



U.S. Department of Energy
Office of Civilian Radioactive Waste Management


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DOE/NRC Quarterly Management Meeting

March 27, 2007
Rockville, MD

Agenda

DOE/NRC Quarterly Management Meeting

March 27, 2007

11:00 AM – 4:00 PM (ET)

8:00 AM – 1:00 PM (PT)

U. S. Nuclear Regulatory Commission

Two White Flint North, Auditorium

11545 Rockville Pike

Rockville, MD

And via Videoconference to:

U.S. NRC Las Vegas Hearing Facility

Building No. 1

3520 Pepper Lane

Henderson, NV

CNWRA

Bldg. 189, Conference Room B232

6220 Culebra Road

San Antonio, TX

*INTERESTED PARTIES MAY PARTICIPATE VIA TELECON BY CALLING 1-800-638-8081 or
301-231-5539, Passcode2289#*

11:00 AM	Introductions	All
11:10 AM	Opening Remarks	NRC/DOE
11:20 AM	NRC Program Update	J. Strosnider/ L. Kokajko
11:40 AM	DOE Program Update	W. Sproat
12:20 PM	Corrective Action Program	P. Golan/S. Wade
12:40 PM	Licensing	M. Williams
1:00 PM	Lunch	All
1:30 PM	Industry Assessment Results	L. Newman
2:15 PM	USGS E-Mail: Extent of Condition	W. Sproat
3:00 PM	Caucus	All
3:30 PM	Public Comments	
3:50PM	Closing Remarks	NRC/DOE
4:00 PM	Adjourn	



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Licensing

Presented to:
DOE/NRC Quarterly Management Meeting

Presented by:
Mark H. Williams
Regulatory Authority Office
Office of Civilian Radioactive Waste Management
U.S. Department of Energy

March 27, 2007
Rockville, MD

Topics for Discussion

- **License Application Project**
- **Future Interactions**
- **Key Technical Issues**
- **Recent Nuclear Regulatory Commission Correspondence**
- **Summary**

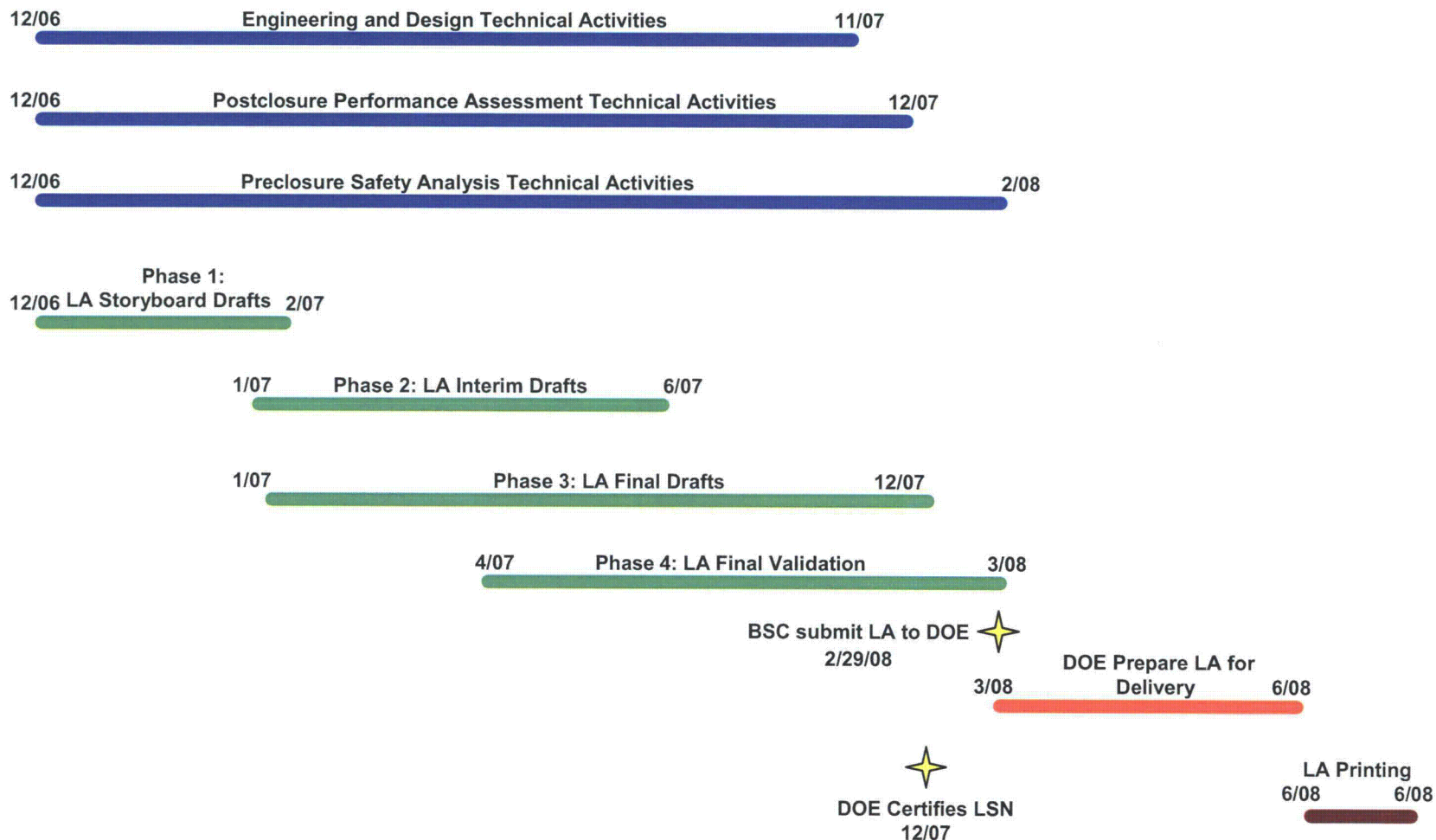


License Application Project

- **Submit a quality license application (LA) to the NRC no later than June 30, 2008**
- **LA Project progress includes:**
 - **Technical teams were formed and approved**
 - **Performance baseline was established**
 - ◆ **Resource-loaded schedule**
 - ◆ **Product and milestone baseline**
 - **Five main components: surface design, subsurface design, preclosure safety analysis, postclosure safety analysis, and programmatic**
 - **Sections of the LA are under development and review**



License Application Project Summary Schedule



License Application Project

- **Organizations and responsibilities identified**
 - DOE as license applicant
 - BSC as Design Authority
 - Sandia National Laboratories as Lead Laboratory
 - Other interfaces, including Environmental Management, Environmental Impact Statement Project, and Navy Nuclear Propulsion Program
- **Comprehensive planning and specific LA development procedure requirements**



License Application Project

(Continued)

- **Up-front processes for review of the LA have been established to assure sections are integrated across organizations and within LA**
- **In summary, the architecture and resources to develop a quality LA have been defined**



License Application Project

(Continued)

- **Quality is imperative**
 - **Leadership team has nuclear experience in engineering, licensing, science, and quality assurance**
 - **Process improved**
 - ◆ **Four distinct phases of development**
 - ◆ **Rapid issue escalation and clear decision process**
 - ◆ **Integrated teams with all parties represented**
 - ◆ **Accountability statements at each phase**
 - **Self assessments and quality assurance surveillances**



License Application Project

(Continued)

- **Tools available for discussion or review**
 - **LA Product baseline**
 - **LA resource-loaded schedule**



Future Interactions

- **DOE is prepared to support information gathering meetings on:**
 - **Preclosure criticality: March 28, 2007**
 - **Facility layout and operations (Canister Receipt and Closure Facility) : March 28-29, 2007**
 - **Wet handling facility pool and canister handling process: March 29, 2007**
 - **Unsaturated zone testing: April 10, 2007**
 - **Human reliability analysis: May 31, 2007**
 - **Near-field environment: June 19, 2007**
 - **Multiscale thermohydrologic models: June 20, 2007**
 - **Colloids and in-package chemistry: July 10, 2007**
 - **Drift degradation: September 13, 2007**



Future Interactions

(Continued)

- **DOE is prepared to support technical exchanges on:**
 - **Facility layout and operations (Canister Receipt and Closure Facility): May 30, 2007**
 - **Preclosure criticality: June 26, 2007**
 - **Physical protection, material control and accountability, and emergency planning: June 28, 2007**
 - **Postclosure subjects based on information gathering interactions: September 27, 2007**
 - **Other topics: November 2007**
 - **Infiltration: to be determined**



Key Technical Issues

- **DOE submitted responses to three Additional Information Needs (AINs) in December 2006, as scheduled**
 - **Radionuclide Transport 3.05, AIN-1 and Structural Deformation and Seismicity 3.01, AIN 2 – Documentation of Alcove 8 and Niche 3 tests**
 - **Total System Performance Assessment and Integration 2.02, Comment 59 – Transmittal of two Analysis and Model Reports: *In-Drift Natural Convection and Condensation*, and *Multiscale Thermohydrologic Model* (Corrected response transmitted 3/9/07)**
 - ◆ **This AIN was closed by NRC letter of 3/20/07**
- **Remaining Key Technical Agreement items will be addressed in the license application**



Recent NRC Correspondence

- Request for copy of scientific notebook from Peña Blanca studies (1/11/07)
- Request for data sets from Alcove 8/Niche 3, Alcove 6, and Alcove 1 field experiments (2/28/07)
- Request for interactions on issues related to drift degradation (3/14/07)
- Reply to DOE's response to issues raised in NRC Audit Report OAR-05-05 (e.g. probe calibration) (3/15/07)
- Reply to DOE's request for safeguards information documents developed for the Private Fuel Storage Facility in Utah (3/15/07)



Summary

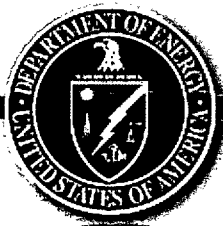
- **DOE is focused on completing a quality LA for submittal to the NRC no later than June 30, 2008**
- **DOE has worked with NRC to schedule DOE/NRC interactions on selected technical and programmatic topics**
- **In the next few months, we look forward to productive information exchanges**



Consolidated Action Items
From NRC/DOE Quarterly Management Meetings
(March 27, 2007)

Item No.	Action Item	Description	Status
1	MM 0402-C1	DOE will identify any to-be-verified (TBV) data in the LA that needs to be qualified (if any) at the time of LA submittal (Commitment).	Open. This item will remain open until LA submittal.
2	MM 0506-01	DOE and NRC to determine the dates for the list of proposed technical interactions discussed during previous Management Meetings.	Open. This item will remain open as a continuing action and progress will be reported at future management meetings.
3	MM 0509-01	DOE/NRC to hold technical exchange after the DOE report addressing the USGS alleged falsification of documents has been released by the Secretary.	Open. The referenced report has been issued and a technical exchange will be scheduled when DOE's evaluation is complete (including the root cause, extent of condition, and action plan).
4	MM0606-01	DOE and NRC to hold an interaction (management meeting or technical exchange - technical exchange preferred) on DOE's response to NRC's audit observation report (January 9, 2006) regarding the BSC's LLNL report.	Open pending completion of NRC's review of DOE response.
5	MM0606-04	DOE and NRC to schedule a technical exchange on Science and Technology Program including a discussion of the set of controls that are in place to ensure appropriate development and integration of results from Science and Technology Program into baseline program.	Open. Will remain open until a TE on S&T has been held.

Note: The Quarterly Management Meeting action items are designated as "MM yymm-nn" where yy is the two digit year, mm is a two digit month and nn is a two digit action item number from that meeting.



U.S. Department of Energy
Office of Civilian Radioactive Waste Management



Corrective Action Program Update

Presented to:
Nuclear Regulatory Commission

Presented by:
Paul Golan
Principal Deputy Director
Office of Civilian Radioactive Waste Management

March 27, 2007
Rockville, Maryland

CAP Problem Statement

- Audits and surveillances performed in 2005 and 2006 indicated the Corrective Action Program (CAP) had multiple performance effectiveness issues. This included:
 - Fall 2006: The Nuclear Energy Institute requested to assess the effectiveness of the OCRWM Quality Assurance (QA) Program. The NEI Team found the CAP *was not effectively implemented*.
 - December 2006: The Office of Quality Assurance (OQA) performed an audit of Assessment Activities, Corrective Actions and Trending Programs. This audit determined that the CAP *was ineffective*.
- OCRWM line management:
 - Did not recognize the significance of repeated external and internal reviews that identified that the CAP was not fully effective
 - Was not taking aggressive actions to correct identified problems and ensure that the CAP was fully effective



Causes

Root Cause

OCRWM senior management failed to consistently exercise leadership by not establishing adequate expectations and standards for CAP performance and then reinforcing these expectations as a core business process for the project.

Contributing Causes

- Lack of effective barriers
- Unresolved CAP issues tolerated
- Use of self assessment for continuous improvement not effective
- CAP not thought of as required business process



Recent Actions

- Responding to these indicators, OCRWM:
 - July 2006: Senior management increased involvement in CAP through establishing a Management Review Committee (MRC) chaired by DOE with membership of senior management of DOE, BSC, and Lead Lab.
 - October 2006: CAP Performance Improvement Plan issued.
 - December 2006: Level “A” condition report issued (CR 9774) addressing CAP effectiveness.
 - March 2007: Root Cause Analysis Report issued
 - March 2007: Reconstituted Condition Screen Team (CST)



Corrective Actions

- Set expectations
- Sponsorship
- Change Agents and sustaining sponsors
- Communicate expectations broadly
- Mentor and model behavior
- Measure: Performance = Results + Behaviors
- Hold line managers accountable
- Develop and implement corrective action plan from CR 9774



Effectiveness Criteria Summary

- Performance metrics
 - Better inputs into system
 - Increased management engagement
 - Effective and timely actions
 - Repeat occurrences
 - CAP thought of as needed business practice by project
 - *Thank you* for issuing a CR
- Feedback: real time and independent



Conclusions

- CAP was not being effectively used as a tool to improve performance.
- CAP improvement being sponsored by Director/Deputy Director.
- Actions in CR 9774 will be used to drive overall corrective actions.
- Effective CAP critical to this project.





U.S. Department of Energy
Office of Civilian Radioactive Waste Management



Root Cause Analysis and Action Plan In Response to USGS Email Issues

Presented to:
Nuclear Regulatory Commission

Presented by:
Ward Sproat
Director
Office of Civilian Radioactive Waste Management (OCRWM)

March 27, 2007
Rockville, Maryland

Background

- **Emails were found in November 2004, during reviews of legacy emails for potential inclusion in the Licensing Support Network**
- **In March 2005, Department of Energy (DOE) managers learned of emails written by a small number of U.S. Geological Survey (USGS) employees**
- **Emails suggested technical product output, software, and information related to the infiltration analysis and model report (AMR) prepared by the USGS may not have been fully compliant with quality assurance requirements**
- **Root cause report and corrective action plan being released today**



Background (continued)

- **Immediate Response Actions Included**

- **DOE Office of Inspector General (OIG) investigation into potential misconduct**
 - ♦ **Conducted in coordination with Department of the Interior OIG and Department of Justice**
 - ♦ **Concluded April 24, 2006, with no charges being filed**
- **OCRWM technical evaluation of USGS net infiltration rate estimates**
 - ♦ **Found net infiltration rate estimates are corroborated by independent studies of infiltration and recharge in southwestern U.S. and therefore support the 2001 Site Recommendation**
 - ♦ **Report issued February 17, 2006**
- **Validation and rework of infiltration products**
 - ♦ **OCRWM directed Sandia National Laboratories to develop new infiltration rate estimates and maps, incorporate net infiltration uncertainty, and develop a new infiltration AMR**



USGS Email Situation

- **Emails were written over a six-year period, between 1998 and 2004, by a small group of USGS employees**
- **Emails expressed negative attitude about the quality assurance program and suggested noncompliance with requirements (e.g. backdating, making up dates of task completions, and misrepresenting information)**
- **Some USGS managers and personnel in other Yucca Mountain Project organizations were aware of the negative attitudes, but there is no evidence they were addressed before condition report (CR) 5223 was initiated**
- **An examination of modeling software, model reports, and scientific notebooks associated with the USGS work found no evidence that information was falsified or modified as suggested in the emails**



Extent of Condition

- **Extent of condition was assessed through**
 - **Keyword searches of over 900,000 emails**
 - **Physical review of more than 50,000 LSN-relevant and non-relevant emails from 14 million email records in the OCRWM email warehouse**
 - **Review of over 7,000 documents related to the Corrective Action Program**
 - **Review of 1,138 records from the employee concerns programs**



Extent of Condition (continued)

- **Review found**
 - **Additional USGS emails written by the same individuals and suggesting similar attitudes and behaviors**
 - **Five other isolated instances suggesting similar attitudes and behaviors**
 - **No instances comparable in significance or duration to those associated with the USGS emails**
- **The review did not find a widespread or pervasive pattern across OCRWM of a negative attitude toward quality assurance or willful noncompliance with quality assurance requirements**
- **The review DID find that senior management sponsorship of the Quality Assurance program was lacking and that clear expectations for compliance with QA requirements had not been set across the Program**



Root and Contributing Causes

- **OCRWM senior management failed to establish accountability for infiltration product quality**
 - Failed to fully implement effective nuclear culture within infiltration product groups
 - Failed to hold individuals fully accountable for infiltration product quality
 - Did not effectively manage program changes, including QA implementation, in connection with infiltration product group
 - Ineffective product development and review process in USGS
 - Ineffective corrective action program implementation
 - Did not fully implement Quality Assurance (QA) requirements with line management accepting ownership and accountability



Corrective Action Plan

- **Technical Corrective Actions to Address Adequacy of Infiltration Work**
 - Evaluate results from USGS infiltration model, and determine adequacy using corroborating data (completed)
 - Generate new infiltration model and rate estimates to be used in License Application, complete by June 30, 2008



Infiltration AMR Findings

- The infiltration AMR's prepared by the USGS and by BSC were not fully compliant with the traceability and transparency requirements of *Quality Assurance Requirements Document*
- Quality assurance and corrective action processes were not consistently effective
 - Thirty-five CRs were written on infiltration products after review and acceptance
 - Some of the data files were not available and the infiltration rate estimates and maps could not be reproduced without further support from USGS
- USGS net infiltration rates are corroborated by data from the southwestern United States and therefore support the Site Recommendation



Corrective Action Plan (continued)

- **Management Corrective Actions Address both USGS and Program-wide Issues**
 - OCRWM Director to personally communicate expectations for QA compliance and accountability
 - OCRWM Director sending this plan to all managers and supervisors in the Program
 - OCRWM Director initiating independent review of QA program and its implementation
 - Quality performance reviews at monthly Program Review management meetings
 - Quality expectations being added to performance plans for all employees
 - Program-wide policy for managing major program changes to be implemented by June 30, 2007



Corrective Action Plan (continued)

- **USGS Management Actions**
 - Individuals who exhibited disregard for QA have been removed from the program
 - Product review and approval process strengthened
 - USGS employees attended ethical conduct focus sessions
 - Additional training on QA Program requirements



Summary

- **A negative attitude toward quality assurance, or willful noncompliance with quality assurance requirements, displayed by some USGS employees was not pervasive across OCRWM**
- **Sandia National Laboratories is developing new infiltration rate estimates and maps, incorporating net infiltration uncertainty, and redoing the infiltration AMR to ensure full traceability and transparency**
- **Corrective actions focused on management behaviors are being implemented across the Program to prevent reoccurrence**
- **An effectiveness review will be performed in late 2008**

