Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

FPL

May 20, 2008

L-2008-108
10 CFR 50.90

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

RE: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
Proposed License Amendment
Request for Additional Information Response
Control Room Habitability TSTF-448 (TAC Nos. MD6174 and MD6175)

On July 16, 2007, Florida Power and Light Company (FPL) submitted the St. Lucie Unit 1 and 2 Control Room Habitability TSTF-448 license amendment requests via FPL letter L-2007-084. As a result of the submittals, the NRC requested additional information. This correspondence provides the FPL response to the NRC Request for Additional Information (RAI) received by letter dated April 23, 2008.

Attachment 1 provides the RAI responses. Attachment 2 provides new TS markups and TS Bases markups. Attachment 3 provides the word processed TS pages. The no significant hazard analysis submitted with FPL letter L-2007-084 remains bounding. In accordance with 10 CFR 50.91(b)(1), a copy of the proposed amendment was forwarded to the State Designee for the State of Florida.

Please contact Ken Frehafer at 772-467-7748 if there are any questions about this submittal.

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

Executed on the 20th day of May 2008.

Very truly yours,

Gordon L. Johnston
Site Vice President
St. Lucie Nuclear Plant

GLJ/KWF

Attachment

cc: Mr. William A. Passetti, Florida Department of Health

A102
NRR

The license amendment request (LAR) proposes to amend the renewed Facility Operating License DPR-67 for St. Lucie Unit 1 and NPF-16 for St. Lucie Unit 2 to revise the licensing bases to modify Technical Specification (TS) requirements related to control room envelope habitability in accordance with TSTF-448, Revision 3. To support Nuclear Regulatory Commission (NRC) assessment of the acceptability of the LAR in regard to the proposed changes, please provide the response to the following items:

***NRC Question 1:***

*For Units 1 and 2, Section 2.2 of Attachment 1 of the license amendment request (LAR) dated July 16, 2007 reads:*

> *And finally, there is no significant production or storage of hazardous chemicals at the plant site of within the plant vicinity (Ref.9, Sections 2.2.2.1 and 9.4). Therefore, there is not a requirement to provide protection to control room operators in the CRE [control room envelope] from chemical hazards, as provided in the TSTF-448.*

*Identify Ref. 9 of the preceding excerpt, because the reference is not described elsewhere in the LAR.*

*Section 2.5 of Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors," reads:*

> *Licensees should evaluate the impact of hazardous chemicals on control room operators using the methodology of Regulatory Guide 1.78, "Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release" (Ref. 7). Regulatory Guide 1.78 encourages licensees to conduct periodic surveys of stationary and mobile sources of hazardous chemicals in the vicinity of their plant sites. The periodicity should be based on the number, size, and type of industrial and transportation activities in the vicinity of the plant and regional and local changes in uses of land. The staff recommends conducting a survey of the location, types, and quantities of the mobile and stationary hazardous chemical sources at least once every 3 years, or more frequently as applicable. The staff also recommends annual performance of an onsite survey of hazardous chemical sources...*

*What program and/or programs currently exist at St. Lucie Units 1 and 2 that ensure that the licensee revisits the issue of onsite and mobile sources of hazardous chemicals on a periodic basis?*

**FPL Response to Question 1:**

Reference 9 is the St. Lucie Unit 2 Updated Final Safety Analysis Report through Amendment 17. Section 2.2.2.1, "Description of Facilities," noted that there are no significant facilities within the plant vicinity that produce hazardous materials. Section 9.4, "Air Conditioning, Heating, Cooling and Ventilation System," includes a discussion of the Control Room Air Conditioning System and Control Room Emergency Cleanup System. Section 2.2.3.2, "Design Basis Toxic Chemical Events," provides the results that accidental releases of chemicals stored

on site and in the vicinity of the plant are found not to present undue risk to control room operators.

Actions for TS 3/4.7.7, Bases for TS 3/4.7.7, and TS 6.8.4.m (Control Room Envelope Habitability Program) have been revised to address chemical hazards consistent with TSTF-448, Revision 3. Two additional editorial changes have been made to Unit 1 TS 6.8.4.m to achieve commonality with Unit 2 TS 6.8.4.m and achieve closer consistency with TSTF-448, Revision 3. Attachment 2 provides Unit 1 replacement pages 3/4 7-20, Insert A to 6-15f, and Insert B to TS Bases 3/4.7.7. Attachment 2 also provides Unit 2 replacement pages 3/4 7-17, Insert C to 6-15i, and Insert D to TS Bases 3/4.7.7. In the absence of chemical hazards, the Action can be met by verifying that the chemical hazards analyses are current and require no hazardous chemical protection for the CRE occupants. These proposed changes will prevent having nonconservative TS and avoid the need for a TS change in the event a new chemical hazard is identified during a future offsite or onsite chemical hazards analysis. The program requirement that *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* will be satisfied, in the absence of identified chemical hazards, by the offsite and onsite chemical hazards analyses that conclude toxic protection for the CRE occupants is not required.

The Chemical Control Program for St. Lucie Units 1 and 2 assigns responsibility to the Chemical Control Supervisor to maintain and update a list of chemicals authorized for use, to approve the location of all chemical material storage areas, and to approve onsite use of hazardous chemical materials which may affect control room habitability. The Chemical Control Supervisor ensures that an Evaluation is prepared by Engineering for hazardous materials that may impact control room habitability. The toxicity impact on control room personnel shall not exceed the analysis values provided in Unit 1 UFSAR Section 9.4.1.3 and Table 9.4-1d, and Unit 2 UFSAR Section 2.2 and Table 2.2-8.

Unit 2 UFSAR Section 2.2.3.2 analyzes mobile sources of hazardous chemicals and determines that if the probability of an event is less than $10^{-7}$ per year, then it is not considered a design basis event. There are no pipelines carrying toxic chemicals located within five miles of the plant. The UFSAR identifies two primary threats to the plant with respect to toxic chemicals: the Florida East Coast Railway located approximately 2 miles WSW of the plant and the St. Lucie County Wastewater Treatment Facility located approximately 2 miles south of the plant.

An analysis performed using Regulatory Guide (RG) 1.78 methodology for the amounts of toxic chemicals transported by the Florida East Coast Railway identified chlorine as the principal toxic substance transported. The overall probability of an event that may affect control room habitability is $1.4 \times 10^{-8}$ per year; therefore, the release of chlorine due to a railroad accident is not a design basis event.

Chlorine was also identified as the toxic chemical considered in highway transportation accidents. The probability of an accident involving chlorine transport to the St. Lucie County Wastewater Treatment Facility, which could result in the toxicity level in either control room exceeding allowable limits, was determined to be $6.1 \times 10^{-8}$ per year.

These calculations demonstrate adequate margin in the analysis such that periodic update of mobile sources is not required. FPL agrees to follow RG 1.78 recommendations by conducting a survey at least once every 3 years for stationary sources of hazardous chemicals in the vicinity of the plant.

***NRC Question 2:***

*For St. Lucie Unit 1, the conclusion to the proposed ACTION statement "c." for MODES 1, 2, 3 and 4 of TS 3/4.7.7 reads:*

> *Otherwise, restore the filter train to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the next 30 hours."*

*Consistent with TSTF-448, the NRC staff notes that normally an ACTION statement directing a shutdown would typically be the last ACTION for a Limiting Condition for Operation (LCO). Discuss how the proposed order of the ACTIONS maintains the clarity of the ACTION statements and avoids misinterpretation.*

**FPL Response to Question 2:**

St. Lucie Unit 1 TS 3/4.7.7 has been revised as shown in Attachment 2 to provide clarity for ACTION c regarding the filter train inoperable due to reasons other than an inoperable control room envelope boundary. ACTION e has been added to provide clarity regarding the filter train inoperable due to an inoperable control room envelope boundary.

***NRC Question 3:***

*For St. Lucie Unit 1, Attachment 2, Page 5 of 9, m. Control Room Envelope Habitability Program of the LAR Insert 'A', item "d." reads:*

> *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 the CREVS, operating at the flow rate required by the VFTP, at a Frequency of 36 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 36 month assessment of the CRE boundary.*

*The frequency invoked on page 5.5-18 for 5.5.18.d (i.e., Control Room Habitability Program) of the Combustion Engineering Owners Group Standard Technical Specifications (CEOG STS) in Technical Specification Task Force Traveler 448 (TSTF-448), Revision 3, "Control Room Habitability" is 18 months.*

*The current Surveillance Requirement 4.7.7.1.d.2 for St. Lucie Unit 1 TS 3/4.7.7 reads:*

> *At least once per 18 months by:*

*2. Verifying that the system maintains the control room at a positive pressure ≥ 1/8 inch W.G. relative to the outside atmosphere during system operation with ≤ 450 cfm outside air intake.*

*Provide the basis for deviating from the 18-month test frequency found in TSTF-448, Revision 3, and the 18-month test frequency contained in the similar surveillance requirement for current pressure testing specified for St. Lucie Unit 1. In addition, provide a definition of STAGGERED TEST BASIS for Unit 1.*

**FPL Response to Question 3:**

Unit 1 TS 1.32 provides the definition for STAGGERED TEST BASIS, which is different from the definition of STAGGERED TEST BASIS used in CEOG STS and TSTF-448, Revision 3. The Unit 1 CREVS design consists of 2 trains of active components. To achieve the desired 18-month frequency specified by TSTF-448, Revision 3 for St. Lucie Unit 1, the test schedule for 2 trains of components is obtained from TS 1.32 by dividing the specified test interval into 2 equal subintervals, and testing one train of components at the beginning of each subinterval. The desired subinterval for one train of components is at an 18-month frequency. Therefore, for 2 trains of components the specified test interval is a 36-month interval, which is equivalent to the frequency invoked in TSTF-448.

***NRC Question 4:***

*Element d of the Control Room Envelope Habitability Program for St. Lucie Unit 2, shown in Insert 'B', on page 9 of 9 of Attachment 2, reads:*

*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 train of the CREACS, operating at the flow rate required by the VFTP, at a Frequency of 36 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 36 month assessment of the CRE boundary.*

*The frequency invoked on page 5.5-18 for 5.5.18.d (i.e., Control Room Habitability Program) of the CEOG STS in TSTF-448, Revision 3 is 18 months.*

*The current Surveillance Requirement 4.7.7.d.2 for St. Lucie Unit 2 TS 3/4.7.7 reads:*

*At least once per 18 months by:*

*2. Verifying that the system maintains the control room at a positive pressure of greater than greater than or equal to 1/8 inch Water Gauge relative to the outside atmosphere during system operation with ≤ 450 cfm outside air intake.*

*Provide the basis for deviating from the 18-month test frequency found in TSTF-448, Revision 3, and the 18-month test frequency contained in the similar surveillance requirement for current pressure testing specified for St. Lucie Unit 2. In addition, provide a definition of STAGGERED TEST BASIS for Unit 2.*

**FPL Response to Question 4:**

Unit 2 TS 1.32 provides the definition for STAGGERED TEST BASIS, which is different from the definition of STAGGERED TEST BASIS used in CEOG STS and TSTF-448, Revision 3. The Unit 2 CREACS design consists of 2 trains. To achieve the desired 18-month frequency specified by TSTF-448, Revision 3 for St. Lucie 2, the test schedule for 2 trains is obtained from TS 1.32 by dividing the specified test interval into 2 equal subintervals, and testing one train at the beginning of each subinterval. The desired subinterval for one train is at an 18-month frequency. Therefore, for 2 trains the specified test interval is a 36-month interval, which is equivalent to the frequency invoked in TSTF-448.

***NRC Question 5:***

*Attachment 5, page 6 of 7 second paragraph, second sentence uses the Unit 1 acronym CREVS instead of the Unit 2 acronym CREACS. Provide the staff with a clarification.*

**FPL Response to Question 5:**

The Unit 2 proposed TS Bases contains an error. FPL has updated the proposed TS Bases to reflect the correct Unit 2 acronym CREACS as shown in Attachment 3. Also, a paragraph was added to achieve consistency with the Bases for Unit 1.

Unit 1 and 2 TS and TS Bases Markups

**PLANT SYSTEMS**

**3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM**

**LIMITING CONDITION FOR OPERATION**

3.7.7.1 The control room emergency ventilation system shall be OPERABLE with:

a. Two booster fans,

b. Two isolation valves in each outside air intake duct,

c. Two isolation valves in the toilet area air exhaust duct,

d. One filter train,

e. At least two air conditioning units, and

f. Two isolation valves in the kitchen area exhaust duct.

Note: The control room envelope boundary may be opened intermittently under administrative control.

**APPLICABILITY**: MODES 1, 2, 3, 4, 5 and 6 or during movement of irradiated fuel assemblies.

**ACTION:**

**MODES 1, 2, 3 and 4:**

a. With one booster fan inoperable, restore the inoperable fan to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one isolation valve per air duct inoperable, operation may continue provided the other isolation valve in the same duct is maintained closed, otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With the filter train inoperable for reasons other than an inoperable Control Room Envelope boundary, restore the filter train to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With only one air conditioning unit OPERABLE, restore at least two air conditioning units to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

e. With the filter train inoperable due to an inoperable Control Room Envelope boundary:
1. Immediately initiate actions to implement mitigating actions, and
2. Within 24 hours, verify mitigating actions to ensure Control Room Envelope occupant exposures to radiological, chemical, and smoke hazards will not exceed limits, and
3. Restore Control Room Envelope boundary to OPERABLE status within 90 days.

With the above requirements not met, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

**ADMINISTRATIVE CONTROLS (continued)**

l. Steam Generator (SG) Program (continued)

d. (continued)

2. Inspect 100% of the tubes at sequential periods of 144, 108, 72, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outages nearest the end of the period. No SG shall operate for more than 72 effective full power months or three refueling outages (whichever is less) without being inspected.

3. If crack indications are found in any SG tube, then the next inspection for each SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever is less). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

e. Provisions for monitoring operational primary-to-secondary leakage.

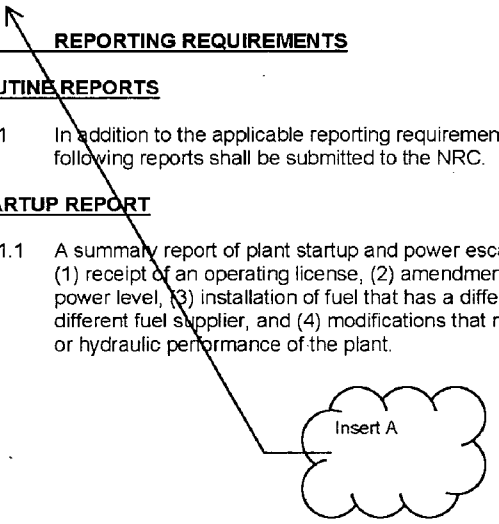
**6.9 REPORTING REQUIREMENTS**

**ROUTINE REPORTS**

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the NRC.

**STARTUP REPORT**

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment of the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal or hydraulic performance of the plant.



**INSERT 'A'**

m. 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 Emergency Ventilation System (CREVS), 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 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, "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 train of the CREVS, operating at the flow rate required by the VFTP, at a Frequency of 36 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 36 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. The provisions of SR 4.0.2 are 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.

| SECTION NO.: 3/4.7 | TITLE: TECHNICAL SPECIFICATIONS BASES ATTACHMENT 9 OF ADM-25.04 PLANT SYSTEMS ST. LUCIE UNIT 1 | PAGE: 7 OF 10 |
|---|---|---|
| REVISION NO: 1A | | |

**3/4.7 PLANT SYSTEMS** (continued)

**BASES** (continued)

**3/4.7.6 DELETED**

**3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM**

The OPERABILITY of the control room emergency ventilation system ensures that 1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system and 2) the control room will remain habitable for operations personnel during and following all credible accident conditions. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rem ~~or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criteria 19 of Appendix "A", 10 CFR 50.~~ **total effective dose equivalent.**

~~With respect to Surveillance 4.7.7.1.c, Regulatory Guide 1.52, Revision 3, Section 6.3 states that testing is required "...following painting, fire or chemical release...that may have an adverse effect on the functional capability of the system." Additionally, Footnote 8 states the painting, fire, or chemical release is "not communicating" with the HEPA filter or adsorber if the ESF atmosphere cleanup system is not in operation, the isolation dampers for the system are closed, and there is no pressure differential across the filter housing. This provides reasonable assurance that air is not passing through the filters and adsorbers." A program has been developed to control the use of paints and other volatiles in the areas served by the control room emergency ventilation system.~~

/R1

**INSERT 'B' HERE**

## INSERT 'B'

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. 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 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.

The location of CREVS components and ducting within the CRE control room envelope ensures an adequate supply of filtered air to all areas requiring access. The CREVS provides airborne radiological protection for the CRE occupants, as demonstrated by occupant dose analyses for the most limiting design basis accident fission product release presented in the UFSAR, Chapter 15.

The CREVS provides protection from smoke and hazardous chemicals to the CRE occupants. The analysis of record for hazardous chemical releases demonstrates that the toxicity limits are not exceeded in the CRE following a hazardous chemical release; therefore, automatic actuation of CREVS is not required. 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.

In order for the CREVS 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 that CRE occupants are protected from hazardous chemicals and smoke.

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.

In MODES 1, 2, 3, or 4, the CREVS must be OPERABLE to ensure that the CRE will remain habitable to limit operator exposure during and following a DBA.

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 total effective dose equivalent - 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. The CRE boundary will be considered to be inoperable when the filter train needs to be opened for routine maintenance activities. 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 allowable outage time (AOT) is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day AOT 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 AOT is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

In MODE 1, 2, 3, or 4, if the inoperable CREVS or the CRE boundary cannot be restored to OPERABLE status within the associated required AOT, the unit must be placed in a MODE that minimizes the accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 30 hours. The AOT 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.

The Surveillance Requirement (SR) 4.7.7.1.e 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 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 in Modes 1, 2, 3, and 4, ACTION 'c' must be taken. Required ACTION c.3 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, which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F. These compensatory measures may also be used as mitigating actions as required by Required ACTION c.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY, as discussed in letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2004, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." 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.

**PLANT SYSTEMS**

**3/4.7.7 CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM (CREACS)**

**LIMITING CONDITION FOR OPERATION**

3.7.7 Two independent control room emergency air cleanup systems shall be OPERABLE with:

a. A filter train and its associated fan per system, and

b. At least one air conditioning unit per system, and

c. Two isolation valves in the kitchen area exhaust duct, and

d. Two isolation valves in the toilet area exhaust duct, and

e. Two isolation valves in each (North and South) air intake duct.

Note: The control room envelope boundary may be opened intermittently under administrative control.

**APPLICABILITY:** MODES 1, 2, 3, 4, 5 and 6 or during movement of irradiated fuel assemblies.

**ACTION:**

**MODES 1, 2, 3, and 4:**

a. With one control room emergency air cleanup system inoperable for reasons other than an inoperable Control Room Envelope boundary, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With both control room emergency air cleanup systems inoperable, restore at least one system to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the next 30 hours. Replace with Insert on next page

c. With an isolation valve in an air intake duct or air exhaust duct inoperable, operation may continue provided the other isolation valve in the same air intake or air exhaust duct is maintained closed; otherwise be in at least HOT STANDBY in the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. Add Insert shown on next page

**MODES 5 and 6 or during movement of irradiated fuel assemblies:**

a. With one control room emergency air cleanup system inoperable for reasons other than an inoperable Control Room Envelope boundary, immediately restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE control room emergency air cleanup system in the recirculation mode or suspend movement of irradiated fuel assemblies immediately.

b. With both control room emergency air cleanup systems inoperable, or with one or more CREACS systems inoperable due to an inoperable Control Room Envelope boundary, immediately suspend movement of irradiated fuel assemblies.

c. With an isolation valve in an air intake duct or air exhaust duct inoperable, maintain the other isolation valve in the same air intake or air exhaust duct closed or suspend movement of irradiated fuel assemblies.

# Inserts

b. With one or more control room emergency air cleanup systems inoperable due to an inoperable Control Room Envelope boundary:

1. Immediately initiate actions to implement mitigating actions, and
2. Within 24 hours, verify mitigating actions to ensure Control Room Envelope occupant exposures to radiological, chemical, and smoke hazards will not exceed limits, and
3. Restore Control Room Envelope boundary to OPERABLE status within 90 days.

With the above requirements not met, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With two control room emergency air cleanup systems inoperable for reasons other than an inoperable Control Room Envelope boundary, immediately enter LCO 3.0.3.

**ADMINISTRATIVE CONTROLS (continued)**

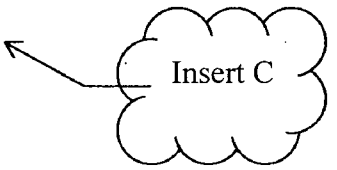
l. Steam Generator (SG) Program (continued)

2. (continued)

e. Provisions for monitoring operational primary-to-secondary leakage.

f. Provisions for SG tube repair methods. Steam generator tube repair methods shall provide the means to reestablish the RCS pressure boundary integrity of SG tubes without removing the tube from service. For the purposes of these Specifications, tube plugging is not a repair. All acceptable tube repair methods are listed below.

1. Westinghouse Leak Limiting Alloy 800 sleeves as described in WCAP-15918-P Revision 2 (with range of conditions as revised in Appendix A of WCAP-16489-NP, Revision 0). Leak Limiting Alloy 800 Sleeves are applicable only to the original steam generators. Prior to installation of each sleeve, the location where the sleeve joints are to be established shall be inspected.



**INSERT 'C'**

m. 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 Emergency Air Cleanup System (CREACS), 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 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, "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 train of the CREACS, operating at the flow rate required by the VFTP, at a Frequency of 36 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 36 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. The provisions of SR 4.0.2 are 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.

| SECTION NO.: 3/4.7 | TITLE: TECHNICAL SPECIFICATIONS BASES ATTACHMENT 9 OF ADM-25.04 PLANT SYSTEMS ST. LUCIE UNIT 2 | PAGE: 9 OF 11 |
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| REVISION NO: 3 | | |

**3/4.7 CONTAINMENT SYSTEMS** (continued)

**BASES** (continued)

**3/4.7.7 CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM**

The OPERABILITY of the Control Room Emergency Air Cleanup System ensures that (1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system and (2) the control room will remain habitable for operations personnel during and following all credible accident conditions. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rems ~~or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criteria 19 of Appendix "A", 10 CFR 50.~~ **total effective dose equivalent.**

~~With respect to Surveillance 4.7.7.c, Regulatory Guide 1.52, Revision 3, Section 6.3 states that testing is required "...following painting, fire or chemical release...that may have an adverse effect on the functional capability of the system." Additionally, Footnote 8 states the painting, fire, or chemical release is "not communicating" with the HEPA filter or adsorber if the ESF atmosphere cleanup system is not in operation, the isolation dampers for the system are closed, and there is no pressure differential across the filter housing. This provides reasonable assurance that air is not passing through the filters and adsorbers." A program has been developed to control the use of paints and other volatiles in the areas served by the control room emergency air cleanup system.~~

/R2

**INSERT 'D' HERE**

**3/4.7.8 ECCS AREA VENTILATION SYSTEM**

The OPERABILITY of the ECCS Area Ventilation System ensures that cooling air is provided for ECCS equipment.

## INSERT 'D'

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. 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 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.

The location of CREACS components and ducting within the CRE control room envelope ensures an adequate supply of filtered air to all areas requiring access. The CREACS provides airborne radiological protection for the CRE occupants, as demonstrated by occupant dose analyses for the most limiting design basis accident fission product release presented in the UFSAR, Chapter 15.

The CREACS provides protection from smoke and hazardous chemicals to the CRE occupants. The analysis of record for hazardous chemical releases demonstrates that the toxicity limits are not exceeded in the CRE following a hazardous chemical release; therefore, automatic actuation of CREACS is not required. 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.

In order for the CREACS 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 that CRE occupants are protected from hazardous chemicals and smoke.

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.

In MODES 1, 2, 3, 4, 5, and 6, and during movement of irradiated fuel assemblies, the CREACS must be OPERABLE to ensure that the CRE will remain habitable to limit operator exposure during and following a DBA.

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 total effective dose equivalent - 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. The CRE boundary will be considered to be inoperable when the filter train needs to be opened for routine maintenance activities. 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 allowable outage time (AOT) is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day AOT 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 AOT is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

In MODE 1, 2, 3, or 4, if the inoperable CREACS or the CRE boundary cannot be restored to OPERABLE status within the associated required AOT, the unit must be placed in a MODE that minimizes the accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 30 hours. The AOT 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.

The Surveillance Requirement (SR) 4.7.7.e 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 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 in Modes 1, 2, 3, and 4, ACTION 'b' must be taken. Required ACTION b.3 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, which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F. 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, as discussed in letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2004, "NEI Draft White Paper, Use of Generic Letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." 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.

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**PLANT SYSTEMS**

**3/4.7.7 CONTROL ROOM EMERGENCY VENTILATION SYSTEM**

**LIMITING CONDITION FOR OPERATION**

3.7.7.1 The control room emergency ventilation system shall be OPERABLE with:

a. Two booster fans,

b. Two isolation valves in each outside air intake duct,

c. Two isolation valves in the toilet area air exhaust duct,

d. One filter train,

e. At least two air conditioning units, and

f. Two isolation valves in the kitchen area exhaust duct.

**NOTE**
The control room envelope boundary may be opened intermittently under administrative control.

**APPLICABILITY:** MODES 1, 2, 3, 4, 5 and 6 or during movement of irradiated fuel assemblies.

**ACTION:**

**MODES 1, 2, 3 and 4:**

a. With one booster fan inoperable, restore the inoperable fan to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one isolation valve per air duct inoperable, operation may continue provided the other isolation valve in the same duct is maintained closed; otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With the filter train inoperable for reasons other than an inoperable Control Room Envelope boundary, restore the filter train to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With only one air conditioning unit OPERABLE, restore at least two air conditioning units to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

**PLANT SYSTEMS**

**ACTION:** (continued)

**MODES 1, 2, 3 and 4:** (continued)

e. With the filter train inoperable due to an inoperable Control Room Envelope boundary:

1. Immediately initiate actions to implement mitigating actions, and

2. Within 24 hours, verify mitigating actions to ensure Control Room Envelope occupant exposures to radiological, chemical, and smoke hazards will not exceed limits, and

3. Restore Control Room Envelope boundary to OPERABLE status within 90 days.

With the above requirements not met, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

**PLANT SYSTEMS**

**SURVEILLANCE REQUIREMENTS** (Continued)

d. At least once per 18 months by verifying that on a containment isolation signal the system automatically isolates the control room within 35 seconds and switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks.

e. By performing required Control Room Envelope unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.

**ADMINISTRATIVE CONTROLS (continued)**

l. Steam Generator (SG) Program (continued)

d. (continued)

2. Inspect 100% of the tubes at sequential periods of 144, 108, 72, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outages nearest the end of the period. No SG shall operate for more than 72 effective full power months or three refueling outages (whichever is less) without being inspected.

3. If crack indications are found in any SG tube, then the next inspection for each SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever is less). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

e. Provisions for monitoring operational primary-to-secondary leakage.

m. 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 Emergency Ventilation System (CREVS), 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 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, "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 train of the CREVS, operating at the flow rate required by the VFTP, at a Frequency of 36 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 36 month assessment of the CRE boundary.

**ADMINISTRATIVE CONTROLS (continued)**

m. Control Room Envelope Habitability Program (continued)

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. The provisions of SR 4.0.2 are 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.

**6.9 REPORTING REQUIREMENTS**

**ROUTINE REPORTS**

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the NRC.

**STARTUP REPORT**

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment of the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal or hydraulic performance of the plant.

**PLANT SYSTEMS**

**3/4.7.7 CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM (CREACS)**

**LIMITING CONDITION FOR OPERATION**

3.7.7 Two independent control room emergency air cleanup systems shall be OPERABLE with:

a. A filter train and its associated fan per system, and

b. At least one air conditioning unit per system, and

c. Two isolation valves in the kitchen area exhaust duct, and

d. Two isolation valves in the toilet area exhaust duct, and

e. Two isolation valves in each (North and South) air intake duct.

**NOTE**
The control room envelope boundary may be opened intermittently under administrative control.

**APPLICABILITY**: MODES 1, 2, 3, 4, 5 and 6 or during movement of irradiated fuel assemblies.

**ACTION**:

**MODES 1, 2, 3, and 4:**

a. With one control room emergency air cleanup system inoperable for reasons other than an inoperable Control Room Envelope boundary, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one or more control room emergency air cleanup systems inoperable due to an inoperable Control Room Envelope boundary:

1. Immediately initiate actions to implement mitigating actions, and

2. Within 24 hours, verify mitigating actions to ensure Control Room Envelope occupant exposures to radiological, chemical, and smoke hazards will not exceed limits, and

3. Restore Control Room Envelope boundary to OPERABLE status within 90 days.

With the above requirements not met, be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

c. With an isolation valve in an air intake duct or air exhaust duct inoperable, operation may continue provided the other isolation valve in the same air intake or air exhaust duct is maintained closed; otherwise be in at least HOT STANDBY in the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With two control room emergency air cleanup systems inoperable for reasons other than an inoperable Control Room Envelope boundary, immediately enter LCO 3.0.3.

**PLANT SYSTEMS**

**ACTION:** (continued)

**MODES 5 and 6 or during movement of irradiated fuel assemblies:**

a. With one control room emergency air cleanup system inoperable for reasons other than an inoperable Control Room Envelope boundary, immediately initiate and maintain operation of the remaining OPERABLE control room emergency air cleanup system in the recirculation mode or immediately suspend movement of irradiated fuel assemblies.

b. With both control room emergency air cleanup systems inoperable, or with one or more CREACS systems inoperable due to an inoperable Control Room Envelope boundary, immediately suspend movement of irradiated fuel assemblies.

c. With an isolation valve in an air intake duct or air exhaust duct inoperable, maintain the other isolation valve in the same air intake or air exhaust duct closed or suspend movement of irradiated fuel assemblies.

**PLANT SYSTEMS**

**SURVEILLANCE REQUIREMENTS** (Continued)

d. At least once per 18 months by:

1. Verifying that on a containment isolation test signal from Unit 2, the system automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks.

2. Verifying that on a containment isolation test signal from Unit 1 the system automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks.

e. By performing required Control Room Envelope unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.

**ADMINISTRATIVE CONTROLS (continued)**

l. Steam Generator (SG) Program (continued)

2. (continued)

e. Provisions for monitoring operational primary-to-secondary leakage.

f. Provisions for SG tube repair methods. Steam generator tube repair methods shall provide the means to reestablish the RCS pressure boundary integrity of SG tubes without removing the tube from service. For the purposes of these Specifications, tube plugging is not a repair. All acceptable tube repair methods are listed below:

1. Westinghouse Leak Limiting Alloy 800 sleeves as described in WCAP-15918-P Revision 2 (with range of conditions as revised in Appendix A of WCAP-16489-NP, Revision 0). Leak Limiting Alloy 800 Sleeves are applicable only to the original steam generators. Prior to installation of each sleeve, the location where the sleeve joints are to be established shall be inspected.

m. 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 Emergency Air Cleanup System (CREACS), 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 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, "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 train of the CREACS, operating at the flow rate required by the VFTP, at a Frequency of 36 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 36 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. The provisions of SR 4.0.2 are 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.