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MFN 07-367
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Attention: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: **GE Response to NRC, "REQUEST FOR ADDITIONAL INFORMATION
RELATED TO ADVANCED BOILING WATER REACTOR (ABWR)
LICENSING TOPICAL REPORT (TAC NO. MD4632)"**

References: NRC to GE Letter, G. Wunder to T. O'Neill, dated June 7, 2007, "*Request For Additional Information Related To Advanced Boiling Water Reactor (ABWR) Licensing Topical Report (TAC NO. MD4632)*"

GE Letter MFN 07-073, T. O'Neill to Document Control Desk, dated February 22, 2007, "Submittal of Licensing Topical Report NEDO-33305, "Advanced Boiling Water Reactor (ABWR) Startup Administrative Manual"

Enclosure 1 in this letter contains GE's response to the subject NRC RAIs. GE requests closure of the RAIs based on the supplemental information and approval of the requested amendment to the ABWR certified design material.

The ABWR Startup Administrative Manual (SAM) LTR was provided to respond to a COL License Information Item in subsection 14.2.13.2 of the DCD. The GE ABWR SAM defines various administrative controls to be implemented during the Initial Test Program (ITP) per items (5) - (9) of DCD 14.2.13.2. The ABWR SAM establishes requirements to be used by all COL licensees for controlling the start of testing, for performing tests, for preparing and modifying approved testing procedures, for

identifying and correcting test procedure exceptions, and for reviewing and approving ITP results. The LTR promotes standardization of the licensing basis for the ABWR ITP.

GE will revise LTR NEDO-33305 within 45 days after receipt of NRC approval of response to the SAM RAIs. Proposed changes to resolve the RAI are included in the RAI response.

If you have any questions about the information provided here, or during the course of your reviews, please contact me at 910-602-1885.

Sincerely,



Joseph A. Savage
Project Manager, ABWR Licensing

JAS/mkg/bar

Enclosure 1: Response to NRC Request for Additional Information Related to ABWR Design Certification Application Licensing Topical Report NEDO-33305, "Advanced Boiling Water Reactor (ABWR) Startup Administrative Manual" - RAIs -1 through -13

cc:	BE Brown	GE (Wilmington w/o enclosure)
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	MA McBurnett	STP (w/ enclosure)
		eDRF 0000-0068-7980

ENCLOSURE 1

MFN 07-367

Response to NRC Request for

Additional Information

Related to ABWR Design Certification Application

**Licensing Topical Report (LTR)
NEDO-33305 "Advanced Boiling Water Reactor (ABWR)
Startup Administrative Manual"**

RAIs 1 through 13

INTRODUCTION TO RAI Responses

NEDO-33305 was issued prior to the latest revisions of regulatory guidance. GE has performed reviews of the later revisions of the guidance documents and determined that no significant difference between the LTR and the latest NRC guidance exists. However, to increase regulatory certainty for GE customers, a revised LTR incorporating the latest guidance will be submitted for NRC approval.

The purpose of the ABWR Startup Administrative Manual (SAM) is to provide increased standardization of ABWR design certification material through the establishment of a minimum set of requirements for the initial test program (ITP). The SAM is the highest-level document that describes the ITP.

Each licensee will implement the ITP by using GE's ABWR SAM to establish site-specific SAM requirements; either by a site-specific review and approval process for use of the GE ABWR SAM, or by using the GE ABWR SAM as a basis for developing their own SAM and/or procedures for implementation.

The ABWR SAM must be used in conjunction with lower-tier site-specific administrative requirements. For example, the methods for controlling system turnover, system availability and tag-out process, test procedure writer's guide, etc., are likely to vary between applicants. The specific methods to be used will be developed by each licensee based upon the general requirements in the SAM. It is not necessary to provide the procedures in the ABWR Design Control Document (DCD) or a COL application that references the DCD or this LTR. In this regard, the Regulatory Guide 1.206 states that, "It is not expected that COL applicants will provide detailed procedures with the application". During the construction and testing phases of the plant cycle, GE personnel will be on site to offer consultation and technical direction.

As discussed below, each licensee's SAM and implementing procedures must be in place a minimum of 6 months prior to the start of the program.

RAI-1

The proposed 10 CFR 52.79(a)(41) requires an applicant perform an evaluation of the facility against the standard review plan (SRP) in effect 6 months before the docketed date of the application, and that alternatives to or differences from the SRP be identified and justified in the application.

Section II.2.A of SRP Section 14.2, "Initial Plant Test Program - Design Certification and New License Applicants," Revision 3, of NUREG-0800, 'Standard Review Plan,' " states that the applicant should commit to the revision of Regulatory Guide (RG) 1.68, "Initial Test Programs for Water-Cooled Nuclear Power Plants," and the RGs listed in the SRP. The applicant may propose exceptions or alternatives to the specific criteria, and the staff may find them acceptable if the applicant provides adequate justification.

The staff requests that GE Energy describe the revisions of RG 1.68 and SRP Section 14.2 used in the development of NEDO-33305 and any proposed exceptions, alternatives, or differences from the RG and SRP. For example, II.3.B.iv of SRP Section 14.2 states the controls that the applicant uses to ensure that test prerequisites are met should include identification of test personnel completing data forms or check sheets, and identification of dates of completion. This is not addressed in NEDO-33305. Some of the criteria in Appendix C of RG 1.68 are not consistent with the criteria in Section 6.1 of NEDO-33305. Section C.9 of RG 1.68 and Section III.3.F.v of SRP Section 14.2 describe startup test report provisions. This type of startup test report is not discussed in NEDO-33305. Additional examples where NEDO-33305 does not address criteria in RG 1.68 or SRP Section 14.2 are identified in several of the following questions.

GE Response

In RAI-1 the NRC staff identified, "Section C.9 of RG 1.68 and Section III.3.F.v (sic) of SRP Section 14.2 describe startup test report provisions. This type of startup test report is not discussed in NEDO-33305." The planned revision to the LTR will include additional discussion and criteria for startup test reports. The referenced test report is required to be provided by the Licensee within 6 months of completion of the Initial Test Program.

The following changes (underlined text) will be incorporated into LTR Section 7.2.6:

7.2.6 Startup Test Report

A summary of the startup testing will be included in the licensee's startup report, as discussed in Regulatory Guide 1.16, "Reporting of Operating Information – Appendix A Technical Specifications" (Ref. 6). This summary will include the following information:

GE Response to RAI-1 (continued)

- (a) a description of the method and objectives for each test
- (b) a comparison of applicable test data with the related acceptance criteria, including the systems' responses to major plant transients (such as reactor scram and turbine trip)
- (c) design-and construction-related deficiencies discovered during testing, system modifications and corrective actions required for correcting those deficiencies, and the schedule for implementing these modifications and corrective actions unless previously reported to the NRC
- (d) justification for acceptance of systems or components that are not in conformance with design predictions or performance requirements
- (e) conclusions regarding system or component adequacy

The following changes (underlined text) will be incorporated into LTR Section 6.1:

6.1 The Content of Test Procedures

7. Initial Conditions and Prerequisites

This section contains a list of actions that must have been completed and plant conditions that must be achieved prior to the start of the test or a specific portion of the test. This includes current system(s) configuration, any modifications necessary prior to the start of the test, and the initial operability and availability requirements of interfacing support systems.

11. Figure, Tables, Data Sheets, Evaluation Sheets

This section lists all the Tables, Figures, Data Sheets, Signature Log and Evaluation Sheets. Data and Evaluations sheets will have provisions for signatures, and dates for the personnel collecting the data or performing the Evaluation. The Signature Log will provide provision for identifying all personnel whose signature or initials appear in the procedure.

LTR Impact

NEDO-33305 will be revised as noted in the response to RAI-1. The latest revisions of NRC guidance will be used to determine the scope of the revision to the LTR.

RAI-2

Section 14.2.1.1 of NUREG-1503, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design," dated July 1994, states that construction tests will be performed to demonstrate that components and systems are correctly installed and operational. These tests include, but are not limited to, flushing and cleaning, hydrostatic testing, initial calibration of instrumentation, checks of electrical wiring and equipment, valve testing, and initial energization and operation of equipment and systems. Completion of the construction test phase ensures that systems are ready for preoperational testing. Section 14.2.4 of NUREG-1503 states that the startup administrative manual will describe the controls in place that will ensure the as-tested status of each system is known and track modifications, including retest requirements, deemed necessary for systems undergoing or already having completed specified testing.

Enclosure Section B of RG 1.68 states that administrative controls to govern the development and conduct of the initial test program should (a) provide for orderly turnover of plant systems and components from construction forces or other preliminary checkout groups to the preoperational testing group, and (b) ensure that general prerequisites (such as completion of construction, construction or preliminary tests, and inspections) are satisfied prior to preoperational and/or startup tests of individual systems or components. In addition, administrative controls should be established to ensure adequate retesting of systems or design features that are returned to construction custody, maintained, or modified during or following preoperational testing.

Section II.3.B.ii of SRP Section 14.2 states that applicants should establish administrative controls to ensure that the designated construction-related inspections and tests are completed before preoperational testing begins.

Section II.3.E.v of SRP Section 14.2 states that the applicant should include provisions to ensure that retesting required for modifications or maintenance remains in compliance with inspections, tests, analyses, and acceptance criteria requirements. Section 14.2.3 of the ABWR Standard Safety Analysis Report (SSAR), Revision 9, states that the startup administrative manual will delineate how determinations of operability and availability will be authorized.

The staff requests that GE Energy describe the administrative controls that will ensure that: (1) the designated construction-related inspections and tests are completed before preoperational testing begins, (2) adequate retesting of systems, structures, and components (SSCs) that are returned to construction custody, maintained, or modified during the preoperational and initial startup test programs, and (3) determinations of operability and availability are properly tracked and authorized.

RAI-2 (continued)

GE Response

GE will augment the description of administrative controls in Revision 0 of NEDO-33305. Additional discussions of system turnover, when system control is returned to Construction, and how status of operability and availability are tracked and approved will be provided.

The following changes (underlined text) will be incorporated into LTR Section 5.3.3:

During the Construction Test Phase, systems, subsystems, and equipment are completed and turned over from Construction in an orderly and well-coordinated manner. Guidelines will be established in a site specific Startup Administrative Procedure to define the boundary and interface between related system/subsystem and used to generate boundary scope documents, for example, marked up Piping and Instrument Diagrams (P&IDs), Electrical Schematic Diagrams, etc. for scheduling and subsequent development of component and system turnover packages. The System Turnover Procedure will include requirements for the following:

- Documentation of inspections performed by the startup organization (e.g. highlighted drawings showing areas inspected)
- Results of construction testing
- The designated construction-related inspections and tests are completed before preoperational testing begins. Any open items are evaluated for acceptability of commencing preoperational testing
- Plans are developed and implemented for correction of adverse conditions and open items, and means exist for tracking such conditions and items

The following changes (underlined text) will be incorporated into LTR Section 5.3.3.2:

Systems turned over from Construction usually require additional work other than normal testing. This additional work could include incorporation of required design changes, completion of outstanding construction exceptions, repair and/or replacement of damaged equipment, replacement of consumable materials/components, and maintenance of equipment. Additionally, during performance of preoperational testing it may become necessary to return system control to construction to repair or modify the system to correct new problems. To cover these circumstances, a Startup Work Request (SWR) is used by Operations to request materials services, manpower support and/or job/requests from Construction until the end of the Startup Test Phase of the Initial Test Program. This work will be

RAI-2 response (continued)

administered by a Startup Administrative Procedure which will include direction for:

- Means of releasing control of systems and or components to construction.
- Methods used for documenting actual work performed and determining impact on testing
- Identification of required testing to restore the system to operability status, and to identify tests to be re-performed based on the impact of the work performed.
- Determinations of operability and availability are properly tracked and authorized.

LTR Impact

NEDO-33305 will be revised as noted in the response to RAI-2.

RAI-3

Section 14.2.3 of the ABWR SSAR states that test procedures will be reviewed by the startup coordinating group.

Section 14.2.2.3(1) of the ABWR SSAR states that the GE site manager reviews and approves all test procedures and changes.

Section 14.2.4 of NUREG-1503 states that the startup administrative manual will define the review and approval process for both initial procedures and subsequent changes.

Section 5.3.3.4 of NEDO-33305 states that the Test Director prepares and processes a Test Procedure Change Notice (TPCN) as discussed in Section 6.3.1 of this document. Section 6.3.1 states that the Test Director will process the TPCN for review and approval.

Section 6.2 of NEDO-33305 states that the original draft of each test procedure is prepared by the designated organizations and is subject to a formal review and approval process and that following the initial preparations, test procedure drafts are processed through a formal review and approval cycle.

The staff requests that GE Energy describe the formal review and approval process/cycle to be used for preoperational and initial startup test procedures and subsequent changes that are made after final approval. This description should address whether or not the formal review and approval process for TPCNs (Section 6.3.1 of NEDO-33305) is different than the review and approval process for procedure changes (Section 6.3.2 of NEDO-33305). The staff requests that GE Energy explain why it is acceptable to specify different review and approval processes for TPCNs and procedure changes if separate review processes are specified. This explanation should focus on technical content versus the size (small or large) of the TPCN or change.

GE Response

Section 6.2 of the LTR describes process for initial review and approval of test procedures. Section 6.3 describes the processes permitted to modify procedures after initial approval. The LTR description includes requirements for how to process the procedure changes. Test procedure changes are processed either as a procedure revision (Section 6.3.2); or as a procedure correction, when appropriate. Corrections are processed based on the significance of the impact upon conduct of testing. Minor corrections may be processed without interruption of the SSC testing. A major correction to the procedure requires suspension of the testing processes until all of the TPCN required review and approvals are obtained.

RAI-3 response (continued)

Procedure corrections are processed in accordance with both Sections 5.3.3.4 and 6.3.1. Common industry practice and precedent is to permit minor test procedure corrections based on approval of senior plant staff on shift at the time the correction is needed.

The Test Director, who is responsible for test preparations and performance, is the originator for any corrections deemed necessary and the steps necessary for approval of the changes. Corrections may consist of marked changes to the official test copy of the test procedure. The official test copy of the procedure remains the controlling document for SSC testing. The Test Director must obtain independent review and approval from a licensed SRO (or equivalent person/position if identified in site procedure) before a minor change is effective. The Test Director and the SRO reviews provide appropriate administrative control of the correction process.

In summary, we believe that the LTR appropriately describes the process for controlling changes to test procedures. GE will add a new section to the LTR to discuss TPCNs. The following changes (underlined text) will be incorporated into LTR Section 6.3.1:

6.3.1 TPCNs

For minor changes to a test procedure, a TPCN may be used.

The intent of the TPCN is to provide a capability to change procedures when a full revision is not justified. These changes can be annotations of existing pages or with the addition of supplemental pages. Each sheet must be signed by the Test Director and a licensed SRO (or person authorized by site specific administrative procedure). Normally, the change should only affect several pages. There are two types of TPCNs.

A minor TPCN addresses changes that do not change intent. Examples of these changes include:

- Correcting obvious typographical errors
- Providing steps for temporary suspension of testing and for documenting steps to be taken to restart testing.
- Steps which are re-performed to document testing following correction of a problem

RAI-2 (continued)

- Waive pre-requisites that are obviously not applicable to a given test section
- Provide additional steps/clarifications needed to perform a given test step

A minor TPCN can be initiated by the Test Director, then must be reviewed by a licensed SRO (or person authorized by procedure) before it can be implemented. Testing can continue at this point, however the TPCN is then routed for additional review by the startup staff (Organization responsible for the procedure being changed, Startup Manager, JTG/PORC).

A Major TPCN is one that does change intent. Examples of these changes include:

- To modify the test procedure during its final review,
- Change test prerequisites,
- Change the procedure testing sequence,
- To delete/add test instructions,
- To change test acceptance criteria.

A Major TPCN must be reviewed and approved in the same manner as the original procedure. This approval must be obtained prior to implementation.

During the test program, the Test Director will prepare TPCN on procedures for which he is responsible, log the TPCN on a Test Procedure Change Notice Log (Figure 6) and process the TPCN for review and approval. Depending on the nature of the TPCN, interruption of associated testing in order to process the TPCN may be required. TPCNs that change the intent of the test or for which the change is not documented in the text of the procedure require interruption of testing for review and approval of the TPCN prior to performance of associated testing. TPCNs that preserve the intent of the test and for which the change is documented in the text of the procedure may be reviewed and approved after performance of associated testing. In either event, TPCNs are implemented in the same manner as test procedures.

LTR Impact

NEDO-33305 will be revised as noted in the response to RAI-3.

RAI-4

Section 14.2.4 of NUREG-1503 states that the startup administrative manual will contain the administrative procedures that govern the activities of the startup group. The staff requests that GE Energy provide the administrative procedures that govern the activities of the startup group.

GE Response

Refer to Introduction to RAI response.

Each licensee will create additional procedures for ITP implementation. Each licensee's procedures to implement the ITP will be prepared based on GE ABWR SAM. These procedures will be reviewed and approved by the site organization, taking into consideration the need for supplemental site-specific requirements. Implementing procedures will be available 6 months prior to the commencement of the preoperational testing phase of the ITP. It is not required and would not be appropriate to include such procedure in the ABWR DCD or a COL application.

LTR Impact

No changes to the LTR will be made as a result of this RAI response.

RAI-5

Section 14.2.4 of NUREG-1503 states that the startup administrative manual will receive the same level of review and approval as other plant administrative procedures. The staff requests that GE Energy describe the review and approval process for the startup administrative manual.

GE Response

The review and approval process for the NEDO-33305 was in accordance with the GE Quality Assurance Program.

The review and approval process for the site specific SAM will be in accordance with the licensee's QA program. The licensee's SAM is required to be consistent with 10 CFR Part 50, Appendix B, Criterion V, requirements for *Instructions, Procedures, and Drawing, and Criterion 11, Test Control*.

LTR Impact

No changes to the LTR will be made as a result of this RAI response.

RAI-6

Section 14.2.3 of NUREG-1503 states that procedures will be developed, reviewed, and controlled by personnel with appropriate technical backgrounds and experience in accordance with the startup administrative manual.

Section 14.2.4 of NUREG-1503 states that the startup administrative manual will delineate the qualifications and responsibilities of the different positions within the startup group.

Section III.3.D.i of SRP Section 14.2 states that the applicant should describe the education, training, and experience requirements established for each management and operating staff member including the nuclear steam supply systems vendor, architect-engineer, and other major contractors, subcontractors, and vendors, as appropriate who will conduct the preoperational and initial tests and who will develop testing, operating, and emergency procedures.

The staff requests that GE Energy describe qualification requirements for the different positions in the startup group; and the education, training, technical background, and experience requirements for each management and operating staff member including the nuclear steam supply systems vendor, architect-engineer, and other major contractors, subcontractors, and vendors, as appropriate who will conduct the preoperational and initial startup tests and who will develop testing, operating, and emergency procedures.

GE Response

Section 3.2 of NEDO-33305 states "Personnel responsible for the development, execution, review and approval of the Initial Test program shall be qualified for their assigned tasks in accordance with the site quality assurance program."

The following changes (underlined text) will be incorporated into LTR Section 3 of the LTR:

3.2 Qualifications and Responsibilities

3.2.1 Qualifications

Each licensee will manage implementation of requirements for qualification of the ITP staff. The requirements for education, training, technical background, and experience requirements for the different positions in the startup group will be determined by the site-specific QAPD and the site-specific SAM requirements. The QAPD addresses the need for special skills to attain the required quality. Each licensee shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained.

GE Response (RAI-6 continued)

3.2.2 Responsibilities

(existing LTR description)

LTR Impact

NEDO-33305 will be revised as noted in the response to RAI-6.

RAI-8 (first example)

Section 14.2.2.5 of NUREG-1503 states that duties of startup coordinating group are to review and approve project test schedules and to effect timely changes to construction or testing in order to facilitate execution of the preoperational and initial startup test programs.

Section B of RG 1.68 states that to provide for the development and safe execution of the initial test program, the applicant should formulate advance plans for the entire testing program before the NRC staff completes its review of the construction permit or combined license application.

Section II.3.D.ii of SRP Section 14.2 states that the applicant should develop a training program for each functional group of employees in the organization relative to the schedule for preoperational and initial startup testing to ensure that the necessary plant staff are ready to begin the test program.

ABWR SSAR Section 14.2.11 states that the detailed testing schedule will be made available to the NRC prior to actual implementation: The schedule will be maintained on the job site so that it may be updated and continually optimized to reflect actual progress and subsequent revised projections.

ABWR SSAR Section 14.2.11 states that the schedule, relative to initial fuel load date, for conducting each major phase of the initial test program will be provided by the applicant. This includes the time table for generation, review, and approval of procedures as well as the actual testing and analysis of results. To allow for NRC review, test procedure preparation for power ascension will be scheduled so that approved procedures are available approximately 60 days prior to fuel load.

The staff requests that GE Energy describe the review and approval process for the test schedule and changes to the test schedule, when the test schedule will be provided to the NRC, and the relationship between the schedule for preoperational and initial startup testing and the training program.

GE Response
RAI-8 (first example) response

Section 4.4.6 of NEDO-33305 identifies examples of training requirements. The COL licensee is responsible for the schedule for the ITP training available to the NRC. Training requirements are not generic issues that were intended to be included in the scope of the LTR. GE will assist each licensee in scheduling, development, and implementation of training requirements. Each licensee's QAPD will require indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained.

Each licensee will describe training for plant staff in COLA Part 2, FSAR Section 13.4. Training for test personnel consists of on-site training in accordance with the SAM, and/or implementing procedures.

The following changes (underlined text) will be incorporated into LTR Section 4.3 of the LTR:

4.3 Test Sequence

Testing activities will be integrated with the site master schedule as described in section 4.5. These activities will include the actual sequencing of testing as well as initial preparation and review of procedures and training activities necessary to support the test program. This information will coordinate testing activities with all affected site organizations. Schedule review and approval, including changes to the schedule, will be performed by the project work control organization. The testing schedule will be made available to the NRC by the COL licensee prior to actual implementation.

LTR Impact

NEDO-33305 will be revised as noted in the response to RAI-8.

RAI-8 (second example)

Section 14.2.6 of NUREG-1503 states that test records that demonstrate the adequacy of safety-related SSCs will be retained for the life of the plant.

Section C.9 of RG 1.68 states that preoperational test procedures and results should be retained as part of the plant's historical record.

The staff requests that GE Energy describe the record requirements for preoperational and initial startup test procedures and test results.

GE Response

The ABWR DCD, Tier 2, Section 14.2.6 identifies the minimum requirements for record retention. Each licensee will implement QA program requirements for test records consistent with 10 CFR Part 50, Appendix B, regarding Criterion 17, Quality Assurance Records.

The following changes (underlined text) will be incorporated into LTR as Section 7.3:

The ABWR DCD, Tier 2, Section 14.2.6 identifies the minimum requirements for record retention. Each licensee will implement QA program requirements for test records consistent with 10 CFR Part 50, Appendix B, regarding Criterion 17, Quality Assurance Records.

LTR Impact

NEDO-33305 will be revised as noted in the response to RAI-8.

RAI-9

Section 14.2.13.1 of NUREG-1503 states that the ABWR design control document addresses SSCs within the scope of the ABWR standard plant design and that it is the responsibility of the applicant to address site-specific SSCs that are not in the scope of the ABWR standard plant design.

Section A of RG 1.68 states that the scope of the initial test program is not limited solely to safety-related SSCs. Consequently, this guide specifies the scope of plant SSCs to be tested to satisfy the requirements of General Design Criteria 1, "Quality Standards and Records" (as specified in Appendix A to 10 CFR Part 50), as well as the quality assurance criteria set forth in Appendix B to 10 CFR Part 50.

The staff requests that GE Energy describe the preoperational and initial startup test requirements for (1) SSCs that are not within the scope of the ABWR standard plant design, and (2) any nonsafety-related SSCs to be included in the preoperational and initial startup test programs (for example, the scope of the reliability assurance program could include nonsafety-related SSCs).

GE Response

The preoperational and initial startup test requirements for SSCs that are not within the scope of the ABWR standard plant design are considered site-specific features and are not specifically included in the scope of the ABWR SAM. However, the framework for implementing administrative controls and conduct of testing may be applied to any plant system. Each licensee will determine the applicability of the ABWR SAM to those SSCs.

Testing requirements for nonsafety SSCs within the scope of the ABWR standard plant design are provided in ABWR DCD Tier 2, Section 14.2. Testing requirements for non-safety SSCs that are not within the scope of the ABWR standard plant design will be provided in the COL application are appropriate.

LTR Impact

No changes to the LTR will be made as a result of this RAI response.

RAI-10

Section 14.2.3 of NUREG-1503 states that available information on operating and testing experience of operating power reactors will be factored into test procedures as appropriate. Section 14.2.8 of NUREG-1503 states that reactor operating and testing experience of similar nuclear power plants obtained from NRC licensee event reports and through other industry sources will be used to the extent practicable in developing and carrying out the initial test program.

The staff requests that GE Energy describe the process for incorporating testing and operating experience into preoperational and initial startup procedures.

GE Response

Utilization of Reactor Operating and Testing Experience in the Development of the ABWR Test Program is discussed in section 14.2.8 of the ABWR DCD. Additional information is provided in Section 4.4 of the LTR.

LTR Impact

No changes to the LTR will be made as a result of this RAI response.

Enclosure 1

RAI-11

Sections 3.2.4 and 7.2.3 of NEDO-33305 state that the Plant Operations Review Committee performs an independent review function. The staff requests that GE Energy explain why this review is considered independent.

GE Response

GE will augment the description of administrative controls in Revision 0 of NEDO-33305. Clarification of the role of the PORC will be provided.

The following changes (underlined text and strikethrough) will be incorporated into LTR Section 3.2.4:

During the Preoperational Test phase, the Plant Operations Review Committee (PORC), reporting to the Station Superintendent, performs an ~~independent~~ review function overseeing the Joint Test Group. After Fuel load, the PORC is responsible for review of safety related operating procedures, test procedures, test results and other startup test documents, e.g., other procedures, technical data, etc., as instructed by the Station Superintendent.

The following changes (underlined text) are under review for incorporation into Section 7.2.3:

The PORC is responsible for final approval or acceptance of Startup Test results. The PORC will perform ~~an independent~~ review of the test results and make recommendation in the PORC meeting for approval of the test results.

LTR Impact

NEDO-33305 will be revised as noted in the response to RAI-11.

Enclosure 1

RAI-12

The staff requests that GE Energy describe the audits that will be performed that verify that the requirements in the startup administrative manual are being properly implemented.

GE Response

The audit process for the site specific SAM will be in accordance with the licensee's QA program. All licensees, as a minimum, will implement 10 CFR Part 50, Appendix B QA program requirements.

The following changes (underlined text) will be incorporated into the last paragraph of LTR Section 3.2:

A comprehensive system of planned and periodic audits shall be carried out to verify compliance with the ITP. The audits shall be performed in accordance with written procedures or check lists by appropriately trained personnel not having direct responsibilities in the areas being audited. Audit results shall be documented and reviewed by management having responsibility for the ITP. Follow-up action, including re-audit of deficient areas, shall be taken where indicated.

LTR Impact

NEDO-33305 will be revised as noted in the response to RAI-12.

RAI-13

Section B of RG 1.68 states that each new applicant for an advanced plant should identify all new first-of-a-kind tests in the given plant. The staff requests that GE Energy identify any new first-of-a-kind tests.

GE Response

Consistent with the guidance provided in Reg. Guide 1.68 section A.6, testing of any first-of-a-kind systems outside the scope of the ABWR standard design will be identified in Section 14.2 of each applicant's COLA.

LTR Impact

No changes to the LTR will be made as a result of this RAI response.