Entergy

Entergy Nuclear Operations, Inc.
Pilgrim Station
600 Rocky Hill Road
Plymouth, MA 02360

November 29, 2007

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

SUBJECT: Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
Docket No. 50-293
License No. DPR-35

Request for License Amendment - Control Room Envelope Habitability (TSTF-448, Revision 3)

REFERENCE: 1. Notice of Availability of Technical Specification Improvement To Modify Requirements Regarding Control Room Envelope Habitability Using the Consolidated Line Item Improvement Process, Federal Register, 72 FR 2022, dated January 17, 2007

LETTER NUMBER: 2.07.068

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Nuclear Operations, Inc. (Entergy) hereby requests an amendment to the Technical Specifications (TS) for the Pilgrim Nuclear Power Station (PNPS).

The proposed amendment would modify TS requirements related to control room envelope habitability consistent with Technical Specification Task Force (TSTF)-448, Revision 3. The availability of TS improvement was announced in the Federal Register on January 17, 2007 (72 FR 2022) as part of the consolidated line item improvement process (CLIIP).

Entergy requests NRC approval based on the review of the approved safety evaluation of the proposed TS amendment by November 30, 2008, with the amendment being implemented within 60 days from approval.

There are no new commitments made in this letter.

Should you have any questions concerning this submittal, please contact Mr. Joseph R. Lynch at 508-830-8403.

A102
NRR

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

Executed on the 29th day of November, 2007.

Sincerely,

Kevin H. Bronson
Site Vice President

MJG/dl

Attachments:
1. Description and Evaluation of the Proposed Technical Specification Changes (3 pages)
2. Proposed Technical Specification Changes (Mark Up) (12 pages)
3. Technical Specification Changes – Typed Pages (11 pages)
4. Proposed Technical Specification Bases Changes (Information Only) (11 pages)

cc:

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Senior Resident Inspector
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ATTACHMENT 1

Letter Number 2.07.068

Description and Evaluation of the Proposed Technical Specification Changes

**Application for Amendment to Technical Specifications
Regarding Control Room Envelope Habitability
Consistent with TSTF-448 Revision 3**

3 Pages

1.0 Description

The proposed amendment would modify the technical specification (TS) requirements related to control room envelope habitability in TS 3.7.B.2 "Control Room High Efficiency Air Filtration System (CRHEAFS)" and TS Section 5.5 "Administrative Controls – Programs and Manuals".

The changes are consistent with Nuclear Regulatory Commission (NRC) approved Industry/Technical Specification Task Force (TSTF) STS Change TSTF-448, Revision 3. The availability of this TS improvement was published in the Federal Register on January 17, 2007 as part of the consolidated line item improvement process (CLIIP).

2.0 Proposed Changes

Consistent with the NRC approved Revision 3 of TSTF–448; the proposed TS changes include a revised TS 3.7.B.2 "Control Room High Efficiency Air Filtration System (CRHEAFS)" and a new TS 5.5.8, "Control Room Envelope Habitability Program". Proposed revisions to the TS Bases are also included in this application. Adoption of the TS Bases associated with TSTF–448, Revision 3 is an integral part of implementing this TS amendment. The copies of the TS Bases pages are provided for NRC information. The changes to the affected TS Bases pages will be incorporated in accordance with the TS Bases Control Program.

3.0 Background

The background for this application is adequately addressed by the NRC Notice of Availability published on January 17, 2007 (72 FR 2022).

4.0 Technical Analysis

4.1 Applicability of Published Safety Evaluation

Entergy has reviewed the safety evaluation (SE) published on January 17, 2007 (72 FR 2022) as part of the CLIIP Notice of Availability. Entergy has concluded that the technical justifications presented in the SE prepared by the NRC staff are applicable to Pilgrim Nuclear Power Station (PNPS) and therefore justify this amendment for the incorporation of the proposed changes to the PNPS TS.

4.2 Optional Changes and Variations

This application is being made in accordance with the CLIIP. Entergy Nuclear Operations, Inc. (Entergy) is not proposing variations or deviations from the TS changes described in TSTF–448, Revision 3, published on January 17, 2007 (72 FR 2022) as part of the CLIIP Notice of Availability. Based on plant specific design and existing PNPS TS, Evaluation 6 Sections 3.1, 3.2, 3.3, and 3.4 of the SE prepared by the NRC Staff are applicable to PNPS TS.

4.3 License Condition Regarding Initial Performance of New Surveillance and Assessment Requirements

Entergy proposes the following as a license condition for PNPS to support implementation of the proposed TS changes:

Upon Implementation of Amendment No. _____adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage required by SR 4.7.B.2.e in accordance with TS 5.5.8.c.(i), the assessment of CRE habitability as required by Specification 5.5.8.c.(ii) , and the measurement of CRE pressure as required by Specification 5.5.8.d shall be considered met as follows.

(a) The first performance of SR 4.7.2.B.5.e in accordance with Specification 5.5.8.c.(i) shall be within the specified frequency of 6 years, plus the 18-month allowance as defined by SURVEILLANCE INTERVAL measured from December 5, 2005; the date of the most recent successful tracer gas test, as stated in Entergy's letter "Follow-Up Response to NRC Generic Letter 2003-01" (ENO 2.06.019), dated March 20, 2006, or within 18 months if the time period since the most recent successful tracer gas test is greater than 6 years.

(b) The first performance of the periodic assessment of CRE habitability Specification 5.5.8.c.(ii) shall be within 3 years, plus the 9-month allowance of SURVEILLANCE INTERVAL as measured from December 5, 2005, the date of the most recent successful tracer gas test, as stated in Entergy's letter "Follow-Up Response to NRC Generic Letter 2003-01" (ENO 2.06.019), dated March 20, 2006, or within 9 months if the time period since the most recent successful tracer gas test is greater than 3 years.

(c) The first performance of the periodic measurement of CRE pressure, Specification 5.5.8.d shall be within 24 months, plus the 180-day allowance of the SURVEILLANCE INTERVAL as measured from the date of the most recent successful pressure measurement test or within 180 days if not performed previously.

5.0 Regulatory Safety Analysis

5.1 No Significant Hazards Consideration

Entergy has reviewed the no significant hazards determination published on January 17, 2007 (72 FR 2022) as part of the CLIIP Notice of Availability. Entergy has concluded that the determination presented in the notice is applicable to PNPS and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

5.2 Applicable Regulatory Requirements / Criteria

A description of the proposed TS changes and its relationship to applicable regulatory requirements was provided in the NRC Notice of Availability published on January 17, 2007 (72 FR 2022) and hereby incorporated as applicable to Pilgrim's proposed TS change.

6.0 Environmental Assessment

Entergy has reviewed the environmental evaluation included in the Safety Evaluation (SE) published on January 17, 2007 (72 FR 2022) as part of the CLIIP Notice of Availability. Entergy has concluded that the staff's findings presented in that evaluation are applicable to PNPS and the evaluation is hereby incorporated by reference for this application.

7.0 Implementation

This TS change will be implemented within 60 days upon receipt of NRC approval.

8.0 References

1. Federal Register Notice, Notice of Availability of Model Safety Evaluation published on January 17, 2007 (72 FR 2022)
2. Federal Register Notice, Notice for Comment published on October 17, 2006 (71 FR 61075)
3. TSTF-448 Revision 3, "Control Room Habitability", dated August 8, 2006
4. Federal Register Notice, Notice of Availability of Model Application published on January 17, 2007 (72 FR 2032)
5. Regulatory Guide 1.197 Revision 0, Demonstrating Control Room Envelope Integrity at Nuclear Power Plants, dated May 2003
6. Entergy Letter, NRC Generic Letter 2003-01 Control Room Habitability, Initial Summary Actions Report (ENO 2.04.086), dated September 30, 2006
7. Entergy Letter Pilgrim Nuclear Power Station – Request For Additional Information, RE: Response to Generic Letter 2003-01. "Control Room Habitability" (TAC No. MB9840) Response (ENO 2.07.015), dated March 22, 2007

ATTACHMENT 2

Letter Number 2.07.068

Proposed Technical Specification Changes (Mark Up)

12 Pages

3/4.7-14
3/4.7-15
3/4.7-16
3/4.7-17
5.0-10
Insert B
5.0-11
5.0-12
5.0-13
5.0-14
5.0-15
5.0-16

The main control room envelope (CRE) boundary may be opened intermittently under administrative control.

LIMITING CONDITIONS FOR OPERATION

3.7 CONTAINMENT SYSTEMS (Cont.)

B. Standby Gas Treatment System and Control Room High Efficiency Air Filtration System (Cont.)

2. Control Room High Efficiency Air Filtration System (CRHEAFS)

a. Except as specified in Specification 3.7.B.2.c or 3.7.B.2.e, 3.7.B.2.f or 3.7.B.2.g below, both trains of the Control Room High Efficiency Air Filtration System used for the processing of inlet air to the control room under accident conditions shall be operable when in the Run, Startup, and Hot Shutdown MODES, during movement of recently irradiated fuel assemblies in the secondary containment, and during operations with a potential for draining the reactor vessel (OPDRVs), ~~or~~ otherwise, the reactor shall be in cold shutdown within the next 36 hours.

b. 1. The results of the in-place cold DOP tests on HEPA filters shall show ≥99% DOP removal. The results of the halogenated hydrocarbon tests on charcoal adsorber banks shall show ≥99.9% halogenated hydrocarbon removal when test results are extrapolated to the initiation of the test.

2. The results of the laboratory carbon sample analysis shall show ≥97.5% methyl iodide removal at 70% R.H. and 86°F. The carbon sample shall be obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978 and tested in accordance with ASTM D3803-1989. The analysis results are to be verified as acceptable within 31 days after sample removal, or declare that train inoperable and take the actions specified in 3.7.B.2.c.

SURVEILLANCE REQUIREMENTS

4.7 CONTAINMENT SYSTEMS (Cont.)

B. Standby Gas Treatment System and Control Room High Efficiency Air Filtration System (Cont.)

2. Control Room High Efficiency Air Filtration System (CRHEAFS)

a. At least once per operating cycle the pressure drop across each combined filter train shall be demonstrated to be less than 6 inches of water at 1000 cfm or the calculated equivalent.

b. 1. The tests and analysis of Specifications 3.7.B.2.b shall be performed once per operating cycle or following painting, fire or chemical release in any ventilation zone communicating with the system while the system is operating.

2. In-place cold DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing which could affect the HEPA filter bank bypass leakage.

3. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of the charcoal adsorber bank or after any structural maintenance on the system housing which could affect the charcoal adsorber bank bypass leakage.

4. Each train shall be operated with the heaters in automatic for at least 15 minutes every month.

LIMITING CONDITIONS FOR OPERATION

3.7 CONTAINMENT SYSTEMS (Cont.)

B. Standby Gas Treatment System and Control Room High Efficiency Air Filtration System (Cont.) (CRHEAFS)

c. From and after the date that one train of the ~~Control Room High Efficiency Air Filtration System~~ CRHEAFS is made or found to be inoperable for any reason other than 3.7.B.2.f, reactor operation is permissible only during the succeeding 7 days providing that within 2 hours all active components of the other CRHEAFS train are verified to be ~~operable~~ OPERABLE and the diesel generator associated with the ~~operable~~ OPERABLE train is ~~operable~~. If the system is not made fully ~~operable~~ OPERABLE within 7 days, reactor shutdown shall be initiated and the reactor shall be in cold shutdown within the next 36 hours.

d. Fans shall operate within ± 10% of 1000 cfm.

e. From and after the date that one train of the ~~Control Room High Efficiency Air Filtration System~~ CRHEAFS is made or found to be inoperable other than 3.7.B.2.g, ~~for any reason,~~ movement of recently irradiated fuel assemblies and operations with a potential for draining the reactor vessel (OPDRVs) are permissible only during the succeeding 7 days providing that within 2 hours all active components of the other train are verified to be ~~operable~~ OPERABLE and the diesel generator associated with the ~~operable~~ OPERABLE train is ~~operable~~.

If the system is not made fully ~~operable~~ OPERABLE within 7 days,

SURVEILLANCE REQUIREMENTS

4.7 CONTAINMENT SYSTEMS (Cont.)

B. Standby Gas Treatment System and Control Room High Efficiency Air Filtration System (Cont.) (CRHEAFS)

5. The test and analysis of Specification 3.7.B.2.b.2 shall be performed after every 720 hours of system operation.

c. At least once per operating cycle demonstrate that the inlet heaters on each train are operable and capable of an output of at least 14 kw.

d. Perform an instrument functional test on the humidistats controlling the heaters ~~once~~ per operating cycle.

e. Perform required CRE unfiltered air inleakage testing at the specified frequency, in accordance with the Control Room Habitability Program

Insert A

f. Upon discovery that one or more trains of CRHEAFS are inoperable due to an inoperable CRE boundary when in the Run, Startup and Hot Shutdown MODES:

i.) Immediately initiate actions to mitigate the cause of the inoperable CRE boundary.

AND

ii.) Within 24 hours, verify the effectiveness of the mitigating actions to ensure CRE occupant exposures to radiological, chemical, and smoked hazards will not exceed limits.

AND

iii.) Within 90 days restore the CRE boundary to OPERABLE status.

Otherwise be in Hot Shutdown within 12 hours and in Cold Shutdown within the following 24 hours.

g. Upon discovery that:

both trains of CRHEAFS are inoperable,

OR

one or more trains of CRHEAFS are inoperable due to an inoperable CRE boundary

during movement of recently irradiated fuel assemblies and operations with a potential for draining the reactor vessel (OPDRVs), immediately suspend movement of recently irradiated fuel assemblies in secondary containment and initiate actions to suspend OPDRVs. Any fuel assembly movement in progress may be completed.

LIMITING CONDITIONS FOR OPERATION

3.7 CONTAINMENT SYSTEMS (Cont.)

i) perform surveillance 4.7.B.2.b.4 for the ~~operable~~ CRHEAF every 24 hours OPERABLE

OR

ii) immediately suspend movement of recently irradiated fuel assemblies in secondary containment and initiate actions to suspend OPDRVs. Any fuel assembly movement in progress may ~~be completed.~~ INSERT A

C. Secondary Containment

1. Secondary containment shall be OPERABLE when in the Run, Startup and Hot Shutdown MODES, during movement of recently irradiated fuel assemblies in the secondary containment, and during operations with a potential for draining the reactor vessel (OPDRVs).

2. a. With Secondary Containment inoperable when in the Run, Startup and Hot Shutdown MODES, restore Secondary Containment to OPERABLE status within 4 hours.

   b. Required Action and Completion Time of 2.a not met, be in HOT Shutdown in 12 hours AND Cold Shutdown within 36 hours.

   c. With Secondary Containment inoperable during movement of recently irradiated fuel assemblies in the secondary containment and during OPDRVs, immediately:

      1. Suspend movement of recently irradiated fuel assemblies in the secondary containment.

      AND

      2. Initiate actions to suspend OPDRVs.

SURVEILLANCE REQUIREMENTS

4.7 CONTAINMENT SYSTEMS (Cont.)

C. Secondary Containment

1. Each refueling outage prior to refueling, secondary containment capability shall be demonstrated to maintain 1/4 inch of water vacuum under calm wind (5 mph) conditions with a filter train flow rate of not more than 4000 cfm.

5.5 Programs and Manuals

5.5.7 Configuration Risk Management Program (CRMP)

CRMP provides a proceduralized risk-informed assessment to manage the risk associated with equipment inoperability. The program applies to technical specification structures, systems, or components for which a risk-informed allowed outage time has been granted.

The CRMP includes the following elements:

a. Provisions for the control and implementation of a Level 1 at power internal event PRA-informed methodology. The assessment is capable of evaluating the applicable plant configuration.

b. Provisions for performing an assessment prior to entering the LCO Action Statement for preplanned activities.

c. Provisions for performing an assessment after entering the LCO Action Statement for unplanned entry into the LCO Action Statement activities.

d. Provisions for assessing the need for additional actions after the discovery of additional equipment out of service conditions while in the LCO Action Statement.

e. Provisions for considering other applicable risk significant contributors such as Level 2 issues and external events, quantitatively or qualitatively.

INSERT B

5.5 Programs and Manuals

Insert B

5.5.8 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 Main Control Room Environmental Control (MCREC) 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 5 rem whole body or its equivalent to any part of the body 5 rem total effective dose equivalent (TEDE) for the duration of the accident. 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,

5.5 Programs and Manuals

"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.

d. 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 Main Control Room Heating, Ventilation and Air Conditioning System, operating at the flow rate required by the Ventilation Filter Testing Program (VFTP), at a Frequency of 24 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 24 month assessment of the CRE boundary.

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. 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. Each Surveillance Requirement shall be performed within the specified SURVEILLANCE INTERVAL with a maximum allowable extension not to exceed 25 percent of the specified SURVEILLANCE INTERVAL. The SURVEILLANCE INTERVAL requirement is applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

The following reports shall be submitted in accordance with 10 CFR 50.4.

5.6.1 Not Used

5.6.2 Annual Radiological Environmental Operating Report

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

The Annual Radiological Environmental Operating Report shall include a summary of the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

(Continued)

5.6 Reporting Requirements

5.6.3 Radioactive Effluent Release Report

The Radioactive Effluent Release Report covering the operation of the unit shall be submitted in accordance with 10 CFR 50.36a by May 15th of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and process control procedures and in conformance with 10 CFR 50.36a and 10 CFR 50, Appendix I, Section IV.B.1.

5.6.4 Not Used

5.6.5 Core Operating Limits Report (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

1. Table 3.1.1 – APRM High Flux trip level setting
2. Table 3.2.C –APRM Upscale trip level setting
3. 3.11.A – Average Planar Linear Heat Generation Rate (APLHGR)
4. 3.11.B – Linear Heat Generation Rate (LHGR)
5. 3.11.C –Minimum Critical Power Ratio (MCPR)
6. 3.11.D – Power/Flow Relationship During Power Operation

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel," (through the latest NRC approved amendment at the time the reload analyses are performed as specified in the COLR).

(Continued)

5.6 Reporting Requirements

5.6.5 (continued)

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as shutdown margin, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

5.7.1 Pursuant to 10 CFR 20, paragraph 20.1601(c), in lieu of the requirements of 10 CFR 20.1601, each high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but < 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., radiation protection personnel) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates ≤ 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

a. A radiation monitoring device that continuously indicates the radiation dose rate in the area.

b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel are aware of them.

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the radiation protection manager in the RWP.

5.7.2 In addition to the requirements of Specification 5.7.1, areas with radiation levels ≥ 1000 mrem/hr shall be provided with locked or continuously guarded doors to prevent unauthorized entry and the keys shall be maintained under the administrative control of an SRO on duty or radiation protection supervision. Doors shall remain locked except during periods of access by personnel under an approved RWP that shall specify the dose rate levels in the immediate work areas and the maximum allowable stay times for individuals in those areas. In lieu of the stay time specification of the RWP, direct or remote (such as closed circuit TV cameras) continuous surveillance may be made by

(Continued)

5.7 High Radiation Area

5.7.2 (continued)

personnel qualified in radiation protection procedures to provide positive exposure control over the activities being performed within the area.

5.7.3 For individual high radiation areas with radiation levels of > 1000 mrem/hr, accessible to personnel, that are located within large areas such as reactor containment, where no enclosure exists for purposes of locking, or that cannot be continuously guarded, and where no enclosure can be reasonably constructed around the individual area, that individual area shall be barricaded and conspicuously posted, and a flashing light shall be activated as a warning device.

Attachment 3

Letter Number 2.07.068

Technical Specification Changes – Typed Pages

11 Pages

3/4.7-14
3/4.7-15
3/4.7-16
3/4.7-17
5.0-10
5.0-11
5.0-12
5.0-13
5.0-14
5.0-15
5.0-16

LIMITING CONDITIONS FOR OPERATION

3.7 CONTAINMENT SYSTEMS (Cont.)

B. Standby Gas Treatment System and Control Room High Efficiency Air Filtration System (Cont.)

2. Control Room High Efficiency Air Filtration System (CRHEAFS)

----------NOTE----------
The main control room envelope (CRE) boundary may be opened intermittently under administrative control.
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a. Except as specified in Specification 3.7.B.2.c, 3.7.B.2.e, 3.7.B.2.f, or 3.7.B.2.g below, both trains of the Control Room High Efficiency Air Filtration System used for the processing of inlet air to the control room under accident conditions shall be OPERABLE when in the Run, Startup, and Hot Shutdown MODES, during movement of recently irradiated fuel assemblies in the secondary containment, and during operations with a potential for draining the reactor vessel (OPDRVs), otherwise, the reactor shall be in cold shutdown within the next 36 hours.

b. 1. The results of the in-place cold DOP tests on HEPA filters shall show ≥99% DOP removal. The results of the halogenated hydrocarbon tests on charcoal adsorber banks shall show ≥99.9% halogenated hydrocarbon removal when test results are extrapolated to the initiation of the test.

2. The results of the laboratory carbon sample analysis shall show ≥97.5% methyl iodide removal at 70% R.H. and 86°F. The carbon sample shall be obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978 and tested in accordance with ASTM D3803-1989. The analysis results

SURVEILLANCE REQUIREMENTS

4.7 CONTAINMENT SYSTEMS (Cont.)

B. Standby Gas Treatment System and Control Room High Efficiency Air Filtration System (Cont.)

2. Control Room High Efficiency Air Filtration System (CRHEAFS)

a. At least once per operating cycle the pressure drop across each combined filter train shall be demonstrated to be less than 6 inches of water at 1000 cfm or the calculated equivalent.

b. 1. The tests and analysis of Specifications 3.7.B.2.b shall be performed once per operating cycle or following painting, fire or chemical release in any ventilation zone communicating with the system while the system is operating.

2. In-place cold DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing which could affect the HEPA filter bank bypass leakage.

3. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of the charcoal adsorber bank or after any structural maintenance on the system housing which could affect the charcoal adsorber bank bypass leakage.

4. Each train shall be operated with the heaters in automatic for at least 15 minutes every month.

LIMITING CONDITIONS FOR OPERATION

3.7 CONTAINMENT SYSTEMS (Cont.)

B. Standby Gas Treatment System and Control Room High Efficiency Air Filtration System (CRHEAFS) (Cont)

are to be verified as acceptable within 31 days after sample removal, or declare that train inoperable and take the actions specified in 3.7.B.2.c.

c. From and after the date that one train of the CRHEAFS is made or found to be inoperable for any reason other than 3.7.B.2.f, reactor operation is permissible only during the succeeding 7 days providing that within 2 hours all active components of the other CRHEAFS train are verified to be OPERABLE and the diesel generator associated with the OPERABLE train is OPERABLE. If the system is not made fully OPERABLE within 7 days, reactor shutdown shall be initiated and the reactor shall be in cold shutdown within the next 36 hours.

d. Fans shall operate within ± 10% of 1000 cfm.

e. From and after the date that one train of the CRHEAFS is made or found to be inoperable for any reason other than 3.7.B.2.g, movement of recently irradiated fuel assemblies and operations with a potential for draining the reactor vessel (OPDRVs) are permissible during the succeeding 7 days providing that within 2 hours all active components of the other train are verified to be OPERABLE and the diesel generator associated with the OPERABLE train is OPERABLE. If the system is not made fully OPERABLE within 7 days,

i) perform surveillance 4.7.B.2.b.4 for the OPERABLE CRHEAF train every 24 hours

OR

ii) immediately suspend movement of recently irradiated fuel assemblies

SURVEILLANCE REQUIREMENTS

4.7 CONTAINMENT SYSTEMS (Cont.)

B. Standby Gas Treatment System and Control Room High Efficiency Air Filtration System (CRHEAFS) (Cont)

5. The test and analysis of Specification 3.7.B.2.b.2 shall be performed after every 720 hours of system operation.

c. At least once per operating cycle demonstrate that the inlet heaters on each train are OPERABLE and capable of an output of at least 14 kw.

d. Perform an instrument functional test on the humidistats controlling the heaters once per operating cycle

e. Perform required CRE unfiltered air inleakage testing at the specified frequency, in accordance with the Control Room Habitability Program.

3.7 CONTAINMENT SYSTEMS (Cont.)

B. Standby Gas Treatment System and Control Room High Efficiency Air Filtration System (CRHEAFS) (Cont)

in secondary containment and initiate actions to suspend OPDRVs. Any fuel assembly movement in progress may be completed.

f. Upon discovery that one or more trains of CRHEAFS are inoperable due to an inoperable CRE boundary when in the Run, Startup and Hot Shutdown MODES:

i.) Immediately initiate actions to mitigate the cause of the inoperable CRE boundary.

AND

ii.) Within 24 hours, verify the effectiveness of the mitigating actions to ensure CRE occupant exposures to radiological, chemical, and smoked hazards will not exceed limits.

AND

iii.) Within 90 days restore the CRE boundary to OPERABLE status.

Otherwise be in Hot Shutdown within 12 hours and in Cold Shutdown within the following 24 hours.

g. Upon discovery that:

both trains of CRHEAFS are inoperable,

OR

one or more trains of CRHEAFS are inoperable due to an inoperable CRE boundary

during movement of recently irradiated fuel assemblies and operations with a potential for draining the reactor vessel (OPDRVs), immediately suspend movement of recently irradiated fuel assemblies in secondary containment and initiate actions to suspend OPDRVs. Any fuel assembly movement in progress may be completed.

4.7 CONTAINMENT SYSTEMS (Cont.)

B. Standby Gas Treatment System and Control Room High Efficiency Air Filtration System (CRHEAFS) (Cont)

LIMITING CONDITIONS FOR OPERATION

3.7 CONTAINMENT SYSTEMS (Cont.)

C. Secondary Containment

1. Secondary containment shall be OPERABLE when in the Run, Startup and Hot Shutdown MODES, during movement of recently irradiated fuel assemblies in the secondary containment, and during operations with a potential for draining the reactor vessel (OPDRVs).

2. a. With Secondary Containment inoperable when in the Run, Startup and Hot Shutdown MODES, restore Secondary Containment to OPERABLE status within 4 hours.

   b. Required Action and Completion Time of 2.a not met, be in HOT Shutdown in 12 hours AND Cold Shutdown within 36 hours.

   c. With Secondary Containment inoperable during movement of recently irradiated fuel assemblies in the secondary containment and during OPDRVs, immediately:

      1. Suspend movement of recently irradiated fuel assemblies in the secondary containment.

      AND

      2. Initiate actions to suspend OPDRVs.

SURVEILLANCE REQUIREMENTS

4.7 CONTAINMENT SYSTEMS (Cont.)

C. Secondary Containment

1. Each refueling outage prior to refueling, secondary containment capability shall be demonstrated to maintain 1/4 inch of water vacuum under calm wind (5 mph) conditions with a filter train flow rate of not more than 4000 cfm.

5.5 Programs and Manuals

5.5.7 Configuration Risk Management Program (CRMP)

CRMP provides a proceduralized risk-informed assessment to manage the risk associated with equipment inoperability. The program applies to technical specification structures, systems, or components for which a risk-informed allowed outage time has been granted.

The CRMP includes the following elements:

a. Provisions for the control and implementation of a Level 1 at power internal event PRA-informed methodology. The assessment is capable of evaluating the applicable plant configuration.

b. Provisions for performing an assessment prior to entering the LCO Action Statement for preplanned activities.

c. Provisions for performing an assessment after entering the LCO Action Statement for unplanned entry into the LCO Action Statement activities.

d. Provisions for assessing the need for additional actions after the discovery of additional equipment out of service conditions while in the LCO Action Statement.

e. Provisions for considering other applicable risk significant contributors such as Level 2 issues and external events, quantitatively or qualitatively.

5.5.8 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 Main Control Room Heating, Ventilation and Air Conditioning 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 5 rem whole body or its equivalent to any part of the body 5 rem total effective dose equivalent (TEDE) for the duration of the accident. 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.

5.5 Programs and Manuals

"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.

d. 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 Main Control Room Heating, Ventilation and Air Conditioning System, operating at the flow rate required by the Ventilation Filter Testing Program (VFTP), at a Frequency of 24 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 24 month assessment of the CRE boundary.

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. 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. Each Surveillance Requirement shall be performed within the specified SURVEILLANCE INTERVAL with a maximum allowable extension not to exceed 25 percent of the specified SURVEILLANCE INTERVAL. The SURVEILLANCE INTERVAL requirement is applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

The following reports shall be submitted in accordance with 10 CFR 50.4.

5.6.1 Not Used

5.6.2 Annual Radiological Environmental Operating Report

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

The Annual Radiological Environmental Operating Report shall include a summary of the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

(Continued)

5.6 Reporting Requirements

5.6.3 Radioactive Effluent Release Report

The Radioactive Effluent Release Report covering the operation of the unit shall be submitted in accordance with 10 CFR 50.36a by May 15th of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and process control procedures and in conformance with 10 CFR 50.36a and 10 CFR 50, Appendix I, Section IV.B.1.

5.6.4 Not Used

5.6.5 Core Operating Limits Report (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

1. Table 3.1.1 – APRM High Flux trip level setting
2. Table 3.2.C –APRM Upscale trip level setting
3. 3.11.A – Average Planar Linear Heat Generation Rate (APLHGR)
4. 3.11.B – Linear Heat Generation Rate (LHGR)
5. 3.11.C –Minimum Critical Power Ratio (MCPR)
6. 3.11.D – Power/Flow Relationship During Power Operation

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel," (through the latest NRC approved amendment at the time the reload analyses are performed as specified in the COLR).

(Continued)

5.6.5 (continued)

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as shutdown margin, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

5.7.1 Pursuant to 10 CFR 20, paragraph 20.1601(c), in lieu of the requirements of 10 CFR 20.1601, each high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but < 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., radiation protection personnel) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates ≤ 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

a. A radiation monitoring device that continuously indicates the radiation dose rate in the area.

b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel are aware of them.

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the radiation protection manager in the RWP.

5.7.2 In addition to the requirements of Specification 5.7.1, areas with radiation levels ≥ 1000 mrem/hr shall be provided with locked or continuously guarded doors to prevent unauthorized entry and the keys shall be maintained under the administrative control of the SRO on duty or radiation protection supervision. Doors shall remain locked except during periods of access by personnel under an approved RWP that shall specify the dose rate levels in the immediate work areas and the maximum allowable stay times for individuals in those areas. In lieu of the stay time specification of the RWP, direct or remote (such as closed circuit TV cameras) continuous surveillance may be made by

(Continued)

5.7 High Radiation Area

5.7.2 (continued)

personnel qualified in radiation protection procedures to provide positive exposure control over the activities being performed within the area.

5.7.3 For individual high radiation areas with radiation levels of > 1000 mrem/hr, accessible to personnel, that are located within large areas such as reactor containment, where no enclosure exists for purposes of locking, or that cannot be continuously guarded, and where no enclosure can be reasonably constructed around the individual area, that individual area shall be barricaded and conspicuously posted, and a flashing light shall be activated as a warning device.

Attachment 4

Letter Number 2.07.068

Proposed Technical Specification Bases Changes
(Information Only)

11 Pages

B3/4.7-11
B3/4.7-12
B3/4.7-13
B3/4.7-14
B3/4.7-15
B3/4.7-16
B3/4.7-17
B3/4.7-18
B3/4.7-19
B3/4.7-20
B3/4.7-21

B.1 Standby Gas Treatment System (Cont.)

During movement of recently irradiated fuel, if one train of SGTS is made or found to be inoperable and the inoperable train is not restored to operable status within the required completion time, the operable train should immediately be placed in operation. This action ensures that the remaining train is operable, that no failures that could prevent automatic actuation have occurred, and that any other failure would be readily detected. An alternative is to suspend movement of recently irradiated fuel, thus, placing the plant in a condition that minimizes risk. If both trains of SGTS are inoperable, the plant is brought to a condition where the SGTS is not required.

B.2 Control Room High Efficiency Air Filtration System (CRHEAFS)

BACKGROUND

The CRHEAFS provides a protected environment from which occupants can control the unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke.

The Control Room Envelope (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. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. 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 OPERABILITY of the CRE boundary must be maintained to ensure that the inleakage of unfiltered air into the CRE will not exceed the inleakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CRE occupants. The CRE and its boundary are defined in the Control Room Envelope Habitability Program.

CRHEAFS is a standby system, parts of which also operate during normal unit operations to maintain the CRE environment. The safety related function of the CRHEAFS includes two independent and redundant high efficiency air filtration subsystems for emergency treatment of recirculated air or outside supply air and a CRE boundary that limits the inleakage of unfiltered air. The filtration system consists of two 1,000 cfm high efficiency filter trains. The filter trains each consist of inlet and outlet isolation dampers, a prefilter, a heating coil, a high efficiency particulate air (HEPA) filter, three charcoal adsorber filter trays, and a final HEPA filter. The filter trains are arranged in parallel. Separate filtration fans are employed to increase system reliability. Prefilters and HEPA filters remove particulate matter, which may be radioactive. The charcoal adsorbers provide a holdup period for gaseous iodine, allowing time for decay.

The CRHEAFS is designed to filter intake air for the control room atmosphere during conditions when normal intake air may be contaminated. Following manual initiation, the CRHEAFS is designed to position dampers and start fans which divert the normal air flow through charcoal adsorbers before it reaches the Control Room.

B.2 Control Room High Efficiency Air Filtration System (CRHEAFS) (Cont.)

BACKGROUND (Cont.)

High Efficiency Particulate Air (HEPA) filters are installed before the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential intake of radioiodine to the Control Room. A second bank of HEPA filters is installed downstream of the charcoal filter.

Air flow through the filters and charcoal adsorbers for 15 minutes each month assures operability of the system. Since the system heaters are automatically controlled, the air flowing through the filters and adsorbers will be ≤70% relative humidity and will have the desired drying effect.

CRHEAFS is designed to maintain a habitable environment in the CRE for a 30 day continuous occupancy after a DBA without exceeding 5 rem whole body dose or its equivalent to any part of the body 5 rem total effective dose equivalent (TEDE). Initiation of a 1,000 cfm supply fan automatically positions dampers to open flow through the respective CRHEAFS pathway and isolate the air inlet to Main Control Room Heating, Ventilation and Air Conditioning System, but does not secure operation of Main Control Room Heating, Ventilation and Air Condition System components. Operator action is required to shut down Main Control Room Heating, Ventilation and Air Conditioning System fans and to close Main Control Room Heating, Ventilation and Air Conditioning System dampers to isolate the CRE. Operator action is also required to secure operation of the Turbine Building and Access Area HVAC systems to ensure a net positive pressure in the CRE relative to adjoining spaces served by these systems. CRHEAFS operation in maintaining CRE habitability is discussed in the FSAR, Section 10.17.

APPLICABLE
SAFETY
ANALYSES

The ability of the CRHEAFS to maintain the habitability of the CRE is an explicit assumption for the safety analyses presented in the FSAR, Section 10.17. The pressurization mode of the CRHEAFS is assumed to operate following a DBA, as discussed in the Topical Design Basis Document, TDBD-110. The radiological doses to the CRE occupants as a result of the various DBAs are summarized in TDBD-110.

PNPS Calculation PS32 provides the technical basis to demonstrate that no single credible fire event has the potential to simultaneously prevent the operator from shutting down the plant from both the MCR and Remote Shutdown locations.

PNPS performed an assessment of toxic gas hazards in response to NUREG-0737. PNPS concluded that no hazardous materials were stored onsite or stored or transported within five miles of the site. A survey of toxic chemicals stored or transported within five miles of the site is conducted annually to determine if a change that impacts the conclusion of the NUREG-0737 response has occurred so that appropriate action can be taken.

The CRHEAFS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

B.2 Control Room High Efficiency Air Filtration System (CRHEAFS) (Cont.)

LCO

Two redundant trains of CRHEAFS are required to be OPERABLE to ensure that at least one is available if a single active failure disables the other train. Total CRHEAFS failure, such as from a loss of both ventilation trains or from an inoperable CRE boundary, could result in exceeding a dose of 5 rem whole body or its equivalent to any part of the body 5 rem TEDE to the CRE occupants in the event of a DBA.

Each CRHEAFS train is considered OPERABLE when the individual components necessary to limit CRE occupant exposure are OPERABLE. A train is considered OPERABLE when its associated:

a. Fan is OPERABLE,

b. HEPA filter and charcoal adsorbers are not excessively restricting flow and are capable of performing their filtration functions, and

c. Heater, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained.

In order for the CRHEAFS trains to be considered OPERABLE, the CRE boundary must be maintained such that inleakage of unfiltered air into the CRE does not exceed the inleakage assumed in the licensing basis analysis so that the CRE occupant dose from a large radioactive release does not exceed the calculated dose.

The LCO is modified by a Note allowing the CRE boundary to be opened intermittently under administrative controls. This Note 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 CRE. 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.

APPLICABILITY

In Run, Refuel or Startup and Hot Shutdown MODES, CRHEAFS must be OPERABLE to ensure that the CRE will remain habitable during and following a DBA, since the DBA could lead to a fission product release.

In Cold Shutdown and Refueling MODES, the probability and consequences of a DBA are reduced because of the pressure and temperature limitations in these MODES. Therefore, maintaining the CRHEAFS OPERABLE is not required in Cold Shutdown and Refueling MODE, except for the following situations under which significant radioactive releases can be postulated:

B.2 Control Room High Efficiency Air Filtration System (CRHEAFS) (Cont.)

APPLICABILITY (Cont.)

a. During operations with a potential for draining the reactor vessel (OPDRVs) and

b. During movement of recently irradiated fuel assemblies in the secondary containment. Due to radioactive decay, the CRHEAFS is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel. As discussed in Bases Section B3/4.7.C "Secondary Containment", CRHEAFS is not required to be operable during movement of irradiated fuel assemblies that have been allowed to decay for the minimum specified decay period i.e., no longer "recently irradiated.

If one train of the system is made or found to be inoperable, there is no immediate threat to the control room, and reactor operation may continue for a limited period of time while repairs are being made. In the event one CRHEAF train is inoperable, the redundant system's active components will be verified to be operable within 2 hours. During movement of recently irradiated fuel in a refueling outage, if the inoperable train is not restored to operable status within the required completion time, movement of recently irradiated fuel may continue provided the operable CRHEAF train is placed in the pressurization mode daily. This action ensures that the remaining train is operable, that no failures that would prevent actuation will occur, and that any active failure will be readily detected. An alternative is to suspend movement of recently irradiated fuel. If both trains of the CRHEAF system are inoperable, the reactor will be brought to a condition where the Control Room High Efficiency Air Filtration System is not required.

B.2 Control Room High Efficiency Air Filtration System (CRHEAFS) (Cont)

ACTIONS

3.7.B.2.c

With one CRHEAFS train inoperable, for reasons other than an inoperable CRE boundary, the inoperable CRHEAFS train must be restored to OPERABLE status within 7 days. With the unit in this condition, the remaining OPERABLE CRHEAFS train is adequate to perform the CRE occupant protection function. However, the overall reliability is reduced because a failure in the OPERABLE subsystem could result in loss of the CRHEAFS function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and that the remaining subsystem can provide the required capabilities.

3.7.B.2.e

If moving recently irradiated fuel assemblies while in Run, Startup, or Hot Shutdown, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of recently irradiated fuel assemblies is not sufficient reason to require a reactor shutdown. During movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs, if a CRHEAFS train is found or made inoperable for any reason other than an inoperable CRE boundary, these activities may continue during the succeeding 7 days provided that within 2 hours, the other CHREAFS train is verified to be OPERABLE and the emergency diesel generator associated with the OPERABLE CRHEAFS train is OPERABLE. If the inoperable CRHEAFS train cannot be restored to OPERABLE status within 7 days, then sub-action (i) may be exercised. Sub-action (i) requires performance of Surveillance Requirement 4.7.B.2.b.4 every 24 hours to ensure that the remaining CRHEAFS train is OPERABLE, that no failures that would prevent automatic actuation will occur, and that any active failure will be readily detected.

Sub-action (ii) is an alternative to sub-action (i) to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the CRE. This places the unit in a condition that minimizes the accident risk. Movement of recently irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Also, actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and the subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

B.2 Control Room High Efficiency Air Filtration System (CRHEAFS) (Cont)

ACTIONS (Cont.)

3.7.B.2.f

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 5 rem whole body or its equivalent to any part of the body 5 rem TEDE), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is inoperable. Actions must be taken to restore an OPERABLE 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. 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.

If the inoperable CRHEAFS train or the CRE boundary cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes accident risk. To achieve this status, the unit must be placed in at least Hot Shutdown within 12 hours and in Cold Shutdown within the following 24 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

B.2 Control Room High Efficiency Air Filtration System (CRHEAFS) (Cont.)

ACTIONS (Cont.)

3.7.B.2.g

If moving recently irradiated fuel assemblies while in Run, Startup, or Hot Shutdown, the fuel movement is independent of reactor operations. Therefore, inability to suspend movement of recently irradiated fuel assemblies is not sufficient reason to require a reactor shutdown. During movement of recently irradiated fuel assemblies in the secondary containment or during OPDRVs, with two CRHEAFS trains inoperable or with one or more CRHEAFS trains inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that present a potential for releasing radioactivity that might require isolation of the CRE. This places the unit in a condition that minimizes the accident risk.

Movement of recently irradiated fuel assemblies in the secondary containment must be suspended immediately. Suspension of these activities shall not preclude completion of movement of a component to a safe position. Actions must be initiated immediately to suspend OPDRVs to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until the OPDRVs are suspended.

SURVEILLANCE REQUIREMENTS

SR 4.7.B.2.a

Provisions are made for periodic tests of each standby filter train. These tests will include determinations of differential pressure across each filter and of filter efficiency. Since the filters are operated for short periods of time every month (4.7B.2.b.4) there is minimal loading on the filters. Therefore the once per cycle requirement is adequate.

SR 4.7.B.2.b

This SR verifies that the required CRHEAFS testing is performed. This testing includes HEPA filter performance, charcoal adsorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal (general use and following specific operations).

The in-place test results should indicate a system leak tightness of less than 0.1% bypass leakage for the charcoal adsorbers and a HEPA efficiency of at least 99% removal of cold DOP particulates. The laboratory carbon sample test results should indicate a methyl iodide removal efficiency of at least 97.5% for expected accident conditions. Tests of impregnated charcoal identical to that used in the filters indicate that a shelf life of five years leads to only minor decreases in methyl iodine removal efficiency. Hence, the frequency of laboratory carbon sample analysis is adequate to demonstrate acceptability. Since

B.2 Control Room High Efficiency Air Filtration System (CRHEAFS) (Cont.)

SURVEILLANCE (Cont.)
REQUIREMENTS

adsorbers must be removed to perform this analysis, this frequency also minimizes the system out of service time as a result of surveillance testing. In addition, although the halogenated hydrocarbon testing is basically a leak test, the adsorbers have charcoal of known efficiency and holding capacity for elemental iodine and/or methyl iodide, the testing also gives an indication of the relative efficiency of the installed system. The 31-day requirement for the ascertaining of test results ensures that the ability of the charcoal to perform its designed function is demonstrated and known in a timely manner.

Determination of the system pressure drop once per operating cycle provides indication that the HEPA filters and charcoal adsorbers are not clogged by excessive amounts of foreign matter and that no bypass routes through the filters or adsorbers had developed. Considering the relatively short times the systems will be operated for test purposes, plugging is unlikely and the test interval of once per operating cycle is reasonable. The test frequencies are adequate to detect equipment deterioration prior to significant defects, but the tests are not frequent enough to load the filters or adsorbers, thus reducing their reserve capacity too quickly. The filter testing is performed pursuant to appropriate procedures reviewed and approved by the Operations

Review Committee pursuant to Section 5 of these Technical Specifications. The in-place testing of charcoal filters is performed by injecting a halogenated hydrocarbon into the system upstream of the charcoal adsorbers. Measurements of the concentration upstream and downstream are made. The ratio of the inlet and outlet concentrations gives an overall indication of the leak tightness of the system. A similar procedure substituting dioctyl phthalate for halogenated hydrocarbon is used to test the HEPA filters.

SR 4.7.B.2.c

The electric heating coil in each filter train is tested periodically to ensure that the output is at least 14 Kw. This satisfies the requirement in the TS that inlet heaters in each train be capable of an output of at least 14 kW and that the air flowing through the CHREAFS filters will be at 70% humidity. This ensures that the charcoal filters can perform their safety function as required.

SR 4.7.B.2.d

This SR verifies that on an actual or simulated initiation signal, each CRHEAF subsystem starts and operates.

B.2 Control Room High Efficiency Air Filtration System (CRHEAFS) (Cont)

SURVEILLANCE (Cont.)
REQUIREMENTS

SR 4.7.B.2.e

This SR verifies the OPERABILITY of the CRE boundary by testing for unfiltered air inleakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program.

The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem whole body or its equivalent to any part of the body 5 rem TEDE and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air inleakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air inleakage is greater than the assumed flow rate, 3.7.2.B.f must be entered. This allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, (Ref. 7) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 8). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 9). Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope inleakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

C. Secondary Containment

The secondary containment is designed to minimize any ground level release of radioactive materials that might result from a serious accident. The reactor building provides secondary containment during reactor operation, when the drywell is sealed and in service; the reactor building provides primary containment during periods when the reactor is shutdown, the drywell is open, and activities are ongoing that require secondary containment to be operable. Because the secondary containment is an integral part of the complete containment system, secondary containment is required at all times that primary containment is required as well as during movement of "recently irradiated" fuel and during operations with the potential to drain the reactor vessel (OPDRVs).

There are two principal accidents for which credit is taken for secondary containment operability. These are a loss of coolant accident (LOCA) although not specifically evaluated for alternate source term methodology and a fuel handling accident involving "recently irradiated" fuel. The secondary containment performs no active function in response to each of these limiting events; however, its leak tightness is required to ensure that the release of radioactive materials from primary containment is restricted to those leakage paths and associated leakage rates assumed in the accident analysis and

C. Secondary Containment (Cont.)

that fission products entrapped within the secondary containment structure will be treated by the Standby Gas Treatment System (SGTS) prior to discharge to the environment.

In addition to these limiting accidents, OPDRVs can be postulated to cause a fission product release. During movement of recently irradiated fuel and OPDRVs, secondary containment would be the only barrier to a release to the environment. Therefore, movement of recently irradiated fuel and OPDRVs must be immediately suspended if the secondary containment is inoperable. Suspension of these activities shall not preclude completing an action that involves moving a component to a safe position.
Also, action must be immediately initiated to suspend OPDRVs to minimize the probability of a vessel drain down and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended.

An operable secondary containment provides a control volume into which fission products that bypass or leak from primary containment, or are released from the reactor coolant pressure boundary components located in secondary containment can be diluted and processed prior to release to the environment. For the secondary containment to be considered operable, it must have adequate leak tightness to ensure that the required vacuum can be established and maintained.

If secondary containment is inoperable (when required to be operable), it must be restored to operable status within 4 hours. The 4 hour completion time provides a period of time to correct the problem that is commensurate with importance of maintaining secondary containment during Run, Startup, and Hot Shutdown modes. This time period also ensures that the probability of an accident (requiring secondary containment operability) occurring during periods where secondary containment is inoperable is minimal.

If secondary containment cannot be restored to operable status within the required completion time, the plant must be brought to a mode in which the LCO does not apply. To achieve this status during power operation, the plant must be brought to at least Hot Shutdown within 12 hours and to Cold Shutdown within 36 hours. The allowed completion times are reasonable, based on operating experience, to reach the required plant conditions from full power condition in an orderly manner and without challenging plant systems.

The Fuel Handling Accident (FHA) analysis is based on an alternate source term methodology (10 CFR 50.67 and R.G. 1.183). This parametric analysis concluded that the calculated TEDE values to the control room occupants, the exclusion area boundary, and the low population zone are well below the allowable TEDE limits established in 10 CFR 50.67 without crediting Secondary Containment, SGTS and CRHEAFS as long as the fuel is allowed to decay for at least 24 hours following reactor shutdown.

As a result, "recently irradiated" fuel is defined as fuel that has occupied part of a critical reactor core within the previous 24 hours, i.e. reactor fuel that has decayed less than 24 hours following reactor shutdown. Each fuel cycle, prior to the refueling outage, the decay period that must elapse prior to movement of irradiated fuel in the core will be re-evaluated to ensure the appropriate, minimum decay period is enforced to maintain the validity of the FHA dose consequence analysis.

Therefore, SGTS, CRHEAFS, and Secondary Containment are not required to be operable during movement of decayed irradiated fuel that is no longer considered "recently irradiated." Conversely, Secondary Containment, SGTS, and CRHEAFS are required to be operable during movement of recently irradiated fuel assemblies.

C. Secondary Containment (Cont.)

Initiating reactor building isolation and operation of the standby gas treatment system to maintain at least a 1/4 inch of water negative pressure within the secondary containment provides an adequate test of the operation of the reactor building isolation valves, leak tightness of the reactor building and performance of the standby gas treatment system. Functionally testing the initiating sensors and associated trip channels demonstrates the capability for automatic actuation. Performing these tests prior to refueling will demonstrate secondary containment capability prior to the time the primary containment is opened for refueling. Periodic testing gives sufficient confidence of reactor building integrity and standby gas treatment system performance capability.