From: Tina Ghosh
To: "Tina Ghosh" <STG1@nrc.gov>
Date: 4/3/2007 1:51:50 PM
Subject: Fwd: FYI- is the one pager for TSPAI NMSS briefing, (includes criticality)

>>> Dennis Galvin 10/30/2006 7:47 PM >>>
Bret,

What you wrote is acceptable. That is, there are weaknesses in DOE's methods to demonstrate that criticality events can be screened out, not that in general there is a weak basis for screening out postclsoure criticality events.

For background, I believe that DOE can design the waste package to be subcritical for 10,000 years (all that is required in the proposed revised rule). However, there are potential deficiencies in the methodologies DOE is using in the "design" (burnup credit, code validation) that may not allow the NRC to agree with DOE that certain intended configurations are subcritical by design. Also, the transparency of DOE's criticality probability model would be enhanced if there is a clear link between the criticality probability model and the credible configurations that form DOE's postclosure criticality design basis.

Thanks,

Dennis

>>> Bret Leslie 10/30/2006 5:46 PM >>>
Folks,
don't know when this meeting will occur, but here is what I am intending to present (thanks to John T, Dennis, and Keith for some useful background). If you have suggested changes, provide them to me so long as you don't change the length.
thanks,
bret

Hearing Identifier: HLW_YuccaMountain_Hold
Email Number: 24

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From: Tina Ghosh

Created By: STG1@nrc.gov

Recipients
"Tina Ghosh" <STG1@nrc.gov>

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NMSS Management Briefing on Total System Performance Assessment.wpd	151906	3/11/2008 2:55:44 PM

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Priority: Standard
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None

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NMSS Management Briefing on Total System Performance Assessment and Integration (TSPAI), including Multiple Barriers, Scenario Analysis, and Probability

DOE's Total System Performance Assessment (TSPA)

- Technical Exchange (late Oct)
  - NRC provided key messages letter prior to meeting on: capability of barriers; scenario analysis; treatment of uncertainty; quality assurance and model support; and design and use of TSPA analyses
  - DOE provided high-level overview of TSPA, changes, and development schedule
- Overly ambitious schedule
  - Further interactions with NRC not in schedule
  - Little time for DOE to understand results
  - Little time for DOE to explain in licensing documents their understanding
- Availability of TSPA and its documentation
  - Documentation for new TSPA-LA will be late in the schedule
  - Testing of review process ongoing, but success is dependent on DOE

NRC's Total-system Performance Assessment (TPA) Code

- Completion of TPA code delayed by 9 months - 5 issues (drift degradation module integration; low-probability seismic event sampling; long-term climate abstraction; technical justification of parameters; input/output transparency and traceability)
- For success we increased teamwork, management attention, and integrated schedule

Multiple Barriers (identification, describe capability, technical basis consistent with TSPA)

- NRC strategy for multiple barriers (a basis for risk-informed review) developed and used
- DOE may still not be completely clear on the importance of explaining the capability of barriers, their technical basis, and consistency with TSPA

Scenario Analysis

- NRC review strategy for features, events, and processes (FEPs) developed and in use
- DOE revising the list of FEPs, will be compiled in non-public document
- DOE scenarios include: seismic (dominant scenario), igneous, juvenile failure, and nominal
- NRC scenarios include: nominal (dominant, but includes drift degradation and juvenile failures), seismic, and igneous

Probability - Seismic, Volcanism, and Criticality

- **Seismic** - uses a peak ground velocity, as a function of probability, approach
  - Basis for low probability peak ground velocity cutoff in dispute
  - Letter sent to DOE, still waiting formal response
  - Independent basis for cutoff in development by Center
- **Volcanism** - published probabilities from 10^{-8} to 10^{-6}/year
  - DOE updating Probabilistic Hazard Assessment, final in June 2008
  - DOE will provide full TSPA consequence, and single point analysis
  - Center updating probability analysis based on new core samples

  Criticality - screened out as a scenario on the basis of probability < 10^{-8}/yr
  - Weak basis - model validation, burn-up credit (isotopics), configurations
  - More risk-informed approach will be suggested in December technical exchange

October 31, 2006

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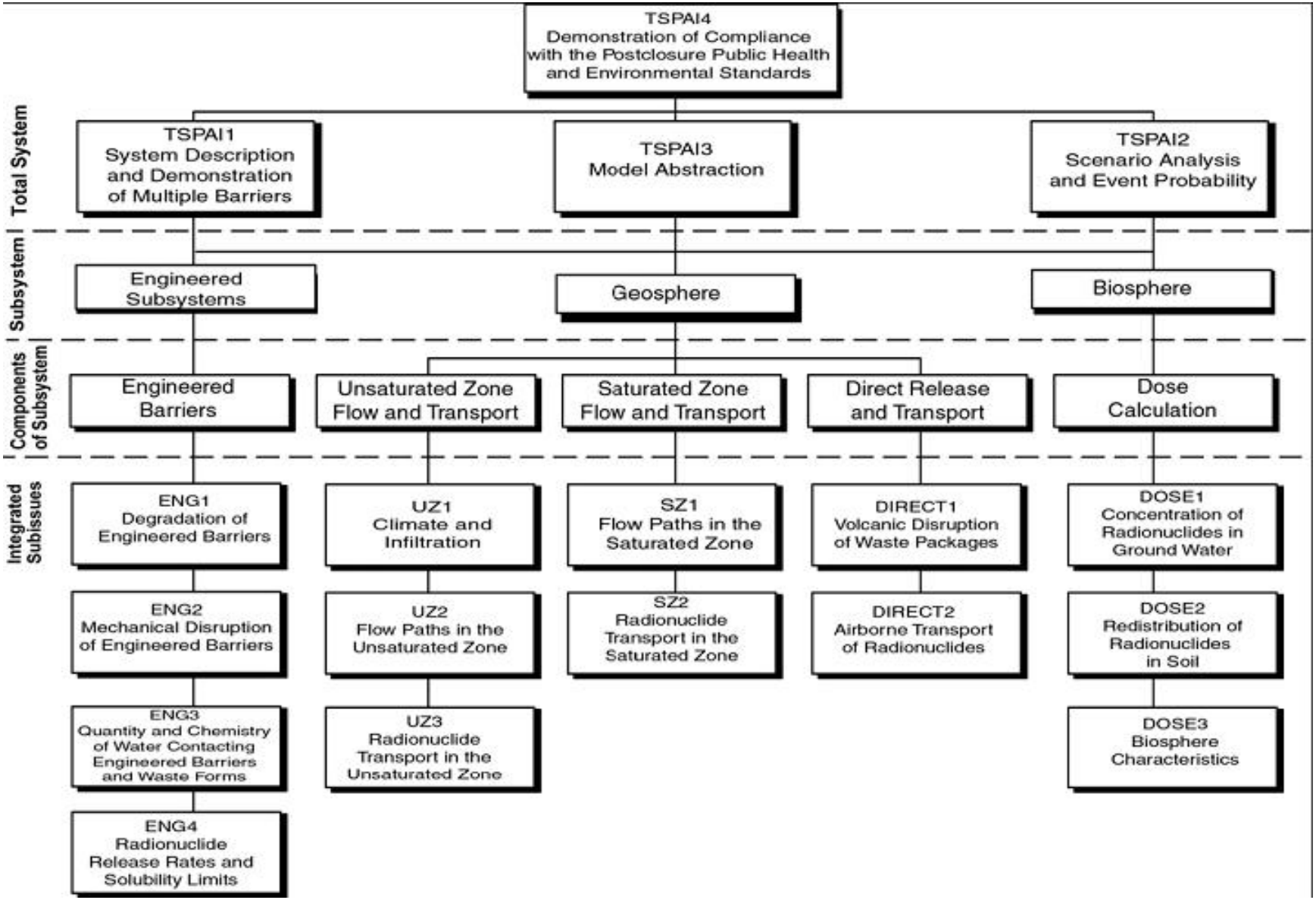

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