

50-416



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

November 5, 1997

Mr. Joseph J. Hagan
Vice President, Operations GGNS
Entergy Operations, Inc.
P. O. Box 756
Port Gibson, MS 39150

SUBJECT: ISSUANCE OF AMENDMENT NO. 133 TO FACILITY OPERATING LICENSE
NO. NPF-29 - GRAND GULF NUCLEAR STATION, UNIT 1 (TAC NO. M98745)

Dear Mr. Hagan:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 133 to Facility Operating License No. NPF-29 for the Grand Gulf Nuclear Station, Unit 1. This amendment revises the Technical Specifications (TSs) in response to your application dated May 27, 1997 (GNRO-97/00037), as supplemented by the letter of October 6, 1997 (GNRO-97/00098).

The amendment eliminates response time testing (RTT) requirements for selected sensors and specified instrumentation loops for the Reactor Protection System, the Primary Containment and Drywell Isolation Actuation System, and the Emergency Core Cooling System. The changes to the TSs are to Surveillance Requirements (SRs) 3.3.1.1.15, 3.3.6.1.8, and 3.5.1.8 and 3.5.2.7, respectively. Approval of this amendment is based on the staff's generic Safety Evaluation Report (SER) dated December 28, 1994, and the supplement to this SER dated May 31, 1995, that approved the Boiling Water Reactor (BWR) Owners Group Licensing Topical Report NEDO-32291, dated January 1994, which proposed elimination of selected RTT requirements.

As requested by the letter of October 6, 1997, this amendment also includes the page changes to the Bases of SRs 3.3.1.1.15, 3.3.6.1.8, 3.5.1.8, and 3.5.2.7 of the TSs. These page changes include the commitments, described in the letter of May 7, 1997, to revise procedures to include steps to input a fast ramp or step change and to have technicians monitor for response time degradation during calibrations, and train technicians to be aware of the consequences of instrument response time degradation. The staff has relied upon these commitments in approving this amendment and incorporated these commitments in the Bases of the TSs. Any changes to the Bases of the TSs are made in accordance with Section 5.5.11 of the Administrative Controls of the TSs which requires prior staff approval for USQs as defined by 10 CFR 50.59. You are requested to inform the staff in writing when these commitments have been implemented.

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Mr. Joseph J. Hagan
Entergy Operations, Inc.

Grand Gulf Nuclear Station

cc:

Executive Vice President
& Chief Operating Officer
Entergy Operations, Inc.
P. O. Box 31995
Jackson, MS 39286-1995

Wise, Carter, Child & Caraway
P. O. Box 651
Jackson, MS 39205

Winston & Strawn
1400 L Street, N.W. - 12th Floor
Washington, DC 20005-3502

Director
Division of Solid Waste Management
Mississippi Department of Natural
Resources
P. O. Box 10385
Jackson, MS 39209

President,
Claiborne County Board of Supervisors
P. O. Box 339
Port Gibson, MS 39150

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

Senior Resident Inspector
U. S. Nuclear Regulatory Commission
Route 2, Box 399
Port Gibson, MS 39150

Manager of Operations
Bechtel Power Corporation
P.O. Box 2166
Houston, TX 77252-2166

General Manager, GGNS
Entergy Operations, Inc.
P. O. Box 756
Port Gibson, MS 39150

Attorney General
Department of Justice
State of Louisiana
P. O. Box 94005
Baton Rouge, LA 70804-9005

State Health Officer
State Board of Health
P. O. Box 1700
Jackson, MS 39205

Office of the Governor
State of Mississippi
Jackson, MS 39201

Attorney General
Asst. Attorney General
State of Mississippi
P. O. Box 22947
Jackson, MS 39225

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

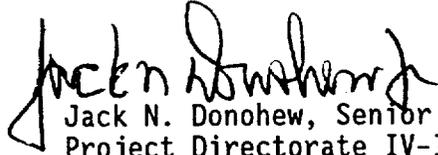
Director, Nuclear Safety
and Regulatory Affairs
Entergy Operations, Inc.
P.O. Box 756
Port Gibson, MS 39150

Mr. Joseph J. Hagan

- 2 -

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,



Jack N. Donohew, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosures: 1. Amendment No. 133 to NPF-29
2. Safety Evaluation

cc w/encls: See next page

Mr. Joseph J. Hagan

- 2 -

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,

JN Donohew 11/5/97

Jack N. Donohew, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-416

- Enclosures: 1. Amendment No. 133 to NPF-29
- 2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

Docket File	PUBLIC	PD4-1 r/f	J. Donohew
J. Kilcrease, RIV f/r	C. Hawes	OGC (15B18)	G. Hill (2)
W. Beckner	T. Gwynn, RIV	ACRS	L. Hurley, RIV
E. Adensam (EGA1)	P. Loeser	J. Wermiel	

Document Name: GG98745.AMD (HICB SE memo dated 08/27/97)

OFC	PM/PD4-1	LA/PD4-1	BC/HICB/NRR	OGC <i>CGE</i>
NAME	JDonohew/vw	CHawes <i>CMN</i>	JWermiel	RBachmann
DATE	10/9/97	10/20/97	10/14/97	10/29/97
COPY	YES/NO	YES/NO	YES/NO	YES/NO

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(The HICB SE had the incorrect licensee application date of March 27, 1997, and the incorrect TAC No. M98249.)



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

ENERGY OPERATIONS, INC.

SYSTEM ENERGY RESOURCES, INC.

SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION

ENERGY MISSISSIPPI, INC.

DOCKET NO. 50-416

GRAND GULF NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 133
License No. NPF-29

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Entergy Operations, Inc. (the licensee) dated May 7, 1997, as supplemented by the letter of October 6, 1997, comply 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-29 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 133, are hereby incorporated into this license. Entergy Operations, Inc. 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



Jack N. Donohew, Senior 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: November 5, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 133

FACILITY OPERATING LICENSE NO. NPF-29

DOCKET NO. 50-416

Replace the following pages of the Appendix A Technical Specifications and the Bases to the Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

REMOVE

3.3-5
3.3-53
3.5-5
3.5-9
B3.3-29

B3.3-30
B3.3-170

B3.3-171
B3.5-13a
B3.5-14
B3.5-19
B3.5-20

INSERT

3.3-5
3.3-53
3.5-5
3.5-9
B3.3-29
B3.3-29a
B3.3-30
B3.3-170
B3.3-170a
B3.3-171
B3.5-13a
B3.5-14
B3.5-19
B3.5-20

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.3.1.1.11 Perform CHANNEL FUNCTIONAL TEST.	18 months
SR 3.3.1.1.12 -----NOTES----- 1. Neutron detectors are excluded. 2. For IRMs, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. ----- Perform CHANNEL CALIBRATION.	18 months
SR 3.3.1.1.13 Perform LOGIC SYSTEM FUNCTIONAL TEST.	18 months
SR 3.3.1.1.14 Verify Turbine Stop Valve Closure, Trip Oil Pressure—Low and Turbine Control Valve Fast Closure Trip Oil Pressure—Low Functions are not bypassed when THERMAL POWER is \geq 40% RTP.	18 months
SR 3.3.1.1.15 -----NOTES----- 1. Neutron detectors are excluded. 2. For Functions 3, 4, and 5 in Table 3.3.1.1-1, the channel sensors may be excluded. 3. For Function 6, "n" equals 4 channels for the purpose of determining the STAGGERED TEST BASIS Frequency. ----- Verify the RPS RESPONSE TIME is within limits.	18 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.6.1-1 to determine which SRs apply for each Function.
 2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the associated Function maintains isolation capability.
-

SURVEILLANCE	FREQUENCY
SR 3.3.6.1.1 Perform CHANNEL CHECK.	12 hours
SR 3.3.6.1.2 Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.1.3 Calibrate the trip unit.	92 days
SR 3.3.6.1.4 Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.1.5 Perform CHANNEL CALIBRATION.	12 months
SR 3.3.6.1.6 Perform CHANNEL CALIBRATION.	18 months
SR 3.3.6.1.7 Perform LOGIC SYSTEM FUNCTIONAL TEST.	18 months
SR 3.3.6.1.8 -----NOTE----- Channel sensors may be excluded. ----- Verify the ISOLATION SYSTEM RESPONSE TIME for the Main Steam Isolation Valves is within limits.	18 months on a STAGGERED TEST BASIS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.5.1.5 -----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</p>	<p>18 months</p>
<p>SR 3.5.1.6 -----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	<p>18 months</p>
<p>SR 3.5.1.7 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each ADS valve relief-mode actuator strokes when manually actuated.</p>	<p>In accordance with the Inservice Testing Program on a STAGGERED TEST BASIS for each valve solenoid</p>
<p>SR 3.5.1.8 -----NOTE----- ECCS actuation instrumentation is excluded. -----</p> <p>Verify the ECCS RESPONSE TIME for the HPCS System is within limits.</p>	<p>18 months</p>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE			FREQUENCY											
SR 3.5.2.5	Verify each required ECCS pump develops the specified flow rate with the specified total developed head.		In accordance with the Inservice Testing Program											
	<table border="1"> <thead> <tr> <th>SYSTEM</th> <th>FLOW RATE</th> <th>TOTAL DEVELOPED HEAD</th> </tr> </thead> <tbody> <tr> <td>LPCS</td> <td>≥ 7115 gpm</td> <td>≥ 290 psid</td> </tr> <tr> <td>LPCI</td> <td>≥ 7450 gpm</td> <td>≥ 125 psid</td> </tr> <tr> <td>HPCS</td> <td>≥ 7115 gpm</td> <td>≥ 445 psid</td> </tr> </tbody> </table>	SYSTEM	FLOW RATE	TOTAL DEVELOPED HEAD	LPCS	≥ 7115 gpm	≥ 290 psid	LPCI	≥ 7450 gpm	≥ 125 psid	HPCS	≥ 7115 gpm	≥ 445 psid	
SYSTEM	FLOW RATE	TOTAL DEVELOPED HEAD												
LPCS	≥ 7115 gpm	≥ 290 psid												
LPCI	≥ 7450 gpm	≥ 125 psid												
HPCS	≥ 7115 gpm	≥ 445 psid												
SR 3.5.2.6	<p>-----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</p>		18 months											

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.1.1.15

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The RPS RESPONSE TIME acceptance criteria are included in the applicable plant procedures.

As noted, neutron detectors are excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time. Note 2 allows the channel sensors of Functions 3, 4, and 5 to be excluded from specific RPS RESPONSE TIME testing. This allowance to not perform specific response time testing of the sensors is applicable when the alternate testing requirements and restrictions of Reference 10 are performed. As stated in Reference 10, analysis has demonstrated that other Technical Specification testing requirements (CHANNEL CALIBRATIONS, CHANNEL CHECKS, CHANNEL FUNCTIONAL TESTS, and LOGIC SYSTEM FUNCTIONAL TESTS) and actions taken in response to NRC Bulletin 90-01 Supplement 1 are sufficient to identify failure modes or degradation in instrument response times and assure operation of the analyzed instrument loops within acceptable limits.

Reference 10 also identifies that there are no known channel sensor failure modes identified that can be detected by response time testing that cannot also be detected by other Technical Specification required surveillances. Therefore, when the requirements, including sensor types, of Reference 10 are complied with, adequate assurance of the response time of the sensors is provided. This assurance of the response time of the sensors when combined with the response time testing of the remainder of the channel ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The calibration shall be performed such that fast ramp or step change to system components during calibrations is performed to verify that the response of the transmitter to the input change is prompt. Technicians shall monitor for response time degradation during the performance of calibrations. Technicians shall be appropriately trained to ensure they are aware of the consequences of instrument response time degradation. These items are commitments made per Reference 11. If the alternate testing requirements of Reference 10 are not complied with, then the entire channel will be response time tested including the sensors.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.3.1.1.15 (continued)

RPS RESPONSE TIME tests are conducted on an 18 month STAGGERED TEST BASIS. Note 3 requires STAGGERED TEST BASIS Frequency to be determined based on 4 channels per trip system, in lieu of the 8 channels specified in Table 3.3.1.1-1 for the MSIV Closure Function. This Frequency is based on the logic interrelationships of the various channels required to produce an RPS scram signal.

Therefore, staggered testing results in response time verification of these devices every 18 months. This Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components causing serious time degradation, but not channel failure, are infrequent.

REFERENCES

1. UFSAR, Figure 7.2-1.
2. UFSAR, Section 5.2.2.
3. UFSAR, Section 6.3.3.
4. UFSAR, Chapter 15.
5. UFSAR, Section 15.4.1.
6. NEDO-23842, "Continuous Control Rod Withdrawal in the Startup Range," April 18, 1978.
7. UFSAR, Section 15.4.9.

(continued)

BASES

REFERENCES
(continued)

8. Letter, P. Check (NRC) to G. Lainas (NRC), "BWR Scram Discharge System Safety Evaluation," December 1, 1980, as attached to NRC Generic Letter dated December 9, 1980.
 9. NEDO-30851-P-A, "Technical Specification Improvement Analyses for BWR Reactor Protection System," March 1988.
 10. NEDO-32291-A, "System Analyses for Elimination of Selected Response Time Testing Requirements," October 1995.
 11. GNRI-97/000__, Amendment 133 to the Operating License.
-

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.3.6.1.7

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required isolation logic for a specific channel. The system functional testing performed on isolation valves in LCO 3.6.1.3 and LCO 3.6.5.3 overlaps this Surveillance to provide complete testing of the assumed safety function. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Operating experience has shown these components usually pass the Surveillance when performed at the 18 month Frequency.

SR 3.3.6.1.8

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. Testing is performed only on channels where the assumed response time does not correspond to the diesel generator (DG) start time. For channels assumed to respond within the DG start time, sufficient margin exists in the 10 second start time when compared to the typical channel response time (milliseconds) so as to assure adequate response without a specific measurement test. Testing of the closure times of the MSIVs is not included in this Surveillance since the closure time of the MSIVs is tested by SR 3.6.1.3.6. ISOLATION SYSTEM RESPONSE TIME acceptance criteria for this instrumentation is included in the applicable plant procedures.

As Noted, the channel sensor may be excluded from response time testing. This allowance to not perform specific response time testing of the sensors is applicable when the alternate testing requirements and restrictions of Reference 7 are performed. As stated in Reference 7, analysis has demonstrated that other Technical Specification testing requirements (CHANNEL CALIBRATIONS, CHANNEL CHECKS, CHANNEL FUNCTIONAL TESTS, and LOGIC SYSTEM FUNCTIONAL TESTS) and actions taken in response to NRC Bulletin 90-01 Supplement 1 are sufficient to identify failure modes or degradation in

(continued)

BASES

**SURVEILLANCE
REQUIREMENTS**

SR 3.3.6.1.8 (continued)

instrument response times and assure operation of the analyzed instrument loops within acceptable limits. Reference 7 also identifies that there are no known channel sensor failure modes identified that can be detected by response time testing that cannot also be detected by other Technical Specification required surveillances. Therefore, when the requirements, including sensor types, of Reference 7 are complied with, adequate assurance of the response time of the sensors is provided. This assurance of the response time of the sensors when combined with the response time testing of the remainder of the channel ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. The calibration shall be performed such that fast ramp or step change to system components during calibrations is performed to verify that the response of the transmitter to the input change is prompt. Technicians shall monitor for response time degradation during the performance of calibrations. Technicians shall be appropriately trained to ensure they are aware of the consequences of instrument response time degradation. These items are commitments made per Reference 8. If the alternate testing requirements of Reference 7 are not complied with then the entire channel will be response time tested including the sensors.

ISOLATION SYSTEM RESPONSE TIME tests for this instrumentation are conducted on an 18 month STAGGERED TEST BASIS. This test Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience that shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent.

REFERENCES

1. UFSAR, Chapter 6.
2. UFSAR, Chapter 15.

(continued)

BASES

REFERENCES
(continued)

3. NEDO-31466, "Technical Specification Screening Criteria Application and Risk Assessment," November 1987.
 4. UFSAR, Section 9.3.5.
 5. NEDC-31677-P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," June 1989.
 6. NEDC-30851-P-A, Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.
 7. NEDO-32291-A, "System Analyses for Elimination of Selected Response Time Testing Requirements," October 1995.
 8. GNRI-97/000__, Amendment 133 to the Operating License.
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BASES

SURVEILLANCE
REQUIREMENTSSR 3.5.1.7 (continued)

alternately tested. The Frequency of the required relief-mode actuator testing was developed based on the tests required by the ASME Boiler and Pressure Vessel Code, Section XI as implemented by the Inservice Testing Program of Specification 5.5.6. The testing Frequency required by the Inservice Testing Program is based on operating experience and valve performance. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.5.1.8

This SR ensures that the HPCS System response time is less than or equal to the maximum value assumed in the accident analysis. Specific testing of the ECCS actuation instrumentation inputs into the HPCS System ECCS SYSTEM RESPONSE TIME is not required by this SR. Specific response time testing of this instrumentation is not required since these actuation channels are only assumed to respond within the diesel generator start time; therefore, sufficient margin exists in the diesel generator 10 second start time when compared to the typical channel response time (milliseconds) so as to assure adequate response without a specific measurement test (Ref. 16). The diesel generator starting and any sequence loading delays along with the Reactor Vessel Water Level - Low Low, Level 2 confirmation delay permissive must be added to the HPCS System equipment response times to obtain the HPCS System ECCS SYSTEM RESPONSE TIME. The acceptance criterion for the HPCS System ECCS SYSTEM RESPONSE TIME is ≤ 27 seconds.

(continued)

BASES

SURVEILLANCE
REQUIREMENTSSR 3.5.1.8 (continued)

HPCS System ECCS SYSTEM RESPONSE TIME tests are conducted every 18 months. This Frequency is consistent with the typical industry refueling cycle and is based on industry operating experience.

REFERENCES

1. UFSAR, Section 6.3.2.2.3.
2. UFSAR, Section 6.3.2.2.4.
3. UFSAR, Section 6.3.2.2.1.
4. UFSAR, Section 6.3.2.2.2.
5. UFSAR, Section 15.6.6.
6. UFSAR, Section 15.6.4.
7. UFSAR, Section 15.6.5.
8. 10 CFR 50, Appendix K.
9. UFSAR, Section 6.3.3.
10. 10 CFR 50.46.
11. UFSAR, Section 6.3.3.3.
12. Memorandum from R.L. Baer (NRC) to V. Stello, Jr. (NRC), "Recommended Interim Revisions to LCO's for ECCS Components," December 1, 1975.
13. UFSAR, Section 6.3.3.7.8.
14. UFSAR, Section 7.3.1.1.1.4.2.
15. GNRI-96/00229, Amendment 130 to the Operating License.
16. NEDO-32291-A, "System Analyses for Elimination of Selected Response Time Testing Requirements," October 1995.
17. GNRI-97/000__, Amendment 133 to the Operating License

BASES

SURVEILLANCE
REQUIREMENTSSR 3.5.2.4 (continued)

initiation signal is allowed to be in a nonaccident position provided the valve will automatically reposition in the proper stroke time. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of potentially being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves. The 31 day Frequency is appropriate because the valves are operated under procedural control and the probability of their being mispositioned during this time period is low.

In MODES 4 and 5, the RHR System may operate in the shutdown cooling mode, or be aligned to allow alternate means to remove decay heat and sensible heat from the reactor. Therefore, RHR valves that are required for LPCI subsystem operation may be aligned for decay heat removal. This SR is modified by a Note that allows one LPCI subsystem of the RHR System to be considered OPERABLE for the ECCS function if all the required valves in the LPCI flow path can be manually realigned (remote or local) to allow injection into the RPV and the system is not otherwise inoperable. This will ensure adequate core cooling if an inadvertent vessel draindown should occur.

(continued) |

BASES (continued)

REFERENCES

1. UFSAR, Section 6.3.3.4.
 2. GNRI-97/000__, Amendment 133 to the Operating License.
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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-29

ENERGY OPERATIONS, INC., ET AL.

GRAND GULF NUCLEAR STATION, UNIT 1

DOCKET NO. 50-416

1.0 INTRODUCTION

By letter dated May 7, 1997, the licensee (Entergy Operations, Inc.), submitted a request for changes to the Technical Specifications (TSs) for Grand Gulf Nuclear Station, Unit 1. The proposed changes to the TSs would eliminate response time testing (RTT) requirements for selected sensors and specified instrumentation loops for the following systems: (1) the Reactor Protection System (RPS), (2) the Primary Containment and Drywell Isolation System, and (3) the Emergency Core Cooling System (ECCS). The changes to the TSs would be to Surveillance Requirements (SRs) 3.3.1.1.15, 3.3.6.1.8, and 3.5.1.8 and 3.5.2.7, respectively.

The licensee stated that there would be a reduction in occupational exposure due to the proposed reduced testing.

In the letter of October 6, 1997, the licensee submitted revised changes to the Bases of the TSs for SRs 3.3.1.1.15, 3.3.6.1.8, 3.5.1.8, and 3.5.2.7. The revisions added the commitments discussed in Section 5.0 of this evaluation. The licensee provided clarifying information in the letter of October 6, 1997, that did not change the initial proposed no significant hazards consideration determination for the proposed change to the TSs.

2.0 BACKGROUND

The Boiling Water Reactor Owner's Group (BWROG), with Grand Gulf's participation performed an analysis to assess the impact of elimination of RTT for selected instrument loops. This analysis, documented as Licensing Topical Report NEDO-32291 "System Analyses for Elimination of Selected Response Time Testing Requirements", was submitted for NRC approval in January 1994. The NRC-approved NEDO-32291 in a generic Safety Evaluation Report (SER) dated December 28, 1994 and approved subsequent revisions to NEDO-32291 in a supplemental SER dated May 31, 1995.

The generic SER included Tables 1 and 2, which respectively lists the make/model of instruments/devices, and systems which were evaluated in NEDO-32291 for RTT elimination. The generic SER states, "The BWROG concluded that the RTT requirements for the devices identified in Table 1 can be removed from the TSs when the devices are used in systems listed in Table 2."

In addition to approving the elimination of RTT for selected instrumentation, the generic SER stipulated certain conditions that individual plant licensees must meet when implementing the NEDO-32291 guidelines on a plant specific basis. These conditions will be discussed in the following evaluation of the licensee's proposed changes to the TSs.

The licensee addressed the conditions in the staff's SER on NEDO-32291 in its application for the changes to the TSs.

3.0 EVALUATION

The licensee has proposed the elimination of the following selected RTT requirements from the Grand Gulf TSs:

1. Reactor Protection System instrumentation - Sensors for Reactor Vessel Steam Dome Pressure-High and Reactor Vessel Low Water Level - Level 3;
2. Isolation Actuation System instrumentation - Sensors for Reactor Vessel Low Water Level-Level 1 and Main Steam Line Flow-High, and;
3. Emergency Core Cooling System Actuation instrumentation.

As indicated in the NRC-approved NEDO-32291, RTT can be eliminated for the following instrumentation based on other TS testing which is sufficient to detect instrumentation response degradation:

1. All Emergency Core Cooling System instrument loops;
2. All Isolation System actuation instrument loops except for main steam line isolation valves (MSIVs);
3. Sensors for selected Reactor Protection System actuation; and
4. Sensors for MSIV closure actuation.

The specific surveillance requirements and the Bases of the Grand Gulf TSs which the licensee has proposed to change are as follows:

- (a)1. Section 3.1.1, Reactor Protection System Instruments, page 3.3-5, Surveillance Requirement 3.3.1.1.15, Notes.

Proposed Change: Add a note 2 to the surveillance requirement stating "For Functions 3, 4, and 5 in Table 3.3.1.1-1, the channel sensors may be excluded." The original note 2 will be relabeled as note 3.

- (a)2. Bases Section B 3.3.1.1, RPS Instrumentation Surveillance Requirements, Page B 3.3-29, Surveillance Requirement SR 3.3.1.1.15.

Proposed Change: Add a paragraph between the current paragraph 2 and 3, to read:

"Note 2 allows the channel sensors of Functions 3, 4, and 5 to be excluded from specific RPS RESPONSE TIME testing. This allowance to not perform specific response time testing of the sensors is applicable when the alternate testing requirements and restrictions of Reference 10 are performed. As stated in Reference 10, analysis has demonstrated that other Technical Specification testing requirements (CHANNEL CALIBRATIONS, CHANNEL CHECKS, CHANNEL FUNCTIONAL TESTS, and LOGIC SYSTEM FUNCTIONAL TESTS) and actions taken in response to NRC Bulletin 90-01 Supplement 1 are sufficient to identify failure modes or degradation in instrument response times and assure operation of the analyzed instrument loops within acceptable limits. Reference 10 also identifies that there are no known channel sensor failure modes identified that can be detected by RTT that cannot also be detected by other Technical Specification required surveillances. Therefore, when the requirements, including sensor types, of Reference 10 are complied with, adequate assurance of the response time of the sensors is provided. This assurance of the response time of the sensors when combined with the response time testing of the remainder of the channel ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. If the alternate testing requirements of Reference 10 are not complied with, then the entire channel will be response time tested including the sensors."

- (a)3. Bases Section B 3.3.1.1, RPS Instrumentation Surveillance Requirements, Page B 3.3-30, References

Proposed Change: Add reference 10 to the Bases section, to read:

10. NEDO-32291-a, "System Analysis for Elimination of Selected Response Time Testing Requirements," October 1997

Staff Evaluation: The three functions proposed to be changed are listed in Table 3.3.1.1-1 of NEDO-32291 and are as follows:

Function 3:	Reactor Vessel Steam Dome Pressure: - High
Function 4:	Reactor Vessel Water Level - Low, Level 3
Function 5:	Reactor Vessel Water Level High, Level 8

This footnote in the Bases will allow the licensee to use manufacturers response time data, and eliminate the requirement for a separate measurement of the sensor response time. This is only for the three functions stated above. The remainder of the channel will continue to be tested for response time. This change is consistent with the approved NEDO-32291.

- (b)1. Section 3.3.6.1, Primary Containment and Drywell Isolation Instrumentation, Surveillance Requirements, page 3.3-53, Surveillance Requirement 3.3.6.1.8, Isolation System Response Time.

Proposed Change: Add a note to the surveillance requirement for isolation system response time for MSIVs stating that "Channel sensors may be excluded."

- (b)2 Bases Section B 3.3.6.1, Primary Containment and Drywell Isolation Instrumentation Surveillance Requirements, Page B 3.3-170, Surveillance Requirement SR 3.3.6.1.8.

Proposed Change: Add a paragraph between the current paragraph 1 and 2, to read:

"As Noted, the channel sensor may be excluded from response time testing. This allowance to not perform specific response time testing of the sensors is applicable when the alternate testing requirements and restrictions of Reference 7 are performed. As stated in Reference 7, analysis has demonstrated that other Technical Specification testing requirements (CHANNEL CALIBRATIONS, CHANNEL CHECKS, CHANNEL FUNCTIONAL TESTS, and LOGIC SYSTEM FUNCTIONAL TESTS) and actions taken in response to NRC Bulletin 90-01 Supplement 1 are sufficient to identify failure modes or degradation in instrument response times and assure operation of the analyzed instrument loops within acceptable limits. Reference 7 also identifies that there are no known channel sensor failure modes identified that can be detected by RTT that cannot also be detected by other Technical Specification required surveillances. Therefore, when the requirements, including sensor types, of Reference 7 are complied with, adequate assurance of the response time of the sensors is provided. This assurance of the response time of the sensors when combined with the response time testing of the remainder of the channel ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. If the alternate testing requirements of Reference 7 are not complied with then the entire channel will be response time tested including the sensors."

- (b)3. Bases Section B 3.3.6.1, Primary Containment and Drywell Isolation Instrumentation Surveillance Requirements, Page B 3.3-171, References.

Proposed Change: Add reference 7 to the Bases, to read:

7. NEDO-32291-a, "System Analysis for Elimination of Selected Response Time Testing Requirements," October 1997

Staff Evaluation: The NEDO-32291 analysis in the staff's SER showed that sensor response times could be eliminated for MSIV closure actuations. The licensee's proposed changes are, therefore, acceptable to eliminate RTT for sensors associated with MSIV closure, but not for other actuations. This change for only MSIVs will allow the licensee to use manufacturers response time data, and eliminate the requirement for a separate measurement of the sensor response time associated with MSIV closures. The remainder of the channel will continue to be tested for response time. This change is consistent with the approved NEDO-32291.

- (c)1. Section 3.5.1, ECCS-Operating, Surveillance Requirements, page 3.5-5, Surveillance Requirement 3.5.1.8, ECCS response time for the high pressure core spray (HPCS) system.

Proposed Change: Add a note to the surveillance requirement stating "ECCS actuation instrumentation is excluded."

- (c)2 Bases Section B 3.5.1, ECCS-Operating, Page B 3.5-13a, Surveillance Requirement SR 3.5.1.8.

Proposed Change: Modify the third sentence, which currently reads: "Specific response time testing of this instrumentation is not required since these actuation channels are only assumed to respond within the diesel generator start time; therefore, sufficient margin exists in the diesel generator 10 second start time when compared to the typical channel response time (milliseconds) so as to assure adequate response without a specific measurement test." The proposed third sentence will read "Specific response time testing of this instrumentation is not required since these actuation channels are only assumed to respond within the diesel generator start time; therefore, sufficient margin exists in the diesel generator 10 second start time when compared to the typical channel response time (milliseconds) so as to assure adequate response without a specific measurement test (Ref 16)." The proposed change is to add "(Ref 16)" to the third sentence.

- (c)3 Bases Section B 3.5.1, ECCS-Operating, Page B 3.5-14, References.

Proposed Change: Add reference 16, to read:

16. NEDO-32291-a, "System Analysis for Elimination of Selected Response Time Testing Requirements," October 1997

Staff Evaluation: The proposed note associated with (c)1 above refers only to the HPCS System. Other ECCS systems are not mentioned, and as such, it is only the HPCS system where RTT would be eliminated as a result of this TS change request. This change will allow the licensee to use manufacturers response time data, and eliminate the requirement for a measurement of the

HPCS instrument channel response time. For the HPCS ECCS function, the entire channel is exempted from response time testing. It should be noted that this approval is only for the HPCS system, and any other ECCS systems which may have previously required RTT will still require such testing. This change is consistent with the approved NEDO-32291.

- (d)1. Section 3.5.2, ECCS-Shutdown, Surveillance Requirements. page 3.5-9, Surveillance Requirement 3.5.2.7, ECCS Response Time for the HPCS System.

Proposed Change: Delete Surveillance Requirement 3.5.2.7. The requirement currently reads "Verify the ECCS RESPONSE TIME for the required HPCS System is within limits" and has a frequency of 18 months.

- (d)2. Bases Section B 3.5.2, ECCS-Shutdown, Pages B 3.5-19 and B 3.5-20, Surveillance Requirement SR 3.5.2.7.

Proposed Change: Delete the paragraph on SR 3.5.2.7.

Staff Evaluation: The licensee stated in their request, that: "The basis for elimination of ECCS - Shutdown High Pressure Core Spray (HPCS) system RTT is that there are no design basis events in MODES 4 and 5 for which the ECCS HPCS system is required to initiate within a specified period of time. ECCS response time testing performed during MODES 1, 2, and 3 is adequate to identify any operability problems with the ECCS HPCS system. Therefore, we [the licensee] conclude that response time testing specifically for ECCS - Shutdown can be eliminated."

Because there are no potential design basis events when the plant is shutdown for which the ECCS HPCS system is required to initiate within a specific period of time, the staff concludes that there is no need to perform specific response time tests to verify the initiation time of the HPCS ECCS. Therefore, this change is appropriate. It should be noted that this approval is only for the HPCS system, and any other ECCS systems which may have previously required RTT will still require testing. This change is consistent with the approved NEDO-32291.

4.0 VERIFICATION OF NEDO-32291 PLANT SPECIFIC CONDITIONS

The staff stipulated several conditions in the generic SER approving NEDO-32291 which must be met by the individual licensee referencing NEDO-32291 before its guidance could be implemented in plant-specific TS change proposals. From a review of the licensee's submittal, the staff verified that the licensee has met or will meet the applicable conditions as follows:

- 4.1 Condition: Confirm the applicability of the generic analyses to the plant.

Licensee's Response: The licensee has confirmed the applicability of NEDO-32291-A to Grand Gulf. As identified in Appendix A to that report, the licensee was a participating utility in the evaluation. In addition, the licensee confirmed that the components within the scope of this request have been evaluated in NEDO-32291-A. These components are identified in Appendix G (Table G-4) of NEDO-32291-A and Table 1 of the NRC staff's Safety Evaluation of NEDO-32291. The current components within the scope of this request for Grand Gulf are Rosemount transmitters models 1152 and 1153, and Rosemount trip units model 510DU and 710DU. Future components would be limited to those listed in the staff-approved NEDO-32291. Therefore, the NEDO-32291 analyses are applicable to Grand Gulf. The staff accepts the licensee's response to this condition.

- 4.2 Condition: The licensee's revision request (i.e., proposed TS amendment) shall be submitted as shown in Appendix I of the BWROG Letter.

Licensee's Response: The licensee stated that the format of the proposed TS changes are different from that provided in Appendix H (Pages H-15 through H-18) of the staff-approved NEDO-32291 since the licensee has adopted TSs written in the improved Standard Technical Specification format. However, the proposed changes meet the intent of those provided in Appendix H of NEDO-32291. In addition, changes to the Grand Gulf TS Bases, which are consistent with the proposed TS changes, have been provided in Attachment 4. The staff accepts the licensee's response to this condition.

- 4.3 Condition: The licensee shall state that they are in conformance with the recommendations of EPRI NP-7243 and, therefore, shall perform the following actions:

- (a) Prior to installation of a new transmitter/switch or following refurbishment of a transmitter/switch (e.g., sensor cell or variable damping components), a hydraulic RTT shall be performed to determine an initial sensor-specific response time value.

Licensee Response: The licensee stated that applicable Grand Gulf procedures and/or the component data base for the affected transmitter/switch will be revised and updated as necessary to address this item upon approval of this request. For transmitters without variable damping, the licensee also stated that, consistent with EPRI NP-7243, RTT is not required following the replacement of the electronics. The staff agrees with the licensee's statement about transmitters without variable damping and concludes that upon completion of this revision to the procedures and/or component data base the licensee will meet the above condition.

- (b) For transmitters and switches that use capillary tubes, capillary tube testing shall be performed after initial installation and after any maintenance or modification activity that could damage the capillary tubes.

Licensee Response: The licensee stated Grand Gulf currently does not utilize any transmitters or switches that use capillary tubes in any application that requires response time testing. Therefore, the staff concludes that this recommendation is not applicable to Grand Gulf.

4.4 Condition: The Licensee must confirm the following:

- (a) That calibration is being done with equipment designed to provide a step function or fast ramp in the process variable,

Licensee Response: The licensee stated that applicable calibration procedures will be revised as necessary to include steps to input a fast ramp or step change to system components during calibrations to verify that the response of the transmitter to the input change is prompt. The expectation is that a technician will detect a sluggish response before response time exceeds approximately 5 seconds. The licensee stated that after approval of these proposed TS changes, the applicable calibration procedures will be revised as necessary prior to the next performance of the procedure or discontinuance of the present response time testing. The staff concludes that upon completion of these procedure revisions the licensee will meet the above condition.

- (b) That provisions have been made to ensure that operators and technicians, through an appropriate training program, are aware of the consequences of instrument response time degradation, and that applicable procedures have been reviewed and revised as necessary to assure that technicians monitor for response time degradation during the performance of calibrations and functional tests,

Licensee Response: The licensee state that, prior to implementing these proposed TS changes, technicians will be appropriately trained to ensure they are aware of the consequences of instrument response time degradation. Operators routinely monitor plant parameters and implement the site corrective action program if instrumentation does not perform as expected. The staff concludes that upon completion of the training the licensee will meet the above condition.

- (c) That surveillance testing procedures have been reviewed and revised if necessary to ensure calibrations and functional tests are being performed in a manner that allows simultaneous monitoring of both the input and output response of units under test,

Licensee Response: The licensee stated that surveillance testing procedures currently ensure calibrations are being performed in a manner that allows simultaneous monitoring of both the input and output response of units under test. As stated above for item (b), technicians will verify that the response of the transmitter to an input change is prompt. The expectation is that a technician will detect a sluggish response before response time exceeds approximately 5 seconds. The staff concludes that the licensee has met the above condition.

- (d) That for any request involving the elimination of RTT for Rosemount pressure transmitters, the licensee is in compliance with the guidelines of Supplement 1 to Bulletin 90-01, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount."

Licensee Response: The licensee's compliance with the guidelines of Supplement 1 to NRC Bulletin 90-01 was reviewed and documented in a safety evaluation transmitted to the licensee by NRC letter dated February 16, 1994 (licensee reference GNRI-94/00041). The staff concluded in that letter that the licensee's responses to Bulletin 90-01, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount," and Bulletin 90-01, Supplement 1 conformed to the requested actions. The staff concludes that the licensee has met the above condition.

- (e) That for those instruments where the manufacturer recommends periodic RTT as well as calibration to ensure correct functioning, the licensee has ensured that elimination of RTT is nevertheless acceptable for the particular application involved.

Licensee Response: The licensee stated that the current components affected by this request are limited to Rosemount transmitters models 1152 and 1153, and Rosemount trip units models 510DU and 710DU. The licensee has reviewed the vendor recommendations for these devices and confirmed that they do not contain recommendations for periodic response time testing. The staff concludes that the licensee has met the above condition.

5.0 LICENSEE COMMITMENTS RELIED UPON

The licensee has committed, in its letter of May 7, 1997, to do the following after the proposed changes to the TSs are approved:

- Revise applicable calibration procedures, as necessary, to include steps to input a fast ramp or step change to system components during calibrations to verify that the response of the transmitter to the input change is prompt.
- Revise applicable calibration procedures so that technicians monitor for response time degradation during the performance of calibrations.

- Technicians will be appropriately trained so that they will be aware of the consequences of instrument response time degradation.

The licensee stated that these commitments would be implemented prior to the next performance of the procedure or at the discontinuance of the present response time testing method.

The staff is relying on these commitments. The licensee stated in its letter of October 6, 1997, that these commitments will be included in the changes to the Bases of the TSs for the proposed changes to SRs 3.3.1.1.15, and 3.3.6.1.8. The RTT for the HPCS is being eliminated in its entirety and these commitments do not need to be added to the Bases of the TSs for SRs 3.5.1.8 and 3.5.2.7. The Bases for SR 3.5.2.7 is being deleted because SR 3.5.2.7 is being deleted. The new Bases pages are being issued in this amendment.

Because the changes to the Bases of the TSs are controlled by Section 5.5.11 of the Administrative Controls of the TSs, which requires prior staff approval for unreviewed safety questions (USQs) as defined by 10 CFR 50.59, any changes to these commitments will be submitted to staff for prior approval if these changes do not meet the criteria in 10 CFR 50.59. This change process for these commitments being relied upon by the staff is in accordance with 10 CFR 50.59 and is, therefore, acceptable.

6.0 STAFF CONCLUSION

Based upon the above review, the staff concludes that the licensee has implemented the provisions of the generic SER for RTT elimination in accordance with the NRC-approved NEDO-32291. The changes to the Bases of the TSs are correct and are being issued in this amendment. The change process for the licensee's commitments that the staff is relying upon is in accordance with 10 CFR 50.59 and is acceptable. Therefore, the staff concludes that the proposed changes to the Grand Gulf TSs for selected instrument RTT elimination are acceptable.

7.0 STATE CONSULTATION

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

8.0 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 33122). 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.

9.0 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: P. Loeser

Date: November 5, 1997