



# Stakeholder Meeting on the WIPP Planned Change Request

EPA Presentation

Office of Radiation and Indoor Air  
August 26-29, 2024



# Welcome & Introductions



- Staff Introductions: EPA & DOE
- Background: DOE is proposing to add new panels (11 & 12) to the existing WIPP repository
  - New Mexico Environment Department (NMED) approved the panels as part of the operating permit
  - EPA received DOE's planned change request (PCR) for replacement panels on March 14, 2024
- Purpose: Gather comments from the public on the PCR
- Structure: Roundtable structure
  - Open discussion – we want to hear your thoughts/questions at this stage!
  - Be civil - everyone should respect other attendees' rights to both listen and be heard
  - Time - ~5 minutes per speaker to give everyone in attendance opportunities; we can come back to you, time permitting
- Follow-up: Future actions
  - All presentations and any written comments submitted during the meeting will be docketed
  - Recording of the Zoom sessions will be made available on the WIPP website

# EPA WIPP PCR Communications



- FR notice published July 16, 2024
  - <https://www.regulations.gov/document/EPA-HQ-OAR-2024-0309-0001>
  - Establishes 60-day comment period (July 16 to September 16, 2024)
- EPA has an official docket for all received materials and public comment
  - <https://www.regulations.gov/docket/EPA-HQ-OAR-2024-0309>
  - EPA has received and docketed stakeholder letters from June 24 and July 24, 2024
  - All public comments will be considered and addressed in EPA's Response to Public Comment document
- EPA's WIPP webpage dedicated to the PCR will continue to be updated
  - <https://www.epa.gov/radiation/wipp-news#WIPP-PCR>

# Outline

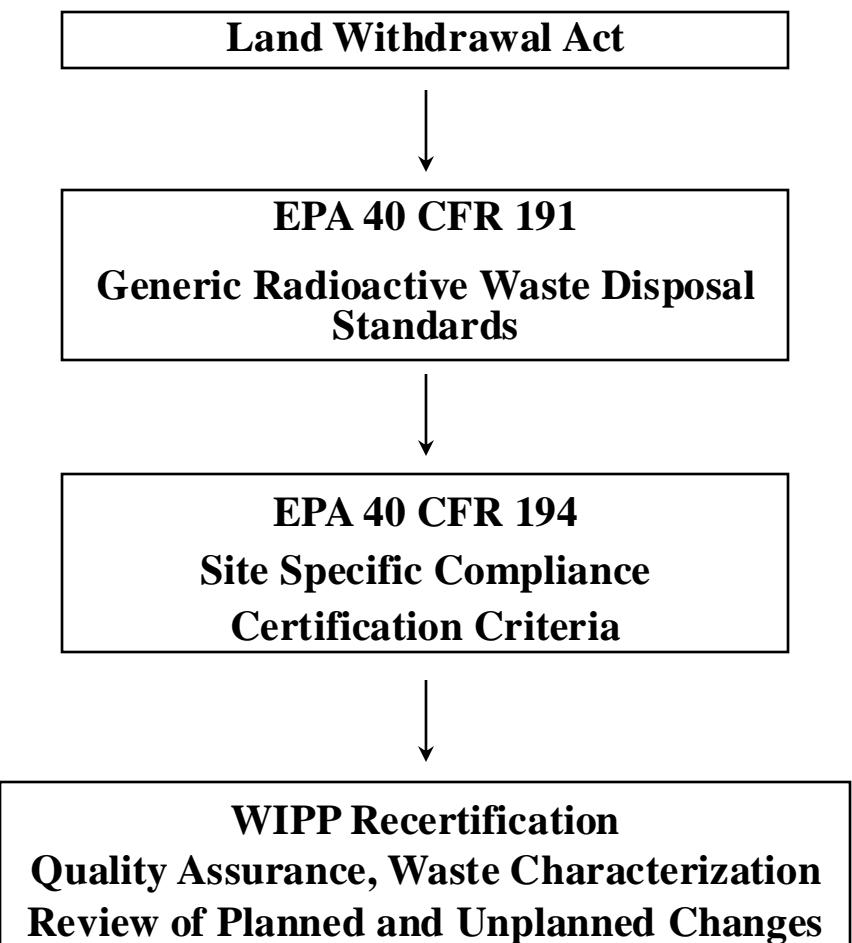


- EPA's role at the Waste Isolation Pilot Plant (WIPP)
- Overview of DOE's Planned Change Request for approval to add panels 11 and 12 to WIPP
- EPA's review process
- "Significant departure" in EPA regulations
- Basis of EPA's decision
- WIPP performance assessment
- EPA's observations on the PCR
- Status of review

# EPA's Role at the WIPP



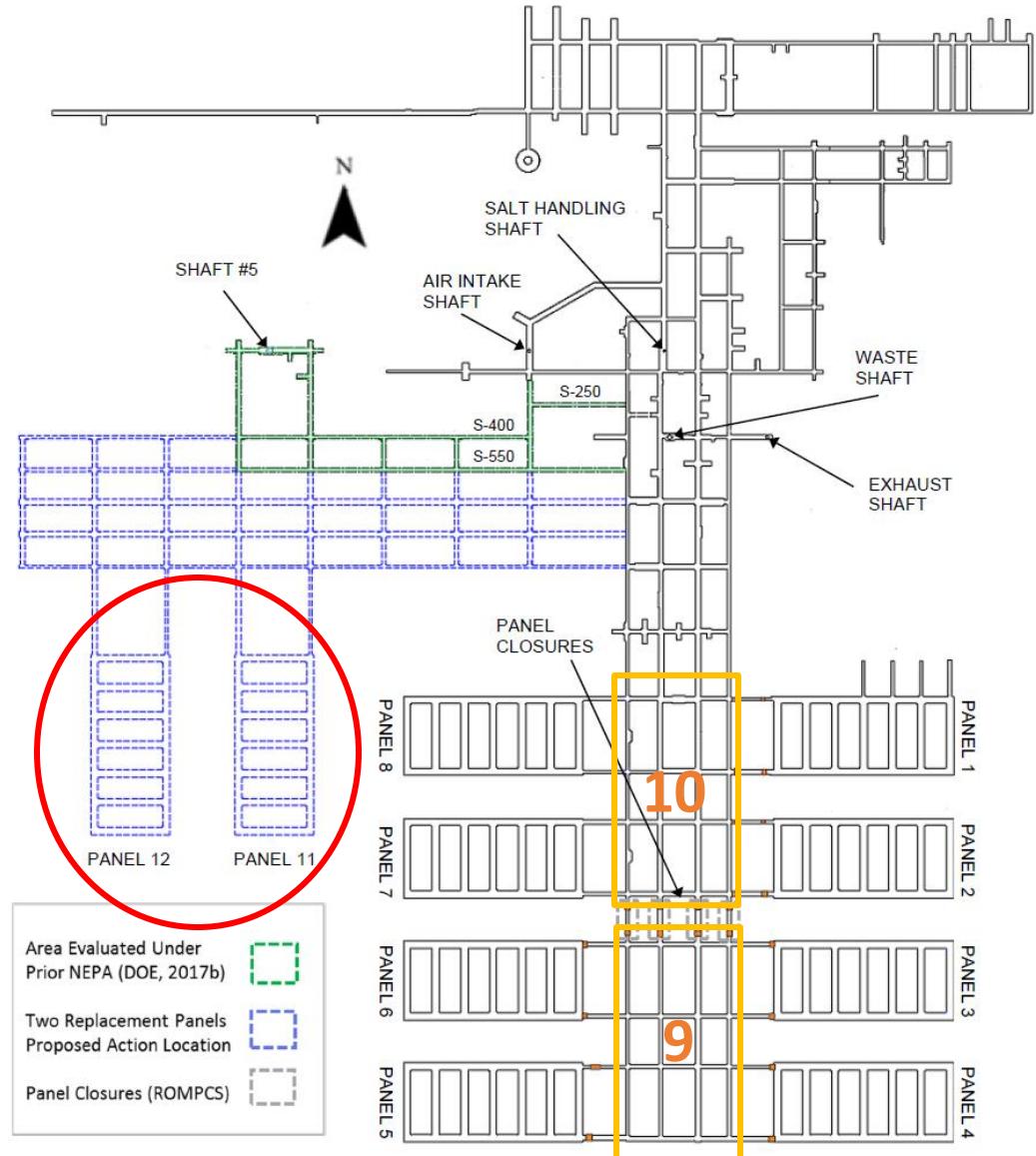
- EPA's primary oversight role is reviewing DOE compliance with our 10,000-year radioactive waste disposal standards (40 CFR Parts 191 & 194)
  - Primary oversight of the WIPP facility and waste generator sites
  - EPA does not oversee transportation – responsibility lies with DOE, DOT, and NRC (shipping containers)
- Recertification (194 Subpart C)
  - Process restarts every five years, with most recent recertification May 3, 2022 (87 FR 26126)
- Continuing Compliance
  - Waste Characterization (194.8(b), 194.24)
  - Quality Assurance (194.8(a), 194.22)
  - Site Inspections (194.21, 194.42, 61 Subpart H, 191 Subpart A)
- **Review of planned/unplanned changes (194.4(b)(3), 194.65)**
  - Biennial Environmental Compliance Report—reviewed every 2 years, letter to DOE signed by Admin. (Section 9 *WIPP Land Withdrawal Act*)
- Outreach and Stakeholder Engagement



# DOE Planned Change Request



- DOE proposes adding Panels 11 and 12 to replace space lost from abandoning Panel 9, and losing portions of Panels 1, and 7
  - Panels 11 and 12 design are similar to Panels 1 through 8
  - DOE is expanding the repository footprint into a new area not covered in the original certification
- WIPP Land Withdrawal Act provides limits on amount of waste that can be disposed at WIPP
- EPA and the New Mexico Environment Department have approved the mining of the drifts



# History of EPA Reviews of DOE Requests



- EPA's general review process
  - Receive DOE request and documentation notifying EPA of change
  - Review documentation, request additional information from DOE (as needed)
  - Solicit public comment (when appropriate)
  - Determine if this is a *significant departure* from the most recent recertification
  - Draft supporting materials outlining review findings
  - EPA makes decision documenting in letter and in supporting information. Information is also posted on the website and in the docket

## Examples of Past DOE planned changes

- Addition of new shielded container variants (2023)
- Addition of new west main access drifts (2021)
- Change to calculating repository waste volumes (2018)
- Addition of a new ventilation shaft (2017)
- Update to the existing panel closure system (2014)\*
- Use of shielded containers to emplace remote handled (RH) waste (2011)\*
- Update to the MgO engineered barrier safety factor (2008)\*
- Disposal of supercompacted waste (2003)
- Receive and dispose of RH waste (2003)\*

\*Public comment included in EPA's review

# Significant Departure in the Regulations



## 194.4(b)(3)(vi)(a) and (b), 194.65

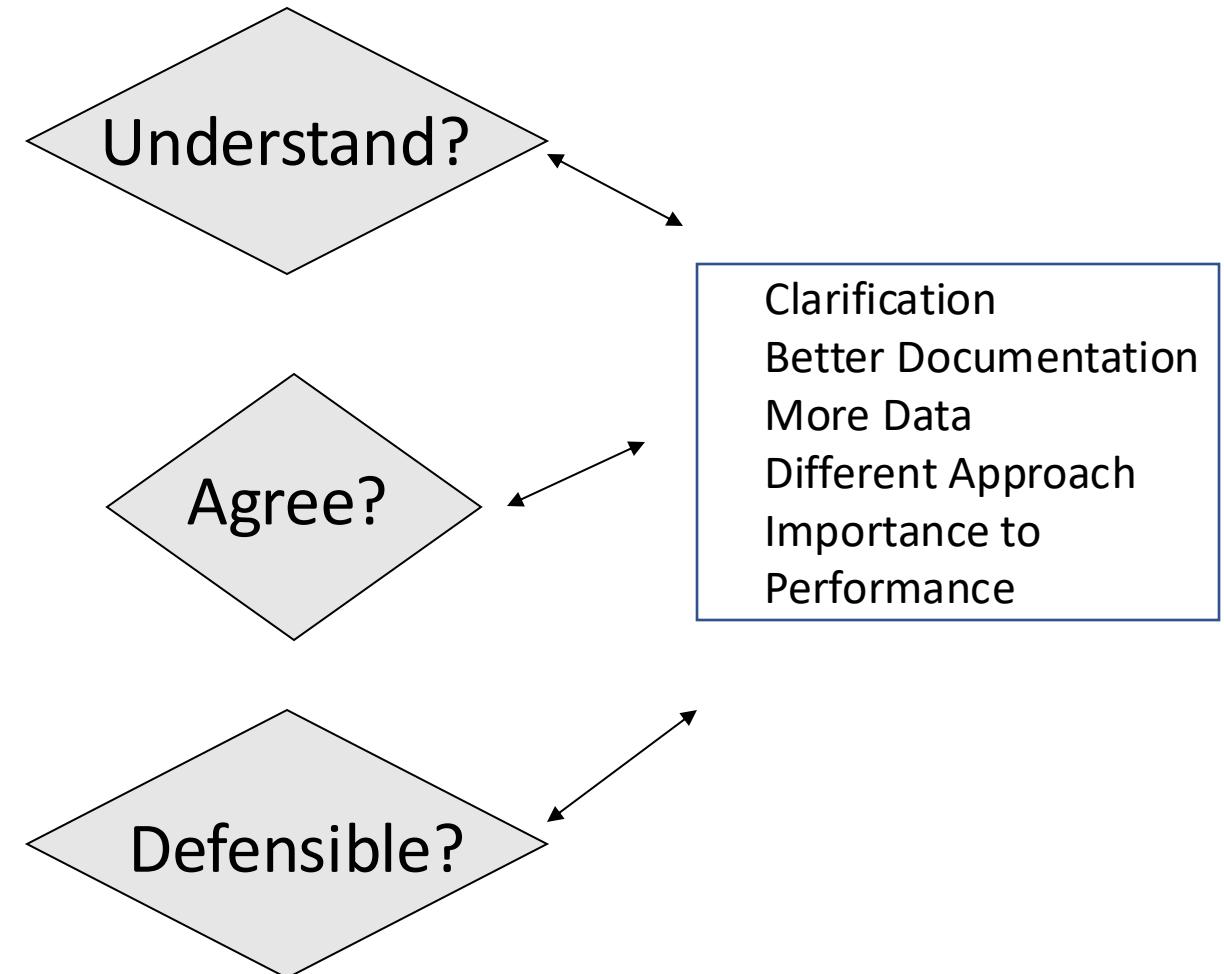
- EPA expects DOE to notify the Agency on any changes via 194.4(b)(3):
  - *“...the Department shall report any planned or unplanned changes in activities or conditions pertaining to the disposal system that differ significantly from the most recent compliance application.”*
- EPA determines if a change departs significantly from CRA-2019 via 194.4(b)(3)(vi)(a) and (b):
  - *“... the Administrator will notify the Secretary in writing whether any condition or activity...Does not comply with the terms of the certification; and, if it does not comply...Whether the compliance certification must be modified, suspended or revoked...”*
- If EPA determines a change is a significant departure from CRA-2019, EPA would need to do a rulemaking (194.65(a)):
  - *“If the Administrator determines that any changes in activities or conditions pertaining to the disposal system depart significantly from the most recent compliance application, the Agency will publish a Notice of Proposed Rulemaking in the Federal Register announcing the Administrator's proposed decision on modification or revocation, and soliciting comment on the proposal.*

# Basis for a Decision on the PCR



## Reasonable Expectation

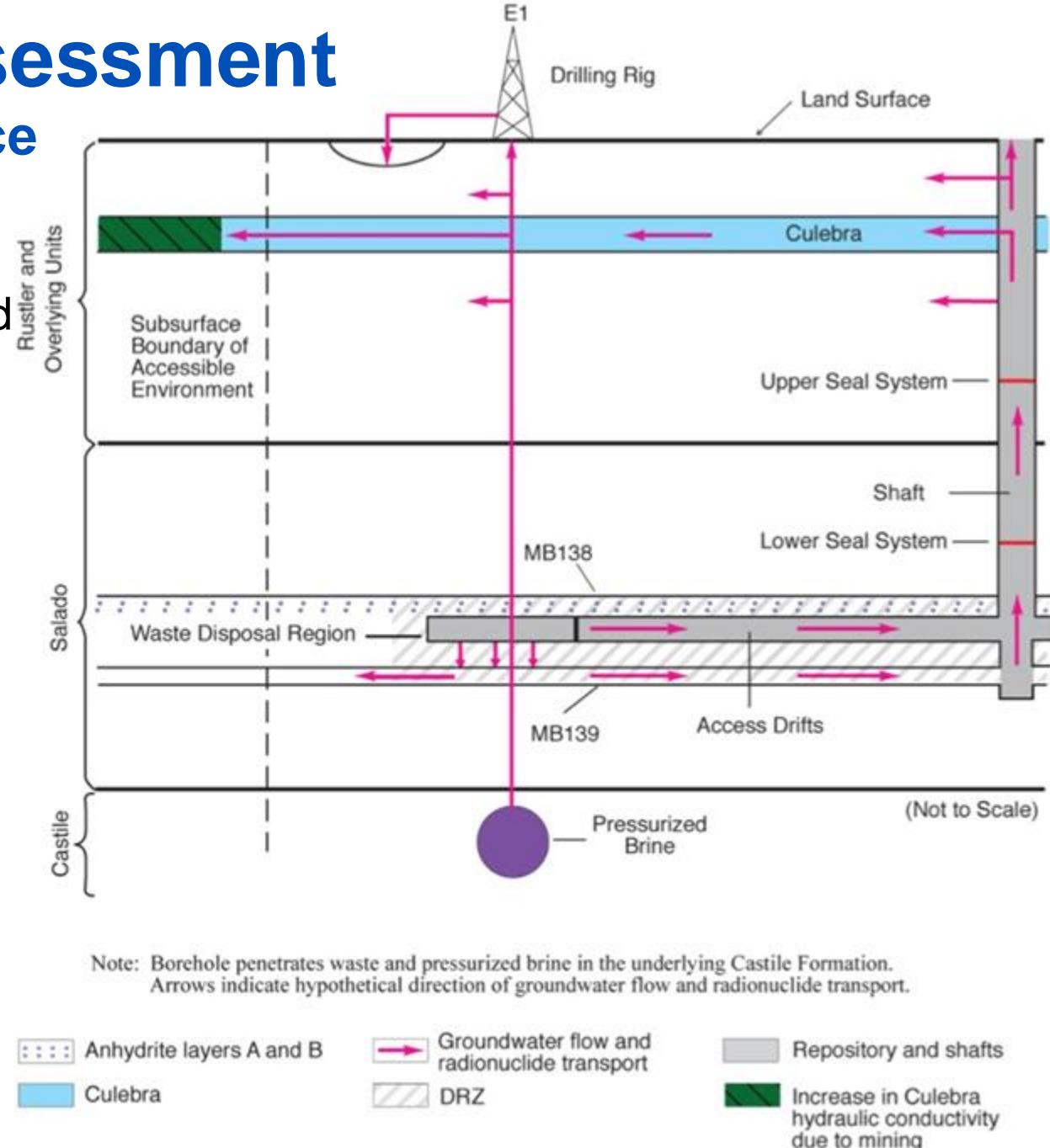
- Regulatory
  - Compliance of proposed changes with terms of recertification (194.4(b)(3))
  - Reasonable expectation that cumulative releases of radionuclides from the WIPP and into the environment over 10,000 years will not exceed specified quantities (40 CFR 191.13 and Appendix A)
- Technical
  - Demonstrate modeled releases from Panels 11 and 12 are within regulatory limits
  - Address technical questions
  - Identify status of CRA-2019 issues
- Decision will only be for Panels 11 and 12



# WIPP Performance Assessment

## Demonstration of WIPP Compliance

- Undisturbed scenario: no releases
  - The surrounding salt has low permeability and will encapsulate and isolate the waste after closure.
- EPA's compliance standards require DOE to consider the potential for human intrusion in the future, including drilling for resources (194.33)
  - Performance Assessment (PA) calculations based on conservative assumptions are well within EPA standards
    - Cuttings and cavings
    - Spallings
    - Direct brine release
    - Long-term releases via the Culebra



# Preliminary Observations



## Examination of the technical basis for primary changes in PA calculations

- Calculation for Panels 11 and 12
  - Iron surface area and brine volume
  - Probability of hitting pressurized brine for 19 panels vs. 12 panels
  - Culebra transmissivity fields
  - Computer modeling changed to accommodate new panels
- Borehole permeability
  - Value of upper bond for degraded borehole permeabilities
- Waste room porosity calculations
- Geochemistry
  - Actinide thermodynamic database: solubility values for +III actinides
  - Representation of actinide solubility uncertainty
  - Chemical conditions and Pu oxidation state

# Status of Review



- Received the new panels planned changed request on March 14, 2024
- Correspondence sent to DOE
  - Five sets of technical questions sent (sent April 16, April 24, May 10, June 27, and August 12)
- DOE responses to questions
  - Two sets of DOE responses to EPA questions (sent July 1 and August 21)
- Virtual and in-person meetings with DOE
  - Technical exchange on the 12-panel repository calculation, August 22
- Sensitivity calculations
  - EPA in-house calculations
  - DOE calculations requested by EPA
- Public comments received
  - EPA has received and docketed stakeholder letters from June 24 and July 24, 2024
  - Active comment period through September 16, 2024
    - EPA will include a Response to Comments document in its final PCR review determination materials

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# Questions?

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# Additional Slides

# EPA Technical Questions



- 12-panel repository calculation
- Actinide solubility uncertainty distribution
- Brine pockets (PBRINE)
- Chemical conditions and Pu oxidation state
- Corrosion
- Drilling rates
- Geochemical database
- Inventory
- Microbial colloids
- Room closure behavior
- Request for additional documents and references

# DOE Response to EPA Questions



- Details of new panels configuration
- Microbial colloids
- 12 Panel Analyses
- Closure of rooms with new design
- Inventory
- Geochemical database
- Additional documentation