

CARD No. 45
Consideration of the Presence of Resources

45.A.1 BACKGROUND

Assurance requirements were 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 repository for many thousands of years (50 FR 38072). Section 194.45 is one of the assurance requirements in the Compliance Criteria.

Section 191.14(e) of EPA's disposal regulations for radioactive waste at 40 CFR Part 191 states:

Places where there has been mining for resources, or where there is a reasonable expectation of exploration for scarce or easily accessible resources, or where there is a significant concentration of any material that is not widely available from other sources, should be avoided in selecting disposal sites. . . . Such places shall not be used for disposal of wastes covered by this part unless the favorable characteristics of such places compensate for their greater likelihood of being disturbed in the future.

EPA implemented this requirement in the WIPP compliance criteria (40 CFR Part 194) by requiring DOE to include an analysis of potential effects of resource recovery activities in performance assessments (PAs). In accordance with Section 194.45, the favorable characteristics of the WIPP will compensate for the presence of resources such as oil and potash if the PA demonstrates that WIPP complies with the radioactive waste containment standards at Section 191.13 (61 FR 5232; 40 CFR Part 194 Response to Comments (RTC), p. 17-1). Thus, EPA determined that the PA is the appropriate tool to weigh the advantages and disadvantages of the WIPP site, and that the presence of resources does not necessarily disqualify a site that may have compensating features from use as a disposal system (RTC, p. 17-5).

45.A.2 REQUIREMENT

“Any compliance application shall include information that demonstrates that the favorable characteristics of the disposal system compensate for the presence of resources in the vicinity of the disposal system and the likelihood of the disposal system being disturbed as a result of the presence of those resources. If performance assessments predict that the disposal system meets the containment requirements of §191.13 of this chapter, then the Agency will assume that the requirements of this section and §191.14(e) of this chapter have been fulfilled.”

45.A.3 ABSTRACT

Compliance with the presence of resources criterion is demonstrated by properly implementing other requirements regarding PAs. There is no requirement for an independent demonstration of compliance with Section 194.45. DOE's approach to documenting compliance

involved confirming that compliance is demonstrated with human intrusion scenarios in the PA and by providing cross-references to appropriate sections of the CCA. EPA's review for compliance with this requirement focused on confirming that cross-references were provided as needed, and that compliance was demonstrated with these PA requirements.

45.A.4 COMPLIANCE REVIEW CRITERIA

DOE must demonstrate that any PA has fully and appropriately incorporated the potential effects of human intrusion on the WIPP's containment of waste. As described in the Compliance Application Guidance (CAG), EPA expected the CCA to document: (1) that the effects of mining and drilling over the regulatory time frame are included in the PA; (2) that the effects of any activities that occur in the vicinity of the disposal system, or are expected to occur in the vicinity of the disposal system soon after disposal, are incorporated in the PA; and (3) that the results of the PA demonstrate compliance with the containment requirements of EPA's radioactive waste disposal regulations (Section 191.13). The CCA must provide specific cross-references to detailed information on incorporation of human intrusion into PA (CAG, p. 65).

There is no independent demonstration of compliance needed for Section 194.45. The PA provides a rigorous analytical methodology to determine with reasonable certainty whether the WIPP has compensating features to provide overall protection of public health and the environment notwithstanding the presence of resources (RTC, p. 17-6). As EPA noted in its rulemaking for the WIPP Compliance Criteria, Section 194.45 does not require research of past or potential future resource exploration or recovery activities beyond what is already required to document compliance of PA results with EPA's containment requirements (RTC, p. 17-2).

45.A.5 DOE METHODOLOGY AND CONCLUSIONS

DOE described the measures it has taken to comply with the requirements of Section 194.45 in Chapter 7.5 of the CCA. Chapter 7.5 states that the results of the PA, taking into account the potential for resource exploration, meet EPA's containment requirements as dictated by the disposal regulations and compliance criteria (p. 7-96). DOE concluded that the WIPP's favorable characteristics compensate for any possible disturbance (p. 7-98). DOE also provided cross-references for the following information in Chapter 7 (p. 7-97 to 7-98):

- ◆□ For a summary of known and inferred resources at the WIPP, see Chapter 2.3.1.
- ◆□ For information on the conceptual model for mining in the controlled area over the regulatory time frame, see Chapter 6.4.6.2.3.
- ◆□ For information on the conceptual model for drilling over the regulatory time frame, see Chapter 6.4.7.
- ◆□ For further information related to the development of conceptual models for human intrusion and other scenarios, see Appendix DEL.

- ◆ For information on results of PAs, see Chapter 6.5.

DOE considered in the site selection process for the WIPP (p. 7-97). More detailed information on the process was provided in Appendices GCR and IRD.

Chapter 7.5 does not provide cross-references for information related to the effects of activities in the vicinity of the disposal system before or soon after disposal. However, the regulatory “crosswalk” in the application indicates that such information can be found in Chapter 6.2.5, Chapter 6.4.13.8, Chapter 7.1.3, Appendix MASS (Attachment 15-5), and Appendix SCR.3 of the CCA.

45.A.6 EPA COMPLIANCE REVIEW

EPA’s compliance review focused on information contained in Chapter 7.5, in portions of the CCA cross-referenced in Chapter 7.5, and in other sections deemed relevant by EPA. Specifically, EPA assessed compliance based on whether DOE successfully addressed the following questions:

- ◆ For drilling over the regulatory time frame, has technical adequacy been established for compliance with:
 - Section 194.14, regarding descriptions of resources at the site?
 - Section 194.33, regarding drill rates and implementation of drilling scenarios in the PA?
 - Section 194.23 regarding conceptual models used for human intrusion?
 - Section 194.41, regarding reduction in drill rates from credit for active institutional controls?
 - Section 194.43, regarding reduction in drill rates from credit for passive institutional controls?

- ◆ For mining over the regulatory time frame, has technical adequacy been established for compliance with:
 - Section 194.32, regarding mineral resources currently extracted from the Delaware Basin?
 - Section 194.32, regarding implementation of mining in the PA?
 - Section 194.23, regarding conceptual models used for human intrusion?
 - Section 194.41, regarding reduction in drill rates from credit for active controls?
 - Section 194.43, regarding reduction in drill rates from credit for passive controls.

- ◆ For activities that occur in the vicinity of the disposal system or are expected to occur in the vicinity of the disposal system soon after disposal, has technical adequacy been established for compliance with:

- Sections 194.14 and 194.32, regarding amount and location of current and near-future resource extraction activities?
- Section 194.23, regarding conceptual and computer models implementing effects of current activities on the WIPP?

◆□ For results of PAs, has technical adequacy been established for compliance with:

- Section 194.34, regarding results of PAs?

EPA's analyses and resulting decisions of compliance with the necessary criteria are described in the following documents:

- ◆□ Section 194.14, see **CARD 14—Content of the CCA;**
- ◆□ Section 194.23, see **CARD 23—Models and Computer Codes;**
- ◆□ Section 194.32, see **CARD 32—Scope of Performance Assessments;**
- ◆□ Section 194.33, see **CARD 33—Consideration of Drilling Events in Performance Assessments;**
- ◆□ Section 194.34, see **CARD 34—Results of Performance Assessments;**
- ◆□ Section 194.41, see **CARD 41—Active Institutional Controls;** and
- ◆□ Section 194.43, see **CARD 43—Passive Institutional Controls.**

Information provided in Chapter 7.5.2 is not necessary for a determination of compliance with Section 194.45, but provides assurance that the presence of resources was considered during the site selection process for the WIPP.

45.B REFERENCES

None.