



PERFORMANCE ASSESSMENT

2005 EPA WIPP RECERTIFICATION FACT SHEET No. 3

Performance Assessments (PA) are conducted by DOE to demonstrate that the WIPP meets EPA's release requirements for radionuclides. A PA was included in the 1998 Certification and a revised PA was developed for the Recertification Application. The recertification PA shows that WIPP continues to meet EPA's limits for the release of radionuclides.

What's New in the Recertification PA:

- The waste inventory has been updated to include new information on potential waste streams, including the Hanford tank wastes, Hanford K-basin sludges, and buried waste at the Idaho site. For more information on the waste inventory see Fact Sheet #4, *TRU Waste Inventory*.
- The updated waste inventory shows that the completed repository will have less radioactive content than was previously expected in the certification PA.
- Projected increases in the drilling rate near the WIPP may result in slightly higher probability for releases than those stated in the certification PA. Even with an increased drilling rate, however, the potential releases would still be well below EPA's release limits.
- Changes to PA parameters, to incorporate new information gained since certification.
- PA panel closure system changed to the one mandated by EPA.
- Incorporation of a simplified model for the sealed shafts.
- A new model for predicting the release of solids, called spallings, released in the event of drilling through the WIPP repository.

What is Performance Assessment?

Performance Assessment (PA) is an investigation of the likelihood that the WIPP will meet release limit requirements for radionuclides. EPA required DOE to conduct a PA as part of the Certification Application to consider how both natural and man-initiated processes may affect the WIPP disposal system. The PA uses computer models to evaluate hundreds of combinations of possible events to determine the impact on repository performance.

The results of the certification PA show that the human intrusion scenario is the most important release mechanism. No appreciable releases occur in the undisturbed scenario.

The PA has changed since the 1998 certification of WIPP to reflect new data collected by DOE. All changes to the PA are reviewed by EPA. DOE's recertification PA takes into account new information and knowledge learned about the WIPP over its first five years of operation.

EPA will be conducting a detailed review of the recertification PA, focusing on new and updated information. A preliminary review has identified several aspects of the modeling calculations that need to be corrected. EPA does not expect these corrections to affect WIPP's compliance with overall release requirements.

Human Intrusion

Human intrusion refers to the breaching of any portion of the WIPP disposal facility by human activity.

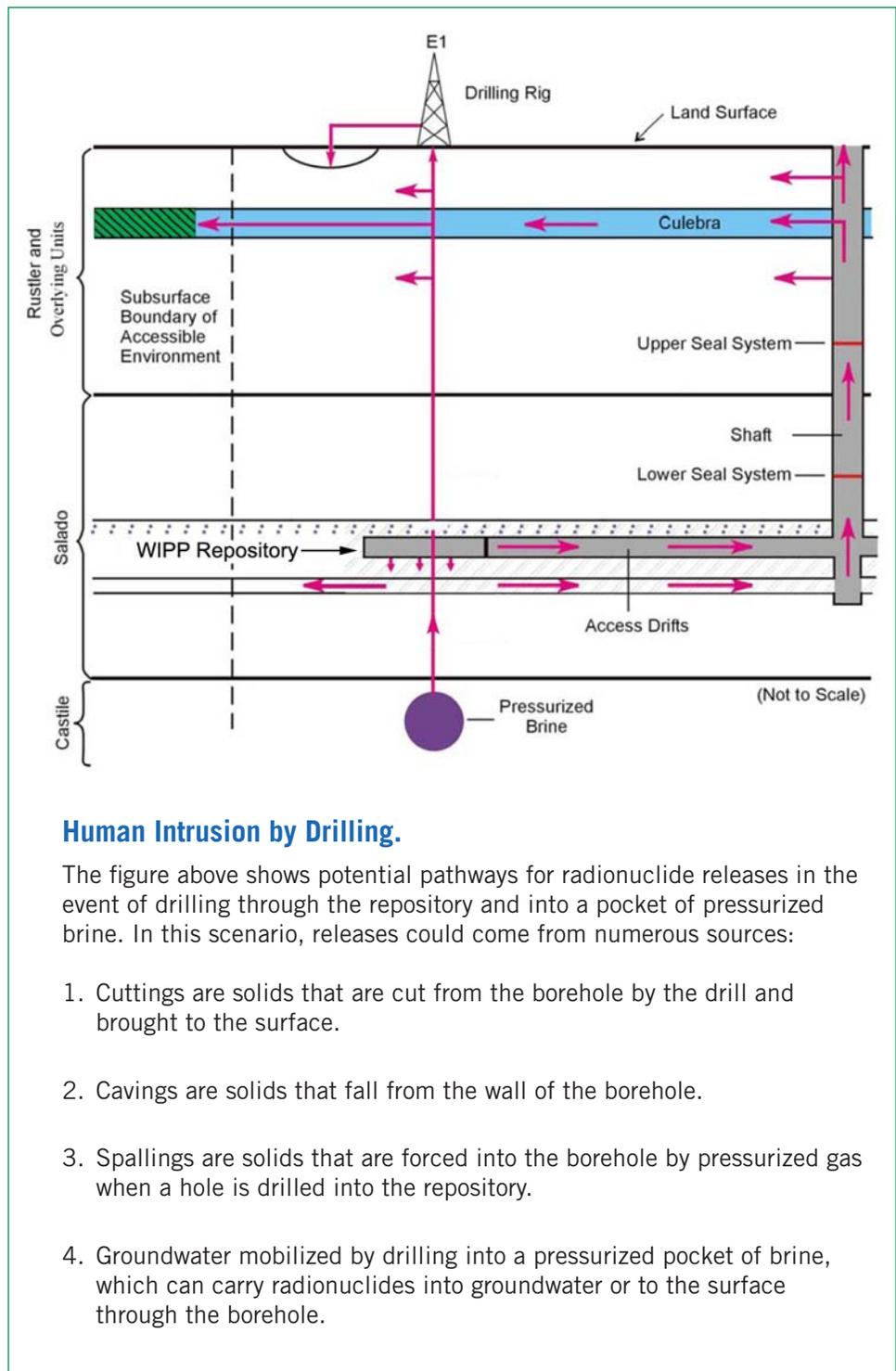
DOE is required to track human activities within the Land Withdrawal Boundary (LWB)¹ for 100 years after closure to ensure that no intrusion occurs. Analysis shows that drilling is the most likely human activity to have an impact on WIPP's ability to contain radioactive waste.

The risk of breaching the disposal facility through drilling activity associated with resource extraction is the major concern. A drilling borehole that goes through the repository creates a potential for the release of radionuclides in the vicinity of the borehole. Drilling through the repository and into the pressurized brine below it (if present) could also create a release risk by forcing pressurized brine water through parts of the repository. The figure shows the probable pathway for the release of radionuclides if such events were to occur.

While drilling is not permitted inside the Land Withdrawal Boundary with the exception of wells for subsurface investigations, the total number of wells drilled outside the LWB and inside the Delaware Basin has increased by 12% since the certification PA. Even with this increase, the recertification PA shows that the WIPP will continue to remain in compliance with radioactive waste release limits.

In response to public concerns about the increased drilling rate, DOE has evaluated the consequences of doubling the drilling rate near the WIPP, and concluded that the WIPP would remain safe if this occurs. See Issue Paper #2, *WIPP Drilling Rate*, for more information.

¹The Land Withdrawal Boundary (LWB) is a 16 square mile area that extends outwards from the center of the WIPP facility for about 2 miles in all directions. The surface area map in Fact Sheet #6, *Karst*, shows the LWB in relation to the WIPP facility and nearby natural features.



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