40 CFR Part 191
Subparts B and C
Compliance Recertification Application 2026
for the
Waste Isolation Pilot Plant

Consideration of Underground Sources of Drinking Water (40 CFR 194.53)

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

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
USDW	underground source of drinking water
WIPP	Waste Isolation Pilot Plant

53.0 CONSIDERATION OF UNDERGROUND SOURCES OF DRINKING WATER (40 CFR 194.53)

53.1 Requirements

§194.53 Consideration of Underground Sources of Drinking Water

In compliance assessments that analyze compliance with part 191, subpart C of this chapter, all underground sources of drinking water in the accessible environment that are expected to be affected by the disposal system over the regulatory time frame shall be considered. In determining whether underground sources of drinking water are expected to be affected by the disposal system, underground interconnections among bodies of surface water, groundwater, and underground sources of drinking water shall be considered.

53.2 Background

Title 40 Code of Federal Regulations (CFR) 194.53 (U.S. EPA 1996) requires the U.S. Department of Energy (DOE) to consider, in compliance assessments, all underground sources of drinking water (USDWs) in the accessible environment expected to be affected by the Waste Isolation Pilot Plant (WIPP) over the regulatory time frame and the relevant underground interconnections. A USDW is defined in 40 CFR 191.22 (U.S. EPA 1993) as:

> "Underground source of drinking water means an aquifer or its portion which: (1) Supplies any public water system; or (2) 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 milligrams of total dissolved solids per liter."

The groundwater protection requirements at 40 CFR 191.24(a)(1) (U.S. EPA 1993) limit releases to the maximum contamination level established in the National Primary Drinking Water Regulations at 40 CFR 141 (U.S. EPA 2003) as they existed on January 19, 1994.

No additional USDW investigations were performed as part of the 2019 Compliance Recertification Application (CRA-2019) (U.S. DOE 2019). No new wells were drilled in the WIPP vicinity. The U.S. Environmental Protection Agency (EPA) concurred that there were no significant changes to the parameters for the protected individual, the potential exposure pathways, or the USDWs. The EPA determined that the bounding analysis that was performed for the dose calculation in the Compliance Certification Application (CCA) (U.S. DOE 1996) still applied. For the CRA-2019 evaluation (Appendix IGP-2019), the DOE noted that the maximum potential dose remained below the CCA value and that continued compliance with the individual protection standard was maintained. The EPA concurred that the potential concentrations of contaminants in the hypothetical USDW and the maximum potential dose to a receptor that drinks from the hypothetical USDW continued to be bounded by the CCA analysis results.

Based on the EPA's review of the CRA-2019 and supplemental information provided by the DOE, the EPA determined that the DOE continued to comply with the requirements of 40 CFR 194.53 (U.S. EPA 2022a and U.S. EPA 2022b).

53.3 Changes or New Information Since the CRA-2019

In support of the CRA-2026, the DOE reviewed and updated information provided in the CCA and the previous CRA's Individual and Groundwater Protection requirements. The updated material is provided as Appendix IGP-2026. Changes or new information pertaining to the update are as follows:

1. Updated information on average household water consumption in communities near the WIPP was obtained from the latest census (U.S. Census Bureau 2024) to assess the continued appropriateness of the criteria for making USDW determinations. The updated information is included in Appendix IGP-3.1.1. A review of these new data indicated that no change in the criteria for making USDW determinations is warranted.

2. No additional USDW investigations were performed as part of the CRA-2026 (see Appendix IGP-2026). Based on the review in Appendix IGP-2026, no modification to the USDW determinations as reported in the CCA, Appendix USDW (U.S. DOE 1996), is warranted. The DOE continues to conclude that within the vicinity of the WIPP, USDWs are present in the Culebra Formation, and potential USDWs are present in the Dewey Lake and the Santa Rosa Formations. In addition, the DOE approach ensures that underground interconnections among bodies of surface water, groundwater, and USDWs are considered.

Based on these considerations, the DOE continues to demonstrate compliance with 40 CFR 194.53.

53.4 References

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

U.S. Census Bureau. 2024. 2019-2023 American Community Survey 5-Year Estimates. <census.gov/quickfacts/fact/table/US/HSD310223>, accessed on February 11, 2025.*

U.S. Department of Energy (U.S. DOE). 1996. Title 40 CFR Part 191 Compliance Certification Application for the Waste Isolation Pilot Plant (October). Carlsbad, NM: Carlsbad Area Office. DOE/CAO-1994-2184.

U.S. DOE. 2019. Title 40 CFR 191 Subparts B and C Compliance Recertification Application for the Waste Isolation Pilot Plant (March). Carlsbad, NM: Carlsbad Field Office. DOE/WIPP 2019-3609.*

U.S. Environmental Protection Agency (U.S. 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): 66398–66416.

U.S. 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.

U.S. EPA. 2003. 40 CFR Part 141: National Primary Drinking Water Regulations: Final Rule. *Federal Register.*

U.S. EPA. 2022a. 40 CFR Part 194: Criteria for the Certification and Recertification of the Waste Isolation Pilot Plant's Compliance with the Disposal Regulations: Recertification Decision. *Federal Register*, vol. 87 (May 3, 2022) 26126–26136.*

U.S. EPA. 2022b. 2019 Compliance Recertification Application Review Document (CARD) (April) (p. 42). Washington, DC: Office of Radiation and Indoor Air.*