October 4, 1995

Mr. Ross P. Barkhurst
Vice President Operations
Entergy Operations, Inc.
P. O. Box B
Killona, LA 70066

SUBJECT: ISSUANCE OF AMENDMENT NO. 115 TO FACILITY OPERATING LICENSE NPF-38 - WATERFORD STEAM ELECTRIC STATION, UNIT 3 (TAC NO. M72846)

Dear Mr. Barkhurst:

The Commission has issued the enclosed Amendment No. 115 to Facility Operating License No. NPF-38 for the Waterford Steam Electric Station, Unit 3. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated July 18, 1991, as supplemented by letters dated March 16, and December 2, 1994, and March 9, and August 30, 1995.

The amendment changes the Appendix A TSs by subdividing TS 3/4.7.6, "Control Room Air Conditioning System," into five separate TSs covering the following three distinct functions: control room emergency air filtration, control room air temperature, and control room isolation and pressurization. The amendment also changes the Bases sections of the TS to reflect the above changes.

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

Sincerely,

Original Signed By:
Chandu P. Patel, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosures: 1. Amendment No. 115 to NPF-38
2. Safety Evaluation

cc w/encls: See next page

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Docket File	PUBLIC	PD4-1 r/f	CMcCracken
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J. Dyer, IV	J. Roe	S. Jones	

Document Name: WAT72846.AMD

OFC	(A)LA:PD4-1	PM:PD4-1	SPLB	OGC
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COPY	YES/NO	YES/NO	YES/NO	YES/NO

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 4, 1995

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Vice President Operations
Entergy Operations, Inc.
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Killona, LA 70066

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The amendment changes the Appendix A TSs by subdividing TS 3/4.7.6, "Control Room Air Conditioning System," into five separate TSs covering the following three distinct functions: control room emergency air filtration, control room air temperature, and control room isolation and pressurization. The amendment also changes the Bases sections of the TS to reflect the above changes.

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Sincerely,

Chandu P. Patel

Chandu P. Patel, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosures: 1. Amendment No. 115 to NPF-38
2. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-382

WATERFORD STEAM ELECTRIC STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 115
License No. NPF-38

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Entergy Operations, Inc. (the licensee) dated July 18, 1991, as supplemented by letters dated March 16, and December 2, 1994, and March 9, and August 30, 1995, 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, 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 amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   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-38 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. 115, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Chandu P. Patel

Chandu P. Patel, Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: October 4, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 115

TO FACILITY OPERATING LICENSE NO. NPF-38

DOCKET NO. 50-382

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE PAGES	INSERT PAGES
3/4 7-16	3/4 7-16
3/4 7-17	3/4 7-17
3/4 7-18	3/4 7-18
-	3/4 7-18a
-	3/4 7-18b
-	3/4 7-18c
-	3/4 7-18d
B 3/4 7-4a	B 3/4 7-4a
-	B 3/4 7-4b
-	B 3/4 7-4c

3/4.7.5 FLOOD PROTECTION

LIMITING CONDITION FOR OPERATION

3.7.5 Flood protection shall be provided for all safety-related systems, components, and structures when the water level of the Mississippi River exceeds +27.0 ft Mean Sea Level USGS datum, at the levee fronting the Waterford Unit 3 site.

APPLICABILITY: At all times.

ACTION:

With the water level at the levee fronting the Waterford Unit 3 site above elevation +27.0 ft Mean Sea Level USGS datum initiate and complete within 12 hours procedures ensuring that all doors and penetrations below the +30.0 ft elevation are secure.

SURVEILLANCE REQUIREMENTS

4.7.5 The water level at the levee fronting the Waterford Unit 3 site shall be determined to be within the limits by:

a. Measurement at least once per 24 hours when the water level is equal to or above elevation +24.0 ft Mean Sea Level USGS datum and below elevation +27.0 ft Mean Sea Level USGS datum, and

b. Measurement at least once per 2 hours when the water level is equal to or above elevation +27.0 ft Mean Sea Level USGS datum.

3/4.7.6.1 CONTROL ROOM EMERGENCY AIR FILTRATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.6.1 Both control room emergency air filtration trains (S-8) shall be OPERABLE.

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

ACTION:

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%.

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, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.

3. Verifying a system flow rate of 4225 cfm ±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, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978.

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 ±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 (+0.5, -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 ±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 ±10%.

3/4.7.6.2 CONTROL ROOM EMERGENCY AIR FILTRATION SYSTEM

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.

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 or positive reactivity changes.

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.

3/4.7.6.3 CONTROL ROOM AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.7.6.3 Two independent control room air conditioning units shall be OPERABLE.

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

ACTION:

a. With one control room air conditioning unit inoperable, restore the inoperable unit to OPERABLE status within 7 days or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With two control room air conditioning units inoperable, return one unit to an OPERABLE status within 1 hour or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.6.3 Each control room air conditioning unit shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the operating control room air conditioning unit is maintaining average control room air temperature less than or equal to 80°F.

b. At least quarterly, if not performed within the last quarter, by verifying that each control room air conditioning unit starts and operates for at least 15 minutes.

3/4.7.6.4 CONTROL ROOM AIR TEMPERATURE

LIMITING CONDITION FOR OPERATION

3.7.6.4 Two independent control room air conditioning units shall be OPERABLE.

APPLICABILITY: MODES 5 and 6.

ACTION:

a. With one control room air conditioning unit inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE control room air conditioning unit.

b. With both control room air conditioning units inoperable, or with the OPERABLE control room air conditioning unit, required to be in operation by ACTION a, not capable of being powered by an OPERABLE emergency power source, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.

SURVEILLANCE REQUIREMENTS

4.7.6.4 The control room air conditioning units shall be demonstrated OPERABLE per the Surveillance Requirements of 4.7.6.3.

3/4.7.6.5 CONTROL ROOM ISOLATION AND PRESSURIZATION

LIMITING CONDITION FOR OPERATION

3.7.6.5 The control room envelope isolation and pressurization boundaries shall be OPERABLE.

APPLICABILITY: All MODES.

ACTION:

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 with 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 or 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.

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 and 6:

a. Suspend all operations involving CORE ALTERATIONS or positive reactivity changes 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 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.

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.

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.

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 6.4.3.3). 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). Because the consequences of a full power design basis LOCA are more severe than those occurring during COLD SHUTDOWN and REFUELING, a separate specification, 3/4.7.6.2, requires only one OPERABLE S-8 unit to guard against accidents during Modes 5 and 6.

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 or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A, 10 CFR Part 50.

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.

3/4.7.6.3 CONTROL ROOM AIR TEMPERATURE

Maintaining the control room air temperature less than or equal to 80°F ensures that (1) the ambient air temperature does not exceed the allowable air temperature for continuous duty rating for the equipment and instrumentation in the control room, and (2) the control room will remain habitable for operations personnel during plant operation.

The Air Conditioning System is designed to cool the outlet air to approximately 55°F. Then, non-safety-related near-room heaters add enough heat to the air stream to keep the rooms between 70 and 75°F. Although 70 to 75°F is the normal control band, it would be too restrictive as an LCO. Control

CONTROL ROOM AIR TEMPERATURE (Continued)

Room equipment was specified for a more general temperature range to 45 to 120°F. A provision for the CPC microcomputers, which might be more sensitive to heat, is not required here. Since maximum outside air make-up flow in the normal ventilation mode comprises less than ten percent of the air flow from an AH-12 unit, outside air temperature has little affect on the AH-12s cooling coil heat load. Therefore, the ability of an AH-12 unit to maintain control room temperature in the normal mode gives adequate assurance of its capability for emergency situations.

3/4.7.6.4 CONTROL ROOM ISOLATION AND PRESSURIZATION

This specification provides the operability requirements for the control room envelope isolation and pressurization boundaries. The Limiting Condition for Operation (LCO) specifies specific ACTION STATEMENTS for inoperable components of the control room ventilation systems, separate from the S-8 and AH-12 units. The operability of the remaining parts of the system affect the ability of the control room envelope to pressurize.

ACTION STATEMENTS a and b focus on maintaining isolation characteristics. The valves in the flow path referred to in ACTION a are HVC-102 & HVC-101. The Outside Air Intake (OAI) "series isolation valves" of ACTION b and c are as follows:

NORTH OAI - HVC-202B & HVC-201A
HVC-202A & HVC-201B

SOUTH OAI - HVC-204B & HVC-203A
HVC-204A & HVC-203B

ACTION STATEMENT c preserves the operator action (i.e., manually initiated filtered pressurization) that maintains the control room envelope at a position 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

CONTROL ROOM ISOLATION AND PRESSURIZATION (Continued)

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.

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.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 115 TO

FACILITY OPERATING LICENSE NO. NPF-38

ENTERGY OPERATIONS, INC.

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated July 18, 1991, as supplemented by letters dated March 16, and December 2, 1994, and March 9, and August 30, 1995, Entergy Operations, Inc. (the licensee), submitted a request for changes to the Waterford Steam Electric Station, Unit 3, Technical Specifications (TSs). The requested changes would revise the Control Room Air Conditioning System (CRACS) TS. The proposed amendment would subdivide TS 3/4.7.6, "Control Room Air Conditioning," into five separate TSs covering the following three distinct functions: control room emergency air filtration, control room air temperature, and control room isolation and pressurization. The licensee also proposed amended bases sections of the TS to reflect the above changes.

The August 30, 1995, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

Habitability systems are provided at nuclear reactor facilities to assure that operators can remain in the control room and take effective action to operate the plant safely under normal operating conditions, and maintain the plant in a safe condition following an accident. To accomplish these functions, the CRACS at Waterford operates in one of the following three modes: normal operation, isolation and recirculation (toxic gas), and isolation and filtered recirculation with provisions for manual initiation of pressurization using filtered air from one of two widely separated emergency air intakes (high radiation). A toxic chemical detection signal automatically initiates the isolation and recirculation mode of operation and overrides other CRACS initiation signals. A safety injection actuation signal or a high radiation detection signal automatically initiates the isolation and filtered recirculation mode of operation. Manual initiation of emergency modes of operation can be initiated by a control room operator at any time.

ENCLOSURE

The CRACS consists of two full-capacity, redundant AH-12 air handling units; two full-capacity, redundant S-8 engineered safety features air filtration units, and non-safety exhaust fans and supplemental computer room air handling units. The AH-12 air handling units are each equipped with a filter, a cooling coil supplied with essential chilled water, an electric heating element, and a centrifugal fan. The S-8 emergency filtration units are each equipped with a filter, an electric heating element for dehumidification of the air stream, two HEPA filters separated by an activated charcoal bed, and a fan. The CRACS also has dual, widely separated emergency outside air intakes, and each intake has two flow paths containing one normally open, fail-as-is butterfly valve and one normally closed, fail-as-is butterfly valve in series. The normal intake and exhaust lines are each isolated by two normally open, fail-closed butterfly valves in series. The ducting between components is constructed such that failure of one of two redundant components performing a specific function does not affect the redundant component performing that same function, nor any components performing complimentary functions.

In the normal operating mode, air is recirculated by one of the two redundant AH-12 air handling units, make-up air is supplied via the normal outside air intake, and non-essential fans exhaust air from certain spaces within the control room envelope. The safety function of the CRACS performs in the normal operating mode to maintain the control room air temperature at a value that is habitable for control room operators, and that does not cause the continuous duty temperature rating for equipment and instrumentation to be exceeded.

In the toxic gas mode, air is recirculated within the control room envelope by the redundant AH-12 air handling units, the exhaust fans are secured, the emergency outside air intake paths are isolated by redundant valves in series, and the normal outside air intake and exhaust paths are isolated by redundant valves in series. In this operating mode, the safety functions of the CRACS are to maintain control room temperature in an acceptable range, and reduce the rate of toxic gas infiltration to an acceptable value for protective action by the operators.

In the high radiation mode, air is recirculated within the control room envelope by the redundant AH-12 air handling units, a portion of the recirculated air is drawn through redundant S-8 emergency filtration units to remove radioactive material from the air, the exhaust fans are secured, and the normal outside air intake and exhaust paths are isolated by redundant valves in series. The CRACS design allows a control room operator to remotely open an emergency air intake path to supply a small amount of outside air to the S-8 emergency filtration unit for pressurization of the control room envelope. In the high radiation mode, the safety functions are to maintain control room temperature in an acceptable range, and to reduce the rate of infiltration of radioactive material by filtration, adsorption, and pressurization such that the calculated dose to operators is in an acceptable range.

The five separate proposed TSs are: TS 3/4.7.6.1, "Emergency Air Filtration (operational modes 1 through 4);" TS 3/4.7.6.2, "Emergency Air Filtration (operational modes 5 and 6);" TS 3/4.7.6.3, "Control Room Air Temperature

(operational modes 1 through 4);" TS 3/4.7.6.4, "Control Room Air Temperature (operational modes 5 and 6);" and TS 3/4.7.6.5, "Control Room Isolation and Pressurization." Inoperability of the S-8 emergency filtration units is addressed by the proposed action statements of TS 3/4.7.6.1 and TS 3/4.7.6.2. The proposed action statements of TS 3/4.7.6.3 and TS 3/4.7.6.4 address inoperability of the AH-12 air handling units. Finally, the proposed action statements of TS 3/4.7.6.5 address inoperability of the control room isolation and pressurization functions.

3.0 EVALUATION

The staff has reviewed the design configuration of the control room habitability systems at Waterford. Based on that review, the staff concluded that the principle components of the system are functionally independent. The staff determined that the components share reliance on the electrical distribution system, but a separate TS addresses the potential effects of electrical distribution system inoperability on the essential components of the CRACS. Therefore, the splitting of TS 3/4.7.6 into functionally independent specifications is acceptable.

The proposed TS 3/4.7.6.1 retains the limiting condition for operation, action statements, and surveillance requirements from the existing TS that are applicable to the S-8 emergency filtration units in operational modes 1, 2, 3, and 4 (power operation, startup, hot standby, and hot shutdown, respectively). The proposed limiting condition for operation specifies that both S-8 control room emergency air filtration units shall be operable.

Proposed action statement 3.7.6.1.a applies to conditions where one control room emergency air filtration train is inoperable. This action statement is consistent with the improved standard technical specifications for Combustion Engineering (CE) plants (NUREG-1432), and the allowed outage time of seven days with one inoperable emergency filtration train is consistent with the safety importance of the system. Therefore, proposed action statement 3.7.6.1.a is acceptable.

Proposed action statement 3.7.6.1.b applies when both control room emergency filtration trains are inoperable. This action statement, as modified by letter dated March 16, 1994, is also consistent with the improved standard technical specifications for CE plants (NUREG-1432), and the required actions, which are identical to those under TS 3.0.3, are also consistent with the safety importance of the system. Therefore, proposed action statement 3.7.6.1.b is acceptable.

The surveillance test requirements of TS 4.7.6.1 implement the guidance of Regulatory Guide 1.52, "Design, Testing, and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants." Therefore, the surveillance test requirements are acceptable.

Proposed TS 3/4.7.6.2 retains the limiting condition for operation, the action statements and the applicable surveillance requirements from the existing TS that are applicable to the S-8 emergency filtration units in operational modes 5 and 6 (cold shutdown and refueling, respectively). The action statement for one inoperable train in operational modes 5 and 6, specifies restoring the inoperable train to operable status within 7 days or placing the remaining operable train in operation in its emergency mode, otherwise it will require suspending activities with the potential to release radioactivity. This action statement ensures that the remaining train is operable, the failures preventing automatic actuation will have no effect, and any active failure will be readily detected. Proposed action statement 3.7.6.2 requires suspension of operations involving core alterations or positive reactivity changes when both control room emergency filtration trains are inoperable. The staff finds the proposed limiting condition for operation for operational modes 5 and 6 consistent with the existing TS for Waterford 3 and with the staff's current position in NUREG-1432. Thus, it is acceptable.

Proposed surveillance requirement 4.7.6.2 invokes the surveillance requirements of proposed TS 3/4.7.6.1 for the S-8 emergency filtration units, thereby implementing the guidance of Regulatory Guide 1.52 (RG 1.52). Therefore, this proposed surveillance requirement is acceptable.

Proposed TS 3/4.7.6.3 and TS 3/4.7.6.4 establish limiting conditions for operation and action statements for the AH-12 air handling units that are similar to the provisions of proposed TS 3/4.7.6.1 and TS 3/4.7.6.2 for the S-8 emergency filtration units. Proposed TS 3/4.7.6.3 applies in operational modes 1, 2, 3, and 4, and proposed TS 3/4.7.6.4 applies in operational modes 5 and 6.

Proposed TS 3/4.7.6.3 maintains a limiting condition for operation that specifies that two independent control room air conditioning units shall be operable. This limiting condition for operation is acceptable because it ensures at least one operable, full-capacity AH-12 air handling unit will remain operable following a postulated single failure.

Proposed action statement 3.7.6.3.a applies to conditions where one control room emergency air conditioning unit is inoperable. This action statement specifies an allowed outage time of seven days to restore the one inoperable AH-12 air handling unit to operable status, which is conservative relative to the 30-day allowed outage time for one inoperable control room cooling system prescribed by the improved standard TSs for CE plants (NUREG-1432). However, the licensee stated that, because maximum outside air makeup flow is less than 10 percent of the AH-12 unit air flow, outside air temperature has little effect on heat removal requirements. Therefore, maintenance of an acceptable control room air temperature is dependent on availability of an AH-12 air handling unit, and a 7-day allowed outage time for one inoperable unit is appropriate. If the inoperable AH-12 unit is not restored to operable status within seven days, the action statement specifies placing the reactor in hot standby in the next six hours, and cold shutdown within the following 30 hours, which the staff concluded is an appropriate set of actions for that condition.

Proposed action statement 3.7.6.3.b specifies an allowed outage time of one hour to restore one AH-12 unit to operable status when both AH-12 air handling units are inoperable. This action statement is consistent with the improved standard TSs for CE plants (NUREG-1432), and the required actions, which are identical to those under TS 3.0.3, are also consistent with the safety importance of the system.

Proposed surveillance requirements 4.7.6.3.a and 4.7.6.3.b are intended to demonstrate operability of the control room air conditioning units. Proposed surveillance requirement 4.7.6.3.a is similar to an existing surveillance requirement, and it specifies verification that average control room air temperature is less than or equal to 80°F at least once every 12 hours. The essential chilled water system, which provides cooling water to the AH-12 units, is governed by a separate TS, so surveillance requirement 4.7.6.3.a involves only the cooling coil and fan portions of the AH-12 air handling unit. Because, as described above, seasonal outside air temperature changes have a minor effect on the heat removal necessary to maintain a stable control room temperature, periodic verification of control room temperature provides acceptable assurance that the cooling coil and fan of the operating AH-12 unit are performing adequately. Surveillance requirement 4.7.6.3.b is an additional surveillance test proposed by the licensee that specifies verification that each AH-12 unit starts and operates on a quarterly basis. The staff concluded that surveillance requirements 4.7.6.3.a and 4.7.6.3.b provide acceptable assurance that both AH-12 units are capable of starting and operating when necessary, and are acceptable.

Proposed TS 3/4.7.6.4 retains the existing limiting condition for operation in operational modes 5 and 6 which specifies that both control room air conditioning units shall be operable. The action statement for one inoperable air conditioning unit in operational modes 5 and 6 specifies restoring the inoperable system to operable status within seven days, or placing the remaining operable unit in operation. This action statement ensures that the remaining train is operable, the failures preventing automatic actuation will have no effect, and any active failure will be readily detected. Proposed action statement 3.7.6.4b requires suspension of operations involving core alterations or positive reactivity changes when both control room air conditioning units are inoperable. The staff finds the proposed limiting condition for operation for operational modes 5 and 6 consistent with the existing TS for Waterford 3 and with the staff's current position in NUREG-1432. Thus, it is acceptable.

Proposed surveillance requirement 4.7.6.4 invokes the surveillance requirements of proposed TS 3/4.7.6.3 for the AH-12 air handling units. Therefore, this proposed surveillance requirement is acceptable.

Proposed TS 3/4.7.6.5 adds a limiting condition for operation that specifies that the control room envelope isolation and pressurization boundaries shall be operable. Proposed action statements 3.7.6.5.a, 3.7.6.5.b, and 3.7.6.5.c specify actions for inoperable conditions affecting the ability to isolate the

normal outside air flow paths, isolate the emergency air intake paths, and maintain at least one flow path for each emergency intake operable for control room pressurization, respectively. Each of these action statements permits an allowed outage time of seven days when the functional capability is maintained but redundancy is lost. Because the valves in each flow path affect only the ability to isolate or pressurize the control room envelope and not to recirculate air within the control room, valve operability is independent of the operability of the S-8 emergency filtration units and the AH-12 air handling units. The 7-day allowed outage time and the actions specified when the allowed outage time is not satisfied are consistent with the corresponding specifications for the emergency filtration units and control room air conditioning units for a loss of functional capability of the redundant component when the functional capability of the remaining operable component is maintained. Therefore, proposed action statements 3.7.6.5.a, 3.7.6.5.b, and 3.7.6.5.c are acceptable.

Proposed action statement 3.7.6.5.d addresses control room envelope inoperability resulting from causes other than those addressed by proposed action statements 3.7.6.5.a, 3.7.6.5.b, and 3.7.6.5.c. Therefore, this proposed action statement applies to breaches in the control room envelope other than the design intake and exhaust locations in the CRACS. The licensee has proposed additional action statement that permits breaches in the control room envelope for a period not to exceed seven days on an intermittent basis under administrative control provided that the breach origin is known and the characteristics of the breach allow operators to readily seal the breach in an effective manner. The purpose of this action statement is to provide a maintenance and modification provision during normal operation that would permit minor changes to the control room envelope boundary while the unit is operating at power. Proposed action statement 3.7.6.5.d.1 specifies periodic verification that the emergency breathing air bank pressure is adequate when the control room envelope is degraded. Proposed action statement 3.7.6.5.d.2 applies in operational modes 1, 2, 3, and 4, and proposed action statement 3.7.6.5.d.3 applies in operational modes 5 and 6. These two action statements include provisions to take immediate actions to restore control room envelope integrity and place the plant in a safe condition should a toxic chemical release occur. Proposed action statement 3.7.6.5.d.2.b includes an additional provision permitting continued operation for 48 hours to identify the cause of a control room envelope failure. If the cause is identified to be within the limits specified in action statement 3.7.6.5.d.2.a, operation may continue for up to seven days after initially declaring the control room envelope inoperable.

The licensee justified this proposed change on the basis of the conservative nature of control room habitability analyses, the capability to readily mitigate the impact on operators of a degraded control room envelope boundary, and the very low probability of an event requiring control room isolation during the short period a known breach is allowed to exist with the reactor operating at power. The control room habitability analyses assume that the control room is surrounded by a cloud of toxic or radioactive material and that the post-isolation in-leakage would occur directly from that cloud. Actually, the control room is bounded on three sides by the reactor auxiliaries building (RAB), and on a fourth side by the turbine building. The

two remaining sides, neither of which has doors or other penetrations, are exposed to the outside atmosphere. Because the wall shared with the turbine building has only an air-lock door and the walls shared with the RAB contain many more penetrations, the licensee concluded that most in-leakage to the control room would be from the RAB. The licensee determined by analysis that toxic chemical concentrations in the control room are almost entirely from in-leakage after isolation. By considering the effect of the RAB on control room toxic chemical concentrations, the licensee determined that the rate of buildup in toxic chemical concentration would be slower than the rate determined assuming direct in-leakage from the outside atmosphere. Based on this information, the licensee concluded that operators would have adequate time to don protective breathing apparatus before being exposed to elevated levels of toxic chemicals for any credible breach of the control room envelope.

The staff determined that the open doors and small breaches in the walls forming the control room envelope, which would probably communicate with the RAB, would not have a significant effect on performance of the control room envelope because the differential pressure and the associated air flow between surrounding areas and the control room would be small when the CRACS is operated in the isolation mode. Additionally, an emergency air supply system for the control room at Waterford is designed to provide a six hour supply of breathable air at a rate of six scfm for each of 17 control room and security personnel. This provision complies with the guidance of Regulatory Guide 1.78 (RG 1.78), "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release," where possible hazardous chemical accidents may be of long duration and may cause the applicable toxicity limits to be exceeded. Finally, monitoring of the installed gas detection systems and notification of industrial emergencies through the St. Charles Parish Emergency Preparedness/Industrial Hotline System provides the control room operators with enhanced identification capability for toxic chemical emergencies and a greater probability that adequate time will be available to take protective actions. The licensee stated that administrative procedures place special controls on work that will breach the control room envelope. The special controls include provision of an emergency closure kit containing materials necessary to restore control room envelope breeches to an air-tight condition. With the exception of notification of off-site events, the above considerations also apply to events involving a radiological release.

The staff finds proposed action statement 3.7.6.5.d to be acceptable based on the following considerations:

1) the low probability of a challenge to the control room envelope during the period where an identified breach in the control room envelope may exist while the plant is in operational modes 1, 2, 3, or 4;

2) the conservative nature of the design basis toxic chemical and radiological event analyses;

3) the features available at Waterford that provide enhanced identification capability for toxic chemical events;

4) the characteristics of permitted breaches in the control room envelope are such that actions to restore control room envelope integrity would have a high probability of success; and

5) the permanently installed emergency breathing air banks and the periodic verification of air bank pressure.

Proposed surveillance requirements 4.7.6.5.a, 4.7.6.5.b, and 4.7.6.5.c retain the portions of the existing surveillance requirements applicable to the isolation and pressurization functions of the CRACS. Proposed surveillance requirement 4.7.6.5.a modifies the existing surveillance requirement by specifying that the control room pressurization function be demonstrated with a make-up air flow rate of less than or equal to 200 cfm. This specific flow rate is consistent with the radiological analyses. Therefore, these proposed surveillance requirements are acceptable.

Based on the above discussion the staff has found that the proposed revision to TS 3.7.6 is acceptable. The division of the original TS into separate specifications based on function is acceptable because the individual specifications apply to functionally independent components and retain substantially all of the original limiting conditions for operation, action statements, and surveillance requirements. The most significant change was the creation of an allowed outage time for the control room envelope, which the staff found to be acceptable based on the low probability of an event requiring control room isolation during the period the control room envelope is degraded, and the reasonable assurance that the operators would be adequately protected if an event requiring control room isolation occurred with a degraded control room envelope.

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 amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves 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 amendment involves no significant hazards consideration and there has been no public comment on such finding (56 FR 43808 and 60 FR 29875).

Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: S. Jones

Date: October 4, 1995