South Carolina Electric & Gas Company

NND-13-0127

Enclosure 6

Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3

LAR 13-10

APP-OCS-GEH-322, "AP1000 Human Factors Engineering Integrated System Validation Plan," Rev. 0

(Non-Proprietary)

Westinghouse

Westinghouse Non-Proprietary Class 3

AP1000

Human Factors Engineering Integrated System Validation Plan

APP-OCS-GEH-322,
Rev. 0

February 2013

APPROVALS

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REVISION HISTORY

RECORD OF CHANGES

Revision	Author	Description	Completed
A	Robert B. Fuld	Preliminary Issue	06/08
B	Robert B. Fuld Zachary T. Casella	Added scenario specifications and other details across sections. Added proprietary markings.	05/09
C	Julie I. Reed	Tracked changes are not shown in this document due to extensive revision. These are summarized below: Deleted Appendices A, E, and F (which are now part of APP-OCS-GEH-321). Provided cross-references to this document. Deleted Appendices B and D. Replaced with the new Appendices A, B, C, and D. Rev. B of Appendix B is now Appendix E, and Appendix G is now Appendix F. Updated document to provide more detailed information in the following sections: Section 1.2 to include detailed objectives. Section 1.3 to address the Technical Support Center. Section 2.1 to describe the Engineering Development Facility. Combined Section 3.2 into Section 3.1 to include information on trial replications, the requirements to run a fourth trial and the limitations to making changes part way through ISV. Section 4.1 revised to describe the qualifications of the test subjects. Section 4.1.2 to describe the minimum and maximum staffing levels. Section 4.3 to include test staff training information. Section 5.2.1 to delete information on procedures that is now included in APP-OCS-GEH-321. Section 6.2.1 to include a description of the questionnaires and observer guides. Section 6.2.2 to include a description of the situation awareness measurement technique. Section 7.3 to provide a detailed description of the re-test criteria and to add Figure 7.3-1.	02/10

REVISION HISTORY (cont.)

RECORD OF CHANGES (cont.)

Revision	Author	Description	Completed
D	Julie I. Reed	Added Section 1.5, "List of Exceptions from WCAP-15860." Added a description of the Remote Shutdown Workstation mock-up to Section 2.1. Combined Section 3.3 into Section 3.2, "Trial Assignments and Scheduling." Information added on the assignment of crews to the scenarios. Expanded Section 4.1.1 to include guidance on the selection of the participant personnel. Updated Section 5.2, "ISV Procedures" to include additional information. Completely revised Section 6, "Data." Added information to Section 7.3 to describe the rationale for re-running a trial in the event of a small number of Priority 1 and/or Priority 2 human engineering discrepancies (HEDs) based on diagnostic criteria. Added proprietary markings.	06/10
0	Julie I. Reed	Incorporation of APP-GW-GEE-3628, Rev. 0. Changes, as detailed below, from DCP APP-GW-GEE-3628, Rev. 0, have been incorporated. Added description of the mechanism to deal with design and procedure changes post-ISV, and added reference to APP-GW-G0Y-002 "AP1000 Configuration Management Plan" in Section 1.1, "Background." Revised the description of the contents of APP-OCS-GEH-321, "AP1000 Human Factors Engineering Integrated System Validation Scenario Information" in Section 1.2, "Purpose." Clarified the description on the incorporation of local control stations in ISV in Section 1.3 "Scope". In Section 2, "ISV Facility," clarified the use of ANSI/ANS 3.5 in respect to ISV. Included a note regarding the potential use of the TDS for ISV, and the possible use of an AP1000 Training Facility at a utilities site for Pilot Testing. Corrected the description of the operation of the of the RSW switches.	09/12

REVISION HISTORY (cont.)

RECORD OF CHANGES (cont.)

Revision	Author	Description	Completed
0 (cont.)	Julie I. Reed	In Section 2.3, "Simulator Testing", changed reference WCAP-16096 "Software Program Manual for Common Q Systems" to APP-PMS-T5-001, "AP1000 Protection and Safety Monitoring System Test Plan", and stated that PMS software will have completed Channel Integration Testing. Deleted cross-reference to APP-OCS-GEH-321 for details on simulator testing, and replaced with APP-STS-T5-001 "AP1000 Full Scope Simulator Test Plan." Updated Section 3.1, "Number of Trial Replications" and Section 3.2, "Trial Assignment and Scheduling" to reflect changes in number of scenarios and number of crews, and resulting changes in trial assignments and scheduling, including Table 3.2-1, "Example of Crew Assignments to ISV Trials." Included a note stating that the final total number of scenarios and the practicalities of running ISV may be subject to change. Revised Section 3.3, "Pilot Testing" to include the testing of the data recording techniques and allowing the participation of the utilities. Revised description of the ISV participants' completed training in Section 4.1 "Subjects," and Section 4.1.1 "Selection." Deleted subsection 4.1.3, "Training" (due to replicate information). Revision to Section 4.2, "Observers" to allow for non-project-independent observers. Added reference to APP-OCS-GLR-001, "AP1000 Post-Accident Risk-Important Human Actions Summary Report" in Section 5.1.1 "Events." Included DAS manual actions (that have no automatic DAS action) in scope of ISV. Revised Section 5.1.2 "Procedures" to clarify procedure validation status. Section 5.1.3 "Complications" revised the inclusion of maintenance tasks in ISV, and revised the extent of the HFE maintenance assessments.	9/12

REVISION HISTORY (cont.)

RECORD OF CHANGES (cont.)

Revision	Author	Description	Completed
0 (cont.)	Julie I. Reed	Section 5.2.1 "General Procedure and Documentation" revised to allow the crew greater than 10 minutes to familiarize themselves with the plant conditions. Revision to Section 6.2, "Methods" to include computer-based data collection for the questionnaires. Information added to Section 7.3 "Addressing HEDs and Re-Test Requirements" to allow alternative re-assessment methods. Updated reference on quality procedures to "Westinghouse Level II Policies and Procedures."	9/12
	Julie I. Reed	Incorporation of APP-GW-GEE-4227, Rev. 0. Correction to the title of Reference 13 (APP-GW-GL-011). Added reference to WNA-PC-00005-WAPP, "AP1000 I&C Projects Configuration Management Plan" in Section 1.1, "Background." In Section 1.3, "Scope," clarified that the RSW is within the scope of ISV and the simulation. In Section 2, "The ISV Facility," clarified the use of ANSI 3.5 as a basis for the scope, fidelity, and functionality of the simulator model. In Section 2, "The ISV Facility," added details on the scope and functionality of the TDS and the AP1000 Training Facilities at the utility sites. In Section 2.3, "Simulator Testing," changed the reference WNA-SQ-00047-GEN, "DCIS Test Strategy," to APP-GW-GBH-361, "Westinghouse AP1000 Integrated I&C Test Strategy." In Section 3.1, "Number of Trial Replications," and Section 3.2, "Trial Assignments and Scheduling," provided further detail on the basis for changing the total number of ISV scenarios and the ISV scheduling. Updated Section 4.1, "Subjects," Item 2, to include further details on the training received by the ISV subjects.	01/13

REVISION HISTORY (cont.)

RECORD OF CHANGES (cont.)

Revision	Author	Description	Completed
0 (cont.)	Julie I. Reed	Noted in subsection 5.1.1, "Events," that the latest version of APP-OCS-GLR-001, "AP1000 Post-Accident Risk-Important Human Actions Summary Report," will be used in the ISV. In subsection 5.1.3, "Complications," deleted the sentence stating that the inclusion of MTIS tasks is limited and added the reference to APP-GW-GL-011, "AP1000 Identification of Critical Human Actions and Risk-Important Tasks." Section 7, "Processing of Results," added a description of the personnel. In Section 7.3, "Addressing HEDs and Re-Test Requirements," moved Item 7 from the first numbered list to Item 3 in the second numbered list, plus added details on the re-assessment criteria. Updated Section 6.2, "Methods," and Appendix A, "Post-Trial Questionnaire for Subjects," Section A.2 to include two additional workload rating scales.	01/13
	Zhonghai Li	Incorporation of APP-OCS-GEF-022, Rev. 0. Added Proprietary markings. Note: There are no change bars in this revision because addition of proprietary markings is the only change to this document. Note: An alternate document number is APP-OCS-GEH-320 (proprietary version)	See EDMS

DOCUMENT TRACEABILITY & COMPLIANCE

Created to Support the Following Document(s)	Document Number	Revision
Programmatic Level Description of the AP1000 Human Factors Verification and Validation Plan	WCAP-15860	2
AP1000 Human Factors Engineering Program Plan	APP-OCS-GBH-001	1

OPEN ITEMS

Item	Description	Status
None.		

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ACRONYMS AND TRADEMARKS

Acronyms used in the document are defined in APP-GW-J9Y-001 (WNA-PS-00016-GEN), "Standard Acronyms and Definitions" (Reference 1), or included below to ensure unambiguous understanding of their use within this document.

Acronym	Definition
ADS	Automatic Depressurization System
APS	Alarm Presentation System
CPS	Computerized Procedure System
EDS	Engineering Development Simulator
HED	Human Error Discrepancy
HEP	Human Error Probability
LBLOCA	Large-break Loss of Coolant Accident
MTIS	Maintenance, Test, Inspections and Surveillance
NASA	National Aeronautics and Space Administration
PMS	Protection and Safety Monitoring System
SART	Situation Awareness Rating Technique
SBLOCA	Small-break Loss of Coolant Accident
TDS	Training Development Simulator
TLX	Task Load Index

GLOSSARY OF TERMS

Standard terms used in the document are defined in APP-GW-J9Y-001 (WNA-PS-00016-GEN), "Standard Acronyms and Definitions" (Reference 1), or included below to ensure unambiguous understanding of their use within this document.

Term	Definition
Exception	A justified (i.e., documented and approved) departure from specified guidance or requirements.
Human Engineering Discrepancy	A departure of the AP1000® Human Factors Engineering (HFE) design from guidance and criteria identified during the execution of HFE verification and validation activities.

REFERENCES

Following is a list of references used throughout this document.

1. APP-GW-J9Y-001, Rev. 0 (WNA-PS-00016-GEN [Proprietary], Rev. 5), "Standard Acronyms and Definitions," Westinghouse Electric Company LLC.

2. APP-OCS-GBH-001 (Proprietary), Rev. 1, "AP1000 Human Factors Engineering Program Plan," Westinghouse Electric Company LLC.

3. WCAP-15860, Rev. 2, "Programmatic Level Description of the AP1000 Human Factors Verification and Validation Plan," Westinghouse Electric Company LLC.

4. APP-GW-G0Y-002 (Proprietary), Rev. 3, "AP1000 Configuration Management Plan," Westinghouse Electric Company LLC.

5. WNA-PC-00005-WAPP, Rev. 2, "AP1000 I&C Projects Configuration Management Plan," Westinghouse Electric Company LLC.

6. WCAP-14655, Rev. 1, "Designer's Input for the Training of the Human Factors Engineering Verification and Validation Personnel," Westinghouse Electric Corporation.

7. NUREG-0711, Rev. 2, "Human Factors Engineering Program Review Model," U.S. Nuclear Regulatory Commission, February 2004.

8. APP-OCS-GGR-110-P (Proprietary), Rev. 1, "AP1000 Technical Support Center and Emergency Operations Facility Workshop," Westinghouse Electric Company LLC.

9. ANSI/ANS-3.5-1998, "Nuclear Power Plant Simulators for Use in Operator Training and Examination," American National Standards Institute/American Nuclear Society.

10. APP-PMS-T5-001 (Proprietary), Rev. 2, "AP1000 Protection and Safety Monitoring System Test Plan," Westinghouse Electric Company LLC.

11. APP-GW-GBH-361 (Proprietary), Rev. 0, "Westinghouse AP1000 Integrated I&C Test Strategy" Westinghouse Electric Company LLC.

12. APP-STS-T5-001 (Proprietary), Rev. 1, "AP1000 Full Scope Training Simulator Test Plan," Westinghouse Electric Company LLC.

13. APP-OCS-GJR-003 (Proprietary), Rev. 2, "AP1000 Main Control Room Staff Roles and Responsibilities," Westinghouse Electric Company LLC.

14. APP-GW-GL-011 (WCAP-16555), Rev. 0, "AP1000 Identification of Critical Human Actions and Risk Important Tasks," Westinghouse Electric Company LLC.

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15. APP-OCS-GLR-001 (Proprietary), Rev. 0, "AP1000 Post-Accident Risk-Important Human Actions Summary Report," Westinghouse Electric Company LLC.

16. APP-GW-GLR-040, Rev. 1, "Plant Operations, Surveillance, and Maintenance Procedures," Westinghouse Electric Company LLC.

17. NUREG-1021, Rev. 9, "Operator Licensing Examination Standards For Power Reactors," U.S. Nuclear Regulatory Commission, July 2004.

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19. APP-OCS-GJR-001, Rev. 0, "Human Factors Engineering Operating Experience Review Report for the AP1000 Nuclear Power Plant," Westinghouse Electric Company LLC.

20. Taylor, R. M., "Situational awareness rating technique (SART): The Development of a Tool for Aircrew Systems Design." In "Situational Awareness in Aerospace Operations (AGARD-CP-478)," Neuilly-sur-Seine, France: NATO-AGARD, 3/1-3/17, 1990.

21. Taylor, R. M., and S. J. Selcon, "Situation in Mind: Theory, Application and Measurement of Situational Awareness." In R. D. Gilson, D. J. Garland, & J. M. Koonce (Eds.), "Situational Awareness in Complex Settings," Daytona Beach, FL: Embry-Riddle Aeronautical University Press, 69-78, 1994.

22. "Westinghouse Level 2 Policies and Procedures," Westinghouse Electric Company LLC, effective January 16, 2013.

BIBLIOGRAPHY

Following is a list of sources that were considered in preparing this document, or that provide additional information.

1. APP-OCS-GEH-321 (Proprietary), Rev. C, "AP1000 Human Factors Engineering Integrated System Validation Scenario Information," Westinghouse Electric Company LLC.

2. APP-OCS-GEH-120 (Proprietary), Rev. B, "AP1000 Human Factors Engineering Design Verification Plan," Westinghouse Electric Company LLC.

3. APP-OCS-GEH-220 (Proprietary), Rev. B, "AP1000 Human Factors Engineering Task Support Verification Plan," Westinghouse Electric Company LLC.

4. APP-OCS-GEH-520 (Proprietary), Rev. B, "AP1000 Plant Startup Human Factors Engineering Design Verification Plan," Westinghouse Electric Company LLC.

5. APP-OCS-GEH-420 (Proprietary), Rev. B, "AP1000 Human Engineering Discrepancy Resolution Process," Westinghouse Electric Company LLC.

6. APP-GW-GL-700 (Proprietary), Rev. 19, "AP1000 Design Control Document," Westinghouse Electric Company LLC.

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SECTION 1
INTRODUCTION

1.1 BACKGROUND

The Integrated System Validation (ISV) provides a comprehensive human performance-based assessment of the final design of the AP1000® Human-System Interface (HSI) resources, based on their realistic operation within a simulator-driven Main Control Room (MCR). [

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1.2 PURPOSE

This document describes the ISV implementation plan for AP1000 as directed by APP-OCS-GBH-001, "Human Factors Engineering Program Plan" (Reference 2), WCAP-15860, "Programmatic Level Description of the AP1000 Human Factors Verification and Validation Plan" (Reference 3), WCAP-14655, "Designer's Input for the Training of the Human Factors Engineering Verification and Validation Personnel" (Reference 6), and NUREG-0711, "Human Factors Engineering Program Review Model" (Reference 7).

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The main body of this document includes the scope, methodology, description of the ISV facility, test design, participants, scenario selection process, test criteria, and the processing and documentation of the results. The Appendices comprise details on the workload rating forms, post-trial questionnaires, and the debriefing protocol.

A "sister" document APP-OCS-GEH-321, "AP1000 Human Factors Engineering Integrated System Validation Scenario Information" (Bibliog 1) provides the detailed information on the scenario descriptions, scenario-specific objectives, scenario observer guides, shift turnover reports, simulator operator guides, and the scenario scripts that detail the communications with people outside of the MCR. This information was placed in a separate document for two main reasons. Firstly, this will assist in restricting access to the scenario information from the ISV participants, and secondly, the details of the scenario information will be updated and further developed prior to the implementation of ISV.

1.3 SCOPE

The following are utilized to represent the final MCR and HSI design:

- HSI hardware (consoles, visual display units, workstations, keyboards, mice, trackballs, panels, printers, tables, bookcases, etc.)
- HSI software (non-safety control system, safety control system, alarms, displays, soft controls, computerized procedures, local area network displays, etc.)
- Communications facilities
- Plant emergency, operations, surveillance, and maintenance procedures
- Realistic work environment, including the room dimensions and general arrangement
- Operating crews.

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1.4 SCOPE OF ISV ISSUES

WCAP-15860, "Programmatic Level Description of the AP1000 Human Factors Verification and Validation Plan" (Reference 3), Section 4.1 lists the issues to be addressed by the ISV implementation plan. These issues are listed below and mapped to the sections of the present document that addresses them:

- Objectives – Section 1.1, "Background"
- Personnel performance issues – Section 4, "Participants"
- Test methodology and procedures – Section 3, "Test Design"
- Test participants – Section 4, "Participants"
- Test conditions (including plant conditions, operating sequences, and accident scenarios) – Section 5, "Scenario Set"
- HSI description – Section 2, "ISV Facility"
- Performance measures – Section 6, "Data"
- Data analysis – Section 6, "Data"
- Acceptance criteria – Section 6, "Data"
- Processing of results – Section 7, "Processing of Results"

1.5 LIST OF EXCEPTIONS FROM WCAP-15860

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SECTION 2
THE ISV FACILITY

The ISV will be performed at a dedicated, purpose built facility. The facility will employ a high fidelity, near full-scope simulator to represent the AP1000 systems and the MCR. ANSI/ANS-3.5-1998, "Nuclear Power Plant Simulators for Use in Operator Training and Examination" (Reference 9),is used as a basis for the scope, fidelity, and functionality of the simulator model, and the development of the simulator test plan. See Section 2.3, "Simulator Testing," for information on the simulator testing activities.

The ISV facility will be provided at the EDS based at the Westinghouse Headquarters Building in Cranberry, Pennsylvania, USA. Note, the Training Development Simulator (TDS) may be used for the ISV, and the TDS and/or an AP1000 Training Facility at a utilities' site may be used in addition to or instead of the EDS for the Pilot Testing. These facilities are essentially identical to the EDS in that they possess the same physical characteristics with respect to the control room layout and dimensions, hardware, panels, software, displays, and the same simulator model. The simulator models will be tested as described in Section 2.3, "Simulator Testing."

2.1 PHYSICAL SCOPE AND FIDELITY

To the extent practical, the HSI resources provided by the EDS will be identical to those to be delivered for the actual AP1000 MCR. These resources will include full hardware representation for the following:
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2.2 FUNCTIONAL SCOPE AND FIDELITY

The simulation capability of the EDS will be adequate for the procedures, scenarios, and HSI to be exercised in the ISV. Sufficient simulation scope and systems modeling is determined by the scenarios selected for ISV (see Section 5). Features of the simulation that are not relevant to ISV may be of lesser fidelity or omitted. The development of the required simulator models and software is coordinated with the Simulator Design and Development group. Details of the scope of simulation by individual plant systems can be found in APP-OCS-GEH-321, Appendix C (Bibliog 1).

2.3 SIMULATOR TESTING

The EDS and simulator readiness is demonstrated by the following test activities (also see Section 3.3 for further information).

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SECTION 3
TEST DESIGN

This section addresses the number of individual trials, requirements for trial replications, and their assignment to crews. The minimum number of trials is a function of the number of scenarios and the number of replications of each scenario.

3.1 NUMBER OF TRIAL REPLICATIONS

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3.2 TRIAL ASSIGNMENTS AND SCHEDULING

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3.3 PILOT TESTING

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SECTION 4
PARTICIPANTS

This section describes the personnel involved in ISV. The ISV participants include the test subjects, observers, and the EDS staff.

4.1 SUBJECTS

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4.1.1 Selection

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4.1.2 Crew Size and Number

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4.2 OBSERVERS

The ISV observers will be assigned to evaluate performance and generate results data in each trial. The observers will include personnel that are independent from the AP1000 project as well are personnel that are familiar with the AP1000 project. This mix of observers will provide project independence, plus also allow the observation of human performance behaviors that may only be identified by observers possessing a good knowledge and understanding of the plant design and operations.

These observers will include one of each of the following specialists:
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4.3 ISV STAFF

For each trial, the ISV staff will include at least one of each of the following specialists:
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SECTION 5
SCENARIO SET

A scenario comprises the simulated events, anticipated procedure usage, and added complications. A set of scenarios has been developed for ISV. Each scenario will be performed in multiple (i.e., replicate) trials. This section describes the selection and development of the representative set of validation scenarios for ISV. Full details of the scenarios can be found in APP-OCS-GEH-321 (Bibliog 1), Appendix A.

The ISV scenarios are developed by a multi-disciplinary team. This team includes human factors specialists, procedure writers, operator training developers, and personnel from the simulation group. A number of the team members possess previous operating experience, thereby also contributing to the credibility and realism of the ISV scenarios.

5.1 SCENARIO REQUIREMENTS

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5.1.1 Events

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5.1.2 Procedures

The procedures to be addressed by ISV are outlined in a number of sections in WCAP-15860, "Programmatic Level Description of the AP1000 Human Factors Verification and Validation Plan" (Reference 3).

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5.1.3 Complications

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5.2 ISV PROCEDURES

5.2.1 General Procedure and Documentation

The ISV procedures for each scenario (i.e., the "scenario package") will be prepared prior to ISV and maintained under the ISV Coordinator's control in order to prevent the ISV participants from obtaining prior knowledge of the scenarios. The scenario packages include the following:
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5.2.2 Communications with ISV Personnel

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5.2.3 Unforeseen Events

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5.2.4 Storage of Data

The ISV Coordinator will be responsible for the ISV documentation and data. In addition to maintaining and controlling the "scenario packages," the ISV Coordinator will collect the ISV results data and will be in charge of ensuring that this data is not "lost."

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SECTION 6
DATA

The techniques used to collect the ISV results data are described in this section. This data serves as the basis for determining whether the task goals and performance requirements are achieved, per WCAP-15860, "Programmatic Level Description of the AP1000 Human Factors Verification and Validation Plan" (Reference 3) Section 4.8.

6.1 MEASURES

A set of performance measures is identified and selected to collect data on operator performance, as follows:
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6.2 METHODS

Data collection will use a variety of computer-based and paper-and-pencil techniques, structured discussions, and digital recording methods, as follows:
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6.3 CRITERIA

This subsection describes how the measurement results are applied to the determination of the success of the ISV trials in respect to the pass/fail criteria and the diagnostic criteria. A set of performance measures, as described in Section 6.1, will be used which includes measures of the performance of the plant and personnel.

6.3.1 Pass/Fail Criteria

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6.3.2 Diagnostic Criteria

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Table 6.3-2. Diagnostic Criteria

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Table 6.3-2. Diagnostic Criteria (cont.)

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SECTION 7
PROCESSING OF RESULTS

The final results of the ISV trials will be processed to promptly to determine the overall results and conclusions, identify HEDs and to assign HED priorities, and to assess the need for added trial replications.

The processing of the results, as described in this section, will be led by a human factors specialist, supported by a multi-disciplinary team. This team includes additional human factors specialists, procedure writers, operator training developers, and personnel from the simulation group. A number of the team members will possess previous plant operating experience.

7.1 RAW DATA PROCESSING

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7.2 ANALYSIS AND INTERPRETATION

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7.3 ADDRESSING HEDS AND RE-TEST REQUIREMENTS

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7.4 RESULTS REPORT

The final ISV report will document the results and detailed findings from the analysis, including any HEDs. Any limitations of the ISV plan, implementation, and execution will also be addressed. The basis for concluding whether the AP1000 MCR, HSI resources, procedures, and operator training are adequate will be described (i.e., that the integrated system performed acceptably during testing and can be expected to support safe operation in actual use).

The final results report will be communicated to the Training Group, Procedures Group, and the PRA Group. This will enable the results of ISV to be incorporated into the development/updates of the training programs, revisions to procedures, and any updates to the PRA in terms of the assumptions claimed on operator performance.

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APPENDIX A
POST-TRIAL QUESTIONNAIRE FOR SUBJECTS

A.1 PROTOCOL

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A.2 POST-TRIAL QUESTIONNAIRE FOR SUBJECTS

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APPENDIX B
FINAL QUESTIONNAIRE FOR SUBJECTS

Note, additional line spaces for the participants to provide comments have been removed in this report. However, the printed version used in ISV will contain adequate space for the participants to provide written comments.

Name: _____ Position: _____ Crew: _____ Date: _____

Circle your level of agreement with the statements below based on your experience in all of the preceding trials.

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APPENDIX C
POST-TRIAL QUESTIONNAIRE FOR OBSERVERS

Note, additional line spaces for the participants to provide comments have been removed in this report. However, the printed version used in ISV will contain adequate space for the participants to provide written comments.

Name: _____ Scenario: _____

Trial: _____ Date: _____

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(Last Page of Appendix C)

APPENDIX D
FINAL QUESTIONNAIRE FOR OBSERVERS

Note, additional line spaces for the participants to provide comments have been removed in this report. However, the printed version used in ISV will contain adequate space for the participants to provide written comments.

Name: _____ Date: _____

Circle your level of agreement with the statements below based on your experience in all of the preceding trials.

[

]a,c

[

]a,c

[

]a,c

[

]a,c

[

]a,c

[

]a,c

[

]a,c

[

]a,c

[

]a,c

[

]a,c

[

]a,c

(Last Page of Appendix D)

APPENDIX E
TRIAL PROTOCOL

This Appendix provides the protocol and general sequence of events for running the ISV trials.

PRETRIAL PREPARATIONS

[

]a,c

START TRIAL RUN

[

]a,c

END TRIAL RUN

[

]a,c

BREAK

(Last Page of Appendix E)

APPENDIX F
DEBRIEFING PROTOCOL

An informal debriefing of the test participants will be performed after each separate trial run. A formal debriefing will be held after each major period (typically one week) of testing. Guidance for the formal debriefing process is provided as follows:

PREPARATION

[

]a,c

START

[

]a,c

DISCUSSION

[

]a,c

[

]a,c

CLOSE

1. Thank participants for their support.

(Last Page of Appendix F)