

# AP1000 DOCUMENT COVER SHEET

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TITLE: Execution and Documentation of the Human Reliability Analysis/Human Factors Engineering Integration

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ORIGINATOR T. Schulz	SIGNATURE/DATE <i>T. Schulz</i> 4/5/06	
REVIEWERS	SIGNATURE/DATE	
VERIFIER D.A. LINDGREN	SIGNATURE/DATE <i>D.A. Lindgren</i>	VERIFICATION METHOD PAGE BY PAGE REVIEW
AP1000 RESPONSIBLE MANAGER J. Winters	SIGNATURE <i>J. Winters</i>	APPROVAL DATE 4/5/06

\* Approval of the responsible manager signifies that document is complete, all required reviews are complete, electronic file is attached and document is released for use.

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**APP-GW-GLR-011**  
**Revision 0**

**March 2006**

# **AP1000 Standard Combined License Technical Report**

## **Execution and Documentation of the Human Reliability Analysis/Human Factors Engineering Integration**

**Revision 0**

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**Westinghouse Electric Company LLC**  
Nuclear Power Plants  
Post Office Box 355  
Pittsburgh, PA 15230-0355

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**INTRODUCTION:**

This technical report addresses AP1000 Combined License Information Item 18.7-1 on Execution and Documentation of the Human Reliability Analysis/Human Factors Engineering Integration. WCAP-16555 (Reference 2) provides information to close this Combined License Information Item.

Based on this report, including WCAP-16555, the NRC should consider the COL information item closure to be acceptable and generically applicable to COL applications referencing the AP1000 design certification.

**TECHNICAL BACKGROUND:**

The evaluation of Human Reliability Analysis/Human Factors was performed in accordance with the approach agreed to with the NRC in DCD (Reference 1) Section 18.7 and documented in WCAP-14651.

WCAP-16555 (Reference 2) provides the results of an evaluation of the AP1000 PRA to identify critical human actions and risk important tasks. This evaluation was performed to implement the initial steps of the HRA/HFE integration plan described in WCAP-14651.

The evaluation was performed on the AP1000 to identify the:

- Critical human actions for post-accident mitigation
- Risk-important human actions for
  - Post-accident mitigation
  - Maintenance, test, inspection and surveillance (MTIS) support

There are no changes to the AP1000 design or design functions required to support generic application of WCAP-16555 or included in WCAP16555.

**REGULATORY IMPACT:**

The AP1000 FSER (Reference 3) in Subsection 18.7.3 discusses the evaluation process defined in WCAP-14651. WCAP-16555 does not alter the integration plan in WCAP-14651. Using WCAP-16555 for generic closure of Combined License Information Item 18.7-1 does not alter the conclusions in FSER Subsection 18.7.4.

This report does not include any change to:

- a System, Structure, or Component (SSC)
- a procedure
- a DCD-described evaluation methodology
- a test or experiment not described in the DCD where an SSC is utilized or controlled in a manner that is outside the reference bounds of the design for that SSC or is inconsistent with analyses or descriptions in the DCD

As a result, the changes to the DCD presented in this report do not represent an adverse change to the design function or to how design functions are performed or controlled. The changes to the DCD do not involve revising or replacing a DCD-described evaluation methodology nor involve a test or experiment not described in the DCD. The DCD change does not require a license amendment per the criteria of VIII. B. 5.b. of Appendix D to 10 CFR Part 52.

In addition, the DCD change does not affect resolution of a severe accident issue and does not require a license amendment based on the criteria of VIII. B. 5.c of Appendix D to 10 CFR Part 52.

The subject changes will not alter barriers or alarms that control access to protected areas of the plant. The subject changes will not alter requirements for security personnel. Therefore, the proposed change does not have an adverse impact on the security assessment of the AP1000.

## REFERENCES

1. APP-GW-GL-700, AP1000 Design Control Document, Revision 15
2. WCAP-16555, "AP1000 Identification of Critical Human Actions and Risk Important Tasks", Revision 0, March 2006.
3. NUREG-1793, Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design, September 2004.

## DCD Mark-Up

The following DCD markups identify how COL application FSARs should be prepared to incorporate the subject change.

Revise the second paragraph of 18.7 as follows:

*[The objective of integration of human reliability analysis with human factors engineering is to specify the interfaces between human reliability analysis and human factors engineering activities. Reference 1 documents the implementation plan for the integration of human reliability analysis with human factors engineering design.]\**  
**Reference 2 documents the Execution and documentation of this implementation plan is the responsibility of the Combined License applicant.**

Revise the second paragraph of 18.7.1 as follows:

### 18.7.1 Combined License Information

**Completed.** ~~Combined License applicants referencing the AP1000 certified design will address the~~ The execution and documentation of the human reliability analysis/human factors engineering integration implementation plan that is documented by reference presented in Section 18.7.

Add a second reference to 18.7.2 as follows:

### 18.7.2 References

- [1. WCAP-14651, "Integration of Human Reliability Analysis with Human Factors Engineering Design Implementation Plan," Revision 2, May 1997.]\*
2. WCAP-16555, "AP1000 Identification of Critical Human Actions and Risk Important Tasks", Revision 0, March 2006.