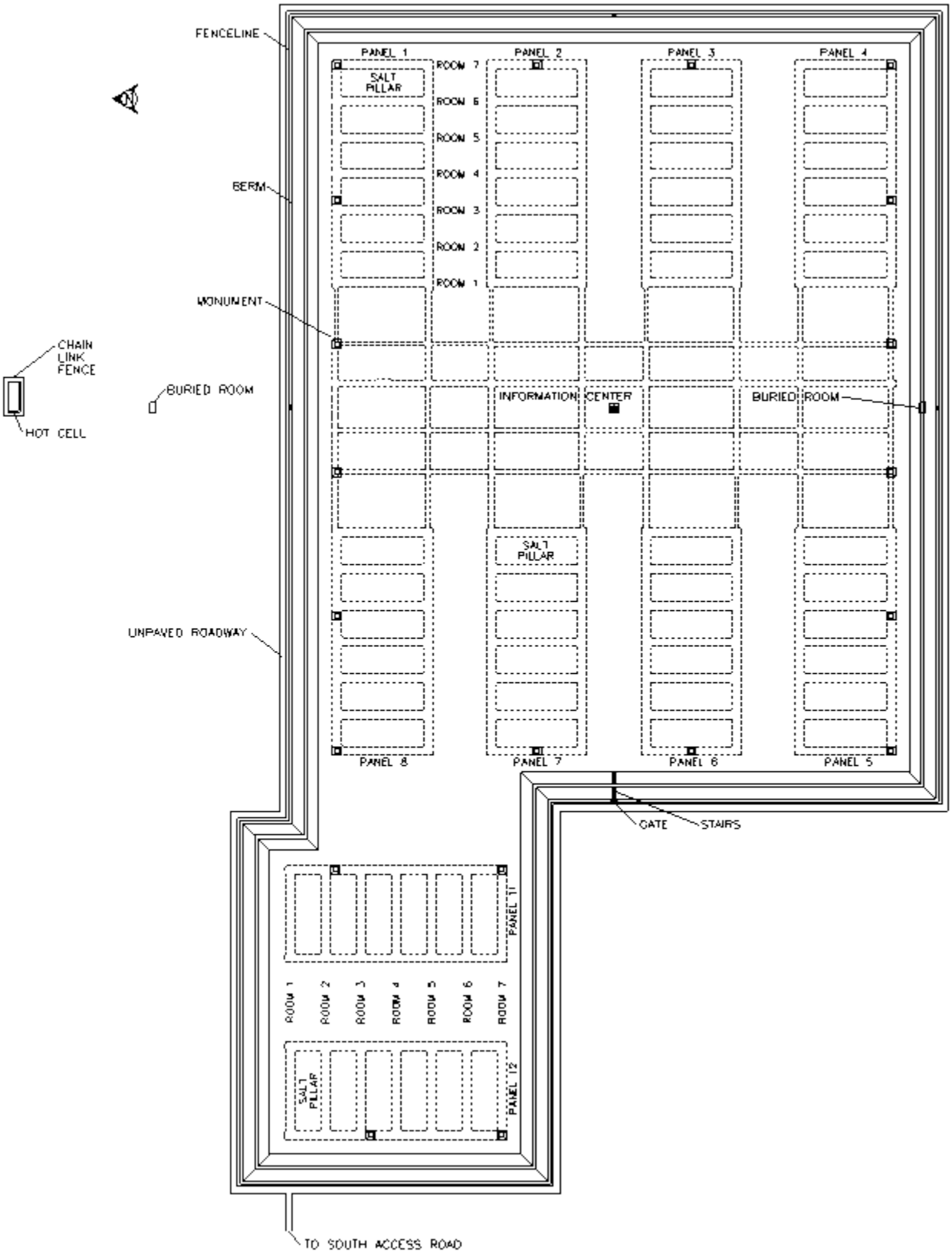


Figure 41-1. New Active Institutional Controls Perimeter Fence and Roadway

41.4 References

(*Indicates a reference that has not been previously submitted)

U.S. Congress. 1992. WIPP Land Withdrawal Act, Public Law 102-79, 106 Stat. 4777, 1992; as amended by Public Law 104-201, 110 Stat. 2422, 1996.*

U.S. Department of Energy (DOE). 1996. Title 40 CFR Part 191 Compliance Certification Application for the Waste Isolation Pilot Plant (October). 21 vols. Carlsbad, NM: Carlsbad Area Office. DOE/CAO-1996-2184.

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U.S. DOE. 2009. Title 40 CFR Part 191 Compliance Recertification Application for the Waste Isolation Pilot Plant (March). Carlsbad, NM: Carlsbad Field Office. DOE/WIPP-09-3424.

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U.S. DOE. 2021. Letter from Reinhard M. Knerr, Manager, Carlsbad Field Office, Department of Energy, to Ms. Lee Ann Veal, Director, Radiation Protection Division, Office of Radiation and Indoor Air, U.S. Environmental Protection Agency. Planned Change Notice to Excavate the West Main access Drifts. June 23, 2021.*

U.S. DOE. 2024. Letter from Mark Bollinger, Manager, Carlsbad Field Office, Department of Energy, to Ms. Lee Ann Veal, Director, Radiation Protection Division, Office of Radiation and Indoor Air. Planned Change Request for Replacement Panels 11 and 12. March 12, 2024.*

U.S. Environmental Protection Agency (EPA). 1993. 40 CFR Part 191 Environmental Radiation Protection Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes: Final Rule. *Federal Register*, vol. 58 (December 20, 1993): 66398–416.

U.S. EPA. 1998. CARD No. 41: Active Institutional Controls. Compliance Application Review Documents for the Criteria for the Certification and Recertification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations: Final Certification Decision (May) (pp. 41-1 through 41-6). Washington, DC: Office of Radiation and Indoor Air.

U.S. EPA. 2021. Letter from Lee Ann B. Veal, Director, Radiation Protection Division, United States Environmental Protection Agency, to Mr. Reinhard Knerr, Manager, Carlsbad Field Office, Department of Energy. The Environmental Protection Agency has received and reviewed the Department of Energy (DOE) Carlsbad Field Office's (CBFO) June 23, 2021 Planned Change Notice (PCN) and accompanying attachment to excavate five new main access drifts located to the west of the currently mined area of the Waste Isolation Pilot Plant (WIPP). October 13, 2021.*