Progress Energy

Crystal River Nuclear Plant
Docket No. 50-302
Operating License No. DPR-72

Ref: 10 CFR 50.90

June 19, 2008
3F0608-08

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

Subject: Crystal River Unit 3 – License Amendment Request #299, Revision 1: Application to Revise Technical Specifications Regarding Control Room Envelope Habitability in Accordance with TSTF-448, Revision 3, Using the Consolidated Line Item Improvement Process, Response to Request for Additional Information

Reference: FPC to NRC letter, 3F0707-03, LAR #299, Revision 0, Application to Revise Technical Specifications Regarding Control Room Envelope Habitability in Accordance with TSTF-448, Revision 3, Using the Consolidated Line Item Improvement Process, (TAC No. MD6044), dated July 12, 2007

Dear Sir:

On April 11, 2008, the Nuclear Regulatory Commission (NRC) issued, by email, a Request for Additional Information (RAI) regarding License Amendment Request (LAR) #299 (Reference). The RAI requested information pertaining to the Crystal River Unit 3 (CR-3) Improved Technical Specifications (ITS). In accordance with the provisions of 10 CFR 50.90, Florida Power Corporation (FPC), doing business as Progress Energy Florida, Inc., hereby provides the response to the RAI. This response provides a change to the CR-3 ITS and draft ITS Bases and supersedes the referenced letter in its entirety.

Regulatory commitments are listed in Attachment E.

The No Significant Hazards Consideration evaluation included in Section 3.1 of Attachment B does not invalidate the conclusions of the No Significant Hazards Consideration evaluation included in the referenced letter.

The CR-3 Plant Nuclear Safety Committee has reviewed this RAI response and ITS revision request and recommended it for approval.

If you have any questions regarding this submittal, please contact Mr. Daniel Westcott, Supervisor, Licensing and Regulatory Programs at (352) 563-4796.

A102
NRR

Progress Energy Florida, Inc.
Crystal River Nuclear Plant
15760 W. Powerline Street
Crystal River, FL 34428

Sincerely,

Dale E. Young
Vice President
Crystal River Nuclear Plant

DEY/par
Attachments:
A. Response to Request for Additional Information
B. Description of the Proposed Change, Background, Technical Analysis, Determination of No Significant Hazards Considerations, and the Environmental Assessment
C. Proposed Improved Technical Specification Pages (Bases Pages for Information Only) - Strikeout and Shadowed Text Format
D. Proposed Improved Technical Specification Pages (Bases Pages for Information Only) – Revision Bar Format
E. List of Regulatory Commitments

xc: NRR Project Manager
Regional Administrator, Region II
Senior Resident Inspector

STATE OF FLORIDA

COUNTY OF CITRUS

Dale E. Young states that he is the Vice President, Crystal River Nuclear Plant for Florida Power Corporation, doing business as Progress Energy Florida, Inc.; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission the information attached hereto; and that all such statements made and matters set forth therein are true and correct to the best of his knowledge, information, and belief.

Dale E. Young
Vice President
Crystal River Nuclear Plant

The foregoing document was acknowledged before me this 19 day of June, 2008, by Dale E. Young.

Signature of Notary Public
State of Florida

CAROLYN E. PORTMANN
Notary Public - State of Florida
My Commission Expires Mar 1, 2010
Commission # DD 524380
Bonded By National Notary Assn.

(Print, type, or stamp Commissioned Name of Notary Public)

Personally Known ✓ -OR- Produced Identification _____

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302 / LICENSE NUMBER DPR-72

LICENSE AMENDMENT REQUEST #299, REVISION 1
Application to Revise Technical Specifications Regarding Control Room Envelope Habitability in Accordance with TSTF 448, Revision 3, Using the Consolidated Line Item Improvement Process, Response to Request for Additional Information

ATTACHMENT A

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Response to Request for Additional Information

On April 11, 2008, Florida Power Corporation (FPC) received an electronic Request for Additional Information (RAI) concerning License Amendment Request (LAR) #299, Revision 0, (Reference) via email. FPC hereby provides the following response to this RAI.

1. *TSTF-448, "Control Room Habitability", was developed for plants with pressurized control room envelopes. You stated that your plant has a non-pressurized control room envelope. Note that in the programs and manuals section of the standard technical specifications (STS) as modified by TSTF-448 revision 3, paragraph (d) of section 5.5.18, "Control Room Envelope Habitability Program", specifies a differential pressure (dp) test to be conducted between performances of in-leakage testing for the purpose of providing input to a periodic assessment of the control room envelope (CRE) boundary. The NRC staff recognizes that non-pressurized control room envelopes may not be able to conduct a dp test, nevertheless, TSTF-448 should include a requirement for a method to collect data that will serve as input to a periodic assessment of the CRE boundary. This position is supported by the technical analysis section of TSTF-448 revision 3 on page 8 where an explanation of the basis for paragraph (d) is provided. Consequently, the staff is requesting that you provide a method to collect data, and an explanation of how it is used as input to a periodic assessment of your CRE boundary. The method should, to the extent practicable, provide information that can be used in a manner similar to the manner in which the information is to be used that is requested by paragraph (d) of section 5.5.18 of the programs and manuals section of the STS as modified by revision 3 of TSTF-448.*

FPC Response

TSTF 448, Page 8 as mentioned in the RAI, specifies a differential pressure test to be conducted between performances of in-leakage testing. The RAI indicates that the NRC staff recognizes the limitations of a differential pressure test when performed on a non-pressurized (neutral pressure) control room envelope. Crystal River Unit 3 (CR-3) concurs with the position that a differential pressure test performed on the neutral pressure CRE (referred to as Control Complex Habitability Envelope (CCHE) at CR-3) will not provide useful information that can be utilized in assuring CRE barrier integrity.

The neutral pressure design presents technical difficulties in the successful performance of a meaningful and repeatable differential pressure test, which makes this test impracticable. Some of these difficulties are defined below:

- Differential pressure in a neutral pressure control complex would vary with ambient conditions.
- Measuring at a single elevation of the Control Complex is not indicative of the actual pressure differential since it varies depending on the elevation and conditions in the adjoining buildings.
- Installing the pressure differential equipment at multiple elevations would require more breaches to be made into the CCHE. The breaches would be sealed, but they would result in additional potential failure points.

The purpose of this differential pressure test is to "provide a gross indication of barrier integrity" and monitor "the health of the Control Room Envelope (CRE) barrier between performance of

in-leakage testing." CR-3 utilizes administrative controls which have demonstrated successful CCHE integrity is maintained. Three successful in-leakage (tracer gas) tests have been performed since 1997, in accordance with Surveillance Procedure (SP) 500, "Control Complex Habitability Envelope Integrated Leak Determination," to determine in-leakage into the CCHE. Each test has demonstrated that the CCHE in-leakage is approximately half of the 1000 cubic feet per minute (cfm) assumed in the CCHE calculations. These results demonstrate continued ability in providing protection to the Control Room Operators.

Multiple procedures and programs are in place to accomplish these administrative controls:

- Compliance Procedure (CP) -154, "Control Complex Habitability Envelope Integrity Program"
  - This procedure implements the ITS 5.6.2.21 program
  - The purpose of this program is to ensure the physical integrity of the CCHE is always maintained
  - This procedure describes methods of breach control; the CCHE preventive maintenance program including penetrations, such as for doors/door seals, penetrations/seals, dampers and floor drains; and the method for configuration control which ensures that changes are not made to the plant nor the design basis analyses that could affect control room habitability

- Surveillance Procedure (SP) -353, "Control Room Emergency Ventilation System and RM-A5 Monthly Test"
  - Monthly functional test of Control Room Emergency Ventilation System (CREVS) response to high radiation signal
  - Boundary dampers verified to be closed upon high radiation signal

- CP-147, "Control Complex Habitability Envelope (CCHE) Breaches"
  - This procedure provides a means for identifying, tracking and controlling CCHE breaches
  - Provides instructions for discovery of unexpected breaches, planning of a CCHE breach and documenting and tracking CCHE breaches

Since the performance of a differential pressure test on the CCHE at CR-3 is not practical because of its neutral pressure design, preventive maintenance and breach control is the CR-3 method of providing a gross indication of barrier integrity and monitoring the health of the CCHE between performance of in-leakage testing.

2. *Florida Power Corporation (FPC) has requested a license amendment to for Crystal River Unit 3, for Technical Specifications regarding control room envelope habitability. FPC proposes to revise the Technical Specifications in accordance with TSTF-448. TSTF-448 revised REQUIRED ACTION B2 of the STS TS 3.1.10, "Control Room Emergency Ventilation System (CREVS)" to state that "Verify mitigating actions ensure CRE occupant exposures to radiological, chemical and smoke hazards will not exceed limits." During development of Revision 3 to TSTF-448, it was agreed that smoke requirements were qualitative rather than quantitative. In the NRC meeting minutes that agreed to this change (Agencywide Documents*

Access and Management Systems Accession No. ML061310293), it was noted that this was acceptable, because general qualitative requirements for protecting CRE occupants from smoke challenges are retained in the first paragraph of the proposed TS 5.5 Habitability Program, along with a licensing basis discussion in the proposed "Applicable Safety Analyses" section of the Bases for TS 3.7.3, which together adequately address the licensing requirements for protecting CRE occupants from smoke. Also, the TSTF-448 bases for REQUIRED ACTION Item B.2, states that during the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional.

The licensee, in its letter dated July 12, 2007, has proposed to remove the words "chemical and smoke hazards" from the Required Action. Although, licensee addresses chemical hazard analysis and the mitigating actions that will be performed two minutes after initial detection, the licensee does not address the requirements for protecting CRE occupants from smoke challenges or chemical hazards in the proposed TS 5.6.2.21, "Control Complex habitability Envelope Integrity Program." The Crystal River proposed TS addresses the radiological protection but not protection from hazardous chemicals or smoke challenges. Please describe as part of the Technical Specifications how you will verify that the mitigating actions implemented in REQUIRED ACTION item B.2 protect CRE occupants from chemical hazards and smoke hazards with one or more CREVS trains inoperable due to inoperable CRE boundary.

FPC Response

FPC has reviewed LAR #299, Revision 0, and has determined that it is possible to include the words "chemical and smoke hazards" in ITS 3.7.12, "Control Room Emergency Ventilation System (CREVS)," Required Action B.2. As such, FPC has included in Attachments B, C, and D, revised LAR #299, Revision 1, which supersedes the previously submitted Revision 0 in its entirety.

The limits for toxic gas and smoke are established as nasal detection. This statement is consistent with the NRC meeting minutes developed during industry and NRC staff discussions conducted during development of Revision 3 to TSTF 448, where agreement was reached that smoke requirements are qualitative rather than quantitative. Refer to The NRC Agency wide Documents Access and Management System (ADAMS) Accession No. ML061310293.

FPC is extending this philosophy to include chemical hazards. The CR-3 quantitative detection methods were removed after approval of Amendment 199 (September 17, 2001).

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302 / LICENSE NUMBER DPR-72

LICENSE AMENDMENT REQUEST #299, REVISION 1
Application to Revise Technical Specifications Regarding Control Room Envelope Habitability in Accordance with TSTF 448, Revision 3, Using the Consolidated Line Item Improvement Process
Response to Request for Additional Information

ATTACHMENT B

DESCRIPTION OF THE PROPOSED CHANGE,

BACKGROUND, TECHNICAL ANALYSIS,

DETERMINATION OF NO SIGNIFICANT HAZARDS

CONSIDERATIONS, AND THE

ENVIRONMENTAL ASSESSMENT

DESCRIPTION OF THE PROPOSED CHANGE, BACKGROUND, TECHNICAL ANALYSIS, DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS, AND THE ENVIRONMENTAL ASSESSMENT

1.0 DESCRIPTION OF PROPOSED CHANGE

The proposed amendment would modify Improved Technical Specifications (ITS) requirements related to the control room habitability envelope addressed in ITS Section 3.7.12, "Control Room Emergency Ventilation System (CREVS)" and ITS Section 5.6.2.21, "Control Complex Habitability Envelope Integrity Program."

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

Draft ITS Bases changes are included for information only.

The No Significant Hazards Consideration evaluation included in Section 3.1 of this Attachment does not invalidate the No Significant Hazards Consideration evaluation included in License Amendment Request (LAR) # 299, Revision 0. Accession No. ML071970042.

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

Florida Power Corporation, (FPC) 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. FPC has concluded that the justifications presented in the TSTF proposal and the safety evaluation prepared by the NRC staff are applicable to Crystal River Unit 3 (CR-3) and justify this amendment for the incorporation of the changes to the CR-3 ITS.

2.2 Optional Changes and Variations

FPC is not proposing any significant variations or deviations from the ITS changes described in TSTF-448, Revision 3, with the exception of not performing differential pressure testing across the CCHE boundary, or the applicable parts of the NRC staff's model safety evaluation dated January 17, 2007. The variations as described below reflect plant specific design, current licensing basis and plant specific variations from NUREG-1430, Standard Technical Specifications for Babcock and Wilcox Plants.

The term "Control Room Envelope (CRE)" in TSTF-448 has been modified in the FPC proposal to read "Control Complex Habitability Envelope (CCHE)." The CCHE is the equivalent of the Standard Technical Specification (STS) reference to CRE. The CCHE is the space within the Control Complex served by CREVS. Together the CCHE and CREVS provide an enclosed environment from which the plant can be operated following an uncontrolled release of radioactivity.

The CR-3 CCHE is unique in its design. It consists of the top five floors of the Control Complex and at a volume of 365,000 cubic feet., it provides habitability via zone isolation with filtered recirculation. The CR-3 CCHE is not pressurized to limit in-leakage, and makeup air is not utilized in recirculation mode. Leak tightness and filtration capability provide the necessary level of protection for control room operators to ensure exposure limits associated with Design Basis Accidents (DBAs) are not exceeded. The top floor contains the control complex ventilation equipment room. The Control Room is one floor below. The CCHE also houses Emergency Safeguards (ES) Actuation System switchgear, ES batteries and the cable spreading room.

Unfiltered air in-leakage tests have been performed on the CR-3 CCHE in 1997, 1999 and most recently in May 2007. The three tests have had similar results of less than 590 cfm in-leakage adjusted for the worst case differential pressure. In comparison, the results of control room dose calculations indicate that CCHE in-leakage can be as high as 1000 cfm under all conditions without exceeding control room dose limits. These consecutive tests provide reasonable assurance that the administrative controls implemented to ensure the CCHE integrity are effective.

On September 17, 2001, CR-3 was issued ITS Amendment No. 199 regarding alternative source term (AST) and the control room ventilation system. The amendment adopted full implementation of the alternative source term and conformed to the intent of TSTF Traveler 287. With Amendment No. 199, ITS 3.7.12 was revised to remove applicability of the ITS during movement of irradiated fuel assemblies. This revision included limiting the applicability of ITS 3.7.12 to Modes 1, 2, 3 and 4, deleting ITS 3.7.12 Conditions D and F and deleting references to Modes 1, 2, 3 and 4 in conditions C and E. This was acceptable based on the following: FPC did not credit control room isolation or the use of the CREVS recirculation filters in the performance of the fuel handling accident analyses. FPC showed the control room dose criterion of 10 CFR 50.67(b)(2)(iii) and that of GDC-19 will still be met without this credit.

When addressing chemical hazards, analysis has shown CREVS can remain in normal alignment and still provide CCHE occupants two minutes after initial nasal detection to take appropriate action, including use of Self Contained Breathing Apparatus (SCBA) and isolation of CREVS with manual actions. This analysis was reviewed by the NRC during the review of Amendment 199. Therefore, maintaining a low leakage boundary in accordance with the radiological criterion, combined with the availability of respiratory protection for the control room operators, ensures the capability of continued control room habitability following a toxic gas release.

For a smoke challenge to the CCHE from an outside fire or smoke condition, maintaining a low leakage boundary in accordance with the radiological criterion, combined with the availability of respiratory protection for the control room operators, ensures the capability of continued control room habitability following a smoke release. The system is also capable of a partial smoke purge operation should smoke conditions be encountered from inside the CCHE.

The CR-3 CCHE is not pressurized to limit in-leakage. Leak tightness and filtration capability provide the necessary level of protection for the control room occupants to ensure that exposure limits associated with design basis accidents are not exceeded and smoke challenges can be coped with. The air within the CCHE is recirculated and does not require outside air to supplement that which is within the CCHE boundary. TSTF-448, Control Room Envelope Habitability Program 5.5.18.d requires a measurement of CCHE pressure relative to all external areas during the pressurization mode. Since CR-3 CREVS does not operate in a pressurization

mode, this section, ITS 5.6.2.21.4, has been revised to state that the Control Complex Habitability Envelope Integrity Program will be used to verify the integrity of the Control Complex boundary. Conditions that are identified to be adverse shall be trended and used as part of the 24 month assessment of the CCHE boundary.

Section 3.3 of the NRC model safety evaluation provides several different evaluations that would be applicable to different sites due to site-specific physical configurations or licensing bases. Evaluation 1 of the Model Safety Evaluation Section 3.0 is applicable to CR-3.

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

FPC proposes the following as a license condition to support implementation of the proposed ITS changes:

Upon implementation of Amendment No. xxx adopting TSTF-448, Revision 3, the determination of control complex habitability envelope (CCHE) unfiltered air in-leakage as required by Surveillance Requirement (SR) 3.7.12.4, in accordance with ITS 5.6.2.21.3(i) and the assessment of CCHE habitability as required by ITS 5.6.2.21.3(ii), shall be considered met. Following implementation:

a) The first performance of SR 3.7.12.4, in accordance with Specification 5.6.2.21.3(i), shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 3.0.2, as measured from May 18, 2007, the date of the most recent successful in-leakage test.

b) The first performance of the periodic assessment of CCHE habitability, ITS 5.6.2.21.3(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from May 18, 2007, the date of the most recent successful in-leakage test.

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Determination

Florida Power Corporation (FPC) has reviewed the proposed no significant hazards consideration determination (NSHCD) published in the *Federal Register* as part of the CLIIP. FPC has concluded that the proposed NSHCD presented in the *Federal Register* notice is applicable to Crystal River Unit 3 and is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

3.2 Verification and Commitments

Attachment E contains the regulatory commitments associated with this submittal.

4.0 ENVIRONMENTAL EVALUATION

Florida Power Corporation (FPC) has reviewed the environmental evaluation included in the model safety evaluation dated January 17, 2007 as part of the CLIIP. FPC has concluded that the staff's findings presented in that evaluation are applicable to Crystal River Unit 3 and the evaluation is hereby incorporated by reference for this application.

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

LICENSE AMENDMENT REQUEST #299, REVISION 1
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ATTACHMENT C

Proposed Improved Technical Specification Pages

(Bases Pages for Information Only)

Strikeout and Shadowed Text Format

3.7 PLANT SYSTEMS

3.7.12 Control Room Emergency Ventilation System (CREVS)

LCO 3.7.12 Two CREVS trains shall be OPERABLE.

NOTE

The control complex habitability envelope (CCHE) boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CREVS train inoperable for reasons other than Condition B.	A.1 Restore CREVS train to OPERABLE status.	7 days
B. ~~Two~~ One or more CREVS trains inoperable due to inoperable CCHE boundary.	B.1 ~~Restore CCHE boundary to OPERABLE status.~~ Initiate action to implement mitigating actions. AND B.2 Verify mitigating actions ensure CCHE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits. AND B.3 Restore CCHE boundary to OPERABLE status.	~~24 hours~~ Immediately 24 hours 90 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours
D. Two CREVS trains inoperable for reasons other than Condition B.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.12.1	Operate each CREVS train for ≥ 15 minutes.	31 days
SR 3.7.12.2	Perform required CREVS filter testing in accordance with the Ventilation Filter Testing Program.	In accordance with the Ventilation Filter Testing Program
SR 3.7.12.3	Verify each CREVS train actuates to the emergency recirculation mode on an actual or simulated actuation signal.	24 months
SR 3.7.12.4	~~Verify control complex habitability envelope integrity in accordance with ITS 5.6.2.21.~~ Perform required CCHE unfiltered air in-leakage testing in accordance with the Control Complex Habitability Envelope Integrity Program.	In accordance with the Control Complex Habitability Envelope Integrity Program

5.6 Procedures, Programs and Manuals

5.6.2.21 Control Complex Habitability Envelope Integrity Program

~~A program shall be established to maintain the integrity of the control complex habitability envelope to ensure the dose limits of 10 CFR 50 Appendix A General Design Criteria 19 are not exceeded. The program shall establish acceptable leakage limits, ensure maintenance activities are monitored and provide a preventive maintenance program for the control complex habitability envelope.~~

~~The Control Complex Habitability Envelope Integrity Program shall ensure that:~~

~~1. Breaches in the habitability envelope are managed to ensure that in-leakage remains below design basis analysis limits.~~

~~2. The preventive maintenance program includes doors, wall/roof/floor penetrations, dampers and floor drains that are part of the control complex habitability envelope.~~

~~3. Periodic evaluations of the systems, components and key analysis assumptions are performed.~~

~~4. Configuration control of the CCHE is maintained.~~

A Control Complex Habitability Envelope Integrity Program shall be established and implemented to ensure that CCHE habitability is maintained such that, with an OPERABLE Control Room Emergency Ventilation System (CREVS), CCHE 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 challenge from smoke. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CCHE 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.

1. The definition of the CCHE and the CCHE boundary.

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

(continued)

5.6 Procedures, Programs and Manuals

5.6.2.21 Control Complex Habitability Envelope Integrity Program (continued)

3. Requirements for (i) determining the unfiltered air in-leakage past the CCHE boundary into the CCHE 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 CCHE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

4. The Control Complex Habitability Envelope Integrity Program will be used to verify the integrity of the Control Complex boundary. Conditions that are identified to be adverse shall be trended and used as part of the 24 month assessment of the CCHE boundary.

5. The quantitative limits on unfiltered air in-leakage into the CCHE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air in-leakage measured by the testing described in paragraph 3. The unfiltered air in-leakage limit for radiological challenges is the in-leakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air in-leakage limits for hazardous chemicals and smoke must ensure that exposure of CCHE occupants to these hazards will be within the assumptions in the licensing basis.

6. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CCHE habitability, determining CCHE unfiltered in-leakage as required by paragraph 3.

(continued)

B 3.7 PLANT SYSTEMS

B 3.7.12 Control Room Emergency Ventilation System (CREVS)

BASES

BACKGROUND

The principal function of the Control Room Emergency Ventilation System (CREVS) is to provide an enclosed environment from which the plant can be operated following an uncontrolled release of radioactivity, ~~or toxic gas~~ hazardous chemicals or smoke.

The CREVS consists of two trains that recirculate and filter the air in the control complex habitability envelope (CCHE) and a CCHE boundary that limits the in-leakage of unfiltered air. ~~with~~ mMuch of the non-safety related equipment is common to both trains ~~and~~ with two independent, redundant components supplied for major items of safety related equipment (Ref. 1). The major equipment consists of the normal duty filter banks, the emergency filters, air handling heat exchangers, the normal duty and emergency duty supply fans, and the return fans. The normal duty filters consist of one bank of glass fiber roughing filters. The emergency filters consist of a roughing filter similar to the normal filters, high efficiency particulate air (HEPA) filters, and activated charcoal adsorbers for removal of gaseous activity (principally iodine). The rest of the system, consisting of supply and return ductwork, dampers, and instrumentation, is not designed with redundant components. However, redundant dampers are provided for isolation of the ventilation system from the surrounding environment.

The ~~Control Complex Habitability Envelope (~~CCHE~~)~~ is the space within the Control Complex served by CREVS. This includes Control Complex floor elevations from 108 through 180 feet and the stair enclosure from elevation 95 to 198 feet~~.~~, including the spaces that control room occupants inhabit to control the unit during normal and accident conditions. This area encompasses the control room, and other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CCHE is protected during normal operation, natural events, and accident conditions. The elements which compromise the CCHE are walls, doors, a roof, floors, floor drains, penetration seals, and ventilation isolation dampers. Together the CCHE and CREVS provide an enclosed environment from which the plant can be operated following an uncontrolled release of radioactivity, ~~or toxic gas~~ hazardous chemicals or smoke.

(continued)

BASES

BACKGROUND (continued)

The OPERABILITY of the CCHE boundary must be maintained to ensure that the in-leakage of unfiltered air into the CCHE will not exceed the in-leakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CCHE occupants. The CCHE and its boundary are defined in the Control Complex Habitability Envelope Integrity Program.

CREVS has a normal operation mode and two recirculation modes. During normal operation, the system provides filtered, conditioned air to the control complex, including the controlled access area (CA) on the 95 foot elevation. When switched to the recirculation mode, isolation dampers close isolating the discharge to the controlled access area and isolating the outside air intake. In this mode the system recirculates filtered air through the CCHE.

The control complex normal duty ventilation system is operated from the control room and runs continuously. During normal operation, the outside air intake damper is partially open, the atmospheric relief discharge damper is closed, the discharge to the CA is open, and the system return damper is throttled. This configuration allows a controlled amount of outside air to be admitted to the control complex. The design temperature maintained by the system is 75°F at a relative humidity of 50%.

Two signals will cause the system to automatically switch to the recirculation modes of operation.

1. (ESAS) signal	Engineered Safeguards Actuation System (high reactor building pressure).
2. duct radiation	High radiation signal from the return monitor RM-A5.

The recirculation modes isolate the CCHE from outside air to ensure a habitable environment for the safe shutdown of the plant. In these modes of operation, the controlled access area is isolated from the CCHE.

Upon detection of ESAS, the system switches to the normal recirculation mode. In this mode, dampers for the outside air intake and the exhaust to the CA will automatically close, isolating the CCHE from outside air exchange, and the system return damper will open thus allowing air in the CCHE to be recirculated. Additionally, the CA fume hood exhaust fan, CA fume hood auxiliary supply fan, and CA

(continued)

BASES

BACKGROUND (continued)

exhaust fans are de-energized and their corresponding isolation dampers close. The return fan, normal filters, normal fan, and the cooling (or heating) coils remain in operation in a recirculating mode.

Upon detection of high radiation by RM-A5 the system switches to the emergency recirculation mode. In this mode, the dampers that isolate the CCHE from the surroundings will automatically close. The CA fume hood exhaust fan, CA fume hood auxiliary supply fan, CA exhaust fan, normal supply fan, and return fan are tripped and their corresponding isolation dampers close. Manual action is required to restart the return fan and place the emergency fans and filters in operation. The cooling (or heating) coils remain in operation.

The CREVS is designed to maintain a habitable environment in the CCHE for 30 days of continuous occupancy after a DBA, without exceeding a 5 rem total effective dose equivalent (TEDE).

Qualitative limits for chemical hazards and smoke were established based on the May 12, 2006 NRC meeting minutes located in the NRC Agencywide Documents and Access and Management System (ADAMS) Accession No. ML061310293.

APPLICABLE SAFETY ANALYSIS

During emergency operations the design basis of the CREVS and the CCHE is to provide radiation protection to the control room occupants. The limiting accident which may threaten the habitability of the control room (i.e., accidents resulting in release of airborne radioactivity) is the postulated Control Rod Ejection accident. The consequences of this event result in the limiting radiological source term for the control room habitability evaluation (Ref. 2). The CREVS and the CCHE ensures that the control room will remain habitable following all postulated design basis events, maintaining exposures to control room occupants within the limits of GDC 19 of 10 CFR 50 Appendix A (Ref. 3).

The analysis for toxic gas states that dangerous chemicals are not stored at the Crystal River Energy Complex in sufficient quantities to exceed established limits in the CCHE. However, the analysis of hazardous chemical releases also demonstrates operator actions can be taken to ensure that the toxicity limits are not exceeded prior to donning protective equipment in the CCHE following a hazardous chemical release. The method of detection will be nasal detection. The CREVS can also be used to provide protection from smoke hazards for the CCHE occupants. Upon nasal detection of smoke outside of the CCHE, the Control Room staff will perform an evaluation of the smoke challenge to demonstrate that the smoke hazard will not result in the inability of the CCHE occupants to control the reactor either from the control room or from the remote shutdown panel. After the evaluation, the Control room staff will isolate the CCHE in the recirculation mode of CREVs as necessary.

The CREVS is not in the primary success path for any accident analysis. However, the Control Room Emergency Ventilation System meets Criterion 3 of the NRC Policy Statement since long term control room habitability is essential to mitigation of accidents resulting in atmospheric fission product release.

(continued)

LCO

Two trains of the control room emergency ventilation system are required to be OPERABLE to ensure that at least one is available assuming a single active failure disables the other train. Failure to meet the LCO could result in the control room becoming uninhabitable in the unlikely event of an accident. Total system failure, such as from a loss of both ventilation trains or from an inoperable CCHE boundary, could result in exceeding a dose of 5 rem TEDE to the CCHE occupants in the event of a large radioactive release.

The required CREVS trains must be independent to the extent allowed by the design which provides redundant components for the major equipment as discussed in the BACKGROUND section of this bases. OPERABILITY of the CREVS requires the following as a minimum:

a. A Control Complex Emergency Duty Supply Fan is OPERABLE;

b. A Control Complex Return Fan is OPERABLE;

c. HEPA filter and charcoal adsorber are not excessively restricting flow, and are capable of performing their filtration functions;

d. Ductwork and dampers are OPERABLE, and air circulation can be maintained; and

e. the CCHE is intact as discussed below.

~~The CCHE boundary including the integrity of the doors, walls, roof, floors, floor drains, penetration seals, and ventilation isolation dampers must be maintained within the assumptions of the design calculations.~~ Breaches in the CCHE must be controlled to provide assurance that the CCHE remains capable of performing its function.

In order for the CREVS trains to be considered OPERABLE, the CCHE boundary must be maintained such that the CCHE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analysis for DBAs, and that control room occupants are protected from hazardous chemicals and smoke.

If CCHE integrity cannot be maintained within limits, the CCHE is rendered inoperable and entry into LCO Condition B is required. If the Required Actions of ~~LCO~~ Condition B ~~is~~ are not met within the respective Completion Times, then Condition C must be entered.

(continued)

BASES

LCO (continued)

The LCO is modified by a Note allowing the CCHE boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CCHE 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 person(s) entering or exiting the area. For other designed openings such as hatches, panels and access ports, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with the operators in the control room. This individual will have a method to rapidly close the opening and to restore the CCHE boundary to a condition equivalent to the design condition when a need for CCHE isolation is indicated.

The ability to maintain temperature in the Control Complex is addressed in Technical Specification 3.7.18.

APPLICABILITY

In MODES 1, 2, 3, and 4, the CREVS must be OPERABLE to ensure that the CCHE will remain habitable during and following a postulated accident.

ACTIONS

A.1

With one CREVS train inoperable for reasons other than an inoperable CCHE boundary, action must be taken to restore the train to OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CREVS train is adequate to perform the radiation protection function for control room ~~operators~~ occupants. However, the overall reliability is reduced because a failure in the OPERABLE CREVS train could result in loss of CREVS function. The 7 day Completion Time is based on the low probability of an accident occurring during this time period, and ability of the remaining train to provide the required capability.

(continued)

BASES

ACTIONS (continued)

B.1, B.2 and B.3

~~With the CCHE inoperable, the CREVS trains cannot perform their intended functions. Actions must be taken to restore an OPERABLE CCHE boundary within 24 hours. During the time frame that the CCHE boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC 19) should be utilized to protect control room operators from potential hazards such as radiation, toxic chemicals and smoke. Restoration of the CCHE boundary is not limited to returning the boundary to its previous condition, but can also be accomplished using temporary sealing measures as described in plant procedures and/or work instructions.~~

~~Condition B will permit maintenance and modification to the habitability envelope boundary. It also will provide the opportunity to repair the boundary in a time frame consistent with the safety significance. Breaches in the envelope, that are either planned or discovered, may be evaluated in accordance with design basis documents to determine if the CCHE remains OPERABLE. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the condition. The 24 hour completion time is reasonable based on the low probability of a significant release occurring during this time and the use of compensatory measures.~~

If the unfiltered in-leakage of potentially contaminated air past the CCHE boundary and into the CCHE can result in CCHE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to 5 rem TEDE), the CCHE boundary is inoperable. Actions must be taken to restore an OPERABLE CCHE boundary within 90 days.

During the period that the CCHE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CCHE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. Actions must be taken within 24 hours to verify that in the event of a DBA, the mitigating actions will ensure that CCHE occupant radiological exposure will not exceed the calculated dose of the licensing basis analysis of DBA consequences, and that control room occupants are protected from hazardous chemicals and smoke. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CCHE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of mitigating actions. The 90 day Completion Time is

(continued)

ACTIONS (continued)

B.1, B.2 and B.3 (continued)

reasonable based on the determination that the mitigating actions will ensure protection of CCHE occupants within analyzed limits while limiting the probability the CCHE occupants will have to complement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CCHE boundary.

C.1 and C.2

In MODE 1, 2, 3, or 4, if the inoperable CREVS train or CCHE boundary cannot be restored to OPERABLE status, within the associated Completion Time, the plant must be placed in a MODE that minimizes accident risk. To achieve this status, the plant must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

D.1

If both CREVS trains are inoperable for reasons other than an inoperable CCHE the CREVS may not be capable of performing the intended function and the plant is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.7.12.1

Standby systems should be checked periodically to ensure that they function properly. Since the environment and normal operating conditions on this system are not severe, testing each train once every month adequately checks proper function of this system. Systems such as the CR-3 design without heaters need only be operated for $\geq$ 15 minutes to demonstrate the function of the system. The 31 day Frequency is based on the known reliability of the equipment and the two train redundancy available.

SR 3.7.12.2

This SR verifies that the required CREVS testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The CREVS filter tests are in accordance with Regulatory Guide 1.52, (Ref. 4) as described in the

(continued)

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.12.2 (continued)

VFTP Program description (FSAR, Section 9.7.4). The VFTP includes testing HEPA filter performance, charcoal absorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal. Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.12.3

This SR verifies that each CREVS train actuates to place the control complex into the emergency recirculation mode on an actual or simulated actuation signal. The Frequency of 24 months is based on industry operating experience and is consistent with the typical fuel cycle length.

SR 3.7.12.4

~~This SR verifies that CCHE integrity is maintained. The details of the program are contained in the Control Complex Habitability Envelope Integrity Program, which is required by Technical Specification 5.6.2.21. Failure to meet individual program requirements does not necessarily make the CCHE inoperable. Each individual failure should be evaluated in accordance with design basis documents to determine if the CCHE can still perform its safety function. If the CCHE can still function as required in the design basis analysis, the system remains OPERABLE.~~

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

The CCHE is considered habitable when the radiological dose to CCHE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem TEDE, and the control room occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air in-leakage into the CCHE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air in-leakage is greater

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.12.4 (continued)

than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CCHE boundary to OPERABLE status provided mitigating actions can ensure that the CCHE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, (Ref. 5) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 6). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 7). Options for restoring the CCHE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CCHE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope in-leakage test may not be necessary to establish that the CCHE boundary has been restored to OPERABLE status.

REFERENCES

1. FSAR, Section 9.7.2.1.g.

2. FPC Calculation N-00-0006.

3. 10 CFR 50, Appendix A, GDC 19.

4. Regulatory Guide 1.52, Rev. ~~2~~3, ~~1978~~ 2001.

5. Regulatory Guide 1.196

6. NEI 99-03, "Control Room Habitability Assessment," June 2001.

7. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2005, "NEI Draft White Paper, Use of generic letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML040300694).

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

LICENSE AMENDMENT REQUEST #299, REVISION 1
Application to Revise Technical Specifications Regarding Control Room Envelope Habitability in Accordance with TSTF 448, Revision 3, Using the Consolidated Line Item Improvement Process
Response to Request for Additional Information

ATTACHMENT D

Proposed Improved Technical Specification Pages

(Bases Pages for Information Only)

Revision Bar Format

3.7 PLANT SYSTEMS

3.7.12 Control Room Emergency Ventilation System (CREVS)

LCO 3.7.12 Two CREVS trains shall be OPERABLE.

NOTE

The control complex habitability envelope (CCHE) boundary may be opened intermittently under administrative control.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One CREVS train inoperable for reasons other than Condition B.	A.1 Restore CREVS train to OPERABLE status.	7 days
B. One or more CREVS trains inoperable due to inoperable CCHE boundary.	B.1 Initiate action to implement mitigating actions. AND B.2 Verify mitigating actions ensure CCHE occupant exposures to radiological, chemical, and smoke hazards will not exceed limits. AND B.3 Restore CCHE boundary to OPERABLE status.	Immediately 24 hours 90 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours
D. Two CREVS trains inoperable for reasons other than Condition B.	D.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.12.1	Operate each CREVS train for ≥ 15 minutes.	31 days
SR 3.7.12.2	Perform required CREVS filter testing in accordance with the Ventilation Filter Testing Program.	In accordance with the Ventilation Filter Testing Program
SR 3.7.12.3	Verify each CREVS train actuates to the emergency recirculation mode on an actual or simulated actuation signal.	24 months
SR 3.7.12.4	Perform required CCHE unfiltered air in-leakage testing in accordance with the Control Complex Habitability Envelope Integrity Program.	In accordance with the Control Complex Habitability Envelope Integrity Program

5.7 Procedures, Programs and Manuals

5.6.2.21 Control Complex Habitability Envelope Integrity Program

A Control Complex Habitability Envelope Integrity Program shall be established and implemented to ensure that CCHE habitability is maintained such that, with an OPERABLE Control Room Emergency Ventilation System (CREVS), CCHE 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 challenge from smoke. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CCHE 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.

1. The definition of the CCHE and the CCHE boundary.

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

3. Requirements for (i) determining the unfiltered air in-leakage past the CCHE boundary into the CCHE 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 CCHE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

4. The Control Complex Habitability Envelope Integrity Program will be used to verify the integrity of the Control Complex boundary. Conditions that are identified to be adverse shall be trended and used as part of the 24 month assessment of the CCHE boundary.

5. The quantitative limits on unfiltered air in-leakage into the CCHE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air in-leakage measured by the testing described in paragraph 3. The unfiltered air in-leakage limit for radiological challenges is the in-leakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air in-leakage limits for hazardous chemicals and smoke must ensure that exposure

(continued)

5.6 Procedures, Programs and Manuals

5.6.2.21 Control Complex Habitability Envelope Integrity Program (continued)

of CCHE occupants to these hazards will be within the assumptions in the licensing basis.

6. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CCHE habitability, determining CCHE unfiltered in-leakage as required by paragraph 3.

B 3.7 PLANT SYSTEMS

B 3.7.12 Control Room Emergency Ventilation System (CREVS)

BASES

BACKGROUND

The principal function of the Control Room Emergency Ventilation System (CREVS) is to provide an enclosed environment from which the plant can be operated following an uncontrolled release of radioactivity, hazardous chemicals or smoke.

The CREVS consists of two trains that recirculate and filter the air in the control complex habitability envelope (CCHE) and a CCHE boundary that limits the in-leakage of unfiltered air. Much of the non-safety related equipment is common to both trains with two independent, redundant components supplied for major items of safety related equipment (Ref. 1). The major equipment consists of the normal duty filter banks, the emergency filters, air handling heat exchangers, the normal duty and emergency duty supply fans, and the return fans. The normal duty filters consist of one bank of glass fiber roughing filters. The emergency filters consist of a roughing filter similar to the normal filters, high efficiency particulate air (HEPA) filters, and activated charcoal adsorbers for removal of gaseous activity (principally iodine). The rest of the system, consisting of supply and return ductwork, dampers, and instrumentation, is not designed with redundant components. However, redundant dampers are provided for isolation of the ventilation system from the surrounding environment.

The CCHE is the space within the Control Complex served by CREVS. This includes Control Complex floor elevations from 108 through 180 feet and the stair enclosure from elevation 95 to 198 feet, including the spaces that control room occupants inhabit to control the unit during normal and accident conditions. This area encompasses the control room, and other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CCHE is protected during normal operation, natural events, and accident conditions. The elements which compromise the CCHE are walls, doors, a roof, floors, floor drains, penetration seals, and ventilation isolation dampers. Together the CCHE and CREVS provide an enclosed environment from which the plant can be operated following an uncontrolled release of radioactivity, hazardous chemicals or smoke.

(continued)

BASES

BACKGROUND (continued)

The OPERABILITY of the CCHE boundary must be maintained to ensure that the in-leakage of unfiltered air into the CCHE will not exceed the in-leakage assumed in the licensing basis analysis of design basis accident (DBA) consequences to CCHE occupants. The CCHE and its boundary are defined in the Control Complex Habitability Envelope Integrity Program.

CREVS has a normal operation mode and two recirculation modes. During normal operation, the system provides filtered, conditioned air to the control complex, including the controlled access area (CA) on the 95 foot elevation. When switched to the recirculation mode, isolation dampers close isolating the discharge to the controlled access area and isolating the outside air intake. In this mode the system recirculates filtered air through the CCHE.

The control complex normal duty ventilation system is operated from the control room and runs continuously. During normal operation, the outside air intake damper is partially open, the atmospheric relief discharge damper is closed, the discharge to the CA is open, and the system return damper is throttled. This configuration allows a controlled amount of outside air to be admitted to the control complex. The design temperature maintained by the system is 75°F at a relative humidity of 50%.

Two signals will cause the system to automatically switch to the recirculation modes of operation.

1. Engineered Safeguards Actuation System (ESAS) signal (high reactor building pressure).

2. High radiation signal from the return duct radiationmonitor RM-A5.

The recirculation modes isolate the CCHE from outside air to ensure a habitable environment for the safe shutdown of the plant. In these modes of operation, the controlled access area is isolated from the CCHE.

Upon detection of ESAS, the system switches to the normal recirculation mode. In this mode, dampers for the outside air intake and the exhaust to the CA will automatically close, isolating the CCHE from outside air exchange, and the system return damper will open thus allowing air in the CCHE to be recirculated. Additionally, the CA fume hood exhaust fan, CA fume hood auxiliary supply fan, and CA

(continued)

BASES

BACKGROUND (continued)

exhaust fans are de-energized and their corresponding isolation dampers close. The return fan, normal filters, normal fan, and the cooling (or heating) coils remain in operation in a recirculating mode.

Upon detection of high radiation by RM-A5 the system switches to the emergency recirculation mode. In this mode, the dampers that isolate the CCHE from the surroundings will automatically close. The CA fume hood exhaust fan, CA fume hood auxiliary supply fan, CA exhaust fan, normal supply fan, and return fan are tripped and their corresponding isolation dampers close. Manual action is required to restart the return fan and place the emergency fans and filters in operation. The cooling (or heating) coils remain in operation.

The CREVS is designed to maintain a habitable environment in the CCHE for 30 days of continuous occupancy after a DBA, without exceeding a 5 rem total effective dose equivalent (TEDE).

Qualitative limits for chemical hazards and smoke were established based on the May 12, 2006 NRC meeting minutes located in the NRC Agencywide Documents and Access and Management System (ADAMS) Accession No. ML061310293.

APPLICABLE SAFETY ANALYSIS

During emergency operations the design basis of the CREVS and the CCHE is to provide radiation protection to the control room occupants. The limiting accident which may threaten the habitability of the control room (i.e., accidents resulting in release of airborne radioactivity) is the postulated Control Rod Ejection accident. The consequences of this event result in the limiting radiological source term for the control room habitability evaluation (Ref. 2). The CREVS and the CCHE ensures that the control room will remain habitable following all postulated design basis events, maintaining exposures to control room occupants within the limits of GDC 19 of 10 CFR 50 Appendix A (Ref. 3).

The analysis for toxic gas states that dangerous chemicals are not stored at the Crystal River Energy Complex in sufficient quantities to exceed established limits in the CCHE. However, the analysis of hazardous chemical releases also demonstrates operator actions can be taken to ensure that the toxicity limits are not exceeded prior to donning protective equipment in the CCHE following a hazardous chemical release. The method of detection will be nasal detection. The CREVS can also be used to provide protection from smoke hazards for the CCHE occupants. Upon nasal detection of smoke outside of the CCHE, the Control Room staff will perform an evaluation of the smoke challenge to demonstrate that the smoke hazard will not result in the inability of the CCHE occupants to control the reactor either from the control room or from the remote shutdown panel. After the evaluation, the Control room staff will isolate the CCHE in the recirculation mode of CREVs as necessary.

The CREVS is not in the primary success path for any accident analysis. However, the Control Room Emergency Ventilation System meets Criterion 3 of the NRC Policy Statement since long term control room habitability is essential to mitigation of accidents resulting in atmospheric fission product release.

(continued)

LCO

Two trains of the control room emergency ventilation system are required to be OPERABLE to ensure that at least one is available assuming a single active failure disables the other train. Failure to meet the LCO could result in the control room becoming uninhabitable in the unlikely event of an accident. Total system failure, such as from a loss of both ventilation trains or from an inoperable CCHE boundary, could result in exceeding a dose of 5 rem TEDE to the CCHE occupants in the event of a large radioactive release.

The required CREVS trains must be independent to the extent allowed by the design which provides redundant components for the major equipment as discussed in the BACKGROUND section of this bases. OPERABILITY of the CREVS requires the following as a minimum:

a. A Control Complex Emergency Duty Supply Fan is OPERABLE;

b. A Control Complex Return Fan is OPERABLE;

c. HEPA filter and charcoal adsorber are not excessively restricting flow, and are capable of performing their filtration functions;

d. Ductwork and dampers are OPERABLE, and air circulation can be maintained; and

e. the CCHE is intact as discussed below.

Breaches in the CCHE must be controlled to provide assurance that the CCHE remains capable of performing its function.

In order for the CREVS trains to be considered OPERABLE, the CCHE boundary must be maintained such that the CCHE occupant dose from a large radioactive release does not exceed the calculated dose in the licensing basis consequence analysis for DBAs, and that control room occupants are protected from hazardous chemicals and smoke.

If CCHE integrity cannot be maintained within limits, the CCHE is rendered inoperable and entry into LCO Condition B is required. If the Required Actions of Condition B are not met within the respective Completion Times, then Condition C must be entered.

(continued)

BASES

LCO (continued)

The LCO is modified by a Note allowing the CCHE boundary to be opened intermittently under administrative controls. This Note only applies to openings in the CCHE 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 person(s) entering or exiting the area. For other designed openings such as hatches, panels and access ports, these controls should be proceduralized and consist of stationing a dedicated individual at the opening who is in continuous communication with the operators in the control room. This individual will have a method to rapidly close the opening and to restore the CCHE boundary to a condition equivalent to the design condition when a need for CCHE isolation is indicated.

The ability to maintain temperature in the Control Complex is addressed in Technical Specification 3.7.18.

APPLICABILITY

In MODES 1, 2, 3, and 4, the CREVS must be OPERABLE to ensure that the CCHE will remain habitable during and following a postulated accident.

ACTIONS

A.1

With one CREVS train inoperable for reasons other than an inoperable CCHE boundary, action must be taken to restore the train to OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CREVS train is adequate to perform the radiation protection function for control room occupants. However, the overall reliability is reduced because a failure in the OPERABLE CREVS train could result in loss of CREVS function. The 7 day Completion Time is based on the low probability of an accident occurring during this time period, and ability of the remaining train to provide the required capability.

B.1, B.2 and B.3

If the unfiltered in-leakage of potentially contaminated air past the CCHE boundary and into the CCHE can result in CCHE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to 5 rem TEDE), the CCHE boundary is inoperable. Actions must be taken to restore an OPERABLE CCHE boundary within 90 days.

(continued)

BASES

ACTIONS (continued)

B.1, B.2 and B.3

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

C.1 and C.2

In MODE 1, 2, 3, or 4, if the inoperable CREVS train or CCHE boundary cannot be restored to OPERABLE status, within the associated Completion Time, the plant must be placed in a MODE that minimizes accident risk. To achieve this status, the plant must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

D.1

If both CREVS trains are inoperable for reasons other than an inoperable CCHE the CREVS may not be capable of performing the intended function and the plant is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.12.1

Standby systems should be checked periodically to ensure that they function properly. Since the environment and normal operating conditions on this system are not severe, testing each train once every month adequately checks proper function of this system. Systems such as the CR-3 design without heaters need only be operated for ≥ 15 minutes to demonstrate the function of the system. The 31 day Frequency is based on the known reliability of the equipment and the two train redundancy available.

SR 3.7.12.2

This SR verifies that the required CREVS testing is performed in accordance with the Ventilation Filter Testing Program (VFTP). The CREVS filter tests are in accordance with Regulatory Guide 1.52, (Ref. 4) as described in the VFTP Program description (FSAR, Section 9.7.4). The VFTP includes testing HEPA filter performance, charcoal absorber efficiency, minimum system flow rate, and the physical properties of the activated charcoal. Specific test frequencies and additional information are discussed in detail in the VFTP.

SR 3.7.12.3

This SR verifies that each CREVS train actuates to place the control complex into the emergency recirculation mode on an actual or simulated actuation signal. The Frequency of 24 months is based on industry operating experience and is consistent with the typical fuel cycle length.

SR 3.7.12.4

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

The CCHE is considered habitable when the radiological dose to CCHE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem TEDE, and the control room occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air in-leakage into the CCHE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air in-leakage is greater

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SURVEILLANCE REQUIREMENTS (continued)

SR 3.7.12.4 (continued)

than the assumed flow rate, Condition B must be entered. Required Action B.3 allows time to restore the CCHE boundary to OPERABLE status provided mitigating actions can ensure that the CCHE remains within the licensing basis habitability limits for the occupants following an accident. Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, (Ref. 5) which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F (Ref. 6). These compensatory measures may also be used as mitigating actions as required by Required Action B.2. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY (Ref. 7). Options for restoring the CCHE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CCHE boundary, or a combination of these actions. Depending upon the nature of the problem and the corrective action, a full scope in-leakage test may not be necessary to establish that the CCHE boundary has been restored to OPERABLE status.

REFERENCES

1. FSAR, Section 9.7.2.1.g.

2. FPC Calculation N-00-0006.

3. 10 CFR 50, Appendix A, GDC 19.

4. Regulatory Guide 1.52, Rev. 3, 2001.

5. Regulatory Guide 1.196

6. NEI 99-03, "Control Room Habitability Assessment," June 2001.

7. Letter from Eric J. Leeds (NRC) to James W. Davis (NEI) dated January 30, 2005, "NEI Draft White Paper, Use of generic letter 91-18 Process and Alternative Source Terms in the Context of Control Room Habitability." (ADAMS Accession No. ML040300694).

(continued)

FLORIDA POWER CORPORATION

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302/LICENSE NUMBER DPR-72

LICENSE AMENDMENT REQUEST #299, REVISION 1
Application to Revise Technical Specifications Regarding Control Room Envelope Habitability in Accordance with TSTF 448, Revision 3, Using the Consolidated Line Item Improvement Process
Response to Request for Additional information

ATTACHMENT E

LIST OF REGULATORY COMMITMENTS

List of Regulatory Commitments

The following table identifies those actions committed to by Florida Power Corporation (FPC) in this document. Any other actions discussed in the submittal represent intended or planned actions by FPC. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Supervisor, Licensing and Regulatory Programs of any questions regarding this document or any associated regulatory commitments.

Commitment	Due Date
The Control Complex Habitability Envelope Integrity Program will be used to verify the integrity of the Control Complex boundary. Conditions that are identified to be adverse shall be trended and used as part of the 24 month assessment of the CCHE boundary.	60 days after implementation of this amendment