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10 CFR 50.90

RA-08-011

January 23, 2008

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Oyster Creek Nuclear Generating Station
Facility Operating License No. DPR-16
NRC Docket No. 50-219

Subject: Response to Request for Additional Information - Exelon/AmerGen Application to Revise Technical Specifications Regarding Control Room Envelope Habitability in Accordance with TSTF-448, Revision 3, Using the Consolidated Line Item Improvement Process

Reference: Exelon/AmerGen Letter to USNRC, "Exelon/AmerGen Application to Revise Technical Specifications Regarding Control Room Envelope Habitability in Accordance with TSTF-448, Revision 3, Using the Consolidated Line Item Improvement Process," dated April 12, 2007

This letter provides additional information in response to an NRC request for additional information (RAI) received via NRC email, dated October 25, 2007, regarding Oyster Creek Nuclear Generating Station (Oyster Creek) Technical Specification (TS) Change Request implementing TSTF-448, Revision 3, "Control Room Habitability," submitted to the NRC for review on April 12, 2007 (Reference 1). The additional information is provided in Enclosure 1. Enclosure 2 provides the revised proposed TS page markups for Oyster Creek, as described in the Oyster Creek RAI responses provided in Enclosure 1. Enclosure 2 provides a complete replacement set of the proposed Oyster Creek TS pages previously submitted in Reference 1.

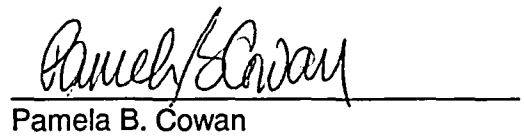
AmerGen Energy Company, LLC has reviewed the information supporting a finding of no significant hazards consideration that was previously provided to the NRC in Reference 1. The additional information provided in this submittal does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration.

No new regulatory commitments are established by this submittal. If any additional information is needed, please contact Mr. David J. Distel at (610) 765-5517.

A102
NRR

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 23rd day of January, 2008.

Sincerely,



Pamela B. Cowan
Director – Licensing and Regulatory Affairs
AmerGen Energy Company, LLC

Enclosures: 1) Response to Request for Additional Information
2) Oyster Creek Revised Proposed TS Page Markups

cc: S. J. Collins, USNRC Administrator, Region I
M. S. Ferdas, USNRC Senior Resident Inspector, Oyster Creek
C. Gratton, USNRC Senior Project Manager
G. E. Miller, USNRC Project Manager, Oyster Creek
P. Baldauf, Assistant Director, New Jersey Bureau of Nuclear Engineering
Mayor of Lacey Township, Forked River, NJ
J. H. Riley - NEI

ENCLOSURE 1

Oyster Creek Nuclear Generating Station

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
TECHNICAL SPECIFICATION CHANGE REQUESTS TO IMPLEMENT
TSTF-448, REVISION 3, "CONTROL ROOM HABITABILITY"**

ENCLOSURE 1

OYSTER CREEK NUCLEAR GENERATING STATION

**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
TECHNICAL SPECIFICATION CHANGE REQUESTS TO IMPLEMENT
TSTF-448, REVISION 3, "CONTROL ROOM HABITABILITY"**

The April 12, 2007, LAR identifies TSTF-448 exceptions as being:

1. Model Safety Evaluation (SE) Section 2.2 describes the design of the Control Room Envelope (CRE) Emergency Ventilation System. The Oyster Creek Control Room Ventilation System design does not include high-efficiency particulate air (HEPA) or charcoal filters.

2. Model SE Sections 2.2, 2.4, and 3.4 discuss unfiltered air inleakage to the CRE. The Oyster Creek CRE boundary operability is not dependent on a measured unfiltered air inleakage value (See ADAMS Accession No. ML053220138), and therefore, the proposed technical specification (TS) change does not include a requirement for periodic surveillance testing for unfiltered inleakage. This is consistent with the current licensing basis, which demonstrates that for the supply of 100 percent outside unfiltered air to the CRE, radiation exposure to personnel occupying the control room is limited to less than a 30-day integrated gamma dose of 5 roentgen equivalent man (rem), and a 30-day integrated beta dose of 30 rem, and reflects the Oyster Creek plant specific design. Alternative source term application analyses currently under NRC review, demonstrate that for the same condition, radiation exposure to personnel occupying the control room is limited to less than 5 rem total effective dose equivalent (TEDE) for the duration of the accident. Applicable CRE operability and assessment requirements are implemented in the proposed TS change.

Given the above, the NRC staff requests the following information:

1. **NRC Question**

Your proposed Specification 3.17 D.1. reads:

> During Power Operation: actions to implement mitigating actions shall be performed immediately, verification that the mitigating actions are in place shall be performed within 24 hours, and the CRE boundary shall be restored to operable status within 90 days.

In TSTF-448, actions under Limited Condition for Operation (LCO) 3.7.4.C, the CONDITION, REQUIRED ACTION, and COMPLETION TIME require that the reactor be placed in Mode 3 within 12 hours, and Mode 4 within 24 hours, of not completing restoration of the CRE within the 90 days.

Confirm that by not specifying what happens if restoration is not completed within 90 days, your Custom TS 3.0 A. applies, with the requirement to place the reactor in cold shutdown within 30 hours.

Response

If the Oyster Creek CRE boundary cannot be restored within 90 days, as specified in proposed TS 3.17.D.1, then Oyster Creek TS 3.0.A would apply and would require the unit to be placed in COLD SHUTDOWN within the following 30 hours unless corrective measures are completed as further specified in TS 3.0.A.

2. **NRC Question**

Your proposed Specification 3.17 D.2. reads:

> During Refueling:
>
> (a) Immediately suspend movement of irradiated fuel assemblies in the containment; and
> (b) Immediately initiate action to suspend operations with the potential to drain the reactor vessel.

TSTF-448 has the Condition and Required Action F for LCO 3.7.4, which reads: "...during movement of irradiated fuel assemblies in the containment or during [operations with a potential for draining the reactor vessel] OPDRVs... Suspend movement of irradiated fuel assemblies in the containment AND initiate action to suspend OPDRVs."

If irradiated fuel assemblies could be moved in containment or OPDRV could be performed at Oyster Creek other than while in Refueling, explain why the deviation from the TSTF-448 suggested wording would be acceptable.

Response

Proposed TS 3.17.D.2 is revised to be consistent with TSTF-448 Condition and Required Action F for LCO 3.7.4.

3. **NRC Question**

Your proposed Specification 6.22 c. reads:

> "Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 of Regulatory Guide [RG] 1.197, 'Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors,' Revision 0, May 2003, and (ii) assessing CRE habitability at the frequencies specified in Sections C.1 of Regulatory Guide 1.197, Revision 0.
>
> The following are exceptions to Sections C.1 of RG 1.197, Revision 0:
>
> The Oyster Creek CRE boundary operability is not dependent on a measured unfiltered air inleakage..."

TSTF-448 has the suggested wording for TS 5.5.15 read:

> Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of RG 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of RG 1.197, Revision 0.
>
> [The following are exceptions to Sections C.1 and C.2 of RG 1.197, Revision 0:
>
> 1. ; and]

Explain why the deviation from the TSTF-448 suggested wording to omit the "...and C.2..." is acceptable (3 places).

Explain what the periodicity will be for your Self-Assessment given that Regulatory Guide 1.197, Figure 1, "Periodic Testing and Assessment Schedule," shows it as being 3 years after the last successful tracer gas test, and that your TS will not require periodic tracer gas tests.

Explain why the optional wording regarding exceptions is either not proposed as a singular or the exception list started with a "1." to avoid any misinterpretation as to "d.," "e.," and "f.," also being exceptions.

Response

Proposed TS 6.22.c is revised to add reference to Section "C.2" of R.G. 1.197, as noted.

After the initial assessment performed in accordance with proposed License Condition 8.(b), the periodicity of subsequent self-assessments will be every 6 years, consistent with R.G. 1.197, Figure 1.

The proposed TS 6.22.c exception list is revised to start with a "1.", as noted.

4. **NRC Question**

Your proposed TS 6.22 d. reads:

> Measurement, at designated locations, of the CRE pressure relative to areas adjacent to the CRE boundary during the pressurization mode of operation by one subsystem (train) of the Control Room Ventilation System operating at the design flow rate, at a Frequency of 24 months.

TSTF-448 has the suggested wording for 5.5.15 read:

> Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by one subsystem of the [ ] System, operating at the flow rate

required by the [ventilation filter testing program] VFTP, at a Frequency of [ ] months on a STAGGERED TEST BASIS.

Explain why the deviation from the TSTF-448 suggested wording, for performance on a staggered test basis, would be acceptable.

Response

The Oyster Creek CRE boundary differential pressure test, required by the proposed TS 6.22.d, will be performed as part of the Control Room Heating, Ventilating, and Air Conditioning (CRHVAC) System surveillance specified in Oyster Creek TS 4.17.B, every refueling outage (24 months). This existing TS surveillance currently tests the ability of each train of the CRHVAC System to maintain a positive control room air pressure each refueling outage. Once the test equipment is setup, each train of the ventilation system is tested individually. This testing only requires swap over from the "A" train to the "B" train of the CRHVAC System. The CRE boundary differential pressure test for each CRHVAC train will be performed as part of the same test plan. This approach is more conservative than the TSTF-448 requirement since both trains of the Oyster Creek CRHVAC System will be required to demonstrate adequate CRE pressure relative to external areas every 24 months, whereas the TSTF-448 would test a single ventilation system train every 24 months with both trains being tested every 48 months in accordance with the Standard Technical Specifications (NUREG-1433) definition of STAGGERED TEST BASIS.

5. **NRC Question**

TS 3.17 reads, "Objective: To assure the capability of the control room [heating, ventilation, and air conditioning] HVAC system to minimize the amount of radioactivity from entering the control room in the event of an accident."

Explain why this statement of objective is not being expanded to address the CRE and protection from hazardous airborne chemicals and smoke.

Response

TS 3.17, Objective, is revised to address the CRE boundary and to include the capability to minimize hazardous chemicals, or smoke.

ENCLOSURE 2

TECHNICAL SPECIFICATION PAGES (Mark-ups)

Oyster Creek Generating Station

Facility Operating License

Page 4

Technical Specification
Pages

3.17-1
3.17-2
3.17-3
6-21
6-22

The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

(4) AmerGen Energy Company, LLC, shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822), and the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans[1], which contain Safeguards Information protected under 10 CFR 73.21, is entitled: "Oyster Creek Nuclear Generating Station Security Plan, Training and Qualification Plan, and Safeguards Contingency Plan, Revision 0," submitted by letter dated October 21, 2004.

(5) Inspections of core spray spargers, piping and associated components will be performed in accordance with BWRVIP-18, "BWR Core Spray Internals Inspection and Flaw Evaluation Guidelines," as approved by NRC staff's Final Safety Evaluation Report dated December 2, 1999.

(6) Long Range Planning Program - Deleted

(7) Reactor Vessel Integrated Surveillance Program

AmerGen Energy Company, LLC, is authorized to revise the Updated Final Safety Analysis Report (UFSAR) to allow implementation of the Boiling Water Reactor Vessel and Internals Project reactor pressure vessel Integrated Surveillance Program as the basis for demonstrating compliance with the requirements of Appendix H to Title 10 of the *Code of Federal Regulations* Part 50, "Reactor Vessel Material Surveillance Program Requirements," as set forth in the licensee's application dated December 20, 2002, and as supplemented on May 30, September 10, and November 3, 2003.

INSERT → (8)

[1] The Training and Qualification Plan and Safeguards Contingency Plan are Appendices to the Security Plan.

INSERT TO OYSTER CREEK FACILITY OPERATING LICENSE PAGE 4

(8) Upon implementation of Amendment No. XXX adopting TSTF-448, Revision 3, the assessment of CRE habitability as required by Specification 6.22.c.(ii), and the measurement of CRE pressure as required by Specification 6.22.d, shall be considered met. Following implementation:

(a) Not applicable since tracer gas testing for determining the unfiltered air inleakage past the control room envelope (CRE) boundary into the CRE is not required, as stated in the December 9, 2003 letter response to Generic Letter 2003-01.

(b) The first performance of the periodic assessment of CRE habitability, Specification 6.22.c.(ii), shall be within 3 years, plus the 9-month allowance of Specification 1.24, as measured from the date of implementation of Amendment No. XXX adopting TSTF-448, Revision 3.

(c) The first performance of the periodic measurement of CRE pressure, Specification 6.22.d, shall be within 24 months, plus the 180 days allowed by Specification 1.24, as measured from the date of the most recent successful pressure measurement test, or within 180 days if not performed previously.

3.17 Control Room Heating, Ventilating, and Air-Conditioning System

Applicability: Applies to the operability of the control room heating, ventilating, and air conditioning (HVAC) system and Control Room Envelope (CRE) boundary.

---NOTE---
The CRE boundary may be opened intermittently under administrative control.

Objective: To assure the capability of the control room HVAC system and CRE boundary to minimize the amount of radioactivity, hazardous chemicals, or smoke from entering the control room in the event of an accident.

Specifications:

A. The control room HVAC system shall be operable during all modes of plant operation.

B. With one control room HVAC system determined inoperable for reasons other than specification D:

1. Verify once per 24 hours the partial recirculation mode of operation for the operable system, or place the operable system in the partial recirculation mode; and

2. Restore the inoperable system within 7 days, or prepare and submit a special report to the Commission in lieu of any other report required by Section 6.9, within the next 14 days, outlining the action taken, the cause of the inoperability and the plans/schedule for restoring the HVAC system to operable status.

C. With both control room HVAC systems determined inoperable for reasons other than specification D:

1. During Power Operation: place the reactor in the cold shutdown condition within 30 hours

2. During Refueling:

(a) Cease irradiated fuel handling operations; and

(b) Cease all work on the reactor or its connected systems in the reactor building which could result in inadvertent releases of radioactive materials.

D. When one or both control room HVAC systems are determined inoperable due to an inoperable CRE boundary:

1. During Power Operation: actions to implement mitigating actions shall be performed immediately, verification that the mitigating actions are in place shall be performed within 24 hours, and the CRE boundary shall be restored to operable status within 90 days.

2. During movement of irradiated fuel assemblies in the containment or during operations with a potential for draining the reactor vessel:

(a) Immediately suspend movement of irradiated fuel assemblies in the containment; and

(b) Immediately initiate action to suspend operations with the potential to drain the reactor vessel.

Basis:

The operability of the control room HVAC system ensures that the control room will remain habitable for operations personnel during a postulated design basis accident. The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit during normal and accident conditions. This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CRE is protected during normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to protect the CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

Since control room HVAC systems A and B do not have HEPA filters or charcoal absorbers, the supply fan and dampers for each system minimize the beta and gamma doses to the operators by providing positive pressurization and limiting the makeup and infiltration air into the control room envelope. For the supply of 100% outside unfiltered air to the control room envelope, the radiation exposure to personnel occupying the control room is limited to less than a 30-day integrated gamma dose of 5 rem, and a 30-day integrated beta dose of 30 rem.

The control room HVAC system with the use of Self Contained Breathing Apparatus (SCBA) provides protection from smoke and hazardous chemicals for the CRE occupants. The analysis of hazardous chemical releases demonstrates that the toxicity limits are not exceeded in the CRE following a hazardous chemical release (Ref. 1). The evaluation of a smoke challenge demonstrates that it will not result in the inability of the CRE occupants to control the reactor either from the control room or from the remote shutdown panels (Ref. 2).

A periodic offsite chemical survey, and procedures for controlling onsite chemicals, are essential elements of CRE protection against hazardous chemicals. The system design is based on low probability of offsite sources of toxic gas, based on a chemical survey of the surrounding areas. The offsite chemical survey is conducted periodically to determine any change of condition that may need to be addressed. The onsite chemicals are controlled procedurally such that they do not affect CRE habitability adversely.

The control room envelope (CRE) boundary may be opened intermittently under administrative control. This only applies to openings in the CRE boundary that can be rapidly restored to the design condition, such as doors, hatches, floor plugs, and access panels. For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area. For other openings, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with the operators in the control room. This individual will have a method to rapidly close the opening and to restore the CRE boundary to a condition equivalent to the design condition when a need for CRE isolation is indicated.

In order for the Control Room HVAC System to be considered OPERABLE, the CRE boundary must be maintained such that the CRE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analyses for DBAs, and the CRE occupants are protected from hazardous chemicals and smoke.

If the unfiltered inleakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to a 30-day integrated gamma dose of 5 rem, and a 30-day integrated beta dose of 30 rem), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is inoperable. Actions must be taken to restore an INOPERABLE CRE boundary within 90 days.

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24-hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

REFERENCES:

(1) UFSAR Section 6.4
(2) UFSAR Section 9.5

6.20 MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS

DELETED.

6.21 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may take changes to Bases without prior NRC approval provided the changes do not require either of the following:

1. A change in the TS incorporated in the licese or

2. A change to the updated FSAR (UFSAR) or Bases that requires NRC appoval pursuant to 10 CFR 50.59.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the UFSAR.

d. Proposed changes that meet the criteria of Specification 6.21.b.1 or 6.21.b.2 above shall be reviewed and approved by the NRC prior to implementation. Changes to the bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

6.22 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room HVAC System, CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of a 30-day integrated gamma dose of 5 rem, and a 30-day integrated beta dose of 30 rem. The program shall include the following elements:

a. The definition of the CRE and the CRE boundary.

b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

The following are exceptions to Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0:

1. The Oyster Creek CRE boundary operability is not dependent on a measured unfiltered air inleakage value (Reference Oyster Creek letter to NRC dated November 17, 2005, Letter No. 2130-05-20218). No inleakage testing for determining the unfiltered air inleakage past the CRE boundary into the CRE is required at the Oyster Creek site.

d. Measurement, at designated locations, of the CRE pressure relative to areas adjacent to the CRE boundary during the pressurization mode of operation by one subsystem (train) of the Control Room Ventilation System operating at the design flow rate, at a Frequency of 24 months. The results shall be trended and used as part of the 24 month assessment of the CRE boundary.

e. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of Section 1.24 are applicable to the frequencies for assessing CRE habitability measuring CRE pressure and assessing the CRE boundary as required by paragraphs d and c, respectively.