



July 16, 2007

L-2007-084  
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 Amendments  
Control Room Habitability TSTF-448

In accordance with the provisions of Section 50.90 of Title 10 of the *Code of Federal Regulations* (10 CFR), Florida Power and Light (FPL) is submitting a request for an amendment to the renewed facility operating license for DPR-67 for St. Lucie Unit 1 and NPF-16 for St. Lucie Unit 2. The proposed amendment would modify technical specification (TS) requirements related to control room envelope habitability in accordance with TSTF-448, Revision 3.

Attachment 1 provides a description of the proposed changes, the requested confirmation of applicability, and plant specific verifications. Attachment 2 provides the existing TS pages marked up to show the proposed changes. Attachment 3 provides revised and word-processed TS pages. Attachment 4 provides a summary of the regulatory commitments made in this submittal. Attachment 5 provides existing TS Bases pages marked up to show the proposed changes.

FPL submitted proposed license amendments via FPL letter L-2007-085 to implement the use of alternate source term (AST) methodology. The AST license amendment request needs to be approved by the NRC before or at the same time as this license amendment request for TSTF-448, Rev. 3. Therefore, FPL requests that the proposed license amendments be issued concurrent with the proposed alternate source term (AST) license amendments, with the amendments being implemented within 90 days.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Florida State Official.

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## 1.0 Description

The proposed amendment would modify technical specification (TS) requirements related to control room envelope habitability in Unit 1 TS 3.7.7.1, "Control Room Emergency Ventilation System (CREVS)," and Unit 2 TS 3.7.7, "Control Room Emergency Air Cleanup System (CREACS)," and adding a new Unit 1 and Unit 2 TS Section 6.8.4.m.

With consideration that the St. Lucie TS are custom TS, the proposed 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, (Volume 72, Number 10) as part of the consolidated line item improvement process (CLIIP).

## 2.0 Assessment

### 2.1 Applicability of Published Safety Evaluation

Florida Power and Light (FPL) has reviewed the safety evaluation dated January 17, 2007 as part of the CLIIP. This review included a review of the NRC staff's evaluation, as well as the supporting information provided to support TSTF-448. FPL has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to St. Lucie Units 1 and 2, and justify this amendment for the incorporation of the changes to the St. Lucie Technical Specifications.

### 2.2 Optional Changes and Variations

FPL is not proposing any variations or deviations from the TS changes described in the TSTF-448, Revision 3, or the applicable parts of the NRC staff's model safety evaluation dated January 17, 2007, except as shown below.

St. Lucie Unit 1 only has one filter train in the control room emergency ventilation system. The current licensing basis allows 24 hours to restore an inoperable filter train to service prior to initiating a plant shutdown. This license application retains the existing 24-hour allowed outage time for an inoperable filter train rather than the more restrictive immediate entry into 3.0.3 as proposed by TSTF-448. Additionally, no St. Lucie Unit 1 Technical Specification changes were needed for operation with one of two trains inoperable.

Also, because the Standard Technical Specification format is different from the St. Lucie TS format, the changes of TSTF-448 were adapted to fit the St. Lucie TS format.

And finally, there is no significant production or storage of hazardous chemicals at the plant site or 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 from chemical hazards, as provided in the TSTF-448.

### 2.3 License Condition Regarding Initial Performance of New Surveillance and Assessment Requirements

FPL proposes the following as a license condition to support implementation of the proposed TS changes:

Upon implementation of Amendment No. X\* for Unit 1 and Y\* for Unit 2 adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air leakage as required by SR 4.7.7.1.e (4.7.7.e in Unit 2), in accordance with TS 6.8.4.m (6.15 in Unit 2), the assessment of CRE habitability as required by Specification 6.8.4.m.c.(ii) [6.15.c.(ii) in Unit 2], and the measurement of CRE pressure as required by Specification 6.8.4.m.d (6.15.d in Unit 2), shall be considered met. Following implementation:

- (a) The first performance of SR 4.7.7.1.e (4.7.7.e in Unit 2), in accordance with Specification 6.8.4.m.c.(i) [6.15.c.(i) in Unit 2], shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 4.0.2, as measured from September 2003, the date of the most recent successful tracer gas test, as stated in FPL letters to NRC dated Dec. 9, 2003, and Oct. 29, 2004, in response to Generic Letter 2003-01.
- (b) The first performance of the periodic assessment of CRE habitability, Specification 6.8.4.m.c.(ii) [6.15.c(ii)], shall be within 3 years, plus the 9-month allowance of SR 4.0.2, as measured from September 2003, the date of the most recent successful tracer gas test, as stated in FPL letters to NRC dated Dec. 9, 2003, and Oct. 29, 2004, in response to Generic Letter 2003-01, or within the next 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 6.8.4.c.d (6.15.d for Unit 2), shall be within 36 months in a staggered test basis, plus the 138 days allowed by SR 4.0.2, as measured from June 30, 2006, in Unit 1 and November 13, 2006, in Unit 2 which are the dates of the most recent successful pressure measurement tests, or within 138 days if not performed previously.

*\* placeholders for actual amendment numbers*

## 3.0 Regulatory Analysis

### 3.1 No Significant Hazards Consideration Determination

FPL has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the Federal Register as part of the CLIIP. FPL has concluded that

the proposed NSHCD presented in the Federal Register notice is applicable to the St. Lucie Plant and is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

### 3.2 Commitments

FPL commits to perform the following activities for the St. Lucie Plant to comply with this Licensing Amendment Request:

Perform Control Room Envelope unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program (CREHP). The CREHP will have the following requirements:

Tracer Gas Testing. Determine 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, Revision 0,

CRE Habitability Assessment. Assess CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

Control Room Differential Pressure Test. Measure the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation of the Control Room Ventilation Systems, at a Frequency of 36 months on a STAGGERED TEST BASIS.

### 4.0 Environmental Evaluation

FPL has reviewed the environmental evaluation included in the model safety evaluation dated January 17, 2007, as part of the CLIIP. FPL has concluded that the staff's findings presented in that evaluation are applicable to the St. Lucie Plant and the evaluation is hereby incorporated by reference for this application.

Technical Specification Change  
Mark Ups

Unit 1

Page 3/4.7-20  
Page 3/4.7-23  
Page 6-15f

Unit 2

Page 3/4.7-17  
Page 3/4.7-19  
Page 6-15i

**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, 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.

due to an inoperable Control Room Envelope boundary:

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

Otherwise,

**PLANT SYSTEMS**

**SURVEILLANCE REQUIREMENTS (Continued)**

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d. At least once per 18 months by:



1. ~~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.~~
2. ~~Verifying that the system maintains the control room at a positive pressure  $\geq 1/8$  inch W.G. relative to the outside atmosphere during system operation with  $\leq 450$  cfm outside air intake.~~

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

**ADMINISTRATIVE CONTROLS (continued)**

I. 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**

INSERT 'A' HERE

**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 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 to any part of the body 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 leakage 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 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 leakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air leakage measured by the testing described in paragraph c. The unfiltered air leakage limit for radiological challenges is the leakage flow rate assumed in the licensing basis analyses of DBA consequences.
- f. The provisions of SR 4.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered leakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

**PLANT SYSTEMS**

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

**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.

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

**ACTION:**

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

for reasons other than an inoperable Control Room Envelope boundary, immediately

for reasons other than an inoperable Control Room Envelope boundary

- a. With one control room emergency air cleanup system inoperable, 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.
- 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.

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

- a. With one control room emergency air cleanup system inoperable, 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.
- b. With both control room emergency air cleanup systems inoperable, 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.

or with one or more CREACS systems inoperable due to an inoperable Control Room Envelope boundary, immediately

one or more  
 due to an inoperable Control Room Envelope boundary:

- 1. Immediately initiate actions to implement mitigating actions, and
- 2. Within 24 hours, verifying mitigating

- actions to ensure Control Room Envelope occupant exposures to radiological and smoke hazards will not exceed limits, and
- 3. Restore Control Room Envelope boundary to OPERABLE status, within 90 days.

Otherwise,

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.

immediately

**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 the system maintains the control room at a positive pressure of greater than or equal to 1/8 inch Water Gauge relative to the outside atmosphere during system operation with 450 cfm outside air intake.~~
3. 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)

- I. 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 'B'**

**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 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 leakage 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 leakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air leakage measured by the testing described in paragraph c. The unfiltered air leakage limit for radiological challenges is the leakage flow rate assumed in the licensing basis analyses of DBA consequences.
- f. The provisions of SR 4.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered leakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

Word Processed  
Technical Specification  
Changes

Unit 1

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Unit 2

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

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.

**PLANT SYSTEMS**

**ACTION:** (continued)

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

- 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**

**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)

I. 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 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 to any part of the body 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 leakage 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 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.
  - 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, verifying mitigating actions to ensure Control Room Envelope occupant exposures to radiological and smoke hazards will not exceed limits, and
  3. Restore Control Room Envelope boundary to OPERABLE status, within 90 days.

Otherwise, be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the next 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)**

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- 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)

i. 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 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 leakage 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 leakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air leakage measured by the testing described in paragraph c. The unfiltered air leakage limit for radiological challenges is the leakage flow rate assumed in the licensing basis analyses of DBA consequences.**
- f. The provisions of SR 4.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered leakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

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REGULATORY COMMITMENTS

DUE DATE/EVENT

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Tracer Gas Testing

The firm date for completion of this commitment is between September 2009 (6 year) and March 2011 (6 years + 25%) for both units.

CRE Habitability Assessment

The firm date for completion of this commitment is between September 2006 and June 2007. However, a CRH assessment was already performed for St. Lucie in September, 2006. Therefore, **this commitment has been completed.**

Control Room Differential Pressure Test

The firm dates for completion of these commitments are as follows:

- Unit 1 Train 'A' between December 30, 2007 and May 17, 2008.
- Unit 1 Train 'B' between June 30, 2009 and November 16, 2009.
- Unit 2 Train 'A' between May 13, 2008 and September 29, 2008
- Unit 2 Train 'B' between November 13, 2009 and March 31, 2010.

St. Lucie Units 1 and 2  
Docket Nos. 50-335 and 50-389  
Proposed License Amendments  
Control Room Habitability TSTF-448

L-2007-084  
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TB Bases (Information Only)

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**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 'A' HERE**

### INSERT 'A'

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 to the CRE occupants. The analysis of 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 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 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 event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from 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 leakage 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 smoke. This SR verifies that the unfiltered air leakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air leakage 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 leakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.

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**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 'B' 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 '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 CREACS 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.

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 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 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 event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA

consequences, and that CRE occupants are protected from 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 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.

When in MODES 5 and or 6, or during movement of irradiated fuel assemblies, with both CREACS trains inoperable or with one or more CREACS trains inoperable due to an inoperable CRE boundary, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the CRE. This places the unit in a condition that minimizes the accident risk. This does not preclude the movement of fuel to a safe position.

The Surveillance Requirement (SR) 4.7.7.e verifies the OPERABILITY of the CRE boundary by testing for unfiltered air leakage 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 leakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air leakage 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 leakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status.