

November 16, 2007

Mr. Joseph E. Venable
Site Vice President
Entergy Operations, Inc.
River Bend Station
5485 US Highway 61N
St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION, UNIT 1 - ISSUANCE OF AMENDMENT RE:
ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF)-448,
REVISION 3, "CONTROL ROOM ENVELOPE HABITABILITY," USING
CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS (TAC NO. MD6108)

Dear Mr. Venable:

The Commission has issued the enclosed Amendment No. 154 to Facility Operating License No. NPF-47 for the River Bend Station, Unit 1. The amendment consists of changes to the facility operating license (FOL) and the Technical Specifications (TSs) in response to your application dated July 16, 2007, as supplemented by letter dated August 7, 2007.

The amendment revised the FOL, Paragraph 2.C.(2), and TS requirements related to control room envelope habitability in TS 3.7.2, "Control Room Fresh Air (CRFA) System" and TS Section 5.5, "Administrative Controls - Programs and Manuals." The changes are consistent with U.S. Nuclear Regulatory Commission-approved Industry/TS Task Force (TSTF) Standard TS Change TSTF-448, Revision 3. The availability of this TS improvement was published in the *Federal Register* on January 17, 2007 (72 FR 2022), as part of the Consolidated Line Item Improvement Process.

A copy of our related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

Bhalchandra Vaidya, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosures: 1. Amendment No. 154 to NPF-47
2. Safety Evaluation

cc w/encls: See next page

November 16, 2007

Mr. Joseph E. Venable
Site Vice President
Entergy Operations, Inc.
River Bend Station
5485 US Highway 61N
St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION, UNIT 1 - ISSUANCE OF AMENDMENT RE:
ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF)-448,
REVISION 3, "CONTROL ROOM ENVELOPE HABITABILITY," USING
CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS (TAC NO. MD6108)

Dear Mr. Venable:

The Commission has issued the enclosed Amendment No. 154 to Facility Operating License No. NPF-47 for the River Bend Station, Unit 1. The amendment consists of changes to the facility operating license (FOL) and the Technical Specifications (TSs) in response to your application dated July 16, 2007, as supplemented by letter dated August 7, 2007.

The amendment revised the FOL, Paragraph 2.C.(2), and TS requirements related to control room envelope habitability in TS 3.7.2, "Control Room Fresh Air (CRFA) System" and TS Section 5.5, "Administrative Controls - Programs and Manuals." The changes are consistent with U.S. Nuclear Regulatory Commission-approved Industry/TS Task Force (TSTF) Standard TS Change TSTF-448, Revision 3. The availability of this TS improvement was published in the *Federal Register* on January 17, 2007 (72 FR 2022), as part of the Consolidated Line Item Improvement Process.

A copy of our related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA N. Kalyanam for Bhalchandra Vaidya/
Bhalchandra Vaidya, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosures: 1. Amendment No. 154 to NPF-47
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

PUBLIC	RidsNrrDorlDpr	RidsOgcRp
LPLIV r/f	RidsNrrDorlLpl4	RidsRgn4MailCenter
RidsAcrsAcnwMailCenter	RidsNrrLAJBurkhardt	WCartwright, NRR/DIRS/ITSB
RidsNrrDirsltsb	RidsNrrPMBVaidya	GHill, OIS (2)

ADAMS Accession Nos.: PKG ML072490074 (Amendment/License ML072490080, TS ML072490100 (pdf))

*No substantial change to SE input memo

**See previous concurrence

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	NRR/DIRS/ITSB	OGC - NLO	NRR/LPL4/BC
NAME	BVaidya**	JBurkhardt**	TKobetz*	JBiggins**	THiltz, JND for
DATE	10/31/07	10/31/07	10/12/07	11/8/07	11/16/07

OFFICIAL RECORD COPY

River Bend Station

cc:

Senior Vice President
Entergy Nuclear Operations
P.O. Box 31995
Jackson, MS 39286-1995

Senior Vice President and COO
Entergy Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

Vice President, Operations Support
Entergy Operations, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

General Manager, Plant Operations
Entergy Operations, Inc.
River Bend Station
5485 US Highway 61N
St. Francisville, LA 70775

Director, Nuclear Safety & Licensing
Entergy Services, Inc.
440 Hamilton Avenue
White Plains, NY 10601

Director, Nuclear Safety Assurance
Entergy Operations, Inc.
River Bend Station
5485 US Highway 61N
St. Francisville, LA 70775

Senior Manager, Nuclear Safety & Licensing
Entergy Services, Inc.
P.O. Box 31995
Jackson, MS 39286-1995

Manager, Licensing
Entergy Operations, Inc.
River Bend Station
5485 US Highway 61N
St. Francisville, LA 70775

Louisiana Department of Environmental
Quality
Radiological Emergency Planning and
Response Division
P.O. Box 4312
Baton Rouge, LA 70821-4312

Louisiana Department of Environmental
Quality
Office of Environmental Compliance
P.O. Box 4312
Baton Rouge, LA 70821-4312

Attorney General
State of Louisiana
P.O. Box 94095
Baton Rouge, LA 70804-9095

President of West Feliciana
Police Jury
P.O. Box 1921
St. Francisville, LA 70775

Mr. Brian Almon
Public Utility Commission
William B. Travis Building
P.O. Box 13326
1701 North Congress Avenue
Austin, TX 78701-3326

Mr. Jim Calloway
Public Utility
Commission of Texas
1701 N. Congress Avenue
Austin, TX 78711-3326

Ms. H. Anne Plettinger
3456 Villa Rose Drive
Baton Rouge, LA 70806

Richard Penrod, Senior Environmental
Scientist/State Liaison Officer
Office of Environmental Services
Northwestern State University
Russell Hall, Room 201
Natchitoches, LA 71497

Senior Resident Inspector
P.O. Box 1050
St. Francisville, LA 70775

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

September 2007

ENERGY GULF STATES, INC.**

AND

ENERGY OPERATIONS, INC.

DOCKET NO. 50-458

RIVER BEND STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 154
License No. NPF-47

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Entergy Gulf States, Inc.* (the licensee) dated July 16, 2007, as supplemented by letter dated August 7, 2007, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and

* Entergy Operations, Inc. is authorized to act as agent for Entergy Gulf States, Inc., and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

**Entergy Gulf States, Inc., has merged with a wholly owned subsidiary of Entergy Corporation. Entergy Gulf States, Inc., was the surviving company in the merger.

- E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-47 is hereby amended to read as follows:
- (2) Technical Specifications and Environmental Protection Plan
- The Technical Specifications contained in Appendix A, as revised through Amendment No. 154 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.
3. The license amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA by Jack Donohew for/

Thomas G. Hiltz, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to Facility Operating
License No. NPF-47 and
Technical Specifications

Date of Issuance: November 16, 2007

ATTACHMENT TO LICENSE AMENDMENT NO. 154

FACILITY OPERATING LICENSE NO. NPF-47

DOCKET NO. 50-458

Replace the following pages of the Facility Operating License No. NPF-47 and Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by Amendment number and contain marginal lines indicating the areas of change.

Facility Operating License

<u>Remove</u>	<u>Insert</u>
Page 3	Page 3
Page 6b	Page 6b

Technical Specifications

<u>Remove</u>	<u>Insert</u>
3.7-5	3.7-5
3.7-6	3.7-6
3.7-7	3.7-7
3.7-8	3.7-8
5.0-16	5.0-16
--	5.0-16a

- (3) EOI, pursuant to the Act and 10 CFR Part 70, to receive, possess and to use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;
- (4) EOI, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (5) EOI, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (6) EOI, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by 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 3091 megawatts thermal (100% rated power) in accordance with the conditions specified herein. The items identified in Attachment 1 to this license shall be completed as specified. Attachment 1 is hereby incorporated into this license.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 154 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.

(19) Control Room Envelope Habitability Program

Upon implementation of Amendment No. 154 adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by SR 3.7.2.4, in accordance with TS 5.5.14.c(i), the assessment of CRE habitability as required by Specification 5.5.14.c.(ii), and the measurement of CRE pressure as required by Specification 5.5.14.d, shall be considered met. Following implementation:

- a. The first performance of SR 3.7.2.4, in accordance with Specification 5.5.14.c.(i), shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 3.0.2, as measured from May 2004, the date of the most recent successful tracer gas test, as stated in the January 25, 2005 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 5.5.14.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from May, 2004, the date of the most recent successful tracer gas test, as stated in the January 25, 2005 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 5.5.14.d, shall be within 24 months, plus the 182 days allowed by SR 3.0.2, as measured from May 2004, the date of the most recent successful pressure measurement test, or within 182 days if not performed previously.

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 154 TO

FACILITY OPERATING LICENSE NO. NPF-47

ENTERGY OPERATIONS, INC.

RIVER BEND STATION, UNIT 1

DOCKET NO. 50-458

1.0 INTRODUCTION

By application dated July 16, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML072010013), as supplemented by letter dated August 7, 2007 (ADAMS Accession No. ML072250040), Entergy Operations, Inc. (the licensee), requested changes to the facility operating license (FOL) and the Technical Specifications (TSs) for the River Bend Station, Unit 1 (RBS) consistent with U.S. Nuclear Regulatory Commission (NRC)-approved Technical Specifications Task Force (TSTF)-448, Revision 3. The availability of this TS improvement was published in the *Federal Register* on January 17, 2007 (72 FR 2022), as part of the Consolidated Line Item Improvement Process. The supplement dated August 7, 2007, provided additional information that clarified the application, did not expand the scope of the application, and was considered in the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on September 11, 2007 (72 FR 51857).

The proposed amendment would modify the FOL, Paragraph 2.C.(2), the TS requirements related to control room envelope habitability in TS 3.7.2, "Control Room Fresh Air (CRFA) System," and TS Section 5.5, "Administrative Controls - Programs and Manuals."

On August 8, 2006, the commercial nuclear electrical power generation industry owners group TSTF submitted a proposed change, TSTF-448, Revision 3, to the improved standard technical specifications (STS) (NUREGs 1430-1434) on behalf of the industry (TSTF-448, Revisions 0, 1, and 2 were prior draft iterations). TSTF-448, Revision 3, is a proposal to establish more effective and appropriate action, surveillance, and administrative STS requirements related to ensuring the habitability of the control room envelope (CRE).

In NRC Generic Letter (GL) 2003-01 (Reference 1), licensees were alerted to findings at facilities that existing TS surveillance requirements (SRs) for the Control Room Envelope Emergency Ventilation System (CREEVS) may not be adequate. Specifically, the results of American Society for Testing and Materials (ASTM) E741 (Reference 2) tracer gas tests to measure CRE unfiltered inleakage at facilities indicated that the differential pressure

surveillance is not a reliable method for demonstrating CRE boundary operability. Licensees were requested to address existing TS as follows:

Provide confirmation that your technical specifications verify the integrity [i.e., operability] of the CRE [boundary], and the assumed [unfiltered] inleakage rates of potentially contaminated air. If you currently have a differential pressure surveillance requirement to demonstrate CRE [boundary] integrity, provide the basis for your conclusion that it remains adequate to demonstrate CRE integrity in light of the ASTM E741 testing results. If you conclude that your differential pressure surveillance requirement is no longer adequate, provide a schedule for: 1) revising the surveillance requirement in your technical specification to reference an acceptable surveillance methodology (e.g., ASTM E741), and 2) making any necessary modifications to your CRE [boundary] so that compliance with your new surveillance requirement can be demonstrated.

If your facility does not currently have a technical specification surveillance requirement for your CRE integrity, explain how and at what frequency you confirm your CRE integrity and why this is adequate to demonstrate CRE integrity.

To promote standardization and to minimize the resources that would be needed to create and process plant-specific amendment applications in response to the concerns described in the generic letter, the industry and the NRC proposed revisions to CRE habitability system requirements contained in the STS, using the STS change traveler process. This effort culminated in Revision 3 to traveler TSTF-448, "Control Room Habitability," which the NRC staff approved on January 17, 2007.

Consistent with the traveler as incorporated into NUREG-1434, the licensee proposed revising action and SRs in Specification 3.7.2, "Control Room Fresh Air (CRFA) System," and adding a new administrative controls program, Specification 5.5.14, "Control Room Envelope Habitability Program." The purpose of the changes is to ensure that CRE boundary operability is maintained and verified through effective surveillance and programmatic requirements, and that appropriate remedial actions are taken in the event of an inoperable CRE boundary.

Some editorial and plant-specific changes were incorporated into this safety evaluation resulting in minor deviations from the model safety evaluation text in TSTF-448, Revision 3. The NRC staff has also considered the licensee's response letter dated January 25, 2005 (Reference 7), to GL 2003-01, which provided supporting information.

2.0 REGULATORY EVALUATION

2.1 Control Room and Control Room Envelope

NRC Regulatory Guide 1.196, "Control Room Habitability at Light-water Nuclear Power Reactors," Revision 0, May 2003 (Reference 4), uses the term "control room envelope (CRE)" in addition to the term "control room" and defines each term as follows:

Control Room: The plant area, defined in the facility licensing basis, in which actions can be taken to operate the plant safely under normal conditions and to maintain the reactor in a safe condition during accident situations. It encompasses the instrumentation and controls necessary for a safe shutdown of the plant and typically includes the critical document reference file, computer room (if used as an integral part of the emergency response plan), shift supervisor's office, operator wash room and kitchen, and other critical areas to which frequent personnel access or continuous occupancy may be necessary in the event of an accident.

Control Room Envelope: The plant area, defined in the facility licensing basis, that in the event of an emergency, can be isolated from the plant areas and the environment external to the CRE. This area is served by an emergency ventilation system, with the intent of maintaining the habitability of the control room. 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.

NRC Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity At Nuclear Power Reactors," Revision 0, May 2003 (Reference 5), also contains these definitions, but uses the term CRE to mean both. This is because the protected environment provided for operators varies with the nuclear power facility. At some facilities this environment is limited to the control room; at others, it is the CRE. In this safety evaluation, consistent with the proposed changes to the STS, the CRE will be used to designate both.

2.2 Control Room Fresh Air (CRFA) System

The CRFA (the term used at RBS for the CREEVS) provides a protected environment from which operators can control the unit, during airborne challenges from radioactivity, hazardous chemicals, and fire byproducts, such as fire suppression agents and smoke, during both normal and accident conditions.

The CRFA System is designed to maintain a habitable environment in the control room envelope for 30 days of continuous occupancy after a Design-Basis Accident (DBA) without exceeding a 5 rem (roentgen equivalent man) total effective dose equivalent (TEDE).

The CRFA System consists of two redundant subsystems, each capable of maintaining the habitability of the CRE. The CRFA System is considered operable when the individual

components necessary to limit operator exposure are operable in both subsystems. A CRFA System subsystem is considered operable when the associated:

- Fan is operable;
- High efficiency particulate air (HEPA) filters and charcoal adsorbers are not excessively restricting flow, and are capable of performing their filtration functions;
- Heater, demister, ductwork, valves, and dampers are operable, and air circulation can be maintained; and
- CRE boundary is operable (the single boundary supports both subsystems).

The CRE boundary is considered operable when the measured unfiltered air inleakage is less than or equal to the inleakage value assumed by the licensing basis analyses of design basis accident consequences to CRE occupants.

2.3 Regulations Applicable to Control Room Habitability

In Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," General Design Criteria (GDC) 1, 2, 3, 4, 5, and 19 apply to CRE habitability. A summary of these GDCs follows.

- GDC 1, "Quality Standards and Records," requires that structures, systems, and components (SSCs) important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions performed.
- GDC 2, "Design Basis for Protection Against Natural Phenomena," requires that SSCs important to safety be designed to withstand the effects of earthquakes and other natural hazards.
- GDC 3, "Fire Protection," requires SSCs important to safety be designed and located to minimize the effects of fires and explosions.
- GDC 4, "Environmental and Dynamic Effects Design Bases," requires SSCs important to safety to be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents (LOCAs).
- GDC 5, "Sharing of Structures, Systems, and Components," requires that SSCs important to safety not be shared among nuclear power units unless it can be shown that such sharing will not significantly impair their ability to perform their safety functions, including, in the event of an accident in one unit, the orderly shutdown and cooldown of the remaining units.

- GDC 19, "Control Room," requires that a control room be provided from which actions can be taken to operate the nuclear reactor safely under normal conditions and to maintain the reactor in a safe condition under accident conditions, including a LOCA. Adequate radiation protection (stated in GDC 19) is to be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of specified values.

Prior to incorporation of TSTF-448, Revision 3, the STS requirements addressing CRE boundary operability resided only in the following CRE ventilation system specifications:

- NUREG-1430, TS 3.7.10, "Control Room Emergency Ventilation System (CREVS)";
- NUREG-1431, TS 3.7.10, "Control Room Emergency Filtration System (CREFS)";
- NUREG-1432, TS 3.7.11, "Control Room Emergency Air Cleanup System (CREACS)";
- NUREG-1433, TS 3.7.4, "Main Control Room Environmental Control (MCREC) System"; and
- NUREG-1434, TS 3.7.3, "Control Room Fresh Air (CRFA) System."

In these specifications, for the facilities that pressurize the CRE, the SR associated with demonstrating the operability of the CRE boundary requires verifying that one CRFA System subsystem can maintain a specific value of positive pressure, relative to the areas adjacent to CRE boundary during the pressurization mode of operation at a predetermined makeup flow rate. Facilities that pressurize the CRE during the emergency mode of operation of the CRFA System have similar SRs. Other facilities that do not pressurize the CRE have only a system flow rate criterion for the emergency mode of operation. Regardless, the results of ASTM E741 (Reference 2) tracer gas tests to measure CRE unfiltered inleakage at facilities indicated that the differential pressure surveillance (or the alternative surveillance at non-pressurization facilities) is not a reliable method for demonstrating CRE boundary operability. That is, licensees were able to obtain differential pressure and flow measurements satisfying the SR limits even though unfiltered inleakage was determined to exceed the value assumed in the safety analyses.

In addition to an inadequate surveillance requirement, the action requirements of these specifications were ambiguous regarding CRE boundary operability in the event CRE unfiltered inleakage is found to exceed the analysis assumption. The ambiguity stemmed from the view that the CRE boundary may be considered operable but degraded in this condition, and that it would be deemed inoperable only if calculated radiological exposure limits for CRE occupants exceeded a licensing basis limit; i.e., as stated in GDC 19, even while crediting compensatory measures.

NRC Administrative Letter (AL) 98-10, "Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety," states that "[t]he discovery of an improper or inadequate TS value or required action is considered a degraded or nonconforming condition," which is defined in NRC Inspection Manual Chapter 9900; see latest guidance in Regulatory Issue Summary (RIS) 2005-20 (Reference 3). AL 98-10 also states that "imposing administrative controls in response to an improper or inadequate TS is considered an acceptable short-term corrective action. The [NRC] staff expects that, following the imposition of administrative controls, an amendment to the [inadequate] TS, with appropriate justification and schedule, will be submitted in a timely fashion."

Licensees that have found unfiltered inleakage in excess of the limit assumed in the safety analyses and have yet to either reduce the inleakage below the limit or establish a higher bounding limit through re-analysis, have implemented compensatory actions to ensure the safety of CRE occupants, pending final resolution of the condition, consistent with RIS 2005-20. However, based on GL 2003-01 and AL 98-10, the staff expects each licensee to propose TS changes that include a surveillance to periodically measure CRE unfiltered inleakage in order to satisfy 10 CFR 50.36(c)(3), which requires a facility's TS to include SRs, which it defines as "[r]equirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and *that limiting conditions for operation will be met.*" (Emphasis added.)

The NRC staff also expects facilities to propose unambiguous remedial actions, consistent with 10 CFR 50.36(c)(2), for the condition of not meeting the limiting condition for operation (LCO) due to an inoperable CRE boundary. The action requirements should specify a reasonable completion time to restore conformance to the LCO before requiring a facility to be shut down. This completion time should be based on the benefits of implementing mitigating actions to ensure CRE occupant safety and sufficient time to resolve most problems anticipated with the CRE boundary, while minimizing the chance that operators in the CRE will need to use mitigating actions during accident conditions.

Because the design of the plant is not being changed by the proposed amendment, the plant continues to meet GDCs 1, 2, 3, 4, and 5. Because the proposed addition to TS 5.5.11 requires the dose requirements in GDC 19 to be met, GDC 19 will also continue to be met by the plant.

2.4 Regulation Applicable to TS Changes

Section 182a of the Atomic Energy Act requires applicants for nuclear power plant operating licenses to include TSs as part of the license. The TSs ensure the operational capability of SSCs that are required to protect the health and safety of the public. The NRC's regulatory requirements related to the content of the TSs are contained in 10 CFR 50.36 that requires that the TSs include items in the following categories: (1) safety limits, limiting safety systems settings, and limiting control settings; (2) LCOs; (3) SRs; (4) design features; and (5) administrative controls. However, the rule does not specify the particular requirements to be included in a plant's TSs. As stated in 10 CFR 50.36(c)(2)(i), the "[l]imiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the

technical specifications ..." SRs are, in accordance with 10 CFR 50.36(c)(3), "requirements relating to tests, calibration, or inspection to assure that the necessary quality of the systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

2.5 Adoption of TSTF-448, Revision 3, by RBS

Adoption of TSTF-448, Revision 3, will assure that the facility's TS LCO for the CRFA System is met by demonstrating unfiltered leakage into the CRE is within limits; i.e., the operability of the CRE boundary. In support of this surveillance, which specifies a test interval (frequency) described in Regulatory Guide 1.197, TSTF-448 also adds TS administrative controls to assure the habitability of the CRE between performances of the ASTM E741 test. In addition, adoption of TSTF-448 will establish clearly stated and reasonable required actions in the event CRE unfiltered inleakage is found to exceed the analysis assumption.

The changes made by TSTF-448 to the STS requirements for the CRFA System and the CRE boundary conform to 10 CFR 50.36(c)(2) and 10 CFR 50.36(c)(3). Their adoption will better assure that RBS's CRE will remain habitable during normal operation and design basis accident conditions. These changes are, therefore, acceptable from a regulatory standpoint in that they meet 10 CFR 50.36.

3.0 TECHNICAL EVALUATION

The NRC staff reviewed the proposed changes against the corresponding changes made to the STS by TSTF-448, Revision 3, which the NRC staff has found to satisfy applicable regulatory requirements, as described above in Section 2.0. The emergency operational mode of the CRFA system at River Bend Station, Unit 1 pressurizes the CRE to minimize unfiltered air inleakage. The proposed changes are consistent with this design.

3.1 Proposed Changes

The proposed amendment would strengthen CRE habitability TS requirements by changing TS 3.7.2, "Control Room Fresh Air (CRFA) System" and adding a new TS administrative controls program on CRE habitability. Accompanying the proposed TS changes are appropriate conforming technical changes to the TS Bases. The proposed revision to the TS Bases also includes editorial and administrative changes to reflect applicable changes to the corresponding STS Bases, which were made to improve clarity, conform to the latest information and references, correct factual errors, and achieve more consistency among the STS NUREGs. Except for plant specific differences, all of these changes are consistent with STS as revised by TSTF-448, Revision 3.

The NRC staff compared the proposed TS changes to the STS and the STS markups and evaluations in TSTF-448. The staff verified that differences from the STS were adequately justified on the basis of plant-specific design or retention of current licensing basis. The NRC staff also reviewed the proposed changes to the TS Bases for consistency with the STS Bases and the plant-specific design and licensing bases, although approval of the Bases is not a condition for accepting the proposed amendment. Approval of the identified TS Bases change is through TS 5.5.11, "Technical Specification (TS) Bases Control Program." This provides

assurance that the licensee has established correct Bases for the TSs, is not changing the licensing basis of the plant without NRC review and approval, and will maintain the adequacy of the Bases. The proposed Bases for TS 3.7.2 refer to specific guidance in NEI 99-03, "Control Room Habitability Assessment Guidance," Revision 0, dated June 2001 (Reference 6), which the NRC staff has formally endorsed, with exceptions, through Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors," dated May 2003 (Reference 4). Based on its review of the changes to the Bases, the NRC staff has not identified any problems with the changes.

3.2 Editorial Changes

The licensee proposed editorial changes to TS 3.7.2, "Control Room Fresh Air (CRFA) System," to establish standard terminology, such as "control room envelope (CRE)" in place of "control room," except for the plant-specific name for the CREEVS (Control Room Fresh Air (CRFA) System), and "radiological, chemical, and smoke hazards" in place of various phrases to describe the hazards that CRE occupants are protected from by the CRFA System. These changes improve the usability and quality of the presentation of the TS, have no impact on safety, and meet 10 CFR 50.36. Therefore, the NRC staff concludes that these changes are acceptable.

3.3 Evaluation of Changes to TS 3.7.2, Control Room Fresh Air (CRFA) System

3.3.1 Evaluation for Facilities That Have Not Yet Adopted the CRFA System TS LCO NOTE and Action B of TSTF-287, Rev. 5 (Evaluation 2⁽¹⁾)

The licensee proposed to establish new action requirements in TS 3.7.2, "Control Room Fresh Air (CRFA) System," for an inoperable CRE boundary. Currently, if one CRFA subsystem is determined to be inoperable due to an inoperable CRE boundary, existing Action A would apply and require restoring the subsystem (and the CRE boundary) to operable status in 7 days. If two subsystems are determined to be inoperable due to an inoperable CRE boundary, existing Action D specifies no time to restore the subsystems (and the CRE boundary) to operable status, but requires immediate entry into the shutdown actions of LCO 3.0.3. These existing Actions are more restrictive than would be appropriate in situations for which CRE occupant implementation of compensatory measures or mitigating actions would temporarily afford adequate CRE occupant protection from postulated airborne hazards. To account for such situations, the licensee proposed to revise the action requirements to add a new Condition B, "One or more CRFA subsystems inoperable due to inoperable CRE boundary in MODE 1, 2, or 3." New Action B.3 would allow 90 days to restore the CRE boundary (and consequently, the affected CRFA System subsystems) to operable status, provided that mitigating actions are immediately implemented (Action B.1) and within 24 hours are verified to ensure, that in the event of a DBA, 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 (Action B.2).

(1) Evaluation numbers correspond to the numbers in the Notice of Availability in the *Federal Register*.

The 24-hour Completion Time of new Required Action B.2 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. The 90-day Completion Time of new Required Action B.3 is a reasonable time to diagnose, plan and possibly repair, and test most anticipated problems with the CRE boundary. Therefore, proposed Actions B.1, B.2, and B.3 are acceptable.

To distinguish new Condition B from the existing condition for one CRFA System subsystem inoperable, Condition A is revised to state, "One CRFA subsystem inoperable for reasons other than Condition B." To distinguish new Condition B from the existing condition for two CRFA System subsystems inoperable, Condition D (renumbered as Condition E) is revised to state, "Two CRFA subsystems inoperable during MODE 1, 2, or 3 for reasons other than Condition B." The changes to existing Conditions A and D are less restrictive because these Conditions will no longer apply in the event one or two CRFA subsystems are inoperable due to an inoperable CRE boundary during unit operation in Mode 1, 2, or 3. This is acceptable because the new Actions B.1, B.2 and B.3 establish adequate remedial measures in this condition. With the addition of a new Condition B, existing Conditions B, C, D, and E are re-designated C, D, E, and F, respectively.

Based on the above evaluation of the proposed changes to the conditions in TS 3.7.2, except for the proposed change to Condition F, the NRC staff concludes that the proposed changes meet 10 CFR 50.36 and are, therefore, acceptable. The proposed change to Condition F is addressed in Section 3.3.2 of this safety evaluation.

The licensee also proposed to modify the CRFA System LCO by adding a NOTE allowing the CRE boundary to be opened intermittently under administrative controls. As stated in the LCO Bases, 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 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." The allowance of this NOTE is acceptable because the administrative controls will ensure that the opening will be quickly sealed to maintain the validity of the licensing basis analyses of DBA consequences and it meets 10 CFR 50.36.

3.3.2 Evaluation for Boiling-Water Reactor (BWR)4 and BWR6 Control Room Fresh Air (CRFA) System TS (Evaluation 5)

The licensee proposed to add a new condition to Action F of TS 3.7.2 that states, "One or more CRFA subsystems inoperable due to an inoperable CRE boundary during movement of recently irradiated fuel assemblies in the primary containment or fuel building during operations with a potential for draining the reactor vessel (OPDRVs)." The specified Required Actions proposed for this condition are the same as for the other existing condition for Action F, which states,

"Two CRFA subsystems inoperable during movement of recently irradiated fuel assemblies in the primary containment or fuel building, or during OPDRVs." Accordingly, the new condition is stated with the other condition in Action F using the logical connector "OR". The practical result of this presentation in format is the same as specifying two separately numbered Actions, one for each condition. Its advantage is to make the TS Actions table easier to use by avoiding having an additional numbered row in the Actions table. This new condition in Action F is needed because proposed Action B will only apply in Modes 1, 2, and 3. As such, this change will ensure that the Actions table continues to specify a condition for an inoperable CRE boundary during refueling and OPDRVs. Therefore, this change is administrative, is not changing any requirements in the TSs, and meets 10 CFR 50.36. Based on this, the NRC staff concludes the proposed change is acceptable.

3.3.3 Evaluation for Facilities That Have a CRE Pressurization SR (Evaluation 6)

In the emergency mode of operation, the CRFA System isolates unfiltered ventilation air supply intakes, filters the emergency ventilation air supply to the CRE, and pressurizes the CRE to minimize unfiltered air leakage past the CRE boundary. The licensee proposed to delete the CRE pressurization SR. This SR requires verifying that one CRFA System subsystem, operating in the emergency mode, can maintain a pressure of 0.125 inches water gauge, relative to the adjacent outside atmosphere during the pressurization mode of operation at a makeup flow rate of less than or equal to 4000 cubic feet per minute. The deletion of this SR is proposed because measurements of unfiltered air leakage into the CRE at numerous reactor facilities demonstrated that a basic assumption of this SR, an essentially leak-tight CRE boundary, was incorrect for most facilities. Hence, meeting this SR by achieving the required CRE pressure is not necessarily a conclusive indication of CRE boundary leak-tightness, i.e., CRE boundary operability. In its response to GL 2003-01, dated January 25, 2005, the licensee reported that it had determined that the RBS CRE pressurization surveillance, SR 3.7.2.4 is not an accurate predictor of unfiltered air leakage to the CRE, and proposed to replace it with an leakage measurement SR and a CRE Habitability Program in TS Section 5.5, in accordance with the approved version of TSTF-448.

The proposed CRE leakage measurement SR states, "Perform required CRE unfiltered air leakage testing in accordance with the Control Room Envelope Habitability Program." The CRE Habitability Program TS, proposed TS 5.5.14, requires that the program include Requirements for 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, Revision 0 (Reference 5). This guidance references ASTM E741 (Reference 2) as an acceptable method for ascertaining the unfiltered leakage into the CRE. The licensee has proposed to follow this method. Therefore, the proposed CRE leakage measurement SR is acceptable and meets 10 CFR 50.36. Based on this, the NRC staff concludes that the proposed change to the TSs are acceptable.

3.4 TS 5.5.14, CRE Habitability Program

The proposed administrative controls program TS is consistent with the model program TS in TSTF-448, Revision 3. In combination with SR 3.7.2.4, this program is intended to ensure the operability of the CRE boundary, which as part of an operable CRFA System will ensure that CRE habitability is maintained such that 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 DBA conditions without personnel receiving radiation exposures in excess of 5 rem TEDE per GDC 19 for the duration of the accident.

A CRE Habitability Program TS acceptable to the NRC staff requires the program to contain the following elements:

Definitions of CRE and CRE boundary. This element is intended to ensure that these definitions accurately describe the plant areas that are within the CRE, and also the interfaces that form the CRE boundary, and are consistent with the general definitions discussed in Section 2.1 of this safety evaluation. Establishing what is meant by the CRE and the CRE boundary will preclude ambiguity in the implementation of the program.

Configuration control and preventive maintenance of the CRE boundary. This element is intended to ensure the CRE boundary is maintained in its design condition. Guidance for implementing this element is contained in Regulatory Guide 1.196 (Reference 4), which endorsed, with exceptions, NEI 99-03 (Reference 6). Maintaining the CRE boundary in its design condition provides assurance that its leak-tightness will not significantly degrade between CRE inleakage determinations.

Assessment of CRE habitability at the frequencies stated in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0 (Reference 5), and measurement of unfiltered air leakage into the CRE in accordance with the testing methods and at the frequencies stated in Sections C.1 and C.2 of Regulatory Guide 1.197. This element is intended to ensure that the plant assesses CRE habitability consistent with Sections C.1 and C.2 of Regulatory Guide 1.197. Assessing CRE habitability at the NRC accepted frequencies provides assurance that significant degradation of the CRE boundary will not go undetected between CRE inleakage determinations. Determination of CRE inleakage using test methods acceptable to the NRC staff assures that test results are reliable for ascertaining CRE boundary operability. Determination of CRE inleakage at the NRC accepted frequencies provides assurance that significant degradation of the CRE boundary will not occur between CRE inleakage determinations.

Measurement of CRE pressure with respect to all areas adjacent to the CRE boundary at designated locations for use in assessing the CRE boundary at a frequency of 18 months on a staggered test basis (with respect to the CRFA System subsystems). This element is intended to ensure that CRE differential pressure is regularly measured to identify changes in pressure warranting evaluation of the condition of the CRE boundary. Obtaining and trending pressure data provides additional assurance that significant degradation of the CRE boundary will not go undetected between CRE inleakage determinations.

Quantitative limits on unfiltered inleakage. This element is intended to establish the CRE inleakage limit as the CRE unfiltered infiltration rate assumed in the CRE occupant radiological consequence analyses of design basis accidents. Having an unambiguous

criterion for the CRE boundary to be considered operable in order to meet LCO 3.7.2, will ensure that associated action requirements will be consistently applied in the event of CRE degradation resulting in inleakage exceeding the limit.

Consistent with TSTF-448, Revision 3, the program states that the provisions of SR 3.0.2 are applicable to the program frequencies for performing the activities required by program paragraph number c, parts (i) and (ii) (assessment of CRE habitability and measurement of CRE inleakage), and paragraph number d (measurement of CRE differential pressure). This statement is needed to avoid confusion. SR 3.0.2 is applicable to the surveillance that references the testing in the CRE Habitability Program. However, SR 3.0.2 is not applicable to Administrative Controls unless specifically invoked. Providing this statement in the program eliminates any confusion regarding whether SR 3.0.2 is applicable, and is acceptable.

Consistent with TSTF-448, Revision 3, proposed TS 5.5.14 states that (1) a CRE Habitability Program shall be established and implemented, (2) the program shall include all of the NRC-staff required elements, as described above, and (3) the provisions of SR 3.0.2 shall apply to program frequencies. Therefore, TS 5.5.14, which is consistent with the model program TS approved by the NRC staff in TSTF-448, Revision 3, is acceptable and meets 10 CFR 50.36. Based on this, the proposed change is acceptable.

3.5 Proposed Amendment

In its application, the licensee proposed changes to the TSs to incorporate TSTF-448, Revision 3. These changes are evaluated in Sections 3.1 through 3.4 of this safety evaluation. Based on the conclusions in these sections and Section 2.3, the NRC staff concludes the proposed changes meet GDCs 1, 2, 3, 4, 5, and 19, and 10 CFR 50.36. Based on this, the proposed changes to the TSs are acceptable.

3.6 Implementation of New Surveillance and Assessment Requirements by the Licensee

The licensee has proposed license conditions regarding the initial performance of the new surveillance and assessment requirements. The new license conditions adopted the conditions in section 2.3 of the model application published in the *Federal Register* on January 17, 2007 (72 FR 2022). Plant-specific changes were made to the proposed license conditions. The proposed plant specific license conditions are consistent with the model application, and are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Louisiana State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is

no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no-significant-hazards consideration, and there has been no public comment on such finding published September 11, 2007 (72 FR 51857). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and (c)(10). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

1. NRC Generic Letter 2003-01, "Control Room Habitability," dated June 12, 2003 (GL 2003-01).
2. ASTM E741-00, "Standard Test Method for Determining Air Change in a Single Zone by Means of a Tracer Gas Dilution," 2000 (ASTM E741).
3. NRC Regulatory Issue Summary 2005-20: Revision to Guidance Formerly Contained in NRC Generic Letter 91-18," Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," dated September 26, 2005 (RIS 2005-20).
4. Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors," Revision 0, dated May 2003.
5. Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003.
6. NEI 99-03,"Control Room Habitability Assessment Guidance," Revision 0, dated June 2001.
7. "Final Response to NRC Generic Letter (GL) 2003-1, Control Room Habitability River Bend Station Unit 1" (ADAMS Accession No. ML050310352).

Principal Contributor: W. Cartwright

Date: November 16, 2007