

August 19, 1997

Mr. Charles M. Dugger
Vice President Operations
Entergy Operations, Inc.
P. O. Box B
Killona, LA 70066

SUBJECT: ISSUANCE OF AMENDMENT NO. 133 TO FACILITY OPERATING LICENSE
NPF-38 - WATERFORD STEAM ELECTRIC STATION, UNIT 3 (TAC NO. M98447)

Dear Mr. Dugger:

The Commission has issued the enclosed Amendment No. 133 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 April 11, 1997.

The amendment modifies TS 3.3.3.7.3, and Surveillance Requirements 4.3.3.7.3 for the broad range gas detection system. Also it modifies the Bases Section 3/4.3.3.7 to incorporate information associated with the proposed modifications.

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. 133 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

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Vice President Operations
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Killona, LA 70066

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Mr. Charles M. Dugger
Entergy Operations, Inc.

Waterford 3

cc:

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

ENERGY OPERATIONS, INC.

DOCKET NO. 50-382

WATERFORD STEAM ELECTRIC STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.133
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 April 11, 1997, 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. 133, 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 to be implemented within 90 days.

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: August 19, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 133

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.

REMOVE PAGES

3/4 3-48a
B 3/4 3-3
B 3/4 3-3a

INSERT PAGES

3/4 3-48a
B 3/4 3-3
B 3/4 3-3a
B 3/4 3-3b

INSTRUMENTATION

CHEMICAL DETECTION SYSTEMS

BROAD RANGE GAS DETECTION

LIMITING CONDITION FOR OPERATION

3.3.3.7.3 Two independent broad range gas detection systems shall be OPERABLE** with their alarm/trip setpoints adjusted to actuate at the lowest achievable Immediately Dangerous to Life or Health gas concentration level of detectable toxic gases* providing reliable operation.

APPLICABILITY: All MODES.

ACTION:**

- a. With one broad range gas detection system inoperable, restore the inoperable detection system to OPERABLE status within 7 days or within the next 6 hours initiate and maintain operation of the control room ventilation system in the isolate mode of operation.
- b. With no broad range gas detection system OPERABLE, within 1 hour initiate and maintain operation of the control room ventilation system in the isolate mode of operation.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.7.3 Each broad range gas detection system shall be demonstrated OPERABLE by performance of a CHANNEL CHECK at least once per 12 hours and a CHANNEL FUNCTIONAL TEST at least once per 31 days. The CHANNEL FUNCTIONAL TEST will include the introduction of a standard gas.

*Including Ammonia

**The requirements of Technical Specification 3.0.1 do not apply during the time (approximately one minute) when the Instrument automatic background/reference spectrum check renders the instrument(s) inoperable.

3/4.3.3.6 ACCIDENT MONITORING INSTRUMENTATION

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. The availability of accident monitoring instrumentation is important so that responses to corrective actions can be observed and the need for, and magnitude of, further actions can be determined. These essential instruments are identified by plant specific documents addressing the recommendations of Regulatory Guide 1.97, as required by Supplement 1 to NUREG-0737, "TMI Action Items." Table 3.3.10 includes most of the plant's RG 1.97 Type A and Category 1 variables. The remaining Type A/Category 1 variables are included in their respective specifications. Type A variables are included in this LCO because they provide the primary information required to permit the control room operator to take specific manually controlled actions, for which no automatic control is provided, that are required for safety systems to accomplish their safety functions for Design Basis Accidents (DBAs). Category 1 variables are the key variables deemed risk significant because they are needed to: (1) Determine whether other systems important to safety are performing their intended functions; (2) Provide information to the operators that will enable them to determine the potential for causing a gross breach of the barriers to radioactivity release; and (3) Provide information regarding the release of radioactive materials to allow for early indication of the need to initiate action necessary to protect the public as well as to obtain an estimate of the magnitude of any impending threat.

With the number of OPERABLE accident monitoring channels less than the Required Number of Channels shown in Table 3.3-10, the inoperable channel should be restored to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience and takes into account the remaining OPERABLE channel (or in the case of a Function that has only one required channel, other non-Regulatory Guide 1.97 instrument channels to monitor the Function), the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring accident monitoring instrumentation during this interval. If the 30 day AOT is not met, a Special Report approved by PORC is required to be submitted to the NRC within the following 14 days. This report discusses the results of the root cause evaluation of the inoperability and identifies proposed restorative Actions. This Action is appropriate in lieu of a shutdown requirement, given the likelihood of plant conditions that would require information provided by this instrumentation. Also, alternative Actions are identified before a loss of functional capability condition occurs.

With the number of OPERABLE accident monitoring channels less than the Minimum Channels OPERABLE requirements of Table 3.3-10; at least one of the inoperable channels should be restored to OPERABLE status within 7 days. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrumentation operation and the availability of alternate means to obtain the required information.

Continuous operation with less than the Minimum Channels OPERABLE requirements is not acceptable because the alternate indications may not fully meet all performance qualification requirements applied to the accident

INSTRUMENTATION

BASES

monitoring instrumentation. Therefore, requiring restoration of one inoperable channel limits the risk that the variable will be in a degraded condition should an accident occur. If the 7 day requirement is not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 4 within 12 hours. The completion time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

TS 3/4.3.3.6 applies to the following instrumentation: ESFIPI6750 A, ESFIPR6750 B, ESFIPR6755 A&B, RC ITI0122 HA, RC ITI0112 HB, RC ITI0122 CA, RC ITI0112 CB, RC IPI0102 A,B,C,&D, RC ILI0110 X&Y, SG ILI1113 A,B,C,&D, SG ILI1123 A,B,C,&D, SG ILI1115 A2&B2, SG ILI1125 A2&B2, SI ILI7145 A, SI ILR7145 B, all CET's, all Category 1 Containment Isolation Valve Position Indicators, EFWILI9013 A&B, HJTC's, and ENIIJI0001 C&D.

3/4.3.3.7 CHEMICAL DETECTION SYSTEMS

The chemical detection systems are the chlorine and broad range toxic gas detection systems.

The OPERABILITY of the chemical detection systems ensures that sufficient capability is available to promptly detect and initiate protective action in the event of an accidental chemical release.

The chemical detection systems provide prompt detection of toxic gas releases which could pose an actual threat to safety of the nuclear power plant or significantly hamper site personnel in performance of duties necessary for the safe operation of the plant.

The broad range toxic gas detection system utilizes a Fourier Transform Infrared (FTIR) analysis technique, and therefore, the system is sensitive to a broad range of gases*. The system is sensitive to normal fluctuations of both atmospheric and chemical composition which affect the Waterford 3 site. The setpoints associated with the system are based on testing and operating experience. Set-points are set as to prevent Immediately Dangerous to Life or Health (IDLH) gas concentration in the control room while providing reliable operation and the optimum detection of toxic gases. The setpoint is therefore subject to change wherein necessitated by operating experience such as a result of changes in the Waterford 3 area chemical atmospheric profile. The setpoint is established and controlled by procedure.

The LCO and ACTIONS for the broad range gas detection system are annotated such that the system instrument automatic background/reference spectrum check does not constitute system inoperability if both channels are

*Including Amononia

operable and both channels are not performing the check simultaneously. The instrument automatically performs this check. During the time that the automatic background/reference spectrum check is taking place (which will be less than one minute), the channel will not perform the function of isolation of the control room. With both channels OPERABLE, the other system will be available to perform the control room isolation function in the event of a toxic gas incident. With one channel taken out of service (e.g., for maintenance), when the second channel performs the automatic background check, both channels will be unable to perform the function of isolating the control room for the short time of the background check. Analysis has shown that the impact on operator incapacitation and subsequent core damage risk of the background checks while one monitor is out of service for its 7 day allowed outage time is negligible. Therefore, entry into the ACTION solely due to the automatic check is not required.

No specific manual CHANNEL CALIBRATION is required as the system instrument performs this function as the background/reference spectrum check automatically for approximately one minute on a frequency of once every hour to once every four hours. The exact frequency is established based on operating experience with the instrument.

The performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of the instrument has not occurred. The CHANNEL CHECK consists of a comparison of the display of the standard gas (utilized in the FUNCTIONAL TEST), CO₂ and water. Significant deviations from the expected readings and actual readings could be an indication of a malfunction within the unit. The CHANNEL CHECK will detect gross system failure; thus, it is the key to verifying the instrument continues to operate properly between each CHANNEL FUNCTIONAL TEST.

A CHANNEL FUNCTIONAL TEST is performed to ensure the entire channel will perform its required function. This test includes introduction of a standard gas and verification of isolation of the control room. The time of the occurrence of the background/reference spectrum check is set during the CHANNEL FUNCTIONAL TEST such that both channels are not out of service simultaneously.

3/4.3.3.8 This section deleted

3/4.3.3.9 This section deleted



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 133 TO

FACILITY OPERATING LICENSE NO. NPF-38

ENERGY OPERATIONS, INC.

WATERFORD STEAM ELECTRIC STATION, UNIT 3

DOCKET NO. 50-382

1.0 INTRODUCTION

By application dated April 11, 1997, 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 modify TS 3.3.3.7.3, and Surveillance Requirements (SR) 4.3.3.7.3 for the broad range gas detection system. Also it would make some changes to the Bases in Section 3/4.3.3.7 to incorporate information associated with the proposed modifications. The licensee is planning to replace the existing toxic gas monitors in the system with a new, more advanced gas monitors. These new gas monitors operate on different principle and require, therefore, different operating procedures. The proposed changes to the current TS will account for these differences.

2.0 EVALUATION

The current toxic gas detection system has a photoionization detector, a local readout and alarm adjustment for detection of toxic gases and isolation of the control room. This system proved to be unreliable, requiring excessive amount of maintenance and calibration efforts. The new monitors, which the licensee proposes to use, are based on a Fourier Transform Infrared (FTIR) analysis technique. This technique utilizes microprocessor gas analysis based on infrared spectrum analysis. It is more accurate than the method used currently. Also, one of its advantages is that the new monitors allow the operators to adjust gas concentration setpoints individually for each gas to the limits defined by the lowest Immediately Dangerous to Life or Health (IDLH) values. The modified toxic gas detection system will not include any changes to the existing alarms and control room isolation function.

The modified system will be able to measure all gases of concern with the exception of chlorine. A separate chlorine monitor will be provided in the new system. However, this monitor will not be seismically qualified and in order to ensure chlorine monitoring under adverse accident conditions, the licensee will leave the existing, seismically qualified monitor in place in the modified system and use the new chlorine monitor as a backup unit.

The new gas monitor will be performing automatic calibration once every one to four hours with a typical value of once every two hours. This calibration is required to establish a baseline reference for the infrared spectrum. During the calibration period, which will last one minute, the monitor will not be available for monitoring presence of toxic gases. Although there are two monitoring trains in the system and calibration periods are staggered, there is a possibility that with one monitoring train inoperable (e.g., being serviced), the system will not be able to monitor toxic gases for as long as one minute. The licensee evaluated this case by performing probabilistic analysis. The results of this analysis have indicated that the probability of incapacitation of the operators, due to the absence of toxic gas monitoring, is below the level that is considered acceptable risk in Section 2.2.3 of the Standard Review Plan. Interruption of the monitoring operation during calibration period will not, therefore, significantly affect the safety of the plant.

In order to account for the differences in the operating procedures for the new toxic gas detection system, the licensee amended the TS as follows:

- In LCO 3.3.7.3 a footnote was added stating that the requirement for maintaining the system operable does not apply during the time (approximately one minute) when the instrument automatic background/reference spectrum check renders the instrument inoperable.
- In SR 4.3.3.7.3 a change was introduced modifying the channel functional test to account for the new calibration procedure.
- The Bases in Section 3/4.3.3.7 were modified to include a description of the new toxic gas detection system, its operation and its calibration procedure.

The staff has evaluated the licensee's proposed modification to the TS for the toxic gas detection system. The licensee would like to modify these TS to make them applicable to the new toxic gas monitors it plans to install in the system. These new monitors provide better monitoring and contribute to an improved detection of the toxic gases in the plant. The licensee addressed two problems related to the use of these new monitors: interruption in monitoring operation during monitor calibration and lack of seismic qualification for the new chlorine monitor. In both these cases the licensee found an acceptable solution and was able to demonstrate that satisfactory operation of the modified system could be achieved. The staff has evaluated the licensee analyses and based on its evaluation concludes that the proposed amendment to the TS for the toxic gas detection system is acceptable.

3.0 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.

4.0 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 (62 FR 24987). 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.

5.0 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: K. Parczewski

Date: August 19, 1997