Title 40 CFR Part 191
Subparts B and C
Compliance Recertification Application 2019
for the
Waste Isolation Pilot Plant

Scope of Compliance Assessments
(40 CFR 194.54)

United States Department of Energy
Waste Isolation Pilot Plant

Carlsbad Field Office
Carlsbad, New Mexico

Compliance Recertification Application 2019
Scope of Compliance Assessments
(40 CFR 194.54)

Table of Contents

This page intentionally left blank.

Acronyms and Abbreviations

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
FEP	feature, event, and process
PA	performance assessment
WIPP	Waste Isolation Pilot Plant

This page intentionally left blank.

54.0 Scope of Compliance Assessments (40 CFR 194.54)

54.1 Requirements

§ 194.54 Scope of Compliance Assessments

(a) Any compliance application shall contain compliance assessments required pursuant to this part. Compliance assessments shall include information which:

(1) Identifies potential processes, events, or sequences of processes and events that may occur over the regulatory time frame;

(2) Identifies the processes, events, or sequences of processes and events included in compliance assessment results provided in any compliance application; and

(3) Documents why any processes, events, or sequences of processes and events identified pursuant to paragraph (a)(1) of this section were not included in compliance assessment results provided in any compliance application.

(b) Compliance assessments of undisturbed performance shall include the effects on the disposal system of:

(1) Existing boreholes in the vicinity of the disposal system, with attention to the pathways they provide for migration of radionuclides from the site; and

(2) Any activities that occur in the vicinity of the disposal system prior to or soon after disposal. Such activities shall include, but shall not be limited to: Existing boreholes and the development of any existing leases that can be reasonably expected to be developed in the near future, including boreholes and leases that may be used for fluid injection activities.

54.2 Background

The individual and groundwater protection requirements (40 CFR 191.15 and 40 CFR Part 191 Subpart C [U.S. EPA 1993]) place limitations on both the potential radiation exposure of individuals and the possible levels of radioactive contamination of groundwater resulting from disposal of waste in the Waste Isolation Pilot Plant (WIPP). The criteria for compliance are provided in 40 CFR 194.51 through 194.55 (U.S. EPA 1996). The individual protection requirement focuses on the annual radiation dose of a maximally exposed person living on the surface just outside the Land Withdrawal Act boundary. In particular, 40 CFR 191.15 requires that the WIPP be constructed in such a manner as to provide a reasonable expectation that, for 10,000 years after waste disposal, undisturbed performance of the disposal system will not cause the annual committed effective dose equivalent (hereafter called "dose") to exceed 15 millirems (150 microsieverts) to any member of the public in the accessible environment. Part 191 Subpart C also requires that underground sources of drinking water be protected, at least to the extent prescribed by the National Primary Drinking Water Regulations at 40 CFR Part 141 (U.S. EPA 1992), as they existed on January 19, 1994 (per 40 CFR 191.24(a)(1)).

As with performance assessments (PAs), compliance assessments must consider features, events, and processes (FEPs) and the uncertainties associated with those FEPs. PAs are used to demonstrate compliance with the containment requirements of 40 CFR 191.13 (U.S. EPA 1993). Compliance assessments may be regarded as a "subset" of PAs as the latter incorporate FEPs

related to undisturbed conditions that are necessary for the compliance assessment. The results of PAs are used as input values to the compliance assessments. Section 194.54 contains the scope for assessments of the WIPP's compliance with the individual dose and groundwater protection requirements.

The screening decisions for the undisturbed performance FEPs have not changed for the 2014 Compliance Recertification Application (CRA-2014) (U.S. DOE 2014), but the justification for some screening decisions has changed (Appendix SCR-2014). Appendix IGP-2014, Section IGP-2.1, demonstrates that the U. S. Department of Energy (DOE) continues to consider existing boreholes and potential boreholes as required by sections 194.54(b)(1) and (b)(2). The CRA-2014 PA analysis continues to confirm that the most plausible undisturbed transport pathway is through the anhydrite marker beds, as assumed in previous CRAs and the Compliance Certification Application (CCA) (U.S. DOE 1996) (see Appendix IGP-2014, Section IGP-2.2.1). FEPs screening decisions for human-initiated FEPs that represent drilling and other activities that introduce boreholes in the vicinity of the disposal system remain unchanged from the CRA-2014. The DOE's approach to compliance assessments has not changed.

The DOE has not changed its dose calculation methodology. The DOE continues to assume an existing borehole (Appendix IGP-2014, Section IGP-2.2.1) and still applies PA results in a bounding analysis (Appendix IGP-2014, Section IGP-2.2.2). The DOE continues to determine that the maximum release concentrations predicted for undisturbed performance are lower than the CCA predictions; therefore, new bounding dose calculations were not needed for the CRA-2014 (Appendix IGP-2014, Section IGP-2.3).

54.3 Changes or New Information Since the CRA-2014

There are no significant changes related to the section 194.54 requirements since the CRA-2014.

The DOE has deferred submittal of the CRA-2019 PA until after submission of the CRA-2019 (see Executive Summary 2019, Section 1.3). As such, the CRA-2014 PA continues to be the baseline calculation for the CRA-2019. As directed in 40 CFR 194.15(b), where information remains valid and has been submitted in previous recertification applications, such information may be summarized and referenced. Information and data from previous compliance certification and recertification applications that form the basis of past DOE compliance positions and past EPA decision documents are found in the CRA-2014 (U.S. DOE 2014). The results of the deferred PA will be described in a second submission that will also include revisions, when appropriate, to the information submitted in March, 2019.

The DOE has reconsidered some parameters for the CRA-2019. These parameters include the average household water use and associated water-quantity determinations and are based on acquired information since the CRA-2014 (Appendix IGP-2019, Sections IGP-2.1.1and IGP-2.1.2). The new information provided by the DOE in CRA-2019, Appendix IGP, does not warrant changes to the original analyses and therefore the scope of the compliance assessment has not changed.

Based on this information, the DOE believes continued compliance with the requirements of 40 CFR 194.54 is demonstrated. Additional information demonstrating compliance with 40 CFR 194.54 will be included in the deferred PA documentation.

54.4 References

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

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.

U.S. Department of Energy (DOE). 2014. Title 40 CFR Part 191 Subparts B and C. Compliance Recertification Application for the Waste Isolation Pilot Plant (March). Carlsbad Field Office, Carlsbad, NM. DOE/WIPP 2014-3503.*

U.S. Environmental Protection Agency (EPA). 1992. 40 CFR Part 141: National Primary Drinking Water Regulations: Final Rule. *Federal Register*, vol. 57 (July 17, 1992): 31838-849.

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. Environmental Protection Agency (EPA). 1996. 40 CFR Part 194: Criteria for the Certification and Recertification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations: Final Rule. *Federal Register*, vol. 61 (February 9, 1996): 5223–5245.

This page intentionally left blank.