

EM Waste Acceptance Product Specification (WAPS) for Vitrified High-Level Waste Forms

National Spent Nuclear Fuel Strategy Meeting
Las Vegas, Nevada
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By Tony Kluk



EM *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

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Background

- Originally Waste Acceptance Preliminary Specifications were Office of Civilian Radioactive Waste Management (RW) documents and project specific:
 - Defense Waste Processing Facility (PE-03, July 1989)
 - West Valley Demonstration Project (PE-04, January 1990)
- Initial version of RW Waste Acceptance System Requirements Document issued January 1993 (included requirements for both SNF and HLW)
- EM extracted requirements for HLW and issued WAPS
- Lists technical specifications for acceptance of borosilicate HLW forms by the RW for disposal at repository



Background (Cont'd)

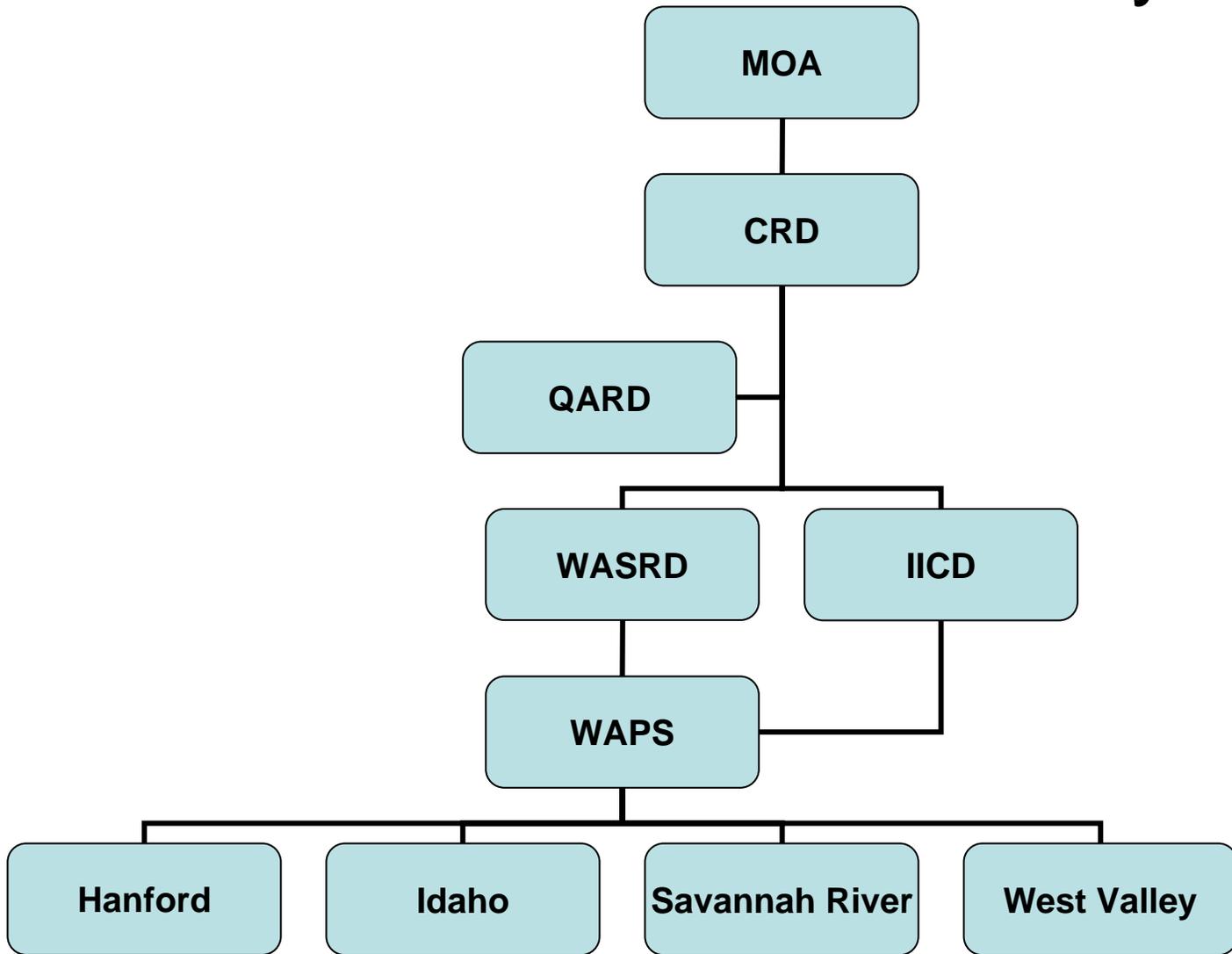
- Specifications apply to all elements of the canistered waste form:
 - Borosilicate glass
 - Stainless steel canister
 - Canistered waste form
 - QA requirements
 - Waste documentation requirements
- Last revised December 1996 – Revision 2
- Quality Assurance framework reestablished March 2008 (QARD, REV. 18)
- Revised draft issued for comment in May 2008
- Initial technical review completed early June 2008 (468 comments)

HLW Documentation Hierarchy

EM/RW

RW

EM



HLW Documentation

(Latest revisions shown)

Issued jointly

- MOA - RW/EM Memorandum of Agreement, revised/issued February 2007

Issued by RW with EM review and concurrence

- CRD – Civilian Radioactive Waste Management Requirements Document, Rev. 8 – issued January, 2008
- QARD – Quality Assurance Requirements Document, Rev. 20, issued January, 2008, effective October 1, 2008
- WASRD - Waste Acceptance System Requirements Document, Rev. 5 - issued May, 2007
- IICD - Integrated Interface Control Document, Rev. 4, - issued March 2008

HLW Documentation (cont.)

Issued by EM with RW concurrence

- WAPS - Waste Acceptance Product Specifications, Rev. 2 now being revised.

Issued by EM with RW concurrence for each site producing immobilized HLW for the repository

- WCP - Waste Form Compliance Plan
- WQR - Waste Form Qualification Report
- PR - Production Report
- SSR - Storage and Shipping Report

Areas Addressed by Planned WAPS Revision

- Waste Form specifications (6)
- Canister specifications (4)
- Canistered Waste Form specifications (14)
- Quality Assurance – MOA and all QARD specifications
- Documentation, other Regulatory Requirements (10)
- Glossary and Appendices (Rationale for Specifications, References, Cross Reference to WASRD, IICD, etc., Canistered Waste Form Data, Action Plans for Nonconforming Waste Forms, PCT, Specifications for PR's and SSR's, BS Glass specifications, Abbreviations)



Basis for Specifications

- The Memorandum of Agreement for Spent Nuclear Fuel and High Level Radioactive Waste, Revision 2, January 2007
 - Based on Standard contract for utilities (similar to MOA with Navy)
 - Identifies organizational responsibilities
 - Provides overall QA, waste data needs, conforming and nonconforming waste acceptance, and fee payment requirements
- WASRD, Revision 5, issued May 2008
 - Provides RW acceptance requirements for SNF (Commercial, DOE ,and Navy) and HLW
 - Technical information needs, performance verification, delivery schedule
- IICD, Revision 4, issued March 2008
 - Acceptance, shipment, receipt, and handling of HLW and SNF
 - Mechanical and dimensional interfaces
 - HLW and SNF canisters, casks, transporters, etc.
- Other bases:
 - LA, submitted to NRC June 3, 2008
 - SEIS submitted to NRC June 16
 - DOE/NRC Form 741 for Material Control and Accountability



WAPS Revision Status

- Draft revision issued for review – May 12, 2008.
- Technical Review Team consists of HQ, Field, and Contractor members
- Almost 468 comments received. Multiple comments, including many considered out of scope, address 90% of specifications
- Revised draft to be issued by the end of August 2008.



Major Issues

- How to address a concentration limit for Pu in the canistered waste form.
- Strategy for assigning Metric Tons of Heavy Metal to defense HLW (historical value of 0.5 MTHM assigned in place of actual characterization data).
- Additional (some new) requirements from RW IICD & EM/RW MOA, e.g. TID, 10 CFR 21 Reporting of Defects.
- Additional requirements deleted (Canister fill height and gas specification).
- Regulatory requirements applicable directly to EM (e.g. 10 CFR 21).
- Inclusion DOE O 435.1 HLW requirements as a basis for WAPS.

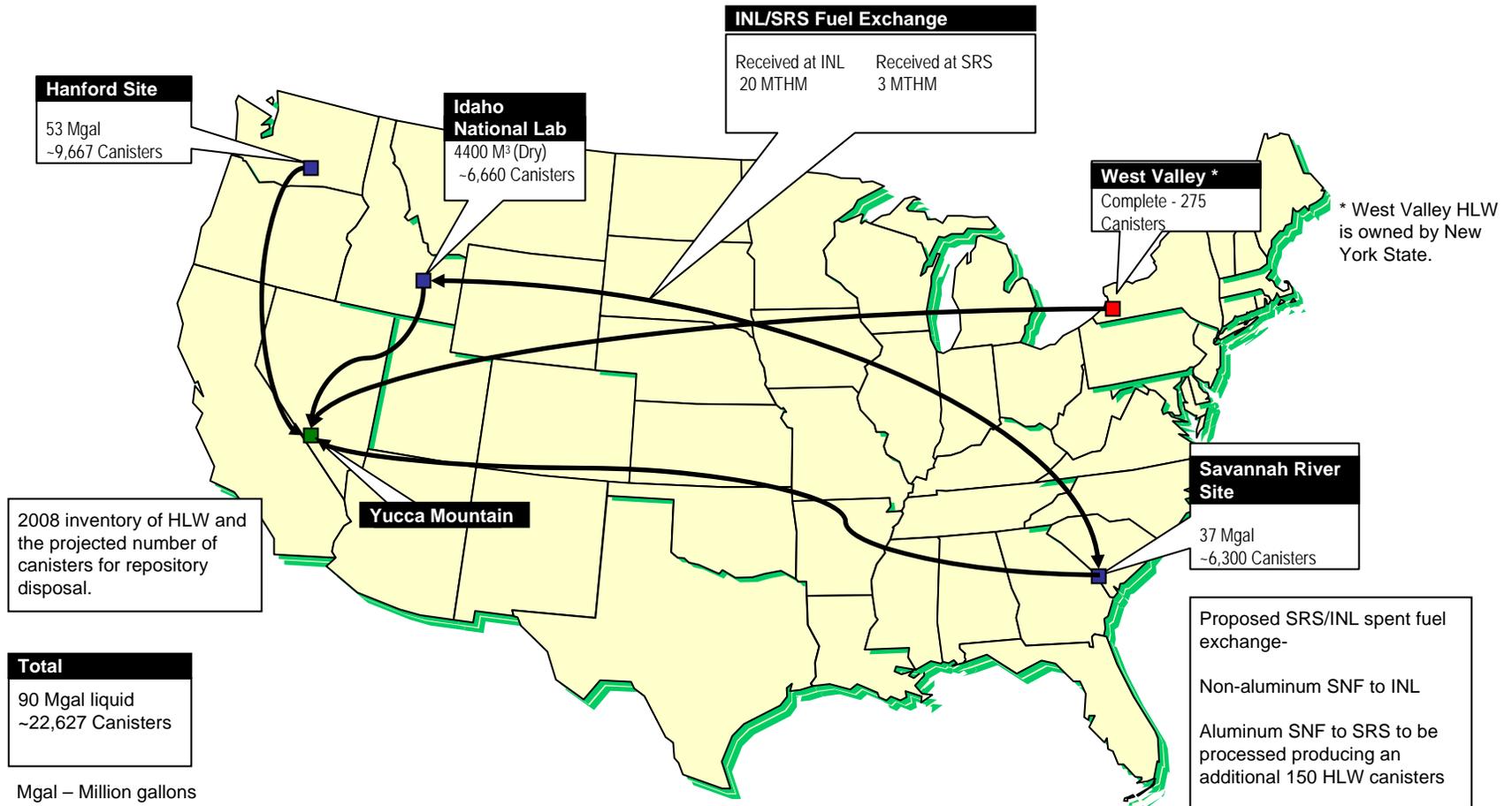
Backup



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2008 DOE High Level Waste Schematic



Mgal – Million gallons
Canisters – HLW Canisters for Disposal

Data Source: National Spent Nuclear Fuel Program