Eugene S. Grecheck
Vice President
Nuclear Development

Dominion Energy, Inc. • Dominion Generation
Innsbrook Technical Center
5000 Dominion Boulevard, Glen Allen, VA 23060
Phone: 804-273-2442, Fax: 804-273-3903
E-mail: Eugene.Grecheck@dom.com

Dominion®

July 14, 2008

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

Serial No. NA3-08-053R
Docket No. 52-017
COL/JPH

DOMINION VIRGINIA POWER
NORTH ANNA UNIT 3 COMBINED LICENSE APPLICATION
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION LETTER 006

On June 5, 2008, the NRC requested additional information to support the review of certain portions of the North Anna Unit 3 Combined License Application (COLA). The responses to the following RAIs are provided in Enclosures 1 through 5:

- RAI Question 06.02.01-1 Strainer Debris
- RAI Question 06.02.04-1 Pipe Length Acceptance Criteria
- RAI Question 10.03.06-1 FAC - Construction Phase
- RAI Question 10.03.06-2 FAC - Baseline Thickness
- RAI Question 14.02-1 Initial Plant Test - Switchyard Components

This information will be incorporated into a future submission of the North Anna Unit 3 COLA, as described in the enclosures.

Please contact Regina Borsh at (804) 273-2247 (regina.borsh@dom.com) if you have questions.

Very truly yours,

Eugene S. Grecheck

D079
NRO

Enclosures:

1. Response to RAI Letter 006, RAI Question 06.02.01-1
2. Response to RAI Letter 006, RAI Question 06.02.04-1
3. Response to RAI Letter 006, RAI Question 10.03.06-1
4. Response to RAI Letter 006, RAI Question 10.03.06-2
5. Response to RAI Letter 006, RAI Question 14.02-1

Commitments made by this letter:

1. Incorporate proposed changes in a future COLA submission.
2. Provide a response to RAI Question 06.02.01-1 within 30 days after GEH submits response to DCD RAI 6.2-173 S01.

COMMONWEALTH OF VIRGINIA

COUNTY OF HENRICO

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Eugene S. Grecheck, who is Vice President-Nuclear Development of Virginia Electric and Power Company (Dominion Virginia Power). He has affirmed before me that he is duly authorized to execute and file the foregoing document on behalf of the Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 14th day of July, 2008
My registration number is 7173057 and my
Commission expires: August 31, 2012

Notary Public

Notary Public
Commonwealth of Virginia
7173057
My Commission Expires Aug 31, 2012

cc: U. S. Nuclear Regulatory Commission, Region II
T. A. Kevern, NRC
J. T. Reece, NRC
J. J. Debiec, ODEC
G. A. Zinke, NuStart/Entergy
T. L. Williamson, Entergy
R. Kingston, GEH
K. Ainger, Exelon
P. Smith, DTE

ENCLOSURE 1

Response to NRC RAI Letter 006

RAI Question 6.02.01-1

NRC RAI 6.02.01-1

FSAR Chapter 6 STD SUP 6.2-1, Inspection to Limit Debris, identifies procedures of activities necessary to prevent debris affecting the emergency core cooling and long-term cooling safety functions in accordance with Regulatory Guide 1.82, Revision 3. The discussion does not include procedures to control the effects of permanent plant changes inside the containment and maintenance activities on the assumptions used in designing debris strainers and conclusions. Please "fully describe" the procedures related to debris strainers.

Note that the Commission defined "fully described in a May 14, 2004, SRM for SECY-04-0032, "Programmatic Information Needed for Approval of a Combined License Application Without Inspections, Tests, Analyses, and Acceptance Criteria." In addition, the Revised Content Guide for Generic Letter 2004-02: Supplemental Responses, dated November 2007 (ADAMS Accession No. ML073110278) provides guidance to pressurized water reactor licensees on programmatic controls that will ensure that potential sources of debris introduced into containment (e.g., insulations, signs, coatings, and foreign materials) will be assessed for potential adverse effects on the emergency core cooling system and containment spray system recirculation functions. While this document is strictly applicable to PWRs, the principles underlying the items quoted apply to BWRs attempting to address the guidance in RG 1.82, Revision 3.

Please provide the following:

- *A summary of the containment housekeeping programmatic controls that will be in place to control or reduce the latent debris burden. Specifically, provide a description of programmatic controls that will be used to maintain the latent debris source term to ensure assumptions used in designing debris strainers and conclusions remain valid.*
- *A summary of the foreign material exclusion programmatic controls that will be in place to control the introduction of foreign material into the containment.*
- *A description of how permanent plant changes inside containment are programmatically controlled so as to not change the analytical assumptions and numerical inputs of the analyses performed for designing debris strainers.*
- *A description of how maintenance activities including associated temporary changes are assessed and managed.*

Dominion Response

The response to this RAI relates to, and relies upon, the response to ESBWR DCD RAI 6.2-173 S01, which is currently being developed by General Electric-Hitachi (GEH).

By letter dated July 7, 2008 (MFN 08-566), GEH informed NRC that it was committed to respond to DCD RAI 6.2-173 SO1 by August 18, 2008. Accordingly, Dominion will provide a response to COLA RAI 6.02.01-1 within 30 days after GEH submits the response to DCD RAI 6.2-173 SO1.

Proposed COLA Revision

None.

ENCLOSURE 2

Response to NRC RAI Letter 006

RAI Question 6.02.04-1

NRC RAI 6.02.04-1

In Section 6.2.8, the applicant identified that its response to COL Item No. 6.2-1-H, as discussed in Section 6.2.8 of the ESBWR DCD, is provided in Section 6.2.4.2. The applicant identified in Section 6.2.4.2 that the required information on pipe length between containment and the containment isolation valves will be provided in an update to the FSAR. In addition, the applicant identified the information on pipe lengths will be determined as part of the completion of the piping design ITAAC identified in DCD Tier 1, Table 3.1-1. Because the piping design is not yet complete and the applicant proposed providing the necessary information in an update to the FSAR, the staff presumes that the applicant intends on providing this information following issuance of the combined license when the piping design is completed. The staff is unable to make its finding with respect to compliance with GDCs 55, 56, and 57 for this COL application without this information. Therefore, the staff requests that the COL applicant propose an alternative and timelier approach to providing the pipe length information to demonstrate compliance with GDCs 55, 56, and 57.

Dominion Response

Dominion will comply with GDCs 55, 56, and 57 by implementing the ESBWR standard plant design for the North Anna Unit 3 piping. The piping design is the responsibility of General Electric-Hitachi (GEH). GEH has established the following design requirements and administrative controls to assure compliance with the subject GDCs:

- DCD, Revision 5, Section 6.2.4.3 discusses how the containment isolation function meets the requirements in GDCs 55, 56, and 57. This section of the DCD is incorporated by reference into the North Anna Unit 3 FSAR.

- DCD, Revision 5, COL Item 6.2-1-H requires the COL Holder to provide the pipe lengths between the containment and containment isolation valves after COL issuance, when GEH completes the piping design. Dominion has committed to update FSAR Tables 6.2-15 through 6.2-45 with these pipe lengths once the detailed design is complete and the pipe lengths are known. This commitment is consistent with the requirement of the DCD.

- DCD, Revision 5, Tier 1, Table 2.15.1-2 requires the COL Holder to complete Design Acceptance Criteria (DAC) and Inspections, Test, Analysis, Acceptance Criteria (ITAAC) for piping design. Specifically, DAC/ITAAC item 2.a.iii, requires that the piping identified in DCD Tier 1, Table 2.15.1-1 as ASME Code Section III be designed in accordance with ASME Code Section III requirements and seismic Category I requirements. This information on pipe lengths will be completed as part of this detailed piping design.

- The distance from the containment to each containment isolation valve is one of the detailed piping design parameters that will be determined during the detailed piping routing. GEH will determine the distance from the containment to the containment isolation valves using design guidance contained in GEH procedures. This guidance states:

The containment isolation valves shall be located as close to containment as practical. Sufficient space shall be provided between valves and containment boundary to permit the following:

- Inservice inspection of non-isolable welds
- Appendix J of 10CFR50 leak testing
- Cutout and replacement of isolation valves using standard pipe fitting tools and equipment
- Local control
- Valve seat resurfacing in place

The design requirements and guidance described above have been established by GEH to ensure that containment isolation valves will meet GDCs 55, 56, and 57, and will be located as close to the containment as practical.

Proposed COLA Revision

None.

ENCLOSURE 3

Response to NRC RAI Letter 006

RAI Question 10.03.06-1

NRC RAI 10.03.06-1

FSAR Section 6.6, Preservice and Inservice Inspection and Testing of Class 2 and 3 Components and Piping, identifies that this section is incorporated by reference from the ESBWR DCD. For the detailed flow-accelerated corrosion (FAC) program described under "Erosion-Corrosion" in Section 6.6.7, Augmented Inservice Inspections, please discuss the implementation schedule. To ensure that the FAC concerns addressed in NRC Generic Letter 89-08 are addressed, please include discussion of the activities of the FAC program that will be conducted during the construction phase and the schedule for those activities.

Dominion Response

The flow-accelerated corrosion (FAC) program is part of the Inservice Inspection (ISI) program. The ISI program is one of the programs listed in Table 13.4-201, Operational Programs Required by NRC Regulations. Implementation schedule information for the operational programs listed in Table 13.4-201, including the FAC program, will be provided to the NRC in accordance with NRC Regulatory Guide 1.206, Section C.IV.4.3, "Implementation of Operational Programs."

With respect to activities of the FAC program conducted during the construction phase, the description in FSAR Section 6.6 will be revised to state that prior to start-up, a comprehensive FAC-susceptibility screening will be performed to identify any plant systems that may be susceptible to FAC degradation. Additionally, the program description will state that pre-service baseline non-destructive examination (NDE) inspections will be performed and material constituents identified for each as-fabricated piping component in the susceptible systems. This will address the concerns in NRC Generic Letter 89-08 regarding the FAC program during the construction phase.

Proposed COLA Revision

FSAR Section 6.6 will be revised to include a discussion of the FAC program as described above. See the response to RAI 10.03.06-2 for the FSAR markup.

Table 13.4-201 will be revised to clarify that the ISI program includes the FAC program, as indicated in the attached markup.

Markup of North Anna COLA

The attached markup represents Dominion's good faith effort to show how the COLA will be revised in a future COLA submittal in response to the subject RAI. However, the same COLA content may be impacted by revisions to the ESBWR DCD, responses to other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be somewhat different than as presented herein.

STD COL 13.4-1-A
STD COL 13.4-2-A

Table 13.4-201 Operational Programs Required by NRC Regulations

Item	Program Title	Program Source (Required by)	Section	Implementation	
				Milestone	Requirement
1.	Inservice Inspection Program	10 CFR 50.55a(g) 10 CFR 50.55a(b)(3)(v)	5.2.4 6.6 3.8.1.7.3 3.9.3.7.1(3)e	Prior to commercial service [a]	10 CFR 50.55a(g) ASME XI IWA 2430(b) (Reference 13.4-201)
	Flow-Accelerated Corrosion Program	10 CFR 50.55a(g)(6)(ii)	6.6.7	Prior to commercial service	License Condition
2.	Inservice Testing Program	10 CFR 50.55a(f) 10 CFR 50.55a(g) 10 CFR 50.55a(b)(3)(v)	3.9.6 3.9.3.7.1(3)e	After generator online on nuclear heat [a]	10 CFR 50.55a(f) 10 CFR 50.55a(g) ASME OM Code (Reference 13.4-202)
3.	Environmental Qualification Program	10 CFR 50.49(a)	3.11	Prior to fuel load	License Condition
4a.	Preservice Inspection Program - Except Snubber Thermal Movement	10 CFR 50.55a(g) 10 CFR 50.55a(b)(3)(v)	5.2.4 6.6 3.8.1.7.3 3.9.3.7.1(3)e	Completion prior to initial plant startup	10 CFR 50.55a(g) ASME Code Section XI IWB/IWC/IWD/IWF-2200(a) (Reference 13.4-201)
4b.	Preservice Inspection Program - Snubber Thermal Movement	10 CFR 50.55a(g) 10 CFR 50.55a(b)(3)(v)	3.9.3.7.1(3)e	During initial heatup and cooldown	10 CFR 50.55a(g) ASME OM Code, ISTD (Reference 13.4-202)
5.	Reactor Vessel Material Surveillance Program	10 CFR 50.60 10 CFR 50, Appendix H	5.3.1	Prior to fuel load	License Condition
6.	Preservice Testing Program	10 CFR 50.55a(f) 10 CFR 50.55a(b)(3)(v)	3.9.6 3.9.3.7.1(3)e	Prior to fuel load	License Condition

NA3-08-024 (05/14/08)
STD-08-053 (06/25/08)

NA3 RAI 10.03.06-1
STD-08-052
(Draft 07/10/08)

NA3-08-024 (05/14/08)
STD-08-053 (06/25/08)

NA3-08-024 (05/14/08)
STD-08-053 (06/25/08)

NA3-08-024 (05/14/08)
STD-08-053 (06/25/08)

NA3-08-024 (05/14/08)
STD-08-053 (06/25/08)

ENCLOSURE 4

Response to NRC RAI Letter 006

RAI Question 10.03.06-2

NRC RAI 10.03.06-2

To ensure that an effective, long-term FAC monitoring program is in place to address the concerns discussed in NRC Generic Letter 89-08, please confirm: (1) the program for erosion/corrosion and FAC monitoring will include preservice thickness measurements of as-built components considered susceptible to FAC, and (2) these measurements will use grid locations and measurement methods most likely to be used for inservice inspection according to industry guidelines. In addition, please describe how these concerns are addressed. Note that due to factors such as variances in wall thickness during pipe fabrication and wall thinning due to bending, preservice measurements of the components are needed to accurately detect and assess inservice degradation. Complications resulting from a lack of baseline thickness information are discussed in EPRI NSAC-202L-R2, the industry guideline document referenced in SRP Section 10.3.6.

Dominion Response

In DCD, Revision 5, COL Item 6.6-1-A was revised to include a requirement for the COL applicant to include a description of the augmented inspection program and a milestone for program implementation. In response to this revised COL Item, Dominion developed a FAC program description based on EPRI NSAC-202L, Revision 2. The program description states that prior to start-up, a comprehensive FAC-susceptibility screening will be performed to identify any plant systems that may be susceptible to FAC degradation. The program description further states that pre-service baseline non-destructive examination (NDE) inspections will be performed and material constituency identified for each as-fabricated piping component in the susceptible systems.

With respect to inspection techniques, the program description states that:

- Wall thickness measurements establish the extent of wear in a given component, provide data to help evaluate trends, and provide data to refine the predictive model.
- Components are inspected for wear using ultrasonic techniques (UT), radiography techniques (RT), or by visual observation.
- The initial inspections are used as a baseline for later inspections. Therefore, the initial inspections use grid locations and measurement methods most likely to be used for inservice inspections according to industry guidelines.
- Each subsequent inspection determines the wear rate for the piping and components and the need for inspection frequency adjustment for those components.

These program elements follow the guidance in EPRI NSAC-202L, Revision 2, and address the above concerns that are discussed in NRC Generic Letter 89-08.

Proposed COLA Revision

FSAR Section 6.6 will be revised to include a FAC program description as indicated in the attached markup.

Markup of North Anna COLA

The attached markup represents Dominion's good faith effort to show how the COLA will be revised in a future COLA submittal in response to the subject RAI. However, the same COLA content may be impacted by revisions to the ESBWR DCD, responses to other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be somewhat different than as presented herein.

6.5 Atmosphere Cleanup Systems

This section of the referenced DCD is incorporated by reference with no departures or supplements.

6.6 Preservice and Inservice Inspection and Testing of Class 2 and 3 Components and Piping

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

STD COL 6.6-2-A

Delete the second sentence in the third paragraph.

Replace the last three sentences and the parenthetical statement of the fourth paragraph with the following.

STD COL 6.6-1-A

The PSI/ISI program description for Class 2 and 3 components and piping is provided in DCD Section 6.6.

6.6.2 Accessibility

Replace the last sentence in the second paragraph with the following.

STD COL 6.6-2-A

All Class 2 or 3 austenitic or dissimilar metal welds are included in the referenced certified design.

During the construction phase of the project, anomalies and construction issues are addressed using change control procedures. Procedures require that changes to approved design documents, including field changes and modifications, are subject to the same review and approval process as the original design.

Accessibility and inspectability are key components of the design process. Control of accessibility for inspectability and testing during licensee design activities affecting Class 2 and 3 components is provided via procedures for design control and plant modifications.

6.6.7 Augmented Inservice Inspections

STD COL 6.6-1-A

6.6.7.1 Flow Accelerated Corrosion Program Description

The flow accelerated corrosion (FAC) monitoring program analyzes, inspects, monitors, and trends nuclear power plant piping and components that are susceptible to FAC damage. The FAC program is based on EPRI NSAC-202L (Reference 6.6-201).

Prior to start-up, a comprehensive FAC-susceptibility screening will be performed to identify any plant systems that may be susceptible to FAC degradation. Should any plant systems remain susceptible, a FAC program will be implemented as described below. Program implementation milestones are provided in Section 13.4. Pre-service baseline nondestructive examination (NDE) inspections will be performed and material constituency identified for each as-fabricated piping component in the susceptible systems.

6.6.7.1.1 **Analysis**

A program similar to that described in EPRI NSAC-202L is used to identify the most susceptible components and to evaluate the rate of wall thinning for components and piping potentially susceptible to FAC. Each susceptible component is tracked in a database and is inspected, based on susceptibility. For each piping component, the program predicts the wear, and the estimated time until it must be re-inspected, repaired, or replaced.

6.6.7.1.2 **Industry Experience**

Industry experience provides a valuable supplement to plant analysis and associated inspections. Reviews of industry experience are performed to identify generic plant problem areas and determine differences in similar types of components. This information is used to update the FAC program.

6.6.7.1.3 **Inspections**

Wall thickness measurements establish the extent of wear in a given component, provide data to help evaluate trends, and provide data to refine the predictive model. Components are inspected for wear using ultrasonic techniques (UT), radiography techniques (RT), or by visual observation. The initial inspections are used as a baseline for later inspections. Therefore, the initial inspections use grid locations and measurement methods most likely to be used for inservice inspections according to industry guidelines. Each subsequent inspection determines the wear rate for the piping and components and the need for inspection frequency adjustment for those components.

6.6.7.1.4 **Training and Engineering Judgement**

The FAC program is administered by trained and experienced personnel. Task-specific training is provided for plant personnel that implement the

ENCLOSURE 5

Response to NRC RAI Letter 006

RAI Question 14.02-1

NRC RAI 14.02-1

SRP Section: 14.02 - Initial Plant Test Program - Design Certification and New License Applicants FSAR Section 14.2.9.1.4 states that "Performance is observed and recorded during a series of individual component and integrated system tests to demonstrate the following: (1) Proper operation of initiating, transfer, and trip devices (2) Proper operation of relaying and logic (3) Proper operation of equipment protective devices, including permissive and prohibit interlocks (4) Proper operation of instrumentation and alarms used to monitor system and equipment status (5) Proper operation and load carrying capability of breakers, switchgear, transformers, and cables (6) The capability of transfer between onsite and offsite power sources as per design." Please address the following additional items or provide justification for exclusion: (a) Availability of alternating current (ac) and direct current (dc) power to the switchyard equipment is verified (b) Design limits of switchyard voltages and stability are verified and Switchyard Interface Agreement and Protocols are verified (c) Operation of current transformers and potential transformers is verified (d) Operation of high voltage disconnect switches and ground switches is verified and (e) Proper operation of the automatic transfer capability of normal preferred power source to the alternate preferred power source is verified.

Dominion Response

Dominion has reviewed the requirements of Regulatory Guide 1.68, Initial Test Programs for Water-Cooled Nuclear Power Plants, and has determined that the requested additional items do not fall within the description of preoperational testing. Specifically, availability of alternating current (ac) and direct current (dc) power sources to switchyard equipment, operation of current transformers and potential transformers, and operation of high voltage disconnect switches and ground switches are considered to be construction, or construction tests and inspections. RG 1.68, Appendix A, Section 1, Preoperational Testing states that preoperational tests should not proceed until construction has been completed and designated construction tests and inspections have been completed.

Switchyard voltages and switchyard stability are separately discussed in Section 8.2.2.1 of the FSAR. Switchyard Interface Agreements and Protocols are also discussed in Section 8.2.2.1. Neither of these meets the description of electrical systems tests given in Appendix A, Section 1, Part g of RG 1.68.

The need to demonstrate proper operation of the automatic transfer capability of the normal preferred power source to the alternate preferred power source is a plant level test and is not currently described in the Design Control Document (DCD). The FSAR will be revised to add this test under Section 14.2.8.1.36, AC Power Distribution System Preoperational Test.

Separately, during the review of this RAI, Dominion determined that Section 14.2.9.1.4 of the FSAR, Electrical Switchyard System Preoperational Test, is not required under RG 1.68. The electrical systems section of RG 1.68 discusses testing for the Normal AC Power Distribution System, the Emergency AC Power Distribution System, the Emergency or Standby AC Power Supplies, and the DC System. According to RG 1.68,

these tests demonstrate that plant electrical systems will operate in accordance with design. Although electrical power is normally provided to the plant by the switchyard, the preoperational tests described in RG 1.68 are not intended to demonstrate the adequacy of the switchyard design. Normal post construction checkout and testing by Dominion is sufficient to verify that the switchyard will function correctly.

An electrical preoperational test program as described in Sections 14.2.8.1.35, 14.2.8.1.36, and 14.2.8.1.37 of the DCD is adequate to meet the requirements given in RG 1.68, Appendix A, Section 1, Part g for demonstrating that electrical systems meet design requirements.

Using the guidance in RG 1.68, Dominion has evaluated the need for a specific preoperational test program for the electrical switchyard as suggested in DCD Section 14.2.9 and determined that preoperational testing for the switchyard is not required.

Proposed COLA Revision

FSAR Section 14.2.8.1.36, AC Power Distribution System Preoperational Test, will be added with a requirement to perform a test demonstrating the capability to transfer power from the normal preferred power supply to the alternate preferred power supply.

FSAR Section 14.2.9.1.4 will be deleted.

See the attached FSAR markups.

Markup of North Anna COLA

The attached markup represents Dominion's good faith effort to show how the COLA will be revised in a future COLA submittal in response to the subject RAI. However, the same COLA content may be impacted by revisions to the ESBWR DCD, responses to other COLA RAIs, other COLA changes, plant design changes, editorial or typographical corrections, etc. As a result, the final COLA content that appears in a future submittal may be somewhat different than as presented herein.

14.2.7 **Test Program Schedule and Sequence**

Replace the last paragraph with the following.

STD COL 14.2-3-H

The detailed testing schedule will be developed and made available for review prior to actual implementation. The schedule may be updated and continually optimized to reflect actual progress and subsequent revised projections.

The implementation milestones for the Initial Test Program are provided in Section 13.4.

14.2.8.1.36 **AC Power Distribution System Preoperational Test General Test Methods and Acceptance Criteria**

Add the following at the end of this section.

STD-SUP-14.2-4

- Proper operation of the automatic transfer capability of the normal preferred power source to the alternate preferred power source.

14.2.9 **Site-Specific Preoperational and Startup Tests**

Replace the second and third paragraphs with the following.

NAPS COL 14.2-4-H

This section describes the site specific pre-operational and initial startup tests not addressed in DCD Section 14.2.8.

Specific testing to be performed and the applicable acceptance criteria for each preoperational and startup test are documented in test procedures to be made available to the NRC approximately 60 days prior to their intended use for preoperational tests, and not less than 60 days prior to scheduled fuel load for initial startup tests. Site-specific preoperational tests are in accordance with the system specifications and associated equipment specifications for equipment in those systems provided by the licensee that are not part of the standard plant described in DCD Section 14.2.8. The tests demonstrate that the installed equipment and systems perform within the limits of these specifications.

14.2.9.1.3 Personnel Monitors and Radiation Survey Instruments Preoperational Test

Purpose

To verify the ability of the personnel monitors and radiation survey equipment to indicate and alarm normal and abnormal radiation levels.

Prerequisites

The construction tests have been successfully completed and the SCG has reviewed the test procedure and approved the initiation of testing. High radiation alarm setpoints have been properly established based on sensor location, background radiation level, expected radiation level and low occupation dose prior to the test. Indicator, power supplies, and sensor/converters have been calibrated according to vendor instructions.

General Test Methods and Acceptance Criteria

Operation is observed and recorded during a series of individual component and integrated subsystem tests to demonstrate the following:

- Proper functioning of indicators, annunciators, and audible alarms
- Proper alarm at correct prescribed setpoints in response to high radiation and downscale/inoperative conditions
- Proper functioning and operation of the self-test feature for gross failure and loss of power detection

~~14.2.9.1.4 Electrical Switchyard System Preoperational Test~~

~~**Purpose**~~

~~To verify the ability of the Electrical Switchyard system to provide a means for supplying AC power to plant onsite systems from the offsite sources.~~

~~**Prerequisites**~~

~~The construction tests have been successfully completed and the SCG has reviewed the test procedure and approved the initiation of testing. All the necessary permanently installed and test instrumentation have been calibrated and are operational. All interfacing systems and equipment required to support system operation are available, as needed, for the specified testing configurations.~~

~~**General Test Methods and Acceptance Criteria**~~

~~The capability of the Electrical Switchyard system to provide power to plant loads under various plant operating conditions and via normal and~~

~~alternate paths will be demonstrated. Performance is observed and recorded during a series of individual component and integrated system tests to demonstrate the following:~~

- ~~Proper operation of initiating, transfer, and trip devices~~
- ~~Proper operation of relaying and logic~~
- ~~Proper operation of equipment protective devices, including permissive and prohibit interlocks~~
- ~~Proper operation of instrumentation and alarms used to monitor system and equipment status~~
- ~~Proper operation and load carrying capability of breakers, switchgear, transformers, and cables~~
- ~~The capability to transfer between onsite and offsite power sources as per design~~

14.2.9.2 **Site-Specific Startup Tests**

Replace this section with the following.

NAPS SUP 14.2-2

14.2.9.2.1 **Cooling Tower Performance Test**

Purpose

The objective of this test is to demonstrate acceptable performance of the waste heat rejection portion of the CIRC (i.e., the dry cooling array and the hybrid cooling tower and basin), particularly its ability to cool design quantities of circulating water to design temperature under expected operational load conditions.

Prerequisites

The preoperational tests are complete and plant management has reviewed the test procedure and approved the initiation of testing. The plant is in the appropriate operational configuration for the scheduled testing. The necessary instrumentation is checked or calibrated.

Description

Power ascension phase testing of the waste heat rejection portions of the CIRC is necessary to the extent that fully loaded conditions could not be approached during the preoperational phase. Pertinent parameters are monitored in order to provide a verification of proper system flow balancing and performance of both the dry cooling array and hybrid-cooling tower.