

9/6/85

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WM Project: 15  
Docket No. \_\_\_\_\_  
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DOE-NRC SALT WASTE PACKAGE WORKSHOP

Objectives

Tolar  
Luehan  
Johnson  
(Return to WM, 623-SS)

1. To present the NRC staff and other participants the DOE-Salt Repository Programs current status and approach to waste package design and development and its contribution to the potential licensing of a salt geologic repository. This would include:
  - (a) A description of the overall SRP waste package program approach and strategy with regard to design and performance verification.
  - (b) A description of the current package design including components/ functions, materials, and design rationale.
  - (c) A description of SRP performance assessment approach including strategy, model development, interaction with design, treatment of uncertainties and code and model validation.
  - (d) A description of the SRP Quality Assurance program and the uses of peer/technical review.
  - (e) A description of the waste package near-field environment including uncertainties, issues, status of data, and waste package effects (heat, radiation, etc.).
  - (f) A description of the SRP program studying waste package containment including failure/degradation processes, uncertainties and issues, and status of data.
  - (g) A description of the SRP program studying waste package release including failure/release scenarios, uncertainties/issues and status of data.
2. To answer questions and receive NRC comments on the SRP waste package program and its applicability to the requirements of 10 CFR Part 60 and NRC staff perceived licensing needs.
3. To describe the SRP near term (FY 86) planned activities in the waste package area to assist NRC and others in following the SRP program including exchange of ideas on future meetings and data reviews.
4. To have the NRC staff provide feedback to the DOE-SRP program through
  - (a) Comment on the perceived appropriateness/adequacy of the SRP waste package program.
  - (b) Presentations on several topics/issues which would influence the DOE program based on NRC interpretation of the requirement of 10 CFR Part 60. (See Agenda for Specific Topics)

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**PROPOSED AGENDA**

**SRP/NRC WASTE PACKAGE MEETING  
October 29-31, 1985  
Silver Spring, Maryland**

**October 19, 1985**

**8:30 am**

**Introductions**

- SRP Participants
- NRC Participants
- Others

**8:45 a.m.**

**Announcements and Opening Remarks**

- Announcements/Arrangements
- DOE Opening Remarks
- NRC Opening Remarks

**9:00 a.m.**

**Package Program Approach and Strategy**

- Program Organization
- Program Philosophy
- Design Approach
- Performance Verification Strategy

**9:45 a.m.**

**Waste Package Concept Description**

- Design Description
- Component Functions/Performance Allocation
- Design Rationale/Materials Selection
- Favorable Features
- Major Design Uncertainties
- Failure Modes and Processes
- Effects of Emplacement Mode

**12:00**

**Lunch**

**1:00 p.m.**

**Performance Assessment of Waste Packages**

- Performance Assessment Strategy
- Interfaces with Design and Testing
- Development of Submodels
- WAPPA Model Description
- Treatment of Uncertainties
- Code and Model Validation
- Role in Licensing

**3:30 p.m.**

**Break**

October 29, 1985 (Continued)

- 3:45 p.m.                      Quality Assurance and Peer/Technical Review
  - Quality Assurance Programs
  - Technical Test Procedures
  - Technical/Peer Review
- 5:00 p.m.                      Adjourn

October 30, 1985

- 8:30 a.m.                      Waste Package Environment
  - Preplacement Conditions
  - Heat Effects on Salt and Brine
  - Thermomechanical Effects
  - Radiation Effects
  - Preclosure/Operational Factors
  - Integrated Effects/Field Tests
  - Expected/Unexpected Conditions
  - Impact on Modeling
  - Status of Data
- 11:30 a.m.                    Waste Package Containment
  - Failure/Degradation Processes
    - General Corrosion/Test Design
    - Nonuniform Corrosion
    - Crushing
    - Others
  - Factors Affecting Processes
  - Status of Data
  - Major Uncertainties/Issues
  - Development of Submodels
- 12:30 p.m.                    Lunch
- 1:30 p.m.                    Waste Package Containment (Continued)
- 3:30 p.m.                    Waste Package Release
  - Package Failure/Release Scenarios
  - Expected Processes
  - Status of Data
  - Major Uncertainties/Issues
  - Development of Models
- 5:00 p.m.                    Adjourn

October 31, 1985

- 8:30 a.m. Waste Package Release (Continued)
- 10:00 a.m. Near-Term Waste Package Activities/Products
  - Waste Package Environment
  - Waste Package Containment
  - Package Release
  - Design and Development
  - Performance Assessment
  - Future Potential Meetings/Data Reviews
- 10:45 a.m. NRC Presentations
  - Summary of Observations on DOE Programs
  - Substantially Complete Containment/Short Half-life Radionuclides
  - Individual Radionuclide Release Data for Licensing
  - Waste Package/Engineered Barrier System Boundary Definitions
  - Pitting Studies
- 12:00 Lunch
- 1:00 p.m. General Discussions/Questions
- 3:00 p.m. Preparation of Minutes
- 4:00 p.m. Summary and Minutes Discussion
- 5:00 p.m. Adjourn

November 1, 1985

- 8:30 a.m. Additional session as necessary to complete minutes preparation and discussion.

DOE/NRC Waste Package Workshop

Listing of Reports Applicable to the Workshop

Published Reports

- BMI/ONWI-545 Performance Assessment Plans & Methods for the Salt Repository Project
- ONWI-488 A Proposed Approach to Uncertainty Analysis
- SAND 81-0433 Salt Block II Brine Migration Modeling
- ORNL/TM-7310 A Statistical Sensitivity Analysis of a Simple Nuclear Waste Repository Model
- ONWI-085 Thermal Gradient Brine Inclusion Migration in Salt Study, Gas-Liquid Inclusions Preliminary Models
- ORNL-5607 Review of Information on the Radiation Chemistry of Materials Around Waste Canisters in Salt and Assessment of the Need for Additional Experimental Information.
- ONWI-454 Conceptual Waste Package Interim Product Specifications and Data Requirements for Disposal of Borosilicate Glass Defense High-Level Waste Forms in Salt Geologic Repositories
- ONWI-305 Reaction and Devitrification of a Prototype Nuclear Waste Storage Glass With Hot Magnesium-Rich Brine
- ONWI-462 Conceptual Waste Package Interim Performance Specifications for Waste Forms for Geologic Isolation in Salt Repositories
- ONWI-483 Engineered Waste Package Conceptual Design: Defense High-Level Waste (Form 1), Commercial High-Level Waste (Form I), and Spent Fuel (Form 2) Disposal in Salt
- ONWI-242 Brine Migration Test for Asse Mine, Federal Republic of Germany: Final Test Plan
- ONWI-472 EQ3/EQ6: A Geochemical Speciation and Reaction Path Code Package Suitable for Nuclear Waste Performance Assessment
- ONWI-419 Workshop on Uncertainty Analysis of Postclosure Nuclear Waste Isolation System Performance

ONWI-452 WAPPA: A Waste Package Performance Assment Code

ONWI-399 Thermodynamic Properties of Chemical Species in Nuclear Waste

DOE/NWTS-34 Guidelines for the Development and Testing of NWTS Waste Package Materials

PNL-4474 State-of-the-Art Report on Corrosion Data Pertaining to Metallic Barriers for Nuclear Waste Repositories

DOE/NWTS-960 NWTS Waste Package Program Plan, Volume I: Program Strategy, Volume I Description, and Schedule

ONWI-275 Elemental Release From Glass and Spent Fuel

ONWI-312 Waste Package Materials Screening and Selection

PNL-3971 Actinide Leaching From Waste Glass: Air-Equilibrated Versus Deaerated Conditions

DOE/NWTS-013 Nuclear Waste Package Materials Degradation Modes and Accelerated Testing

PNL-3614 Solubility Effects in Waste-Glass/Demineralized-Water Systems

ONWI-251 An Annotated Bibliography for the Design of Waste Packages for Geologic Disposal of Spent Fuel and High-Level Waste

PNL-3791 Factors Affecting Criticality for Spent Fuel Materials in a Geologic Setting

PNL-3802 A State-of-the-Art Review of Materials Properties of Nuclear Waste Forms

ONWI-490 Waste Package Materials Testing for a Salt Repository: 1982 Status Report

BMI/ONWI-533 Assessment of the Impacts of Spent Fuel Disassembly Alternatives on the Nuclear Waste Isolation System

BMI/ONWI-538 A Study of Thermal-Gradient-Induced Migration of Brine Inclusions in Salt: Final Report

Reports in Process

ONWI-517/WTSD-TME-001	Waste Package Reference Conceptual Designs for a Repository
PNL Draft	FY 84 Waste Package Near-Field Environment Testing Report
PNL Draft	FY 84 Metal Barriers Testing Report
PNL Draft	FY 84 Waste Form Testing Report
PNL Draft	FY 84 Work on Corrosion & Leaching Submodels
PNL Draft	FY 83 Work Status Report

WM Record File

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WM Project: 1E

Docket No. \_\_\_\_\_

PDR

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WORKSHOP: \_\_\_\_\_

Tokar

Lisahan

Johnson

(Return to WM, 623-SS)

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ATTN: Mike Tokar, NRC

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Silver Springs

TO: Mike Tokar, NRC

NRC  
COMPANY

STATE

FROM: Roger Wu  
NAME

DOE  
DEPARTMENT

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