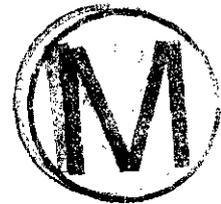


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EPA (U.S. Environmental Protection Agency), 1993. Environmental Radiation Protection Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Waste, Federal Register, Vol. 58, No. 242, pp. 66398-66416, December 20, 1993, (58FR 66398), Environmental Protection Agency Office of Radiation and Indoor Air, Washington, D.C. WPO 39133

PREAMBLE: SUMMARY;

" The U.S. Environmental Protection Agency (EPA) is promulgating amendments to the environmental standards for the disposal of spent nuclear fuel, high-level and transuranic wastes (40 CFR 191.15 and Subpart C).

EPA originally promulgated these standards in 1985 pursuant to the Agency's authorities and responsibilities under the Nuclear Waste Policy Act of 1982, as amended, the Atomic Energy Act of 1954, as amended, and §2(a)(6) of Reorganization Plan No. 3 of 1970 (5 USC app. 1). In 1987, following a legal challenge, the U.S. Court of Appeals for the First Circuit (hereinafter referred to as 'the First Circuit' or 'the court') remanded subpart B of the 1985 standards to the Agency for further consideration. *Natural Resources Defense Council, Inc. v. United States Environmental Protection Agency*, 824 F.2d 1258 (1st Cir. 1987). Recently enacted legislation, (Pub. L. 102-579) known as the Waste Isolation Pilot Plant Land Withdrawal Act (WIPP LWA), however, reinstates the 1985 disposal standards except 'the 3 aspects of §§191.15 and 191.16 of such [standards] that were subject of the remand ordered' by the First Circuit. The WIPP LWA directs EPA to expedite issuance of final disposal standards and specifies that such regulations shall not be applicable to the characterization, licensing, construction, operation, or closure of any site required to be characterized under §113(a) of Public Law 97-425, the Nuclear Waste Policy Act of 1982.

Today's action represents the Agency's response to this legislation and to the issues raised by the court pertaining to individual and ground-water protection requirements. After considering the relevant comments received on the February 10, 1993 proposed rulemaking, the Agency has taken this final action in the form of amendments to parts 191 of title 40 of the Code of Federal Regulations. In so doing, EPA has not revised any of the regulations reinstated by the WIPP LWA.

DATES: These amendments will become effective on January 19, 1994. These amendments will be promulgated for purposes of judicial review at 1 p.m. eastern standard time on December 20, 1993."

STATUTORY AND REGULATORY BACKGROUND;

" The WIPP Land Withdrawal and Nuclear Waste Policy Acts

As noted above, today's action responds to the directive in section 8 of the WIPP LWA that EPA conduct a rulemaking to issue certain radioactive waste disposal regulations at 40 CFR Part 191, subpart B. The EPA initially promulgated subpart B in 1985 (50 FR 38084 (Sept. 19, 1985)), but those regulations were subsequently vacated in whole as part of a remand order issued by the First Circuit in 1987 (discussed further above and below). See *NRDC v. EPA*, 824 F.2d 1258 (1st Cir. 1987).

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Section 8(a)(1) of the WIPP LWA reinstates those portions of subpart B except §§191.15 and 191.16 (which were the bases of remand by the First Circuit). Accordingly, section 8(a)(2)(A) of the WIPP LWA exempts the requirements at 40 CFR 191.15 (individual protection) and 191.16 (ground-water protection) from the statutory reinstatement. Section 8(b)(2) addresses these non-reinstated provisions by directing the EPA promulgate final regulations. Today's action responds to that directive by revising the individual protection requirements in 40 CFR 191.15, discussed above, and by adding new ground-water protection standards as 40 CFR part 191, subpart C (discussed below)."

Federal register, Vol. 58 No. 242, p 66398, dated December 20, 1993

"191.15 Individual protection requirements.

(a) Disposal systems for waste and any associated radioactive material shall be designed to provide a reasonable expectation that, for 10,000 years after disposal, undisturbed performance of the disposal system shall not cause the annual committed effective dose, received through all potential pathways from the disposal system, to any member of the public in the accessible environment, to exceed 15 millirems (150 microsieverts).

(b) Annual committed effective doses shall be calculated in accordance with appendix B of this part.

(c) Compliance assessments need not provide complete assurance that the requirements of paragraph (a) of this section will be met. Because of the long time period involved and the nature of the processes and events of interest, there will inevitably be substantial uncertainties in projecting disposal system performance. Proof of the future performance of a disposal system is not to be had in the ordinary sense of the word in situations that deal with much shorter time frames. Instead, what is required is a reasonable expectation, on the basis of the of the record before the implementing agency, that compliance with paragraph (a) of this section will be achieved.

(d) Compliance with the provisions in this section does not negate the necessity to comply with any other applicable Federal regulations or requirements.

(e) The standards in this section shall be effective on January 19, 1994."

"Subpart C-Environmental Standards for Ground-Water Protection

...191.23 General provisions.

(a) Determination of compliance with this subpart shall be based upon underground sources of drinking water which have been identified on the date the implementing agency determines compliance with subpart C of this part.

191.24 Disposal standards.

(a) Disposal systems.

(1) General. Disposal systems for waste and any associated radioactive material shall be designed to provide a reasonable expectation that 10,000 years of undisturbed performance after disposal shall not cause the levels of radioactivity in any underground source of drinking water, in the accessible environment, to exceed the limits specified in 40 CFR part 141 as they exist on January 19, 1994.

(2) Disposal systems above or within a formation which within one-quarter (1/4) mile



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contains an underground source of drinking water. [Reserved]

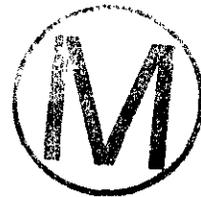
(b) Compliance assessments need not provide complete assurance that the requirements of paragraph (a) of this section will be met. Because of the long time period involved and the nature of the processes and events of interest, there will inevitably be substantial uncertainties in projecting disposal system performance. Proof of the future performance of a disposal system is not to be had in the ordinary sense of the word in situations that deal with much shorter time frames. Instead, what is required is a reasonable expectation, on the basis of the record before the implementing agency, that compliance with paragraph (a) of this section will be achieved. . . ."

§191.27. Effective date: p. 66415, col. 3;

"Appendix A to Part 191--Table for Subpart B

9. Appendix B is redesignated as Appendix C to part 191 and the heading is revised as follows:

Appendix C to Part 191--Guidance for Implementation of Subpart B."



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EPA (U.S. Environmental Protection Agency), 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, pp. 5224-5245, February 9, 1996. Office of Radiation and Indoor Air, Washington, D.C. In NWM Library as KF70.A35.C757 1996 (Reference).

SUMMARY, p. 5224, col. 1;

" The Environmental Protection Agency (EPA) is promulgating criteria for determining if the Waste Isolation Pilot Plant (WIPP) will comply with EPA's environmental radiation protection standards for the disposal of radioactive waste. If the Administrator of the EPA determines that the WIPP will comply with the standards for disposal, then the Administrator will issue to the Secretary of Energy a certification of compliance which will allow the emplacement of transuranic waste in the WIPP to begin, provided that all other statutory requirements have been met. If a certification is issued, EPA will also use this final rule to determine if the WIPP has remained in compliance with EPA's environmental radiation protection standards, once every five years after the initial receipt of waste for disposal at the WIPP. This rulemaking was mandated by the WIPP Land Withdrawal Act of 1992.

EFFECTIVE DATE: These regulations are effective April 9, 1996."

p. 5238, col. 2;

" §194.14. Content of compliance certification application.

Any compliance application shall include:

(a) A current description of the natural and engineered features that may affect the performance of the disposal system. The description of the disposal system shall include, at a minimum, the following information:

(1) The location of the disposal system and the controlled area;

(2) A description of the geology, geophysics, hydrogeology, hydrology and geochemistry of the disposal system and its vicinity and how these conditions are expected to change and interact over the regulatory time frame. Such description shall include, at a minimum:

(i) Existing fluids and fluid hydraulic potential, including brine pockets, in and near the disposal system; and

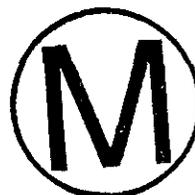
(ii) Existing higher permeability anhydrite interbeds located at or near the horizon of the waste.

(3) The presence and characteristics of potential pathways for transport of waste from the disposal system to the accessible environment including, but not limited to: Existing boreholes, solution features, breccia pipes, and other potentially permeable features, such as interbeds.

(4) The projected geophysical, hydrogeologic, and geochemical conditions of the disposal system due to the presence of waste including, but not limited to, the effects of production of heat or gases from the waste."

p. 5240, col. 2;

" §194.24 Waste characterization.



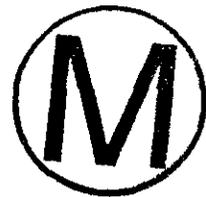
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(a) Any compliance application shall describe the chemical, radiological and physical composition of all existing waste proposed for disposal in the disposal system. To the extent practicable, any compliance application shall also describe the chemical, radiological and physical composition of to-be-generated waste proposed for disposal in the disposal system. These descriptions shall include a list of waste components and their approximate quantities in the waste. This list may be derived from process knowledge, current non-destructive examination/assay, or other information and methods."

p. 5243, Assurance Requirements, col. 3;

" §194.44 Engineered barriers.

(a) Disposal systems shall incorporate engineered barrier(s) designed to prevent or substantially delay movement of water or radionuclides toward the accessible environment."



BIBLIOGRAPHY DOCUMENTS



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U.S. Department of Energy (DOE), 1988, Internal Dose-Rate Conversion Factors for Calculation of Dose to the Public, DOE/EH-0071, DOE Office of Environmental Guidance and Compliance, Washington, D.C.

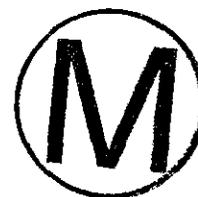
ABSTRACT; p. iii, para. 1;

" This publication contains 50-year committed dose equivalent factors, in tabular form. The document is intended to be used as the primary reference by the U. S. Department of Energy (DOE) and its contractors for calculating radiation dose equivalents for members of the public, resulting from ingestion or inhalation of radioactive materials. Its application is intended specifically for such materials released to the environment during routine DOE operations, except in those instances where compliance with 40 CFR 61 (National Emission Standards for Hazardous Air Pollutants) requires otherwise. However, the calculated values may be equally applicable to unusual releases or to occupational exposures. The use of these committed dose equivalent tables should ensure that doses to members of the public from internal exposures are calculated in a consistent manner at all DOE facilities.

These tables are to be used with the revised DOE radiation standards for members of the public, which was adopted by the DOE on August 5, 1985, and incorporated in the DOE Order entitled "Radiation Protection of the Public and the Environment." Those standards are based on the system of radiation risk assessment described in Publication 26 et seq. of the International Commission on Radiological Protection (ICRP).

The series of ICRP publications starting with Publication 26 provides the technical base used in calculating the committed dose equivalent factors in these tables. The factors are expressed in committed dose equivalent per unit intake of radioactive materials. For radionuclides with a long effective half-life in the body, the committed dose equivalent may be received over a period of years following the intake; for radionuclides with short effective half-lives, the entire dose equivalent may be received in the year following intake. Accompanying the tables is a discussion that explains how the committed dose equivalent values were derived and how they are to be used. Consistent with ICRP recommendations, the tables incorporate:

- the 50-year committed dose equivalent for specific organs, and
- the effective dose equivalent, corresponding to an equivalent risk of health effects from uniform irradiation of the whole body, using the weighting factors given in ICRP Publication 26."



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