

VERIFICATION OF THE CONDUCT AND DOCUMENTATION OF AN OPERATING EXPERIENCE REVIEW AUDIT REPORT

NRC Audit Team:

- William Ward, NRO, Project Manager
- Paul Pieringer, NRO, Lead Auditor

1.0 SUMMARY

On September 16, 2014, the U.S. Nuclear Regulatory Commission (NRC) conducted an audit via an electronic reading room set up by Mitsubishi Heavy Industries, Ltd. (MHI). The purpose of the audit was to verify the conduct and documentation of an Operating Experience Review (OER) with the results used to inform the United States - Advanced Pressurized Water Reactor (US-APWR) Basic Human System Interface (HSI) design. This audit was conducted to support the review of the US-APWR Design Certification Document (DCD) Chapter 18, "Human Factors Engineering," and the Topical Report, MUAP-07007, "HSI System Description and HFE Process." During the audit, the NRC staff successfully verified the documentation of the conduct of the OER with its results used to inform the US-APWR HSI design.

This audit follows the guidelines in Office of New Reactors (NRO) Office Instruction NRO-REG-108 (Revision 0), "Regulatory Audits."

2.0 BACKGROUND AND AUDIT BASES

The NRC staff is reviewing of the MHI Design Certification Application (DCA) and other documents that MHI submitted in support of its interest in certifying the US-APWR design. This includes the Topical Report, MUAP-07007, "HSI System Description and HFE Process," and several HFE implementation plans. The current version of this topical report is Revision 6.

The purpose of the audit was to review the OER table which previously existed in the document MUAP-08014, "Human System Interface Verification and Validation (Phase 1a)," until the document was withdrawn by MHI on March 10, 2014 (Agencywide Documents Access and Management System accession number ML14071A300). The table was retained in a document internal to MHI. The NRC staff needed to verify that the OER continues to exist and is available as described in NUREG-0711, "Human Factors Engineering Program Review Model." Verification of this OER table is necessary to support the licensing basis and regulatory decisions made regarding the acceptability of Topical Report MUAP-07007.

Performance of this audit allowed the NRC staff to verify the applicant's compliance with the OER requirements identified below. Specifically, the requirement that the applicant has identified and analyzed HFE-related problems and issues in previous designs that are similar to the current design under review, such that negative features associated with predecessor designs may be avoided in the current design while retaining positive features. The details of this OER review do not need to be submitted on the docket to the staff. However, it must be and has been made available so that the NRC staff can verify its accomplishment.

3.0 OBJECTIVES

The objective of the staff's audit was to:

- Verify the conduct and documentation of an OER with the results used to inform the US-APWR Basic HSI design.

4.0 OBSERVATIONS AND RESULTS

The NRC staff verified that the OER table, which previously existed in MUAP-08014 and was reviewed and accepted when it was part of that document, was successfully and completely moved to a new document. The staff verified that the OER results were used to inform the US-APWR Basic HSI design and that the table is available for review as identified in NUREG-0711.

5.0 CONCLUSION

Since the OER results were documented and available for review and used as expected, the NRC staff can close their review of DCD Chapter 18 and Topical Report MUAP-07007.

6.0 REFERENCES

1. NRO Office Instruction NRO-REG-108 (Revision 0), "Regulatory Audits."
2. Standard Review Plan Section 18, "Human Factors Engineering," Revision 2.
3. NUREG-0711, "Human Factors Engineering Program Review Model," Revision 2 (effective revision when the US-APWR Design Certification Application was submitted).
4. US-APWR Design Certification Document, Chapter 18, Revision 4.
5. MUAP-07007, "HSI System Description and HFE Process," Revision 6.
6. MUAP-08014, "Human System Interface Verification and Validation (Phase 1a)," withdrawn on March 10, 2014.
7. US-APWR Operating Experience Review Results (7DS-UAP-20140012), Revision 0, Issued August 2014 (Proprietary)