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W3F1-2007-0033

August 16, 2007

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

SUBJECT: License Amendment Request NPF-38-273 To Modify Requirements
Regarding Control Room Envelope Habitability
Waterford Steam Electric Station, Unit 3
Docket No. 50-382
License No. NPF-38

REFERENCE: Entergy letter to the NRC, "Revised response to Waterford 3's response
letter to Generic Letter 2003-01, Control Room Habitability," dated
October 8, 2004 (ADAMS Accession No. ML042880299).

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Operations, Inc. (Entergy) hereby requests the following amendment for Waterford Steam Electric Station, Unit 3 (Waterford 3). The proposed change implements changes to the Waterford 3 Control Room Emergency Air Filtration System Technical Specifications using the Nuclear Regulatory Commission notice of availability regarding Control Room Envelope Habitability using the Consolidated Line Item Improvement Process (CLIIP). The proposed amendment is consistent with the NRC approved Industry/Technical Specification Task Force (TSTF) change to the Standard Technical Specifications (STS), TSTF-448, Revision 3, "Control Room Habitability."

TSTF-448, Revision 3 is formatted to the Improved Technical Specification (ITS) plants while the Waterford-3 TSs are based on the CE standard technical specifications. Therefore, the information contained in TSTF-448, Revision 3 has been modified to the Waterford-3 TS format.

The proposed change has been evaluated in accordance with 10 CFR 50.91(a)(1) using criteria in 10 CFR 50.92(c), and it has been determined that this change involves no significant hazards consideration. The bases for these determinations are included in the attached submittal.

A102

NRR

The proposed change does not include any new commitments. This change is submitted to address a commitment made in the referenced correspondence. As discussed with Waterford 3's NRC project manager on July 12, 2007, the date for submitting this change was revised using the commitment change process from July 17, 2007 to August 17, 2007.

Entergy requests approval of the proposed amendment by July 1, 2008. Once approved, the amendment shall be implemented within 120 days. Although this request is neither exigent nor emergency, your prompt review is requested.

If you have any questions or require additional information, please contact Ron Byrd at (601)-368-5792.

I declare under penalty of perjury that the foregoing is true and correct. Executed on August 16, 2007.

Sincerely,

A handwritten signature in black ink, appearing to read 'KSC/GCS/dpg', written in a cursive style.

KSC/GCS/dpg

Attachments:

1. Analysis of Proposed Technical Specification Change
2. Proposed Technical Specification Changes (Mark-Up)
3. Revised Technical Specification Pages

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Attachment 1

W3F1-2007-0033

Analysis of Proposed Technical Specification Change

1.0 DESCRIPTION

This letter is a request to amend Operating License(s) NPF-38 for Waterford Steam Electric Station, Unit 3 (Waterford 3).

The proposed amendment would modify Technical Specification (TS) requirements related to control room envelope habitability in the following TS:

TS 3.7.6.1, "Control Room Emergency Air Filtration System – Operating"
TS 3.7.6.2, "Control Room Emergency Air Filtration System – Shutdown,"
TS 3.7.6.5, "Control Room Isolation and Pressurization," and
TS Section 6.5, "Administrative Controls - Programs."

The Waterford 3 TSs are formatted to the Standard Technical Specifications (STS) for Combustion Engineering PWRs (NUREG-0212). The proposed changes are consistent with those developed in TSTF-448, which are based on the format and content of the Improved Standard Technical Specifications (ISTS), NUREGs 1431-1434. The changes made by the TSTF were approved by the NRC for availability using the Consolidated Line Item Improvement Process (CLIIP) described in the January 17, 2007 Federal Register Notice (FR 72 2022). The changes described in the CLIIP notice of availability have been modified to accommodate the Waterford 3 TS format.

This change is submitted to address a commitment made in the revised Waterford 3 response to Generic Letter 2003-01, dated October 8, 2004 (ADAMS Accession No. ML042880299).

2.0 ASSESSMENT

2.1 *Applicability of Published Safety Evaluation*

Entergy 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. Entergy has concluded that the justifications presented in the TSTF proposal and in the safety evaluation prepared by the NRC staff are applicable to Waterford 3 and justify this amendment for the incorporation of the changes to the Waterford 3 TS.

2.2 *Optional Changes and Variations*

Entergy's proposed changes are consistent with those developed in TSTF-448. Entergy is proposing some minor administrative and editorial 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 to accommodate the Waterford 3 TS format and presentation. The parts of Section 3.0 of the model SE that are applicable to Waterford 3 are evaluations 2, 4, and 6.

The format and presentation of the TS changes has been modified to consider the differences between the W3 TS format and that of the ITS format used in TSTF-448. For example:

1. The TSTF-448 changes affected Section 3.7 TS for the Control Room Emergency Air Cleanup System and added a new administrative TS. At Waterford 3 the Section 3.7 TS requirements were actually reflected in three specifications (i.e., 3.7.6.1, 3.7.6.2, and 3.7.6.5). In this change, Waterford 3 is combining TS 3.7.6.1 and TS 3.7.6.2 consistent with the TSTF-448 presentation. These TS had presented requirements for the filtration system for the operating and shutdown modes of operation, respectively. TS 3.7.6.1 is also re-titled to reflect this change.
2. In addition, Waterford 3 proposes to move the Control Room Envelope (CRE) operability requirements from TS 3.7.6.5 into TS 3.7.6.1 consistent with the TSTF-448 presentation.
3. The balance of TS 3.7.6.5 provides requirements that are above those currently in ITS related to the envelope boundary valves and are not proposed for further change at this time. A change to the title of TS 3.7.6.5 is proposed to reflect the change in the scope.
4. Waterford 3 TS 3.7.6.1 includes filter testing requirements. Since the change to request a separate administrative program TS for a Ventilation Filter Testing program has not yet been submitted, there are no changes proposed to these requirements in this submittal.
5. The Waterford 3 TS format, based on the previous version of the standard TS, does not include a tabular presentation of the ACTIONS that includes CONDITION, REQUIRED ACTION, and COMPLETION TIME. Rather, the action requirements proposed in TSTF-448 have been incorporated within the Waterford 3 presentation of the ACTION statements.
6. Evaluation 4 of Section 3.0 of the NRC model safety evaluation describes two conditions, connected by the logical "OR" connector, that apply during MODE 5 or 6 or during movement of irradiated fuel assemblies. The SE states that the practical result of this presentation in format is the same as specifying two separately numbered Actions, one for each condition. The Waterford 3 proposed TS changes present these conditions as two separate Actions (Actions e and g of TS 3.7.6.1) to be consistent with the Waterford 3 TS format.

Also, Waterford 3 has proposed a variation of the wording in paragraph d of new TS 6.5.17, "Control Room Envelope Habitability Program." In regards to the CRE pressure test, the TSTF uses the statement, "The results shall be trended and used as part of the [18] month assessment of the CRE boundary." This is discussed in section 3.4 of the model safety evaluation. However, an 18 month assessment frequency is not consistent with the assessment frequency established by section c(ii) of TS 6.5.17 (i.e., every 3 years per RG 1.197). Entergy proposes to modify the sentence to read, "The results shall be trended and used as part of the assessment of the CRE boundary." This is an administrative change since the frequency is specified in brackets and the pressure test will be performed at the 18 month frequency, and the CRE boundary assessment will be performed at the frequency previously specified in section c(ii).

The above changes have been reviewed and reflect administrative and editorial differences from the TSTF-448 changes approved for availability under the CLIP. These differences do not impact the conclusions reached in Section 2.1 and 3.1 regarding the applicability of the

Safety Evaluation or the No Significant Hazards Consideration provided in the January 17, 2007 Federal Register Notice of availability of the CLIIP.

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

Entergy proposes the following as a license condition to support implementation of the proposed TS changes. In subpart (a) of the license condition below, Entergy provides a surveillance grace period as allowed by SR 4.0.2 of 18 months, which differs from the model application value of 15 months. This discrepancy was noted in an NRC memorandum from C. Craig Harbuck to Timothy J. Kobetz, dated February 2, 2007 (ADAMS Accession Number ML070330657).

License Condition

Upon implementation of Amendment No. xxx adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by SR 6.5.17, in accordance with TS 6.5.17.c.(i), the assessment of CRE habitability as required by Specification 6.5.17.c.(ii), and the measurement of CRE pressure as required by Specification 6.5.17.d, shall be considered met. Following implementation:

- (a) The first performance of SR 6.5.17, in accordance with Specification 6.5.17.c.(i), shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 4.0.2, as measured from April 17, 2004, the date of the most recent successful tracer gas test, as stated in the October 8, 2004 letter response to Generic Letter 2003-01, or within the next 18 months if the time period since the most recent successful tracer gas test is greater than 6 years.
- (b) The first performance of the periodic assessment of CRE habitability, Specification 6.5.17.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 4.0.2, as measured from April 17, 2004, the date of the most recent successful tracer gas test, as stated in the October 8, 2004 letter 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 6.5.17.d, shall be within 18 months, plus the 138 days allowed by SR 4.0.2, as measured from February 15, 2007, the date of the most recent successful pressure measurement test, or within 138 days if not performed previously.

3.0 Regulatory Analysis

3.1 No Significant Hazards Consideration Determination

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

4.0 Environmental Evaluation

Entergy has reviewed the environmental evaluation included in the model safety evaluation dated January 17, 2007 as part of the CLIP. Entergy has concluded that the staff's findings presented in that evaluation are applicable to Waterford 3, and the evaluation is hereby incorporated by reference for this application.

Attachment 2

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Proposed Technical Specification Changes (Mark-Up)

PLANT SYSTEMS

3/4.7.6 CONTROL ROOM AIR CONDITIONING SYSTEM

CONTROL ROOM EMERGENCY AIR FILTRATION SYSTEM ~~OPERATING~~

LIMITING CONDITION FOR OPERATION

3.7.6.1 ^{Two} Both control room emergency air filtration trains (S-8) shall be OPERABLE. (Note 1)

APPLICABILITY: ^{Of} MODES 1, 2, 3, and 4, 5, and 6
During movement of irradiated fuel assemblies.

ACTION:

Insert 1

- a. With one control room emergency air filtration train inoperable, either restore the inoperable train 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 both control room emergency air filtration trains inoperable, restore one train to OPERABLE status within 1 hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.6.1 Each control room air filtration train (S-8) shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the system operates for at least 10 continuous hours with the heaters on.
- b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:
 - 1. Verifying that the filtration train satisfies the in-place testing acceptance criteria and uses the test procedures of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978, and the system flow rate is 4225 cfm \pm 10%.

*During movement of irradiated fuel assemblies, TS 3.7.8.2 is also applicable.

Note 1: The control room envelope (CRE) boundary may be opened intermittently under administrative control.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.
 3. Verifying a system flow rate of 4225 cfm $\pm 10\%$ during train operation when tested in accordance with ANSI N510-1975.
- c. After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows the methyl iodide penetration less than 0.5% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C and a relative humidity of 70%.
- d. At least once per 18 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 7.8 inches water gauge while operating the train at a flow rate of 4225 cfm $\pm 10\%$.
 2. Verifying that on a safety injection actuation test signal or a high radiation test signal, the train automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks.
 3. Verifying that heaters dissipate 10 ± 1.0 , -1.0 kW when tested in accordance with ANSI N510-1975.
- e. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99.95% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the train at a flow rate of 4225 cfm $\pm 10\%$.
- f. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99.95% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the train at a flow rate of 4225 cfm $\pm 10\%$.

g. Insert 2

PLANT SYSTEMS

CONTROL ROOM EMERGENCY AIR FILTRATION SYSTEM - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.7.6.2 Two control room emergency air filtration trains (S-8) shall be OPERABLE.

APPLICABILITY: MODES 5 and 6, and during movement of irradiated fuel assemblies.

ACTION:

- a. With one control room emergency air filtration 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 filtration system in the recirculation mode.
- b. With both control room emergency air filtration systems inoperable, or with the OPERABLE control room emergency air filtration system, required to be in the recirculation mode by ACTION a, not capable of being powered by an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS and movement of irradiated fuel assemblies.

SURVEILLANCE REQUIREMENTS

4.7.6.2 The control room emergency air filtration trains (S-8) shall be demonstrated OPERABLE per the applicable Surveillance Requirements of 4.7.6.1.

Pages 6-9
through
page 6-13
not used

Insert 3

WATERFORD - UNIT 3

6-8
Next Page is 6-14

AMENDMENT NO. ~~48, 63, 79,~~
~~100, 109, 188~~

Pages ~~6-9~~¹⁰
through
page 6-13
not used

WATERFORD - UNIT 3

~~6-8~~⁹
Next Page is 6-14

AMENDMENT NO. ~~48, 63, 79,~~
~~100, 109, 188~~

PLANT SYSTEMS

CONTROL ROOM ISOLATION AND PRESSURIZATION *OUTSIDE AIR ISOLATION AND INTAKE VALVES*

LIMITING CONDITION FOR OPERATION

3.7.6.5 The control room envelope *outside air isolation and intake valves* isolation and pressurization boundaries shall be OPERABLE.

APPLICABILITY: *All MODES and during movement of irradiated fuel assemblies.*

ACTION: *MODES 1, 2, 3, 4, 5, and 6
During movement of irradiated fuel assemblies.*

- a. With either control room envelope isolation valve in a normal outside air flow path inoperable, maintain at least one isolation valve in the flowpath OPERABLE, and either restore the inoperable valve to OPERABLE status within 7 days or isolate the affected flow path within the following 6 hours.
- b. With any Control Room Emergency Filter Outside Air Intake valve(s) inoperable, maintain at least one of the series isolation valves in a flowpath OPERABLE, and either restore the inoperable valve(s) to OPERABLE status within 7 days or isolate the affected flow path within the following 6 hours.
- c. With more than one Control Room Emergency Filter Outside Air Intake flow path inoperable, maintain at least one flow path per intake operable and restore an additional flow path to operable status within 7 days or, be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

- d. With the control room envelope inoperable as a result of causes other than those addressed by ACTION (a), (b), or (c) above:
 1. Within 1 hour and at least once per 12 hours thereafter while the control room envelope is inoperable, verify that the Emergency Breathing Airbanks pressure is greater than or equal to 1800 psig.
 2. MODES 1-4:
 - a. If the cause of control room envelope inoperability is due to a known breach in the envelope of less than or equal to one square foot total area of the breach is associated with a permanent sealing mechanism (e.g., blocking open or removing a door) then operation may continue for up to 7 days after the control room envelope is declared inoperable. Otherwise, be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

PLANT SYSTEMS

LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

- b. If the cause of control room envelope inoperability is unknown identify the cause within 48 hours. If the cause of the failure is due to a breach within the allowable limits of ACTION d.2.a then operation may continue for up to 7 days after the control room envelope is declared inoperable. Otherwise, be in HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.
- c. Should a toxic gas event occur, take immediate steps to restore control room envelope integrity.
- 3. MODES 5, 6, and during movement of irradiated fuel assemblies:
 - a. Suspend all operations involving CORE ALTERATIONS and movement of irradiated fuel assemblies, and if a toxic gas event occurs, take immediate steps to restore control room envelope integrity.

SURVEILLANCE REQUIREMENTS

4.7.6.5

The control room envelope ~~isolation and pressurization boundaries~~ *outside air isolation and intake valves* shall be demonstrated OPERABLE at least once per 18 months by:

- a. Verifying that the control room envelope can be maintained at a positive pressure of greater than or equal to 1/8 inch water gauge relative to the outside atmosphere with a make-up air flowrate less than or equal to 200 cfm during system operation. Deleted
- b. Verifying that on a toxic gas detection test signal, the system automatically switches to the isolation mode of operation.
- c. Verifying that on a safety injection actuation test signal or a high radiation test signal, normal outside air flow paths isolate.

- 4 -

or indirectly any control over (i) the facility, (ii) power or energy produced by the facility, or (iii) the licensees of the facility. Further, any rights acquired under this authorization may be exercised only in compliance with and subject to the requirements and restrictions of this operating license, the Atomic Energy Act of 1954, as amended, and the NRC's regulations. For purposes of this condition, the limitations of 10 CFR 50.81, as now in effect and as they may be subsequently amended, are fully applicable to the equity investors and any successors in interest to the equity investors, as long as the license for the facility remains in effect.

- (b) Entergy Louisiana, LLC (or its designee) to notify the NRC in writing prior to any change in (i) the terms or conditions of any lease agreements executed as part of the above authorized financial transactions, (ii) any facility operating agreement involving a licensee that is in effect now or will be in effect in the future, or (iii) the existing property insurance coverages for the facility, that would materially alter the representations and conditions, set forth in the staff's Safety Evaluation enclosed to the NRC letter dated September 18, 1989. In addition, Entergy Louisiana, LLC or its designee is required to notify the NRC of any action by equity investors or successors in interest to Entergy Louisiana, LLC that may have an effect on the operation of the facility.

- C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter 1 and is subject to all applicable provisions of the Act and to the rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

1. Maximum Power Level

EOI is authorized to operate the facility at reactor core power levels not in excess of 3716 megawatts thermal (100% power) in accordance with the conditions specified herein.

2. Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. ~~212~~, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. EOI shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

*INSERT
Amendment #*

INSERT 4 →

Insert 1

- a. With one control room emergency air filtration train inoperable for reasons other than ACTION b, restore the inoperable train to OPERABLE status within 7 days.
- b. With one or more control room emergency air filtration trains inoperable due to inoperable control room envelope boundary in MODES 1, 2, 3, or 4, then perform the following:
 1. Immediately initiate action to implement mitigating actions; and
 2. Within 24 hours, verify mitigating actions ensure control room envelope occupant exposures to radiological, chemical, and smoke hazards will not exceed limits; and
 3. Within 90 days, restore the control room envelope boundary to OPERABLE status.
- c. If the required ACTION and associated allowable outage times of ACTION a or b are not met in MODES 1, 2, 3, or 4, then be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- d. If the required ACTION and the associated allowable outage time of ACTION a is not met in MODES 5 or 6, or during movement of irradiated fuel assemblies, then perform the following:
 1. Immediately place OPERABLE control room emergency air filtration train in emergency radiation protection mode; or
 2. Immediately suspend movement of irradiated fuel assemblies.
- e. With one or more control room emergency air filtration trains inoperable due to an inoperable control room envelope boundary in MODES 5 or 6, or during movement of irradiated fuel assemblies, immediately suspend movement of irradiated fuel assemblies.
- f. With two control room emergency air filtration trains inoperable in MODES 1, 2, 3, or 4 for reasons other than ACTION b, immediately enter LCO 3.0.3.
- g. With two control room emergency air filtration trains inoperable in MODES 5 or 6 or during movement of irradiated fuel assemblies, immediately suspend movement of irradiated fuel assemblies.

Insert 2

Perform required control room envelope unfiltered air inleakage testing in accordance with the Control Room Envelope Habitability Program.

Insert 3

6.5.17 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 Filtration System, CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of 5 rem 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 control room emergency air filtration, operating at the flow rate required by SR 4.7.6.1.b, at a FREQUENCY of 18 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 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. Unfiltered air leakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.
- f. The provisions of SR 4.0.2 are applicable to the FREQUENCIES for assessing CRE habitability, determining CRE unfiltered leakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

Insert 4

Upon implementation of Amendment No. xxx adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by SR 6.5.17, in accordance with TS 6.5.17.c.(i), the assessment of CRE habitability as required by Specification 6.5.17.c.(ii), and the measurement of CRE pressure as required by Specification 6.5.17.d, shall be considered met. Following implementation:

- (a) The first performance of SR 6.5.17, in accordance with Specification 6.5.17.c.(i), shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 4.0.2, as measured from April 17, 2004, the date of the most recent successful tracer gas test, as stated in the October 8, 2004 letter response to Generic Letter 2003-01, or within the next 18 months if the time period since the most recent successful tracer gas test is greater than 6 years.
- (b) The first performance of the periodic assessment of CRE habitability, Specification 6.5.17.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 4.0.2, as measured from April 17, 2004, the date of the most recent successful tracer gas test, as stated in the October 8, 2004 letter 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 6.5.17.d, shall be within 18 months, plus the 138 days allowed by SR 4.0.2, as measured from February 15, 2007, the date of the most recent successful pressure measurement test, or within 138 days if not performed previously.

Attachment 3

W3F1-2007-0033

Changes to Technical Specification Bases Pages – For Information Only

PLANT SYSTEMS

BASES

3/4.7.5 FLOOD PROTECTION

The limitation on flood protection ensures that facility protective actions will be taken in the event of flood conditions. The limit of elevation 27.0 ft Mean Sea Level is based on the maximum elevation at which the levee provides protection, the nuclear plant island structure provides protection to safety-related equipment up to elevation +30 ft Mean Sea Level.

→(DRN 03-258, Ch 24)

3/4.7.6 CONTROL ROOM AIR CONDITIONING SYSTEM

←(DRN 03-655, Ch 24)

3/4.7.6.1 and 3/4.7.6.2 CONTROL ROOM EMERGENCY AIR FILTRATION SYSTEM

During an emergency, both S-8 units are started to provide filtration and adsorption of outside air and control room envelope recirculated air (reference: FSAR 6.4.8.3). Dosages received after a full power design basis LOCA were calculated to be orders of magnitude higher than other accidents involving radiation releases to the environment (reference: FSAR Tables 15.6-18, 15.7-2, 15.7-4, 15.7-5, 15.7-7).

Acceptable removal efficiency is shown by a methyl iodide penetration of less than 0.5% when tests are performed in accordance with ASTM D3803-1989, "Standard test Method for Nuclear-Grade Activated Carbon," at a temperature of 30°C and a relative humidity of 70%. The penetration acceptance criterion is determined by the following equation:

$$\text{Allowable Penetration} = \frac{[100\% - \text{methyl iodide efficiency for charcoal credited in accident analysis}]}{\text{safety factor of 2}}$$

Applying a safety factor of 2 is acceptable because ASTM D3803-1989 is a more accurate and demanding test than older tests.

→(DRN 05-131, Ch. 39)

The OPERABILITY of this system and control room design provisions are based on limiting the radiation exposure to personnel occupying the control room to 5 rem total effective dose equivalent. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A, 10 CFR Part 50 and 10 CFR 50.67.

←(DRN 05-131, Ch. 39)

The ACTION to suspend all operations involving movement of irradiated fuel assemblies shall not preclude completion of movement to a safe conservative position.

Operation of the system with the heaters on for at least 10 hours continuous over a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. Obtaining and analyzing charcoal samples after 720 hours of adsorber operation (since the last sample and analysis) ensures that the adsorber maintains the efficiency assumed in the safety analysis and is consistent with Regulatory Guide 1.52 and ASTM D3803-1989.

INSERT 5 ↗

PLANT SYSTEMS

BASES

3/4.7.6.5 CONTROL ROOM ISOLATION AND PRESSURIZATION (Continued)

ACTION STATEMENT c preserves the operator action (i.e., manually initiated filtered pressurization) that maintains the control room envelope at a positive pressure during a radiological emergency. As indicated above each OAI series isolation valve is powered by the opposite train. With more than one OAI flow path inoperable a single failure (i.e., train A or B) could prohibit the ability to maintain the control envelope at a positive pressure. Therefore, in the specified condition, ACTION c requires an additional flow path to be returned to service within 7 days.

ACTION STATEMENT d.2.a is intended to address an intentional breach in the control room pressurization boundary as necessary to support maintenance or modification. A breach of this nature shall be limited in size and governed under administrative controls. The size restrictions as stated in the ACTION are such that should a toxic event occur control room integrity can be immediately restored as described below. ACTION STATEMENT d.2.b is intended to restore pressurization ability as soon as possible for unintended breaches in the envelope. The 48 hours to locate an unidentified breach is based on an evaluation that considered troubleshooting tasks that would be performed as necessary should the integrity of the Control Room Envelope pressure boundary fall into question. Estimated times associated with each task were based on sound engineering judgement. The ACTION statements also recognize the MODE-independent nature of the toxic chemical threat and provides for operator protection in the event of a toxic chemical release concurrent with a breach in the control room envelope. In addition, provisions have been added to the specification that, in the event of a toxic chemical event that threatens control room habitability while in the ACTION statements, "immediate steps" will be initiated to place the plant in a safe condition. In this context, the phrase "immediate steps" is taken to mean that the operators should immediately take reasonable action to restore a known breach in the envelope to an air-tight condition. Amplifying instructions are provided in Waterford 3 Administrative procedures, which impose special controls for work that will breach the control room envelope.

The ACTION to suspend all operations involving movement of irradiated fuel assemblies shall not preclude completion of movement to a safe conservative position.

3/4.7.7 CONTROLLED VENTILATION AREA SYSTEM

The OPERABILITY of the controlled ventilation area system ensures that radioactive materials leaking from the penetration area or the ECCS equipment within the pump room following a LOCA are filtered prior to reaching the environment. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the safety analyses.

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B 3/4.7.6.1 CONTROL ROOM EMERGENCY AIR FILTRATION SYSTEM (CREAFS)

Background

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

The CREAFS consists of two independent, redundant trains that recirculate and filter the air in the control room envelope (CRE) and a CRE boundary that limits the inleakage of unfiltered air. Each CREAFS train consists of a prefilter, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a fan. Ductwork, valves or dampers, doors, barriers, and instrumentation also form part of the system. A second bank of HEPA filters follows the adsorber section to collect carbon fines, and provides 100% back-up in case of failure of the main HEPA filter bank.

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit during normal and accident conditions. This area encompasses the control room, and may encompass other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CRE is protected during normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The OPERABILITY of the CRE boundary must be maintained to 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 CREAFS is an emergency standby system. Upon receipt of the actuating signal(s), the emergency filtration units start and filter a portion of the recirculated supply air to the control room. Operators can take manual actions to align the north or south outside air paths to pressurize the CRE. The prefilters remove any large particles in the air to prevent excessive loading of the HEPA filters and charcoal adsorbers. Continuous operation of each train for at least 10 hours per month, with the heaters on, reduces moisture buildup on the HEPA filters and adsorbers. The heater is important to the effectiveness of the charcoal adsorbers.

In the pressurization mode, up to 200 cfm outside air is combined with a portion of recirculated air and the combined air flow is filtered, and then added to the air being supplied to the CRE. Pressurization of the CRE minimizes infiltration of unfiltered air through the CRE boundary. The emergency filtration units are not started in the toxic gas isolation mode.

The normal outside air entering the CRE is continuously monitored by radiation and toxic gas detectors. One detector output above the setpoint will cause actuation of the emergency radiation state or toxic gas isolation state as required. The actions of the toxic gas isolation state are more restrictive, and will override the actions of the emergency radiation state.

The CREACS operates at 4225 scfm, all of this can be recirculated air or up to 200 scfm can be outside air. When pressurizing the control room, an emergency outside air path is aligned and dampers are adjusted such that a small portion of the total air being filtered by the CREACS (up to 200 scfm) is outside air, the remaining air (4025 – 4225 scfm) is from the normal control room HVAC system. After being routed through the emergency filtration unit, the 4225 scfm is returned to the supply duct of the normal control room HVAC system. Up to 200 scfm of outside air is allowed to pressurize the control room to a 1/8 in. w.g. Assuming use of the full 200 scfm of outside air, the air exchange rate would be approximately 6%. The CREAFS operation in maintaining the CRE habitable is discussed in the FSAR, Section 9.4.

Redundant trains provide the required filtration should an excessive pressure drop develop across the other filter train. Normally open isolation dampers are arranged in series pairs so that the failure of one damper to shut will not result in a breach of isolation. The CREAFS is designed in accordance with Seismic Category requirements.

The CREAFS is designed to maintain a habitable environment in the CRE for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a 5 rem whole body dose or its equivalent to any part of the body 5 rem total effective dose equivalent (TEDE).

Applicable Safety Analysis

The CREAFS components are arranged in redundant, safety related ventilation trains. The location of components and ducting within the CRE ensures an adequate supply of filtered air to all areas requiring access.

The CREAFS provides airborne radiological protection for the CRE as demonstrated by the CRE occupant dose analyses for the most limiting design basis-accident fission product release presented in the FSAR, Chapter 15.

The CREAFS provides protection from smoke and hazardous chemicals to the CRE occupants. The evaluation of a smoke challenge demonstrates that it will not result in a loss of the CRE occupants to control the reactor either from the control room or from the remote shutdown panels.

The worst case single active failure of a component of the CREAFS, assuming a loss of offsite power, does not impair the ability of the system to perform its design function. The CREAFS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

Limiting Condition for Operation

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

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

- a. Fan is OPERABLE,
- b. HEPA filters and charcoal adsorber are not excessively restricting flow, and are capable of performing their filtration functions, and
- c. Heater, ductwork, valves, and dampers are Operable, and air circulation can be maintained.

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

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

Actions

ACTION STATEMENT a addresses the condition of one CREAFS train inoperable, for reasons other than an inoperable CRE boundary. Action must be taken to restore OPERABLE status within 7 days. In this condition, the remaining OPERABLE CREAFS train is adequate to perform the CRE occupant protection function. However, the overall reliability is reduced because a failure in the OPERABLE CREAFS train could result in loss of CREAFS function. The 7 day completion time is based on the low probability of a DBA occurring during this time period, and the ability of the remaining train to provide the required capability.

ACTION STATEMENTS b.1, b.2, and b.3 address the condition of an inoperable control room envelope boundary. If the unfiltered inleakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to 5 rem whole body or its equivalent to any part of the body rem TEDE), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 90 days.

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the

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

ACTION STATEMENT c requires that, in MODE 1, 2, 3, or 4, if the inoperable CREAMS or the CRE boundary cannot be restored to OPERABLE status within the required completion time, the unit must be placed in a MODE that minimizes 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 36 hours. The allowed completion times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

ACTION STATEMENT d.1 requires that, in MODE 5 or 6, or during movement of irradiated fuel assemblies, if required Action a cannot be completed within the required completion time, the OPERABLE CREAMS train must be immediately placed in the emergency radiation protection mode of operation. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure will be readily detected.

ACTION STATEMENT d.2 is an alternative to Action d.1 and requires immediate suspension of 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 assemblies to a safe position.

ACTION STATEMENT e requires that, in MODES 5 or 6, or during movement of irradiated fuel assemblies, with one or more CREAMS 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.

ACTION STATEMENT f addresses the condition of both CREAMS trains being inoperable in MODE 1, 2, 3, or 4 for reasons other than an inoperable CRE boundary. The CREAMS may not be capable of performing the intended function and the unit is in a condition outside the accident analyses. Therefore, LC0 3.0.3 must be entered immediately.

ACTION STATEMENT g requires that, in MODES 5 or 6, or during movement of irradiated fuel assemblies, with both CREAMS trains inoperable 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.