

# Summary Highlights of NRC/DOE Technical Exchange and Management Meeting on Potential Phased Approach to Design and Document Hierarchy and LA Products

November 5-6, 2002  
Las Vegas, Nevada

## Introduction and Objectives

The objective of this Technical Exchange and Management Meeting on Potential Phased Approach to Design and Document Hierarchy and LA Products is to provide an information exchange between the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE). Consistent with NRC regulations on precicensing consultations and a 1992 agreement with the DOE, staff-level resolution can be achieved during pre-licensing consultation. Resolution at the staff level does not preclude an issue being raised and considered during the licensing proceedings, nor does it prejudge what the NRC staff evaluation of that issue will be after its licensing review. Issue resolution at the staff level, during pre-licensing, is achieved when the staff has no further questions or comments at a point in time regarding how the DOE is addressing an issue. The discussions recorded here reflect NRC's current understanding of DOE's potential phased approach to design and document hierarchy and LA products. This understanding is based on the information presented.

The agenda and the attendance list are provided in Attachments 1 and 2, respectively. Copies of the presenters' slides are provided in Attachment 3. Highlights from the Technical Exchange are summarized below.

### **1) Opening Comments**

In their opening remarks, Joe Ziegler (DOE) stated that this is an information exchange meeting and DOE plans to present the proposed potential phased approach to design and document hierarchy and LA products information. DOE noted that the potential phased approach to be discussed is more accurately described as a phased approach to repository development and facility construction as opposed to a phased design. DOE also noted that the information being presented presents current plans, which have not all been accepted by DOE and may continue to evolve.

Steve Frishman, State of Nevada, provided comments and a paper on a potential conflict with using provisions of 10 CFR Part 50 regulations in licensing a 10 CRF Part 63 facility.

The NRC encouraged DOE to identify issues as soon as possible so that these issues can be resolved in a timely manner. Additionally, NRC encouraged the participants to provide input on improving the public meeting.

## **2) OCRWM System Analyses**

Jeffery R. Williams (DOE), presented a brief overview of DOE's management system analysis. He noted that since 1998, DOE has completed several systems studies evaluating a phased construction approach. As a response to an NRC comment, Nancy Williams of BSC commented that such a phased approach has been used at the Hanford facility.

## **3) Potential Phased Approach to Surface Facility Development**

Larry Trautner (BSC), presented the proposed phased approach to construction of surface facilities which could potentially enhance the Site Recommendation Design. In the presentation, he discussed (1) waste handling facility functions, (2) the site recommendation design waste handling facility, (3) design approach and process, (4) phased surface facilities approach, (5) waste processing flow, (6) Omni-directional Lift Transporter (OLT), (7) cask transporter and disposal container receipt and processing, (8) dry waste transfer, (9) waste package handling and emplacement, (10) remediation building, and (11) present status of this phased approach to repository development. Major innovations in the design are (1) significant reduction of wet transfer, (2) use of the OLT for reducing the need for cranes, (3) reduction of floor area of surface facility, and (4) combined canister transfer and assembly transfer operations. In response to NRC's comment on handling of damaged fuel, DOE responded that such fuels could undergo remediation, if necessary, but that the details for packaging commercial non-standard and failed fuel have not been fully developed. DOE indicated that a subsurface transport system similar to the OLT is currently under consideration. Gene Rowe indicated that DOE is currently developing event sequences and associated probabilities related to OLT. DOE indicated that experience gained in the operations of Dry Facility 1 would be used to further improve the design and operations of Dry Facility 2. NRC pointed out that design and operational features must be provided in sufficient detail in the LA. DOE acknowledged that the LA must address the design and operational features of the entire facility and that changes, if any, would be incorporated in accordance with the NRC licensing rules.

## **4) Potential Phased Approach to Subsurface Facility Development**

Alan Linden (BSC), presented the proposed phased approach to construction of subsurface facilities. He discussed the revised repository footprint and repository layout. The proposed underground facility will be constructed in four phases for 70,000 MTHM design, and a fifth phase will be constructed if necessary. DOE indicated that experience gained during the construction of Phase 1 could be used in the subsequent phases. NRC pointed out that the design of the entire subsurface facility must be provided in sufficient detail in the LA.

## **5) Status of Waste Package Design and Fabrication**

Jack Cloud (BSC), presented the status of waste package design and fabrication. The current DOE plan calls for ten waste package (WP) designs to accommodate the variety of spent nuclear fuel and high level waste. DOE stated that they planned to complete preliminary design in greater detail for four out of ten waste package designs in the LA. The four would be representative of all ten waste packages, the primary differences being size and internal structure. NRC pointed out that the design of the engineered barrier system must be provided in sufficient detail for review of the LA.

## **6) Document Hierarchy/Requirements Management**

Robert Sandifer (BSC), presented Programmatic and Technical Requirements of Document Hierarchy. Mr. Sandifer discussed the three levels of document management. In response to an NRC question, he discussed the DOE process for training the relevant staff regarding the requirements.

## **7) System Description Document and Project Design Criteria**

Gordon Pederson (BSC), made a presentation on system description document and project design criteria. DOE stated that design bases derived from preclosure safety analysis will not be graded. However, QA program implementation could be graded appropriately for QL-1, QL-2, and QL-3.

## **8) License Application Design Products and Sample Drawings**

Stephen Cereghino (BSC), made a presentation on License Application Design Products and Sample Drawings. The License Application-Construction Authorization (LA-CA) will contain adequate information to support the NRC licensing review. The amount of design information available and provided will increase as design evolves from preliminary design at LA-CA to detailed design at LA-Receive and Possess (LA-R&P). The project will keep NRC informed as the design evolves.

The design document types will include Project Design Criteria Document, System Description Documents, and Material Specifications. Typical Site Plan/Site Layout drawings were presented. DOE will also provide General Arrangement Drawings, Equipment/Component Drawings, Ventilation Flow Diagrams, Piping and Instrumentation Diagrams, Mechanical Flow Diagrams, Electrical One-line Diagrams, Logic Diagrams, and Engineered Barrier and Special Process Equipment Drawings.

## **9) License Application Overview**

Martin Bryan (BSC), made a presentation of the License Application Overview. The considerations in developing content and format of SAR are: (1) Expected level of detail provided in LA and support documents will increase from LA-CA to LA-R&P, (2) Level of detail at LA-CA will be sufficient to allow NRC to make the findings required by 10 CFR 63.31 and 10 CFR 63.21, (3) Yucca Mountain Review Plan, (4) other review plans, and (5) other dockets.

The current Tables of Contents were identified for General Information and SAR. A chart identifying the components of the LA and SAR was presented. Finally, Mr. Bryan discussed the path forward for demonstrating compliance with NRC regulations and DOE-NRC interactions supporting LA development.

## 10) Closing Remarks by NRC

William Reamer (NRC), made the following remarks:

1. It is NRC's understanding that the LA for CA will be for the entire repository and will cover all phases of construction under consideration by DOE.
2. Information from Preclosure Safety Analysis (PSA)/Total System performance Assessment (TSPA)/site data/transportation-Spent Fuel Project Office (SFPO) input/KTI agreements resolution should be integrated into the level of detail of design information to be presented in the LA for CA.
3. The relation between the level of design detail and the statement on submitting a complete License Application (LA) was unclear. Continued interaction is encouraged to gain a better understanding of the level of design detail needed in submitting a complete LA for Construction Authorization (LA for CA). DOE is encouraged to communicate changes to the evolving design to NRC in public meetings.
4. It is NRC's understanding that the entire design process will be under DOE's QA program. The structures, systems, and components important to safety (SSCITS) determined in the PSA will be categorized commensurate with their importance to safety or waste isolation as QL-1, QL-2, and QL-3 for the purpose of graded implementation of QA program. This categorization will not be extended to grade the design bases and design criteria for the SSCITS.
5. It is NRC's understanding that the level of design detail and information in the LA for CA must be adequate for NRC to review the application to make a finding on DOE's demonstration of compliance with part 63 regulations. The risk of submitting an inadequate LA is that NRC will not docket the LA or NRC will have extensive requests for additional information which will delay NRC's review of the LA.
6. NRC acknowledged the receipt of a paper by the State of Nevada on potential conflict with using provisions of 10 CFR Part 50 regulations in licensing a 10 CFR Part 63 facility. The representative from NEI stated that they will be presenting a position paper on this issue. NRC had no opinion on the position paper pending review.
7. NRC acknowledged DOE's statement that it would keep NRC informed as the design evolves and implement, in principle, 10 CFR 63.44, during prelicensing. How NRC and DOE communicate is important. When DOE expects the NRC On-Site Representatives (ORs) to communicate information to NRC Headquarters, it would be helpful if DOE communicated that expectation to the ORs. Routine public meetings will help keep communications open and at a high level.

## 11) Public Comments

Judy Triechel of Nevada Nuclear Task Force appreciated NRC's questions and interest in the level of design detail topic. If the LA for CA will not have all the necessary information, then there should be a second formal hearing at the stage of license to receive and possess waste, when all the information is available.

## 12) Remarks by DOE

Joseph Ziegler of DOE stated that this was an information exchange meeting to present the proposals under consideration and DOE has not made a final decision yet regarding the refinements that will be incorporated in the LA design. DOE will continue to keep NRC informed as these proposals develop.

The meeting was adjourned.



C. William Reamer  
Deputy Director  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards  
U.S. Nuclear Regulatory Commission



Joseph D. Ziegler  
Acting, Assistant Manager, Office of License  
Application and Strategy  
Office of Repository Development  
U.S. Department of Energy

