

WIPP Compliance Recertification Process and Planned Change Notice Considerations

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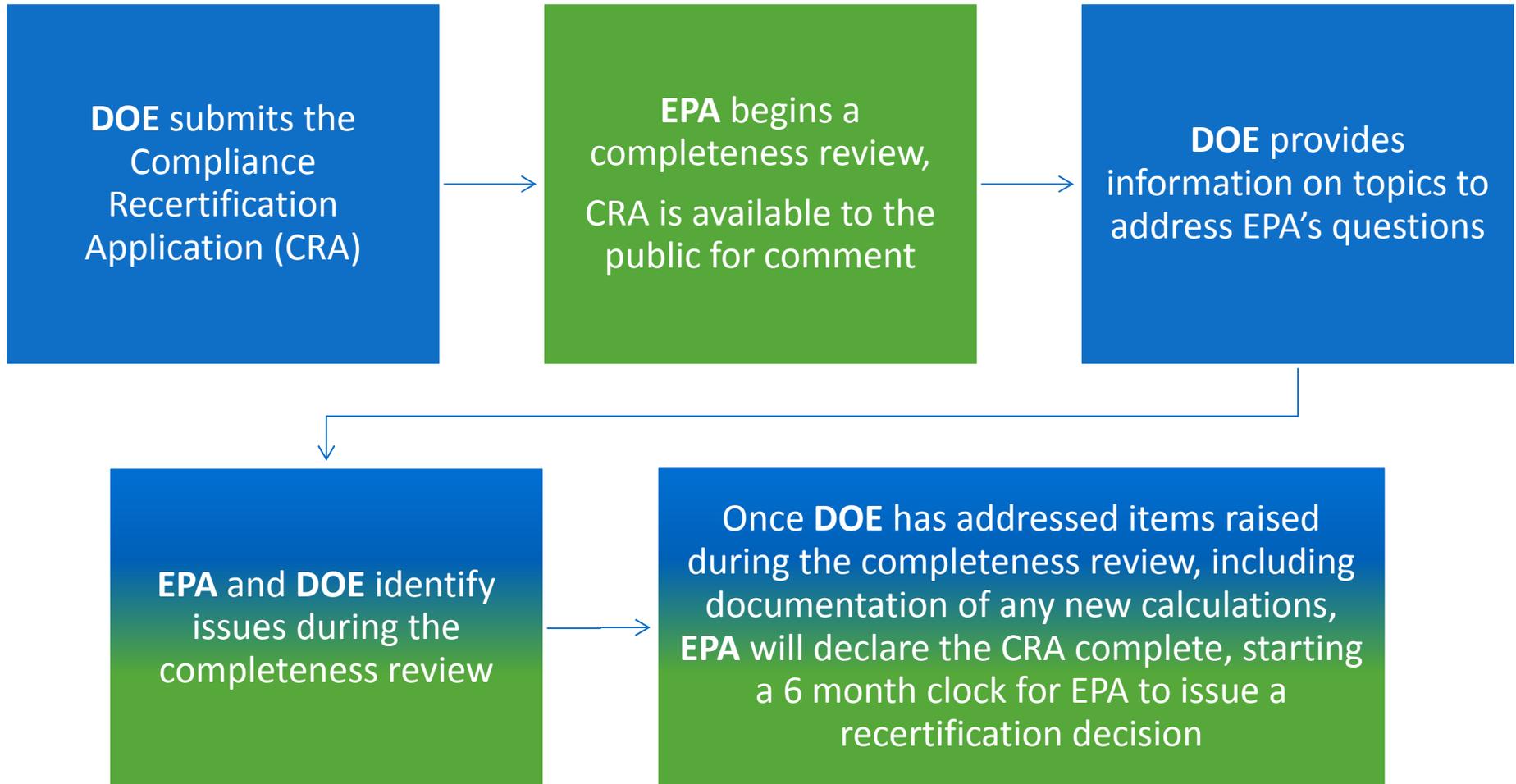
Topics

1. Recertification Overview
2. CRA-2014 Recertification Review
3. Planned Change Notice Considerations
4. Summary

WIPP Recertification Summary

- WIPP Land Withdrawal Act requires EPA to determine whether or not the facility continues to comply with the Agency's disposal regulations
- Application for recertification must occur every five years from the first receipt of waste (March 1999)
- Recertification is not a rulemaking and is not subject to judicial review, however, it is a public process

General Recertification Process



CRA-2014 Review Summary

March 2014

- DOE submitted the 2014 CRA. The CRA did not address the radiological release and fire. (Data cutoff end of CY2012)

2014-2016

- EPA sent multiple letters to DOE, to which DOE responded.
- Technical discussions with DOE in-person and via phone calls.

June 2015

- EPA held a public meeting in New Mexico and received questions and comments; also had a public webinar in 2017.

Summer 2016

- EPA identified sensitivity calculations that DOE conducted.

January 2017

- EPA determined application completeness.
- EPA announced 30 days to end of comment period.

July 2017

- EPA issued *Federal Register* (FR) Notice recertifying WIPP that included responses to public comments.

Noteworthy Changes by DOE in CRA-2014

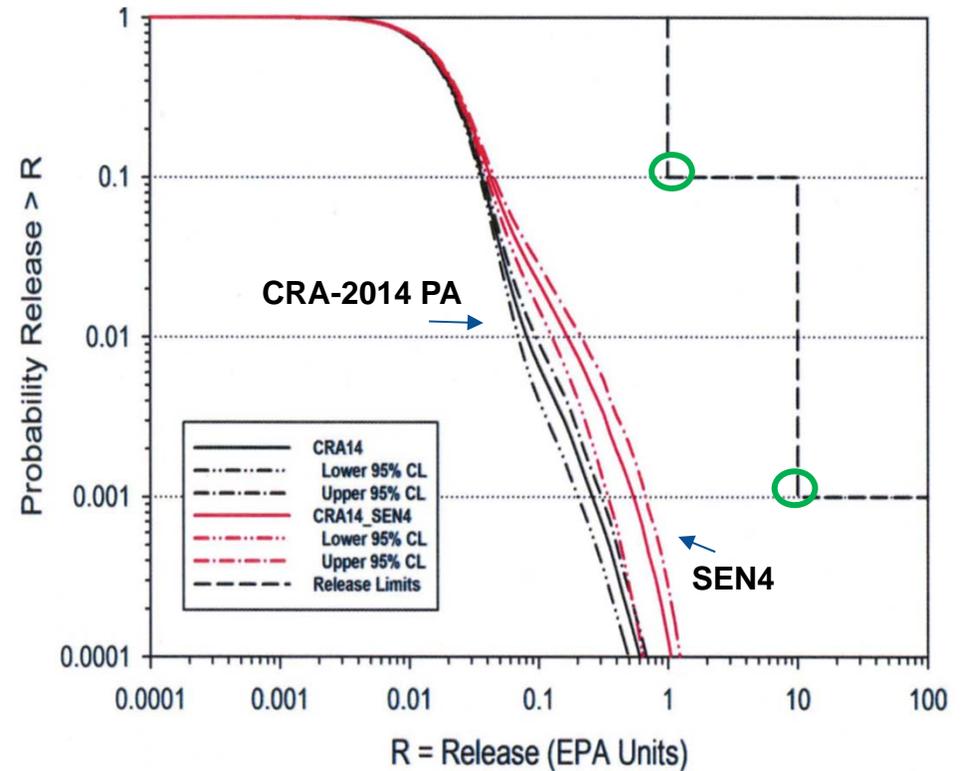
- Update to the parameters defining drilling rate and plugging pattern
- Replacing the concrete monolith (Option D) panel closure design with run-of-mine (ROM) salt
- Revisions of:
 - Calculations of the probability of encountering a pressurized brine reservoir
 - Steel corrosion rate
 - Effective shear strength of waste
 - Repository water balance including variable brine volumes for radionuclides to dissolve
 - Colloid parameters

Issues Identified by EPA

1. Actinide solubility and geochemical database issues, colloid contribution updates, and the determination of the actinide solubility uncertainty
2. Probability of drilling into a brine pocket
3. Steel corrosion rate and steel's interactions with hydrogen sulfide and magnesium oxide
4. EPA disagreed with DOE's interpretation of the lower bound of data used in the update to the waste shear strength parameter (affects amount of waste collapsing into a borehole)
5. Overall modeling of direct brine releases that involve these interactions plus the conditions of the repository that can influence the pressure characteristics of the waste areas

CRA-2014 Review Outcomes

- EPA disagreed with DOE's change to the method used to estimate the probability of hitting a brine pocket in CRA-2014.
- DOE conducted sensitivity calculations to address issues raised by EPA. →
- EPA identified areas of improvement applicable to CRA-2019 for DOE to address.



Legend

-  CRA-2014 PA
-  SEN4
-  WIPP Compliance Line
-  Compliance Points

2017 Recertification FR Notice Statements

- “EPA’s review of the 2014 Compliance Recertification Application identified where the DOE’s technical basis for the modeling has limitations with assumptions used or with the basis for some parameter values. The EPA’s concerns with these limitations were generally addressed by the results of the [sensitivity] studies.”
- “The EPA recommends that the performance assessment technical basis be evaluated for improvement in these areas:
 - calculations of actinide solubility,
 - modeling the chemical conditions in the repository, and
 - modeling direct brine releases.”

Planned Changes (1 of 2)

- 40 CFR 194.4 requires DOE to notify EPA of **“any planned or unplanned changes in activities or conditions** pertaining to the disposal system that differ significantly from the most recent compliance application.”
 - DOE is to give notice before making changes
- DOE has recently submitted several notices of planned changes to EPA:
 - A new shaft, to be reviewed as part of the CRA-2019
 - Notice of changing panel closures, and no waste to be emplaced in panel 9 (3/21/19 approval)
 - Volume of Record, which is currently under review

Planned Changes (2 of 2)

- After DOE submits a notice of a planned change, the Agency may request information from DOE
- If the Agency determines that (Section 194.65) “**changes in activities or conditions** pertaining to the disposal system **depart significantly** from the most recent compliance application” then EPA would need to modify the certification
 - EPA would then need to propose a **rulemaking** to modify the certification and take public comment.
- A question for EPA to address is: At what point would a change “depart significantly from the most recent compliance application?”

Considerations for EPA

- New (multipurpose?) shaft to be constructed
- Addition of new waste panels will change repository layout
 - New computer modeling system needed to deal with asymmetry of new waste panel layout
 - Assumptions of original repository configuration and initial conditions need to be re-examined
- Large volume of plutonium with classified attributes
- If EPA determines the certification needs to be modified, a rulemaking would take 2+ years
- Timing of DOE's activities
 - Activities need to be coordinated with recertification applications as much as possible to minimize multiple reviews
 - EPA will need to ensure it is ready to review different items

Items for EPA and DOE Discussion

- Conceptual model peer reviews
 - Disposal room geometry and related (e.g., creep closure)
 - Chemical conditions (plutonium chemistry)
 - Others?
- Brine pocket characterization under new panels
- Development and review (peer and EPA) of new computer model
- Planned change notice issues and possible rulemaking

Summary

- WIPP is a robust disposal system and WIPP complies with EPA's radioactive waste disposal standards
- DOE and EPA need to ensure that compliance is maintained, along with confidence in our understanding of the repository in light of changes at WIPP
- Future challenges at WIPP involve changes in design as a result of the 2014 incidents and technical/scientific updates (e.g., conceptual models, computer code change)
- EPA will need to address what changes to the repository would warrant modifying the certification
- EPA looks forward to discussing future changes with DOE