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January 27, 1993

MEMORANDUM FOR: Charlotte Abrams, Senior Project Manager
Repository Licensing and Quality Assurance
Project Directorate, DHLWM

THRU: Margaret V. Federline, Chief
Hydrology and Systems Performance Branch, DHLWM

FROM: Daniel Fehringer, Acting Section Leader
Repository Performance Assessment Section
Hydrology and Systems Performance Branch, DHLWM

SUBJECT: DOE RESPONSES TO SCA COMMENTS 100, 104, 106, 108, 110, 112 AND 113

On January 14, 1993, I transmitted to you the Performance Assessment Section's evaluations of DOE's responses to the subject SCA comments. Enclosed are the same evaluations, revised to conform to the desired format.

/s/

Daniel Fehringer, Acting Section Leader
Repository Performance Assessment Section
Hydrology and Systems Performance Branch, DHLWM

Enclosure:
As stated

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Section 8.3.5.13 Total System Performance

SCA COMMENT 100

There are two problems with the sequences for faulty waste emplacement (pp. 8.35.13-32 to 33): (1) sequences for faulty waste emplacement establish the initial condition for the repository at time of closure and should not be included in the set of scenarios, and (2) the sequences are so limited, it is not clear that the site characterization program will acquire the data to analyze the likelihood and consequences of such initial defects.

EVALUATION OF DOE RESPONSE

- DOE agrees that sequences for faulty waste emplacement should be treated as initial conditions of the repository system.
- DOE expects to empirically generate information regarding faulty waste emplacement from quality-assurance procedures and training exercises preparatory to first waste emplacement and by inspections after emplacement.
- The NRC staff considers this comment closed.

Section 8.3.5.13 Total System Performance

SCA COMMENT 104

The Ross sequences appear to be based entirely on spent fuel as the waste form; since these sequences presumably form a basis for the site characterization program, it is not clear that important scenarios that may be peculiar to vitrified HLW have not been omitted.

EVALUATION OF DOE RESPONSE

- DOE states that its analysis will include all candidate waste forms in the assessment of the total system and sub-system performance measures.
- The NRC staff considers this comment closed.
- Closure of this comment is not an endorsement of glass as the preferred waste form for reprocessing wastes.

Section 8.3.5.13 Total System Performance

SCA COMMENT 106

There appears to be a missing coupling term in equation 8.3.5.13-12B; this equation is the primary basis for calculating liquid-phase radionuclide transport to the accessible environment.

EVALUATION OF DOE RESPONSE

- DOE acknowledged that the SCP was in error, and that the missing term should be included as stated by the NRC staff.

- The NRC staff considers this comment closed.

Section 8.3.5.13 Total System Performance

SCA COMMENT 108

The use of the EPPM (expected partial performance measure) to screen scenarios and to establish goals for the performance allocation used to guide site characterization may be justified on a theoretical basis, but does not appear to be appropriately implemented in the SCP.

EVALUATION OF DOE RESPONSE

- DOE does not plan to use EPPMs in future revisions and redirection of the site-characterization program.
- Since the SCP was written, additional data and calculational exercises have given DOE new insights, e.g., regarding priorities for site characterization. DOE expects to continue to share such insights with the NRC staff and other interested parties in future technical exchanges.
- The NRC staff considers this comment closed.

Section 8.3.5.13 Total System Performance

COMMENT 110

The response to CDSCP comment 90 indicates that human intrusion is intended to be left out of the calculation of the CCDF, but the SCP text is unclear as to how human intrusion will be handled.

EVALUATION OF DOE RESPONSE

- DOE purports to concur with the NRC "that unlikely human intrusion should not be included in the CCDF, but should have a separate test for compliance." The Commission has never adopted such a position, although the NRC staff has offered a comment to EPA to that effect.

- DOE agrees to follow the requirements of the final EPA HLW standards concerning human intrusion.

- The NRC staff considers this comment closed.

Section 8.3.5.13 Total System Performance

COMMENT 112

There is a gap in the discussion of the treatment of state variables as constants or as random variables.

EVALUATION OF DOE RESPONSE

- DOE agrees with the points made by the NRC staff.
- The NRC staff considers this comment closed.

Section 8.3.5.13 Total System Performance

COMMENT 113

The definition of the unit step function is not consistent with the definition of the CCDF.

EVALUATION OF DOE RESPONSE

- DOE notes that a site whose projected releases are so close to the limit of the EPA standard that this difference in definitions would be important is probably not suitable anyway.
- DOE argues that its definition is somewhat more conservative than the NRC's, and that DOE prefers to use the more conservative definition.
- The NRC staff considers this comment closed.

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