INTRODUCTION/RELATIONSHIP OF TOTAL-SYSTEM PERFORMANCE ASSESSMENT KTI TO PROCESS KTIS

DOE/NRC TECHNICAL EXCHANGE ON TOTAL-SYSTEM PERFORMANCE ASSESSMENTS (TSPA) FOR YUCCA MOUNTAIN

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Presented by:
James R. Firth
301-415-6628 — jrf2@nrc.gov
Division of Waste Management
High-Level Waste and Performance Assessment Branch

STATUS OF TSPAI SUBISSUES

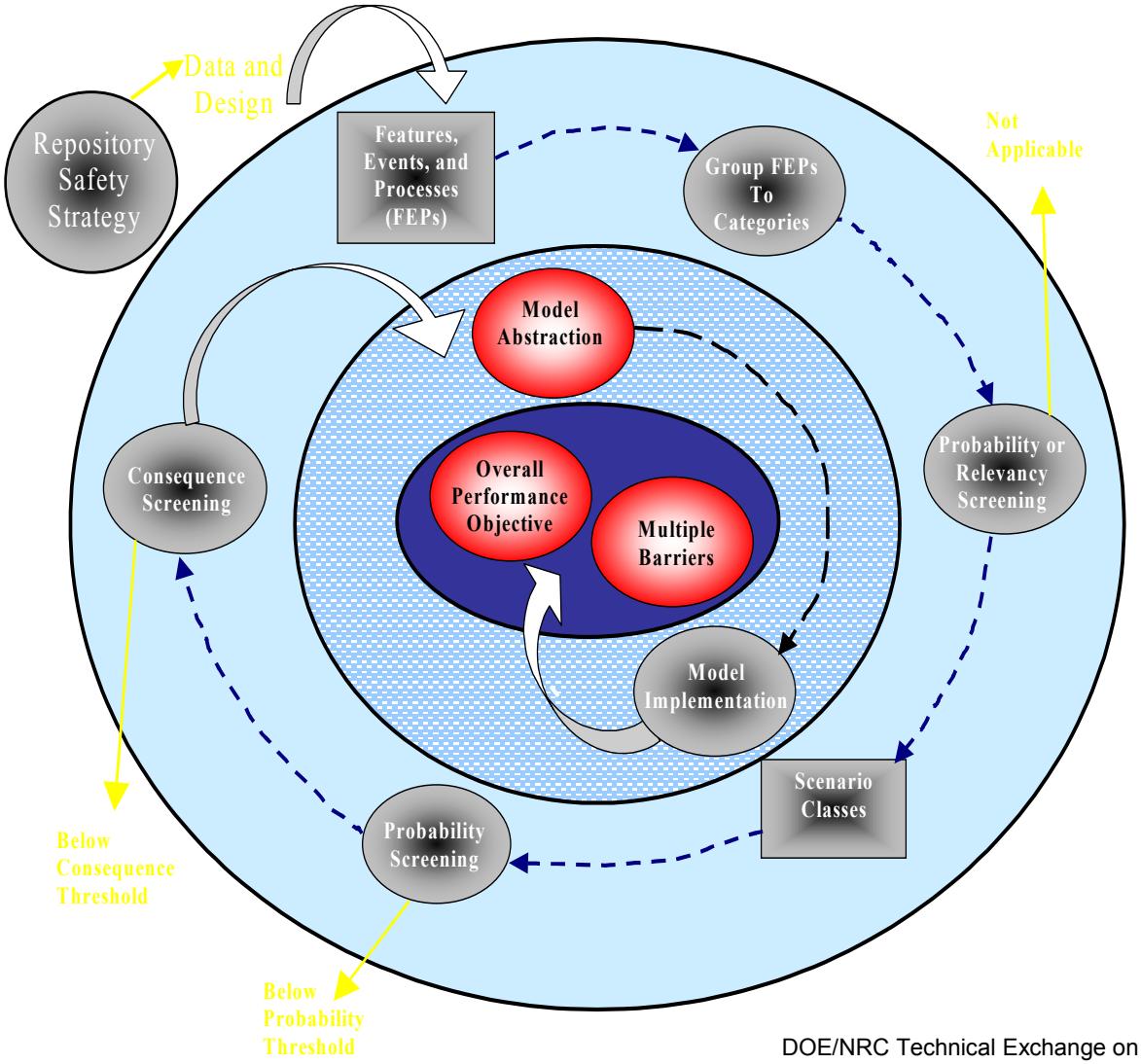
1. System Description and Demonstration of Multiple Barriers [OPEN]

2. Total System Performance Assessment Methodology: Scenario Analysis [OPEN]

3. Total System Performance Assessment Methodology: Model Abstraction [OPEN]

4. Demonstration of the Overall Performance Objective [OPEN]

RELATIONSHIP OF DOE'S RSS TO TSPAI SUBISSUES



SCENARIO ANALYSIS

- SUBISSUE:
  - Process of identifying possible processes and events that could affect repository performance and screening processes and events from further analysis
- STATUS
  - General agreement on methodology, but additional information is needed
  - Every KTI will be involved in evaluating DOE's implementation of the scenario analysis methodology
    - ENFE KTI has provided feedback on DOE's implementation of FEPs related to the near-field environment
- OUTLOOK
  - Resolution of methodology issues expected over short-term
    - Provided DOE addresses remaining concerns
  - Resolving implementation issues will be slower

MODEL ABSTRACTION

- SUBISSUE:
  - Need to integrate the relevant FEPs into the PA to ensure a comprehensive analysis of the total system
- STATUS
  - DOE needs to improve integration and coupling within the PA (compared to TSPA-VA)
  - Process KTI subissues are partially resolved
- OUTLOOK
  - Remaining process KTI subissues need to be closed
  - Integration issues need to be addressed
  - Detailed discussions on information related to specific abstractions will be held during PMR Interactions

SYSTEM DESCRIPTION/DEMONSTRATION OF MULTIPLE BARRIERS

- SUBISSUE:
  - The documentation of the PA needs to be sufficiently transparent to allow an independent analysis of the results
  - The capability of multiple barriers is documented and supported by analyses consistent with the PA
- STATUS
  - Transparency and traceability
    - PA process needs to be more transparent and traceable than TSPA-VA
    - Description and application of FEPs needs to be consistent
  - Multiple barriers
    - DOE needs to demonstrate methodology for multiple barriers (expected in TSPA-SR)

SYSTEM DESCRIPTION/DEMONSTRATION OF MULTIPLE BARRIERS (continued)

- OUTLOOK
  - Progress expected on transparency and traceability through TSPA-SR development and documentation
  - Acceptance criteria for demonstrating multiple barriers will be included in Rev. 3 of the TSPAI IRSR
    - Progress can be made on resolving multiple barriers subissue by LA
    - Limited progress possible on methodology before final 10 CFR Part 63

OVERALL PERFORMANCE OBJECTIVE

- SUBISSUE:
  - The use of the PA model to calculate the overall performance objective
- STATUS
  - DOE needs to implement and document PA for the current design and 10 CFR Part 63 performance objective
  - Acceptance criteria for using the PA to calculate the overall performance objective will be included in Rev. 3 of the TSPAI IRSR
    - Progress can be made on resolving overall performance objective subissue by LA

OVERVIEW

- Objectives
  - Make progress on resolving all TSPAI subissues
    - Scenario analysis (methodology) is closest to being resolved
    - Transparency and traceability issues can be resolved
    - Progress on model abstraction will occur through TSPA and PMR discussions
    - Progress towards resolving multiple barriers and overall performance objective subissues can be made using TSPA-SR
  - NRC is continuing to review supporting documentation and will review TSPA-SR
    - Commitments made by DOE can lead to progress on issues