9/6/85 ORIGINAL NOT REC'D

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Distribution: Total Graham Johnson
(Return to WM, 623-SS)

## DOE-NRC SALT WASTE PACKAGE WORKSHOP

### Objectives

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)

# PROPOSED AGENDA

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

**October 19, 1985**

| | |
|---|---|
| 8:30 am | Introductions |
| | • SRP Participants<br>• NRC Participants<br>• Others |
| 8:45 a.m. | Anouncements and Opening Remarks |
| | • Announcements/Arrangements<br>• DOE Opening Remarks<br>• NRC Opening Remarks |
| 9:00 a.m. | Package Program Approach and Strategy |
| | • Program Organization<br>• Program Philosophy<br>• Design Approach<br>• Performance Verification Strategy |
| 9:45 a.m. | Waste Package Concept Description |
| | • Design Description<br>• Component Functions/Performance Allocation<br>• Design Rationale/Materials Selection<br>• Favorable Features<br>• Major Design Uncertainties<br>• Failure Modes and Processes<br>• Effects of Emplacement Mode |
| 12:00 | Lunch |
| 1:00 p.m. | Performance Assessment of Waste Packages |
| | • Performance Assessment Strategy<br>• Interfaces with Design and Testing<br>• Development of Submodels<br>• WAPPA Model Description<br>• Treatment of Uncertainties<br>• Code and Model Validation<br>• Role in Licensing |
| 3:30 p.m. | Break |

October 29, 1985 (Continued)

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| 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

- Preemplacement 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

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| 8:30 a.m. | Waste Package Release (Continued) |
| 10:00 a.m. | Near-Term Waste Package Activities/Products<br>• Waste Package Environment<br>• Waste Package Containment<br>• Package Release<br>• Design and Development<br>• Performance Assessment<br>• Future Potential Meetings/Data Reviews |
| 10:45 a.m. | NRC Presentations<br>• Summary of Observations on DOE Programs<br>• Substantially Complete Containment/Short Half-life Radionuclides<br>• Individual Radionuclide Release Data for Licensing<br>• Waste Package/Engineered Barrier System Boundary Definitions<br>• 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

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| 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-464 | 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 |

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| 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 Volume I | NWTS Waste Package Program Plan, Volume I: Program Strategy, 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

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|---|---|
| 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 |

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ATTN: Mike Tokar, NRC

PLEASE COMPLETE THIS FORM IN INK, DO NOT USE PENCILS OR RED INK

Fax : 427-4298
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Silver Springs

TO: Mike Tokar, ~~NRC~~ NRC (COMPANY) ____ (STATE)

FROM: Roger Wu (NAME) DOE (DEPARTMENT) 976-5916 (PHONE NUMBER)

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