Tennessee Valley Authority, 1101 Market Street, LP 5A, Chattanooga, Tennessee 37402-2801

January 22, 2009

10 CFR 52.79

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

In the Matter of)
Tennessee Valley Authority)

Docket No. 52-014 and 52-015

BELLEFONTE COMBINED LICENSE APPLICATION – RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION – INITIAL PLANT TEST PROGRAM

Reference: Letter from Many Comar (NRC) to Andrea L Sterdis (TVA), Request for Additional Information Letter No. 139 Related to SRP Section 14.02 for the Bellefonte Units 3 and 4 Combined License Application, dated December 8, 2008

This letter provides the Tennessee Valley Authority's (TVA) response to the Nuclear Regulatory Commission's (NRC) request for additional information (RAI) items included in the reference letter.

A response to the NRC request in the subject letter is addressed in the enclosure which also identifies any associated changes that will be made in a future revision of the BLN application.

If you should have any questions, please contact Thomas Spink at 1101 Market Street, LP5A, Chattanooga, Tennessee 37402-2801, by telephone at (423) 751-7062, or via email at tespink@tva.gov.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 22nd day of Jan, 2009.

Andrea L. Sterdis
Manager, New Nuclear Licensing and Industry Affairs
Nuclear Generation Development & Construction

Enclosure
cc: See Page 2

D085
NRO

cc: (Enclosure)

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T. Simms, NRC/HQ

Enclosure
TVA letter dated January 22, 2009
RAI Response

Response to NRC Request for Additional Information letter No. 139 dated December 8, 2008
(9 pages, including this list)

Subject: Initial Plant Test Program in the Final Safety Analysis Report

RAI Number	Date of TVA Response
14.02-012	This letter – see following pages

Associated Additional Attachments / Enclosures	Pages Included
Attachment 14.02-12A	22 Pages

NRC Letter Dated: December 8, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 14.02-012

As stated in Section 14.4 of the Westinghouse's AP1000 Design Certification Document (DCD), combined license (COL) Information Item 14.4-3 requires applicants referencing the Westinghouse AP1000 DCD to provide administrative controls for the conduct of the initial test program in the form of a Startup Administrative Manual (SAM). It specifically states: "The Combined License applicant is responsible for a startup administration manual (procedure) which contains the administration procedures and requirements that govern the activities associated with the plant initial test program, as identified in Section 14.2.3."

In order to address COL Information Item 14.4-3, "Conduct of Test Program," the Bellefonte COL FSAR should provide a description of the administrative requirements that will be implemented during the conduct of the initial test program. This description should include, at a minimum, the following activities:

- Organizational and staffing responsibilities,
- Test specifications and test procedure development, issuance, review, approval, distribution, control, and modifications,
- Conduct of the initial test program,
- Review, evaluation, and approval of test results,
- Initial test program planning and scheduling,
- Initial fuel loading and initial criticality,
- Initial test program objectives,
- Conformance with Regulatory Guides (RGs),
- Utilization of reactor operating and testing experiences in test program development, and
- Trial use of plant operating and emergency procedures.

This approach would subsume COL Information Item 14.4.1, "Organization and Staffing," COL 14.4-2, "Test Specifications and Test Procedures," and COL Information Item 14.4.4, "Review and Evaluation of Test Results," into COL 14.4-3. Specific details related to these activities are described below.

<u>Organization and Staffing</u> (related to COL 14.4-1)

RG 1.206 and Section 14.2 of the SRP state, in part, that the applicant should provide organizational descriptions of the principal management positions responsible for planning, executing, and documenting preoperational and startup testing activities. Additionally, the applicant should provide organizational descriptions of any augmenting organizations or other personnel who will manage or execute any phase of the test program, and the responsibilities, interfaces, and authorities of the principal participants.

Consistent with the above guidance, the Bellefonte COL FSAR should provide a detailed description of the organization(s) that manages, supervises, or executes any phase of the test program. This description should address:

- The structure (organizational chart) of the test organization.
- The responsibilities and authorities of the organizations in charge of the overall administration, technical direction, coordination, and implementation of the major phases of the initial test program (i.e., preoperational testing, initial fuel loading and pre-critical tests, initial criticality, low-power

testing, and power ascension testing). Provisions should include considerations of staffing effects that could result from overlapping initial test programs at multi-unit sites.

- The identification of the principal participants, interfaces, and the degree of participation of each organizational unit. This includes, but is not limited to:
    - Construction Testing Group
    - Preoperational Testing Group
    - Initial Startup Testing Group
    - Joint Test Working Groups
    - Major Participating Organizations
    - Design Engineering
    - Constructors
    - Nuclear Steam Supply System (NSSS)
    - Equipment/Component Suppliers
    - Plant Owner's Operations Review Committee
    - Licensee's Operations Group
    - Licensee's Maintenance Group
    - Licensee's Corrective Action Organization
    - Licensee's Health Physics/Chemistry Group
    - Licensee's Quality Assurance Group
    - Construction BOP Engineering
    - Construction Services Group
    - Construction Services Procurement Group
    - Construction Services Quality Group
    - Construction Services Training Group
    - Preoperational and Startup Test Teams (including Startup Managers/Plant Managers/Startup Engineers, as applicable)
- The participation of the plant's operating and technical staff in each major test phase. This description should include information pertaining to:
    - The education, training, experience, and qualification requirements of supervisory personnel, test personnel, and other major participating organizations that are responsible for managing, developing, or conducting each test phase, or will be responsible for the development of testing, operating, and emergency procedures.
    - The establishment of a training program for each organizational unit, with regard to the scheduled preoperational and initial startup testing. This training program should provide meaningful technical information beyond that obtained in the normal startup test program and provide supplemental operator training. This program should also satisfy the criteria described in TMI Action Plan Item I.G.1 of NUREG-0660 and NUREG-0737.
    - The implementation of measures to ensure that personnel formulating and conducting test activities are not the same personnel who designed or are responsible for satisfactory performance of the system(s) or design features(s) being tested. This provision does not preclude members of the design organization from participating in test activities. This description should also include considerations of staffing effects that could result from overlapping initial test programs at multi-unit sites.

This description should include sufficient information for the NRC staff to make a determination and reasonable conclusion about the applicant's organizations responsible for the overall administration and technical direction of the initial test program.

Test Specifications and Test Procedures (related to COL 14.4-2)

RG 1.206 and Section 14.2 state, in part, that the COL applicant should provide a description of the methodology used for the generation, review, and approval of preoperational and startup test procedures, including the organizational units or personnel that are involved in performing these activities and their respective responsibilities. The COL applicant should have controls in place to ensure that test procedures include appropriate prerequisites, objectives, safety precautions, initial test conditions, methods to direct and control test performance, and acceptance criteria by which the test will be evaluated. The applicant should also utilize system designers to provide the objectives and acceptance criteria used in developing detailed test procedures. Additionally, provisions should be in place to assure that personnel with appropriate technical backgrounds and experience develop and review test procedures. Persons filling designated management positions within the applicant's organization should perform final procedure review and approval. The COL applicant should also describe the format of individual test procedures and should include a discussion to demonstrate that the individual test procedure format is similar to, or consistent with, that contained in RG 1.68; alternatively, the COL applicant should provide justifications for any exceptions. Finally, this description should include provisions to ensure the availability of approved test procedures for review by NRC inspectors at least 60 days before their intended use, and provide timely notification to NRC of changes in approved test procedures that have been made available for NRC review.

Consistent with the guidance provided above, the Bellefonte COL FSAR should provide a detailed description of the process used to develop, review, and approve individual test specifications and test procedures. This description should include the following:

- Controls to ensure that test procedures include appropriate prerequisites, objectives, safety precautions, initial test conditions, methods to direct and control test performance, and acceptance criteria by which the test will be evaluated.
- Controls for the format of individual test procedures to ensure consistency with the guidance contained in RG 1.68; alternatively, provide justifications for any exceptions.
- Controls to ensure participation of the principal design organizations in establishing test objectives, test acceptance criteria, and related performance requirements during the development of detailed test procedures. Each test procedure should include acceptance criteria that account for the uncertainties used in transient and accident analyses. The participating system designers should include the nuclear steam supply system vendor, architect-engineer, and other major contractors, subcontractors, and vendors, as applicable.
- Controls to ensure that personnel with appropriate technical backgrounds and experience develop and review test procedures. Persons filling designated management positions within the applicant's organization should perform final procedure review and approval.
- Controls to ensure that approved test procedures for satisfying FSAR testing commitments are made available to the NRC inspectors approximately 60 days prior to their intended use. COL holder item 14.4-4 in the Bellefonte COL FSAR covers this aspect.

Conduct of test program (related to COL 14.4-3)

RG 1.206 and Section 14.2 of the SRP state, in part, that the applicant should describe the administrative controls that govern the conduct of each major phase of the test program. This description should include the administrative controls used to ensure that necessary prerequisites are satisfied for each major phase and for individual tests. The applicant should also describe the methods to be followed in initiating plant modifications or maintenance tasks that are determined to be necessary to conduct the test program. This description should include the methods used to ensure retesting following such modifications or maintenance. In addition, the description should discuss the involvement of design organizations and the applicant in reviewing and approving proposed plant modifications. For preoperational testing, the description should also include methods and identify provisions to ensure that retesting for modifications or maintenance remains in compliance with ITAAC commitments. Finally, the applicant should describe the administrative controls pertaining to adherence to approved test procedures during the conduct of the test program as well as the methods for effecting changes to approved test procedures.

Consistent with the guidance described above, the applicant should provide a general description of the administrative controls to be implemented during the conduct of the initial test program. This description should address the following activities:

- Controls to ensure that test prerequisites (such as completion of construction, construction or preliminary tests, and inspections) are satisfied for each major phase of the initial test program and individual systems and components, to ensure an orderly turnover of plant systems and components from construction forces or other preliminary checkout groups to the preoperational/startup testing groups.
- Controls for the establishment of hold points at selected milestones throughout the power ascension test phase, as appropriate.
- Controls to ensure adherence to approved test procedures during the conduct of the test program, and the methods for effecting changes to approved test procedures.
- Controls for plant modifications and repairs identified as a result of plant testing, including consideration of retesting following such modifications or repairs, and review of any proposed facility modifications by the original design organization or other designated design organizations, as appropriate. The applicant's documentation associated with such controls should be auditable to allow the NRC to verify proper implementation of those controls.
- Controls to document, process, review, and disposition test deficiencies, nonconformances, and exceptions identified during the execution of the initial test program, including identification, implementation, and report of corrective actions to appropriate levels of management.
- Controls to ensure the use of available information regarding operating experience, including reportable occurrences from other operating power reactors, to help minimize recurrence of significant problems that can be avoided by more complete testing.
- Controls to ensure that adequate test instrumentation is available and used and that testing is performed under suitable environmental conditions.

Review, evaluation, and approval of test results (related to COL 14.4-4)

RG 1.206 and Section 14.2 of the SRP state, in part, that the applicant should describe the specific controls to be established for the review, evaluation, and approval of test results for each major phase of the program by appropriate personnel and/or organizations. This description should include specific

controls to be established to ensure notification of responsible organizations or personnel when test acceptance criteria are not met, as well as the controls established to resolve such matters. Additionally, the applicant should provide a description of the controls for approval of test data that will be applied for each major test phase before the licensee proceeds to the next test phase, and the controls that will ensure the approval of test data by qualified personnel at each power test plateau (e.g., during the power-ascension testing phase) before increasing the power level.

Consistent with the above guidance, the applicant should provide a description of the administrative controls to be implemented for the review, evaluation, and approval of test results. This description should address the following activities:

- Controls relating to the methodology for the approval of test data for each major phase (e.g., preoperational and initial startup testing), and the methods used for the review of individual parts of multiple tests (e.g., hot functional testing).
- Controls to ensure the notification and participation of responsible organizations in the resolution of design-related problems that result in, or contribute to, a failure to meet test acceptance criteria.
- Controls to ensure a technical evaluation of test results by qualified personnel and approval of such results by personnel in designated management positions in the applicant's organization.
- Controls to ensure retention of test reports, including test procedures and results, as part of the plant historical records. Startup test reports should be prepared in accordance with RG 1.16, or the applicant should provide adequate justification for its proposed alternative.

Initial test program schedule (related to COL 14.4-3)

RG 1.206 and Section 14.2 of the SRP state, in part, that the applicant should develop a schedule for conducting each phase of the initial test program. Provisions should be in place to ensure that overlapping test program schedules (for multi-unit sites) do not result in significant divisions of responsibilities or dilutions of the staff implementing the test program. The sequential schedule for individual startup tests should establish that testing will be completed in accordance with plant technical specification requirements for SSC operability before changing plant modes. Additionally, the schedule should establish that the safety of the plant will not depend on the performance of untested SSCs. RG 1.68, Revision 3, provides guidance regarding the general scope that the NRC staff considers acceptable for initial test programs. Specifically, the RG states, in part, that applicants should develop realistic schedules for preparing detailed testing, plant operating, and emergency procedures. Schedules should be established for conducting the major phases of the test program relative to the expected fuel loading date. Additionally, the RG states that sufficient time should be scheduled to perform orderly and comprehensive testing. Previous applicants' schedules for conducting the preoperational and initial startup phases have typically allowed a minimum time of approximately 9 months and 3 months, respectively. Significantly shorter time periods should be justified.

Consistent with the above guidance, the applicant should provide a description of the methodology that will be used to develop a schedule, relative to the fuel loading date, for conducting each major phase of the test program, and for the development of test procedures. This description should consider the following:

- Test Procedure Development Schedule:
  - Controls to ensure the establishment of a schedule for the development of detailed testing, plant operating, and emergency procedures. These procedures should, to the extent practical, be trial-

tested and corrected during the initial test program prior to fuel loading in order to establish their adequacy.

- Controls to ensure that approved test procedures be in a form suitable for review by NRC inspectors at least 60 days prior to their intended use or at least 60 days prior to fuel loading for fuel loading and startup test procedures.
- Controls to ensure that the COL holder provides timely notification to the NRC of changes in approved test procedures that have been made available for NRC review.

Initial Test Program Schedule:

- Controls to ensure the establishment of a schedule to conduct the major phases of the initial test program, relative to the expected fuel loading date. This is covered in License Conditions in Part 10 of the Bellefonte COL FSAR.
- Controls to allow at least 9 months for conducting preoperational testing.
- Controls to allow at least 3 months for conducting startup testing, including fuel loading, low-power tests, and power-ascension tests.
- Controls to ensure that overlapping test program schedules (for multi-unit sites) do not result in significant divisions of responsibilities or dilutions of the staff provided to implement the test program.
- Controls to ensure that the sequential schedule for individual startup tests establish, insofar as is practicable, that testing is completed prior to exceeding 25 percent power for all plant Structure, Systems and Components (SSCs) that are relied upon to prevent, limit, or mitigate the consequences of postulated accidents. The schedule should establish that, insofar as is practicable, testing is accomplished as early in the test program as is feasible and that the safety of the plant will not be dependent on the performance of untested SSCs.
- Controls to provide identification and cross-reference of each test (or portions thereof) required to be completed before initial fuel loading to satisfy the requirements for completing ITAAC in accordance with 10 CFR 52.99(a).

Other sections related to the initial test program

In Section 14.2 of the Bellefonte COL FSER, the applicant incorporated by reference subsections 14.2.1, "Summary of Test Program and Objectives," 14.2.4, "Compliance of Test Program with Regulatory Guides," 14.2.5, "Utilization of Reactor Operating and Testing Experience in the Development of Test Program," 14.2.6, "Use of Plant Operating and Emergency Procedures," and 14.2.7, "Initial Fuel Loading and Initial Criticality," of the AP1000 DCD. These sections were reviewed and found acceptable by the NRC staff, as documented in NUREG-1793. However, the initial test program description that will be provided by the applicant should describe how the test program meets the objectives contained in these sections of the AP1000 DCD.

BLN RAI ID: 2645

BLN RESPONSE:

The FSAR will be revised in the next COLA submittal to expand FSAR Section 14.2 to include additional information requested above. The changes include description of Initial Test Program to be used for development of Startup Administrative Manual (Procedures).

This response is expected to be STANDARD for the S-COLAs.

ASSOCIATED BLN COL APPLICATION REVISIONS:

1. COLA Part 2, FSAR. Chapter 14, will be revised as shown in Attachment 14.02-12A.

2. COLA Part 2, FSAR. Chapter 1, Table 1.9-201 will be revised from:

Regulatory Guides		FSAR Chapter, Section, or Subsection[a]
1.68	Initial Test Program for Water-Cooled Nuclear Power Plants (Rev. 3, March 2007)	16 (TS Bases 3.1.8)

To read:

Regulatory Guides		FSAR Chapter, Section, or Subsection[a]
1.68	Initial Test Program for Water-Cooled Nuclear Power Plants (Rev. 3, March 2007)	14.2.1 14.2.3 14.2.8 14.2.11.2 16 (TS Bases 3.1.8)

3. COLA Part 10 will be revised from:

COL Item No.	Subject	From DCD Tier 2 Subsection	Implementation Milestone
14.4-3	Conduct of Test Program	14.4.3	Prior to initiating test program
A site-specific startup administration manual (procedure), which contains the administration procedures and requirements that govern the activities associated with the plant initial test program, as identified in DCD Subsection 14.2.3 and as described in APP-GW-GLR-038 (DCD Reference 2), is provided prior to initiating the plant initial test program.			

To read:

COL Item No.	Subject	From DCD Tier 2 Subsection	Implementation Milestone
14.4-3	Conduct of Test Program	14.4.3	Prior to initiating test program
A site-specific startup administration manual (procedure), which contains the administration procedures and requirements that govern the activities associated with the plant initial test program, as described in FSAR Section 14.2, is provided prior to initiating the plant initial test program.			

ASSOCIATED ATTACHMENTS/ENCLOSURES:

Attachment 14.02-12A – FSAR Chapter 14, Initial Test Program Changes

ATTACHMENT 14.02-12A
TVA letter dated January 22, 2009
RAI Response

Attachment 14.02-12A

FSAR Chapter 14, Initial Test Program Changes

(22 pages including this cover)

NOTE: Only parts of Chapter 14 Section 14.2 are included here to assist in illustrating the changes. FSAR Section 14.2 subsections that are not included below remain unchanged. Deletions are shown with strikethrough for completeness.

14.2.1 SUMMARY OF TEST PROGRAM AND OBJECTIVES

Add the following subsection at the end of DCD Subsection 14.2.1:

STD COL 14.4-3 FSAR Section 14.2 provides the requirements to be included in the Startup Administrative Manual (Procedures), as discussed in DCD Subsection 14.4.3. The information referenced in this section meets the Initial Test Program (ITP} criteria of NUREG-0800 and is formatted to follow Regulatory Guide 1.206, Part I, Section C.1.14.2.

The ITP is applied to structures, systems, and components that perform the functions described in the Regulatory Guide 1.68 evaluation in FSAR Section 1.9. The ITP is also applied to other structures, systems and components. The Startup Administrative Manual includes a list of the AP1000 structures, systems and components to which the ITP is applied.

Add the following Subsections after DCD Subsection 14.2.1.3

14.2.1.4 Testing of First of a Kind Design Features

First of a kind (FOAK) testing may occur in any of the phases, depending on the nature of the testing and required sequencing of the tests. When testing FOAK design features, applicable operating experience from previous test performance on other AP1000 plants is reviewed, where available, and the ITP modified as needed based on those lessons learned.

14.2.1.5 Credit for Previously Performed Testing of First of a Kind Design Features

In some cases, FOAK testing is required only for the first of a new design or for the first few plants of a standard design. In such cases, credit may be taken for the previously performed tests. A discussion is included in the startup test reports of the results of those tests that are credited.

14.2.2 ORGANIZATION, STAFFING, AND RESPONSIBILITIES

Replace the existing information in DCD Subsection 14.2.2 with the following new paragraph and subsections.

STD COL 14.4-1 The AP1000 plant test and operations (PT&O) organization is described in Subsection 14.2.2.1. The organization for operating and maintaining the AP1000 plant is described in Section 13.1.

The PT&O organization structure (organizational chart) is included in Startup Administrative Manual.

Table 13.4-201 provides milestones for initial test program implementation.

14.2.2.1 PT&O Organization

The Initial Test Program (ITP) is the responsibility of the PT&O Organization. The ITP includes three phases of testing:

- Construction and Installation Testing
- Preoperational Testing
- Startup Testing

14.2.2.1.1 Manager In Charge of PT&O

The manager in charge of PT&O reports directly to the plant manager. The manager in charge of PT&O manages the ITP. The manager in charge of PT&O is responsible for:

- Staffing the PT&O Organization.
- Developing, reviewing, and approving the administrative and technical procedures associated with the preoperational and startup phases.
- Managing the ITP and personnel.
- Implementing the ITP schedule.
- Managing contracts associated with the ITP.

14.2.2.1.2 Functional Manager In Charge of PT&O Support

The functional manager in charge of PT&O support reports directly to the manager in charge of PT&O. The functional manager in charge of PT&O support plans and schedules procedure development to support startup. The functional manager in charge of PT&O support verifies that the test documents conform to the approved project procedures.

The functional manager in charge of PT&O support reviews and approves test procedures. These procedures are used to demonstrate that a system and its components meet the design and performance criteria.

14.2.2.1.3 PT&O Engineers

The PT&O engineers report directly to the functional manager in charge of PT&O support. The PT&O engineers are responsible for developing system test procedures.

14.2.2.1.4 Functional Manager In Charge of Startup

The functional manager in charge of startup reports directly to the manager in charge of PT&O. The functional manager in charge of startup manages the preoperational and startup testing. The functional manager in charge of startup is responsible for:

- Participating in the Joint Test Working Group (JTWG) and ensuring that the JTWG reviews and approves administrative and test procedures. The JTWG structure and responsibilities are defined in ~~the "AP1000 Startup Site Administrative Manual - Program Management Description" (found in Reference 201)~~ Subsection 14.2.2.3.
- Preparing a detailed preoperational and startup testing schedule.
- Coordinating construction turnover to the PT&O organization.
- Informing the functional manager in charge of PT&O when vendor support essential to preoperational and startup testing is required, and coordinating vendor participation.
- Supervising and directing the startup engineers.
- Involving operations personnel in testing activities. Utilizing operations personnel, to the extent practical, as test witnesses or test performers to provide the operations personnel with experience and knowledge.
- Developing and implementing administrative controls to address system and equipment configuration control.
- Maintaining the startup schedule.
- Maintaining a daily startup log and issuing periodic progress reports that identify overall progress and potential challenges.

14.2.2.1.5 Startup Engineers

The startup engineers report directly to the functional manager in charge of startup. The startup engineers are responsible for:

- Complying with administrative controls.
- Identifying any special or temporary equipment or services needed to support testing.
- Coordinating testing with involved groups.
- Reviewing and evaluating test results.

14.2.2.2 PT&O Organization Personnel Qualifications and Training

~~Personnel in the PT&O organization are qualified and trained in accordance with the "AP1000 Startup Site Administrative Manual - Program Management Description" (found in Reference 201).~~

Procedures are prepared to confirm that test personnel have adequate training, qualification and certification. Records are kept for extent of experience, involvement in procedure and

test development, training programs, and level of qualification. The training organization qualifies Test Personnel as applicable, in accordance with the requirements of the applicable Quality Assurance Program. Training is performed as agreed between Westinghouse and the Licensee. Westinghouse test personnel training is per certified design.

The training program /procedures shall include:

- The education, training, experience, and qualification requirements of supervisory personnel, test personnel, and other major participating organizations responsible for managing, developing, or conducting each test phase, or development of testing, operating, and emergency procedures.
- The establishment of a training program for each organizational unit, with regard to the scheduled preoperational and initial startup testing. This training program provides meaningful technical information beyond that obtained in the normal startup test program and provide supplemental operator training. This program also satisfies the criteria described in TMI Action Plan Item I.G.1 of NUREG-0660 and NUREG-0737.

The Startup Administrative Manual (Procedure) shall include:

- The implementation of measures to verify that personnel formulating and conducting test activities are not the same personnel who designed or are responsible for satisfactory performance of the system(s) or design features(s) being tested. This provision does not preclude members of the design organization from participating in test activities. This description also includes considerations of staffing effects that could result from overlapping initial test programs at multi-unit sites.

14.2.2.3 Joint Test Working Group

The Joint Test Working Group (JTWG) consists of an organizational group of authorized representative personnel from the Plant's operations and support group functions, Westinghouse Electric Company (WEC), Architect Engineer and other test support groups as identified below.

The Licensee has the overall responsibility for conduct of the Startup Test Program. The Westinghouse Startup Manager may be assigned overall responsibility and authority for technical direction of the Startup Test Program and may act as the JTWG Chairman.

The JTWG Chairman reports to the Chairman of the Plant Owner's Operations Review Committee (PORC) or qualified designee for matters of Startup test authority and acceptance.

The JTWG provides the following administrative oversight activities associated with the Startup Test Program:

- Review, evaluate and approve Startup Test Program administrative and test procedures.
- Oversee the implementation of the Preoperational Test Program and the Startup Test Program, including planning, scheduling and performance of Preoperational and Startup testing.

- Review and evaluate Construction, Preoperational and Startup test results and test turnover packages.

At a minimum, the JTWG is composed of qualified representatives provided from the following organizations:

- Licensee's Operations Group
- Licensee's Maintenance Group
- Site Preoperational Test Group
- Site Startup Test Group
- Licensee's Engineering Group
- Licensee's Corrective Action Organization
- Westinghouse Site Engineering Group
- Licensee's Health Physics/Chemistry Group
- Licensee's Quality Assurance Group

The following are additional generic details of the key responsibilities, authorities and interfaces of the Licensee Organizations delineated above:

- Operations Group

  The Operations Group has the overall responsibility for Plant Operations, including administrative control and tag-outs subsequent to system turnover. Their primary interfaces are with the Licensee Engineering and Technical Support organizations as well as the Westinghouse Engineering Organization, Preoperational and Startup Testing Teams and Construction Services Group.

- Maintenance Group

  The Maintenance Group has the overall responsibility for the Maintenance of Plant systems and components subsequent to System Turnover. They are key participants and maintainers of system maintenance control and tag-outs. Their primary interfaces are with the Licensee Operations Group and Technical Support organizations, as well as the Westinghouse Engineering Organization, Preoperational and Startup Testing Teams and Construction Services Group.

- Corrective Action Organization

  The Corrective Action Organization may be an organization specific to itself or may be a part of the Performance Assessment organization, the Quality Organization or another organization. This organization, together with every other site organization, is responsible for the administration and management of the corrective action program, as well as the identification of conditions adverse to quality. This organization interfaces with site organizations and identifies and documents conditions which need to be documented in the corrective action program.

- Engineering Group

  This group has the primary responsibility for site engineering and design oversight of the plant components and systems, as well as interfacing with the vendor engineering organization. This organization primarily interfaces with the Operations Group as well as the Westinghouse Site Engineering Organization, Preoperational and Startup Testing Teams and Construction Services Group. The responsibility for training the testing personnel in accordance with applicable Quality Assurance Program is delegated and implemented as agreed to by Westinghouse. Westinghouse test personnel training is per certified design.

- Health Physics/Chemistry Group

  This Technical Support organization has the responsibility and authority to maintain Health Physics and system chemistry conditions at the plant, particularly after system turnover. This organization primarily interfaces with the Licensee Operations Group, as well as the Westinghouse Engineering Organization, Preoperational and Startup Testing Teams and Construction Services Group.

- Quality Assurance Group

  This group has the responsibility to verify that the applicable site Quality commitments are met within the scope of work performed at the site. This includes meeting the Criteria of 10 CFR 50 Appendix B. The primary interfaces for this group are the Licensee Operations Group and Technical Support organizations, including Quality Control and other quality organizations, as well as the Westinghouse Engineering Organization, Preoperational and Startup Testing Teams and Construction Services Group.

- Site Preoperational Test Group

  This group has the primary responsibility for the development, maintenance and performance of the site preoperational procedures at the site. The primary interfaces for this group are the Licensee Operations Group and Technical Support organizations, as well as the Westinghouse Engineering Organization, Startup Testing Teams and the Construction Services Group. Additional specific information regarding this organization's responsibilities and interfaces is described in Subsection 14.2.2.5, below. Once preoperational testing is complete, this group turns systems over to the Startup Group.

- Site Startup Test Group

  This group has the primary responsibility for the development, maintenance and performance of the site startup procedures at the site. The primary interfaces for this group are the Licensee's Operations Group and Technical Support organizations, as well as the Westinghouse Engineering Organization, Preoperational Testing Team and the Construction Services Group. Additional specific information regarding this organization's responsibilities and interfaces is described in Subsection 14.2.2.6, below. The Startup Test Group turns over systems to the licensee when testing is complete.

- Westinghouse Site Engineering Group

  This group has the primary responsibility for the vendor interface between the site and the vendor's home offices, as well as the design authority for the primary vendor's components and systems. The various Westinghouse site leads for specific disciplines are a part of this organization. This organization primarily interfaces with Licensee Operations Group, as well as the Westinghouse Engineering Organization, Preoperational and Startup Testing Teams and Construction Services Group. The responsibility for training the testing personnel in accordance with the applicable Quality Assurance Program is delegated and implemented as agreed to by Westinghouse and the Licensee. Westinghouse test personnel training is per certified design.

14.2.2.4 Site Construction Group (Architect Engineer)

14.2.2.4.1 The Site Construction Group consists of the following, as necessary to support the Site Startup Test Program:

- Construction Group

  The Construction group has the primary responsibility for the construction and construction testing of the Balance-of-Plant engineering systems and components. During Construction and Construction Testing, this group has authority over administrative control and tagouts of these systems. Their main interface is with the System Preoperational and Startup Testing Groups, as well as the Licensee Operations Group. The Construction Group is responsible for addressing open items in the system turnover punch lists to address turnover acceptability of the system.

- Construction Services Group

  The Construction Services Group primarily supports the Construction Group with activities necessary to support construction of systems and testing of the BOP systems and components, including the construction of scaffolding, installation and removal of insulation, and similar activities. With agreement between the necessary parties, this group may also support the Westinghouse Site Engineering Group with similar activities on the primary side. The primary interfaces of this group are the Construction Group and the organizations of the JTWG.

- Construction Services Procurement Group

  The Construction Services Procurement Group is responsible for the quality procurement of components and equipment necessary to support plant construction and testing. The primary interfaces of this group include the Construction Services Group and the Construction Services Quality Group.

- Construction Services Quality Group

  The Construction Services Quality Group is responsible for the oversight of the Quality Program during Construction Activities, including those pertinent to 10 CFR 50 Appendix B and the disposition of Significant Construction Deficiencies, 10 CFR 50.55e reports as necessary. This group primarily interfaces with the Construction and Services groups as well as the Westinghouse Site Engineering group and the JTWG.

- Construction Services Training Group

  This group is primarily responsible for the training and qualification of Site Construction Personnel in Accordance with the applicable Quality Assurance Program. Their primary interface is with the qualified Construction personnel.

14.2.2.4.2 The Site Construction Group performs the following functions and scope of work, as necessary to support the Site Startup Test Program:

- Construction Installation and Testing, including management of construction testing documentation.
- Construction and Installation activities required to support Preoperational and Startup Test Programs.
- Vendor interface and procurement associated with supporting testing activities.
- Provide staffing as needed to support the testing activities.
- Turnover of Construction and Installation tested equipment, systems, and testing documentation to the Site Preoperational Test Group.

14.2.2.5 Site Preoperational Test Group

14.2.2.5.1 The Site Preoperational Test Group consists of the following, as necessary to support the Site Startup Test Program:

- Engineering Leads
- Preoperational Test Teams

14.2.2.5.2 The Site Preoperational Test Group performs the following functions and scope of work, as necessary to support the Site Startup Test Program:

- Coordinate tagging and maintenance prior to turnover to the Licensee to support system acceptance testing.
- Accept systems for turnover from the installation organization.
- Plan, scope and schedule plant systems for test to support the plant Preoperational Test Program.
- Manage and oversee the testing of plant systems to support the Plant Hot-Functional Test Program.
- Resolve open items and exceptions identified during implementation of the Preoperational Test Program.

- Accept and turn over Preoperational Test Packages to the Site Licensee.
- Support completion of Hot-Functional Test Program.
- Coordinate other support tasks required during Startup Testing activities with responsible groups (e.g., Licensee's Organization).

14.2.2.6 Site Startup Test Group

14.2.2.6.1 The Site Startup Test Group consists of the following, as necessary to support the Site Startup Test Program:

- Engineering Leads
- Startup Test Teams

14.2.2.6.2 The Site Startup Test Group performs the following functions and scope of work, as necessary to support the Site Startup Test Program:

- Coordinate tagging and maintenance as required to support system and equipment acceptance testing.
- Accept systems, structures and components from the Licensee for integrated testing.
- Plan, scope and schedule plant systems, structures and components for testing, to support Plant Startup.
- Manage and oversee the testing of plant systems, structures and components to support the Plant Power Ascension Test Program.
- Resolve open items and exceptions identified during implementation of the Startup Test Program.
- Accept and turn over Startup Test Packages to the Site Licensee.
- Coordinate other support tasks required during Startup Testing activities with responsible groups (e.g., Licensee's Organization).

14.2.3 TEST SPECIFICATIONS AND TEST PROCEDURES

Add the following text at the end of DCD Subsection 14.2.3:

The Startup Administrative Manual shall include the following controls:

- Controls to provide test procedures that include appropriate prerequisites, objectives, safety precautions, initial test conditions, methods to direct and control test performance, and acceptance criteria by which the test is evaluated.

- Controls for the format of individual test procedures to provide consistency with the guidance contained in RG 1.68; or provide justifications for any exceptions.
- Controls to provide for participation of the principal design organizations in establishing test objectives, test acceptance criteria, and related performance requirements during the development of detailed test procedures. Each test procedure should include acceptance criteria that account for the uncertainties used in transient and accident analyses. The participating system designers should include the nuclear steam supply system vendor, architect-engineer, and other major contractors, subcontractors, and vendors, as applicable.
- Controls to provide for personnel with appropriate technical backgrounds and experience to develop and review test procedures. Persons filling designated management positions should perform final procedure review and approval.
- Controls to make the approved test procedures for satisfying FSAR testing commitments are made available to the NRC inspectors approximately 60 days prior to their intended use.

14.2.3.1 Conduct of Test Program

STD COL 14.4-3 Add the following text and Subsection at the end of DCD Subsection 14.2.3.1:

The Startup Administrative Manual (procedure) governs the initial testing and is issued no later than 60 days prior to the beginning of the pre-operational phase. Testing during all phases of the test program is conducted using approved test procedures.

14.2.3.1.1 Procedure Verification

Since procedures may be approved for implementation weeks or months in advance of the scheduled test date, a review of the approved test procedure is required before commencement of testing. The test engineer is responsible for verifying:

- Drawing and document revision numbers listed in the reference section of the test procedure agree with the latest revisions.
- The procedure text reflects any design and licensing (i.e., FSAR and Technical Specifications) changes made since the procedure was originally approved for implementation.
- Any new (since preparation of the procedure) Operating Experience lessons learned are incorporated into individual test procedures.

Procedures require signoff verification for prerequisites and instruction steps. This signoff includes identification of the person doing the signoff and the date and time of completion.

Test engineers maintain chronological logs of test status to facilitate turnover and aid in maintaining operational configuration control. These logs become part of the test documentation.

There is a documented turnover process to make known the test status and equipment configuration when personnel transfer responsibilities, such as during a shift change.

Test briefings are conducted for each test in accordance with administrative procedures. When a shift change occurs before test completion, another briefing occurs before resumption or continuation of the test.

Data collected is marked or identified with test, date, and person collecting data. This data becomes part of the test documentation.

The plant corrective action program is used to document deficiencies, discrepancies, exceptions, non-conformances and failures (collectively known as test exceptions) identified in the ITP. The corrective action documentation becomes part of the test documentation. WEC and/or other design organizations participate in the resolution of design-related problems that result in, or contribute to, a failure to meet test acceptance criteria.

The plant manager approves proceeding from one test phase to the next during the ITP. Approvals are documented in an overall ITP governance document.

Administrative procedures detail the test documentation review and approval. Review and approval of test documentation includes the test engineer, testing supervisor, Startup Group manager, WEC site representative or appropriate vendor, and JTWG. Final approval is by the plant manager.

Plant readiness reviews are conducted to assure that the plant staff and equipment are ready to proceed to the next test phase or plateau.

14.2.3.2 Review of Test Results

STD COL 14.4-4 Add the following ~~text~~ Subsections at the end of DCD Subsection 14.2.3.2:

14.2.3.2.1 Review and Approval Responsibilities

Upon completion of a test, the startup engineer is responsible for:

- Reviewing the test data.
- Evaluating the test results.
- Verifying that the acceptance criteria are met.
- Verifying that the test results that do not meet acceptance criteria are entered into the corrective action program.
- Verifying that the results of retesting do not invalidate ITAAC acceptance criteria.

Test results are reviewed and approved by the JTWG. Review and approval of test results are kept current such that succeeding tests are not dependent on systems or components that have not been adequately tested. Test exceptions which do not meet acceptance criteria are identified to the affected and responsible design organizations and entered into the corrective action program. Implementation of corrective actions and retests are performed as required.

Prior to initial fuel load, the results of the preoperational test phase are comprehensively reviewed by the PT&O organization and the JTWG to verify the results indicate that the required plant structures, systems, and components are capable of supporting the initial fuel load and subsequent startup testing. The plant manager approves fuel loading.

Each area of startup testing is reviewed and evaluated by the PT&O organization and the JTWG. The test results at each power ascension testing power plateau are reviewed and evaluated by the PT&O organization and the JTWG and approved by the plant manager before proceeding to the next plateau. Startup test reports are prepared in accordance with the guidance in position C.1.a of Regulatory Guide 1.16, "Reporting of Operating Information -- Appendix A Technical Specifications."

The reactor vendor is responsible for reviewing and approving the results of the tests of supplied equipment. Architect Engineer representatives review and approve the results of the tests of supplied equipment. Other vendors' representatives review and approve the results of the tests of supplied equipment. Final approval of individual test completion is by the plant manager after approval by the Joint Test Working Group (JTWG).

14.2.3.2.2 Technical Evaluation

Each completed test package is reviewed by technically qualified personnel to confirm satisfactory demonstration of plant, system or component performance and compliance with design and license criteria.

14.2.3.3 Test Records

Add the following subsection at the end of DCD Subsection 14.2.3.3:

14.2.3.3.1 Startup Test Reports

Startup test reports are generated describing and summarizing the completion of tests performed during the ITP. A startup report is submitted per Regulatory Guide 1.16 at the earliest of:

1) 9 months following initial criticality,

2) 90 days after completion of the ITP, or

3) 90 days after start of commercial operations. If one report does not cover all three events, then supplemental reports are submitted every three months until all three events are completed. These reports:

- Address each ITP test described in the FSAR.

- Provide a general description of measured values of operating conditions or characteristics obtained from the ITP as compared to design or specification values.
- Describe any corrective actions that were required to achieve satisfactory operation.
- Include any other information required by license conditions.

14.2.6 USE OF PLANT OPERATING AND EMERGENCY PROCEDURES

STD COL 14.4-3 Add the following text and Subsection to the end of DCD Subsection 14.2.6:

These procedures are used extensively in the Human-Machine Interface Testing, which is integrated as a part of the Control Room Design finalization. Additionally, the AP1000 plant operating and emergency procedures are developed to support the following design finalization activities:

- Human Factors Engineering
- Operational Task Analysis
- Training Simulator Development
- Verification and Validation of the Procedures and the Training Material

The AP1000 emergency, abnormal and some normal operating procedures, along with some Alarm Response Procedures and surveillance procedures, are exercised and verified in the processes delineated above and in the Control Room design finalization process.

In addition, the AP1000 Preoperational Testing and Startup Test procedures are verified and validated during the design finalization process, which helps prevent human factors issues with the development of these procedures. In addition, the plant operators use the Normal Operating Procedures while preoperational and startup tests are performed, which adds to their validity and the plant operators training.

14.2.6.1 Operator Training and Participation during Certain Initial Tests (TMI Action Plan Item I.G.1, NUREG-0737)

The objective of operator participation is to increase the capability of shift crews to operate facilities in a safe and competent manner by assuring that training for plant changes and off-normal events is conducted.

Operators are trained on the specifics of the ITP schedule, administrative requirements and tests. Specific Just In Time training is conducted for selected startup tests.

The ITP may result in the discovery of an acceptable plant or system response that differs from the expected response. Test results are reviewed to identify these differences and the training for operators is changed to reflect them. Training is conducted as soon as is practicable in accordance with training procedures.

14.2.8 TEST PROGRAM SCHEDULE

Add the following text and subsection at the end of DCD Subsection 14.2.8:

STD SUP 14.2-1 A site-specific initial test program schedule will be provided to the NRC after issuance of the COL. This schedule will address each major phase of the test program (including tests that are required to be completed before fuel load), as well as the organizational impact of any overlap of first unit initial testing with initial testing of the second unit.

The sequential schedule for individual startup tests should establish that testing is completed in accordance with plant technical specification requirements for SSC operability before changing plant modes. Additionally, the schedule establishes that the safety of the plant is not dependent on the performance of untested SSCs. Guidance provided in Regulatory Guide 1.68 is used for development of the schedule.

The Startup Administrative Manual shall include the following controls:

- Test Procedure Development Schedule:
  - Controls to establish a schedule for the development of detailed testing, plant operating, and emergency procedures. These procedures, to the extent practical, are trial-tested and corrected during the initial test program prior to fuel loading in order to establish their adequacy.
  - Controls to confirm that approved test procedures are in a form suitable for review by NRC inspectors at least 60 days prior to their intended use, or at least 60 days prior to fuel loading for fuel loading and startup test procedures.
  - Controls to provide timely notification to the NRC of changes in approved test procedures previously available for NRC review.
- Initial Test Program Schedule:
  - Controls to establish a schedule to conduct the major phases of the initial test program, relative to the expected fuel loading date. This is covered in License Conditions in Part 10 of the COL Application.
  - Controls to allow at least 9 months for conducting preoperational testing.
  - Controls to allow at least 3 months for conducting startup testing, including fuel loading, low-power tests, and power-ascension tests.
  - Controls to overlap test program schedules (for multi-unit sites) such that they do not result in significant divisions of responsibilities or dilutions of the staff provided to implement the test program.

- Controls to sequence the schedule for individual startup tests, insofar as is practicable, such that testing is completed prior to exceeding 25 percent power for the plant Structure, Systems and Components (SSCs) that are relied upon to prevent, limit, or mitigate the consequences of postulated accidents. The schedule should establish that, insofar as is practicable, testing is accomplished as early in the test program as is feasible and that the safety of the plant is not dependent on the performance of untested SSCs.

The milestone schedule for developing plant operating procedures is presented in Table 13.4-201 and discussed in FSAR Subsection 13.5.2.1. The operating and emergency procedures are available prior to start of licensed operator training and, therefore, are available for use during the ITP. Required or desired procedure changes may be identified during their use. Administrative procedures describe the process for revising plant operating procedures.

14.2.9 PREOPERATIONAL TEST DESCRIPTIONS

Add the following subsection at the beginning of DCD Subsection 14.2.9

STD SUP 14.2-2 During preoperational testing, it may be necessary to return system control to Construction organization to repair or modify the system or to correct new problems. Administrative procedures 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/functionality/availability status, and to identify tests to be re-performed based on the impact of the work performed.
- Authorizing and tracking operability and unavailability determinations.
- Verifying retests stay in compliance with ITAAC.

14.2.10 STARTUP TEST PROCEDURES

Add the following at the beginning of DCD Subsection 14.2.10:

STD SUP 14.2-3 The startup testing program is based on increasing power in discrete steps. Major testing is performed at discrete power levels as described in DCD Subsection 14.2.7. The first tests during Power Ascension Testing that verify movements and expansion of equipment are in accordance with design, and are conducted at a power level as low as practical (approximately 5 percent).

The governing Power Ascension Test Plan requires the following operations to be performed at appropriate steps in the power-ascension test phase:

- Conduct any tests that are scheduled at the test condition or power plateau.
- Confirm core performance parameters (core power distribution) are within expectations.
- Determine reactor power by heat balance, calibrate nuclear instruments accordingly, and confirm the existence of adequate instrumentation overlap between the startup range and power range detectors.
- Reset high-flux trips just prior to ascending to the next level to a value no greater than 20 percent beyond the power of the next level unless Technical Specification limits are more restrictive.
- Perform general surveys of plant systems and equipment to confirm that they are operating within expected values.
- Check for unexpected radioactivity in process systems and effluents.
- Perform reactor coolant leak checks.
- Review the completed testing program at each plateau; perform preliminary evaluations, including extrapolation core performance parameters for the next power level; and obtain the required management approvals before ascending to the next power level or test condition.

Upon completion of a given test, a preliminary evaluation is performed that confirms acceptability for continued testing. Smaller transient changes are performed initially, gradually increasing to larger transient changes. Test results at lower powers are extrapolated to higher power levels to determine acceptability of performing the test at higher powers. This extrapolation is included in the analysis section of the lower power procedure.

Surveillance test procedures may be used to document portions of tests, and ITP tests or portions of tests may be used to satisfy Technical Specifications surveillance requirements in accordance with administrative procedures. At Startup Test Program completion, a plant capacity warranty test is performed to satisfy the contract warranty and to confirm safe and stable plant operation.

Delete the current FSAR addition of Subsection 14.2.11:

~~Add the following subsection after DCD Subsection 14.2.10:~~

~~14.2.11 REFERENCES~~

~~201. Westinghouse Electric Company (WEC), "AP1000 Conduct of Test Program," Document Number APP-GW-GLR-038, Revision 1, May 2007.~~

Add the following Subsections after DCD Subsection 14.2.10:

14.2.11 UTILIZATION OF OPERATING EXPERIENCE

STD SUP 14.2-4 Administrative procedures provide methodologies for evaluating and initiating action for operating experience information (OE). DCD Subsection 14.2.5 describes the general use of operating experience by WEC in the development of the test program.

14.2.11.1 Use of OE during Test Procedure Preparation

Administrative procedures require review of recent internal and external operating experience when preparing test procedures.

14.2.11.2 Sources and Types of Information Reviewed for ITP Development

Multiple sources of operating experience were reviewed to develop this description of the ITP administration program. These included INPO Reports, INPO Guidelines, INPO Significant Event Reports, INPO Significant Operating Experience Reports and NRC Regulatory Guide 1.68.

14.2.11.3 Conclusions from Review

The following conclusions are a result of the OE review conducted to develop this ITP administration program description:

- The test procedures should provide guidance as to the expected plant response and instructions concerning what conditions warrant aborting the test. Errors and problems with the procedures should be anticipated. A means for prompt but controlled approval of changes to test procedures is needed. Critical test procedures should provide specific criteria for test termination and specific steps to conduct termination is conducted in a safe and orderly manner. Providing procedural guidance for aborting the test could prevent delays in plant restoration. Conservative guidance for actions to be taken should be included in the procedures.
- Plant simulators may prove useful in preparing for special tests and verifying procedures.
- Appropriate component/system operability should be verified prior to critical tests.
- The need to perform physics tests that can produce severe power tilts should be evaluated, particularly if tests at other similar reactors have provided sufficient data to verify the adequacy of the nuclear physics analysis.
- Compensatory measures should be implemented in accordance with guidance for infrequently performed tests or evolutions, where appropriate.

14.2.11.4 Summary of Test Program Features Influenced by the Review

The conclusions from the preceding section were incorporated in Section 14.2.

14.2.11.5 Use of OE during Conduct of ITP

Administrative procedures require discussion of operating experience when performing pre-job briefs immediately prior to the conduct of a test.

14.2.12 WORK CONTROL

STD SUP 14.2-5 The Startup Group is responsible for preparing work requests when assistance is required from the Construction organization. Work requests are issued in accordance with a site-specific procedures governing the work management process. The plant staff, upon identifying a need for Construction organization assistance, coordinates their requirements through the appropriate Startup Test Engineer.

Activities requiring Construction organization work efforts are performed under the plant tagging procedures. Tagging requests are governed by a site-specific procedure for equipment clearance. Tagging procedures shall be used for protection of personnel and equipment and for jurisdictional or custodial conditions that have been turned over in accordance with the turnover procedure.

The Startup Group is responsible for supervising minor repairs and modifications, changing equipment settings, and disconnecting and reconnecting electrical terminations as stipulated in a specific test procedure. Startup Test Engineers may perform independent verification of changes made in accordance with approved test procedures.

14.2.13 SYSTEM TURNOVER

STD SUP 14.2-6 During the construction phase, systems, subsystems, and equipment are completed and turned over in an orderly and well-coordinated manner. Guidelines are established to define the boundary and interface between related system/subsystem and are used to generate boundary scope documents; for example, marked-up piping and instrument diagrams (P&IDs) and electrical schematic diagrams are provided for scheduling and subsequent development of component and system turnover packages. The system turnover process includes requirements for the following:

- Documenting inspections performed by the construction organization (e.g., highlighted drawings showing areas inspected).
- Documenting results of construction testing.
- Determining the construction-related inspections and tests that need to be completed before preoperational testing begins. Any open items are evaluated for acceptability of commencing preoperational testing.
- Developing and implementing plans for correcting adverse conditions and open items, and means for tracking such conditions and items.

- Verifying completeness of construction and documentation of incomplete items.

14.2.14 CONDUCT OF MODIFICATIONS DURING THE INITIAL TEST PROGRAM

STD SUP 14.2-7 Temporary alterations may be required to conduct certain tests. These alterations are documented in the test procedures. The test procedures contain restoration steps and retesting necessary to confirm satisfactory restoration to the required configuration. Modifications may be performed by the Construction organization or the plant staff processes prior to NRC issuance of the 10 CFR 52.1 03g finding. If the modification invalidates a previously completed ITAAC, then that ITAAC is re-performed. Each modification is reviewed to determine the scope of post-modification testing that is to be performed. Testing is conducted and documented to maintain the validity of preoperational testing and ITAAC. Alterations made following NRC issuance of the 10 CFR 52.103g finding are in accordance with plant processes and meet license conditions. Modifications that require changes to ITAAC require NRC approval of the ITAAC change.

14.2.15 CONDUCT OF MAINTENANCE DURING THE INITIAL TEST PROGRAM

STD SUP 14.2-8 Corrective or preventive maintenance activities are reviewed to determine the scope of post-maintenance testing to be performed. Prior to NRC issuance of the 10 CFR 52.1 03g finding, post-maintenance testing is conducted and documented to maintain validity of associated preoperational testing and ITAAC remain valid. Maintenance performed following NRC issuance of the 10 CFR 52.1 03g finding is in accordance with plant staff processes and meets license conditions.

14.4 COMBINED LICENSE APPLICANT RESPONSIBILITIES

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

14.4.1 ORGANIZATION AND STAFFING

STD COL 14.4-1 This COL Item is addressed in Section 14.2.

14.4.2 TEST SPECIFICATIONS AND PROCEDURES

STD COL 14.4-2 Preoperational and startup procedures are provided for the NRC in accordance with the requirements of DCD Subsection 14.2.3. The controls for development of test specifications and procedures are also described in Subsection 14.2.3.

A cross reference list is provided between ITAACs and test procedures and/or sections of test procedures.

14.4.3 CONDUCT OF TEST PROGRAM

STD COL 14.4-3 A site-specific startup administration manual (procedure), which contains the administration procedures and requirements that govern the activities associated with the plant initial test program, as described in FSAR Section 14.2 ~~identified in DCD Subsection 14.2.3 and as described in APP-GW-GLR-038 (DCD Reference 2),~~ is provided.

14.4.4 REVIEW AND EVALUATION OF TEST RESULTS

STD COL 14.4-4 Review and evaluation of individual test results, as well as final review of overall test results and selected milestones or hold points is addressed in Subsection 14.2.3.2. Test exceptions or results that do not meet acceptance criteria are identified to the affected and responsible design organizations, and corrective actions and retests, as required, are performed.

14.4.5 INTERFACE REQUIREMENTS

STD COL 14.4-5 This COL Item is addressed in Subsections 14.2.9.4.15, 14.2.9.4.22 through 14.2.9.4.27, 14.2.10.4.29, and in the Physical Security Plan.

14.4.6 FIRST-PLANT-ONLY AND THREE-PLANT-ONLY TESTS

STD COL 14.4-6 First-plant-only and first-three-plant-only tests either are performed in accordance with DCD Section 14.2.5 or a justification is provided that the results of the first-plant- only and first-three-plant-only tests are applicable to a subsequent plant. If the tests are not performed, the justification is provided prior to preoperational testing.