



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

June 3, 1988

Docket No. 50-458

Gulf States Utilities
ATTN: Mr. James C. Deddens
Senior Vice President (RBNG)
Post Office Box 220
St. Francisville, LA 70775

Dear Mr. Deddens:

SUBJECT: RIVER BEND STATION, UNIT 1 - AMENDMENT NO. 24 TO FACILITY
OPERATING LICENSE NO. NPF-47 (TAC NO. 65613)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 24 to Facility Operating License No. NPF-47 for the River Bend Station, Unit 1. The amendment consists of changes to the Technical Specifications (TSs) in response to Attachment 3 to your application dated June 5, 1987 as modified May 13, 1988. Your May 13, 1988 letter withdrew that portion of the TS change request relating to items 2.h.1 and 2.h.2 of Table 3.3.2-2 in Attachment 3. The NRC staff's evaluation of Attachments 1 and 2 of your application will be the subject of separate correspondence.

The amendment increases the main steam line (MSL) tunnel north instrumentation setpoints and allowable temperature values for (1) MSL isolation, reactor core isolation cooling (RCIC) system isolation, and reactor water cleanup (RWCU) system isolation; and (2) MSL tunnel (cooler) high temperature differential temperature for MSL isolation, and RCIC and RWCU isolation.

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

During the course of the staff's review, some preliminary concerns have been identified regarding the use of differential temperature for leak detection

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June 3, 1988

purposes. The staff plans to further evaluate these concerns as a general issue. If after further evaluation these concerns prove valid, they will be resolved on a generic basis.

Sincerely,

A handwritten signature in cursive script that reads "Walter A. Paulson".

Walter A. Paulson, Project Manager
Project Directorate - IV
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 24 to
License No. NPF-47
2. Safety Evaluation

cc w/enclosures:
See next page

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

GULF STATES UTILITIES COMPANY

DOCKET NO. 50-458

RIVER BEND STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 24
License No. NPF-47

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Gulf States Utilities Company (the licensee) dated June 5, 1987 as modified May 13, 1988, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - 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.

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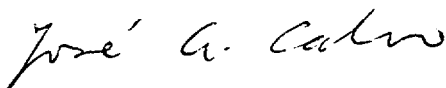
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility Operating License No. NPF-47 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 24 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. GSU shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION



Jose A. Calvo, Director
Project Directorate - IV
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 3, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 24

FACILITY OPERATING LICENSE NO. NPF-47

DOCKET NO. 50-458

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the areas of change. Overleaf page provided to maintain document completeness.

REMOVE PAGES

3/4 3-19
3/4 3-21
3/4 3-22

INSERT PAGES

3/4 3-19
3/4 3-21
3/4 3-22

TABLE 3.3.2-2
ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
1. <u>PRIMARY CONTAINMENT ISOLATION</u>		
a. Reactor Vessel Water Level - Low Low, Level 2	≥ -43 inches*	≥ -47 inches
b. Drywell Pressure - High	≤ 1.68 psig	≤ 1.88 psig
c. Containment Purge Isolation Radiation - High	≤ 1.3 R/hr	≤ 1.57 R/hr
2. <u>MAIN STEAM LINE ISOLATION</u>		
a. Reactor Vessel Water Level - Low Low Low, Level 1	≥ -143 inches*	≥ -147 inches
b. Main Steam Line Radiation - High	≤ 3.0 x full power background	≤ 3.6 x full power background
c. Main Steam Line Pressure - Low	≥ 849 psig	≥ 837 psig
d. Main Steam Line Flow - High		
1. Line A	≤ 146 psid	≤ 151 psid
2. Line B	≤ 156 psid	≤ 161 psid
3. Line C	≤ 153 psid	≤ 158 psid
4. Line D	≤ 164 psid	≤ 169 psid
e. Condenser Vacuum - Low	≥ 8.5 inches Hg. vacuum	≥ 7.6 inches Hg. vacuum
f. Main Steam Line Tunnel Temperature - High	$\leq 141^{\circ}\text{F}$	$\leq 148.5^{\circ}\text{F}$
g. Main Steam Line Tunnel Δ Temperature - High	$\leq 57^{\circ}\text{F}$	$\leq 61^{\circ}\text{F}$

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
2. <u>MAIN STEAM LINE ISOLATION</u> (Cont'd)		
h. Main Steam Line Area Temperature - High (Turbine Building)		
1. Main Steam Tunnel Area (El. 95')	< 142°F	< 145.3°F
2. Main Steam Tunnel Area (El. 114')	< 142°F	< 145.3°F
3. Main Steam Line Turbine Shield Wall	< 108°F	< 111.3°F
4. MSL Moisture Separator and Reheater Area	< 126°F	< 130°F
3. <u>SECONDARY CONTAINMENT ISOLATION</u>		
a. Reactor Vessel Water Level - Low Low Level 2	≥ - 43 inches*	≥ - 47 inches
b. Drywell Pressure - High	≤ 1.68 psig	≤ 1.88 psig
c. Fuel Building Ventilation Exhaust Radiation - High		
1RMS*RE5A	< 1.82 x 10 ³ μCi/sec	< 2.18 x 10 ³ μCi/sec
1RMS*RE5B	< 5.88 x 10 ⁻⁴ μCi/cc	< 7.05 x 10 ⁻⁴ μCi/cc
d. Reactor Building Annulus Ventilation Exhaust Radiation - High	≤ 4.32 x 10 ⁻⁵ μCi/cc	≤ 5.19 x 10 ⁻⁵ μCi/cc
4. <u>REACTOR WATER CLEANUP SYSTEM ISOLATION</u>		
a. Δ Flow - High	≤ 55 gpm	≤ 62.1 gpm
b. Δ Flow Timer	≤ 45 seconds	≤ 47 seconds
c. Equipment Area Temperature - High		
1. Heat Exchanger Room	< 104.5°F	< 107.5°F
2. Pump Rooms A & B	< 165°F	< 169.5°F
3. Valve Nest Room	< 110°F	< 114.5°F
4. Demineralizer Rooms 1 and 2	< 110°F	< 114.5°F
5. Receiving Tank Room	< 110°F	< 114.5°F

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

<u>TRIP FUNCTION</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUE</u>
4. REACTOR WATER CLEANUP SYSTEM ISOLATION (Cont'd)		
d. Equipment Area Δ Temperature - High		
1. Heat Exchanger Room	$< 39^{\circ}\text{F}$	$< 42.5^{\circ}\text{F}$
2. Pump Rooms A and B	$< 78^{\circ}\text{F}$	$< 82^{\circ}\text{F}$
3. Valve Nest Room	$< 46^{\circ}\text{F}$	$< 49.5^{\circ}\text{F}$
4. Demineralizer Rooms 1 and 2	$< 46^{\circ}\text{F}$	$< 49.5^{\circ}\text{F}$
5. Receiving Tank Room	$< 46^{\circ}\text{F}$	$< 49.5^{\circ}\text{F}$
e. Reactor Vessel Water Level - Low Low Level 2	$\geq - 43 \text{ inches}^*$	$\geq - 47 \text{ inches}$
f. Main Steam Line Tunnel Ambient Temperature - High	$\leq 141^{\circ}\text{F}$	$\leq 148.5^{\circ}\text{F}$
g. Main Steam Line Tunnel Δ Temperature - High	$\leq 57^{\circ}\text{F}$	$\leq 61^{\circ}\text{F}$
h. SLCS Initiation	NA	NA
5. REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION		
a. RCIC Steam Line Flow - High	$\leq 127'' \text{ H}_2\text{O}$	$\leq 135.5'' \text{ H}_2\text{O}$
b. RCIC Steam Line Flow - High Timer	$\geq 3 \text{ seconds}$	$\leq 13 \text{ seconds}$
c. RCIC Steam Supply Pressure - Low	$\geq 60 \text{ psig}$	$\geq 55 \text{ psig}$
d. RCIC Turbine Exhaust Diaphragm Pressure - High	$\leq 10 \text{ psig}$	$\leq 20 \text{ psig}$
e. RCIC Equipment Room Ambient Temperature - High	$\leq 182^{\circ}\text{F}$	$\leq 186.4^{\circ}\text{F}$
f. RCIC Equipment Room Δ Temperature - High	$\leq 96^{\circ}\text{F}$	$\leq 99^{\circ}\text{F}$

TABLE 3.3.2-2 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION	TRIP SETPOINT	ALLOWABLE VALUE
5. <u>REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION</u> (Cont'd)		
g. Main Steam Line Tunnel Ambient Temperature - High	$\leq 141^{\circ}\text{F}$	$\leq 148.5^{\circ}\text{F}$
h. Main Steam Line Tunnel Δ Temperature - High	$\leq 57^{\circ}\text{F}$	$\leq 61^{\circ}\text{F}$
i. Main Steam Line Tunnel Temperature Timer	0 seconds	NA
j. RHR Equipment Room Ambient Temperature - High	$\leq 117^{\circ}\text{F}$	$\leq 121.1^{\circ}\text{F}$
k. RHR Equipment Room Δ Temperature - High	$\leq 29^{\circ}\text{F}$	$\leq 33.6^{\circ}\text{F}$
l. RHR/RCIC Steam Line Flow - High	$\leq 60.7'' \text{ H}_2\text{O}^{**}$	$\leq 64.2'' \text{ H}_2\text{O}^{**}$
m. Drywell Pressure - High	$\leq 1.68 \text{ psig}$	$\leq 1.88 \text{ psig}$
n. Manual Initiation	NA	NA
6. <u>RHR SYSTEM ISOLATION</u>		
a. RHR Equipment Area Ambient Temperature - High	$\leq 117^{\circ}\text{F}$	$\leq 121.1^{\circ}\text{F}$
b. RHR Equipment Area Δ Temperature - High	$\leq 29^{\circ}\text{F}$	$\leq 33.6^{\circ}\text{F}$
c. Reactor Vessel Water Level - Low Level 3	$\geq 9.7 \text{ inches}^*$	$\geq 8.7 \text{ inches}$
d. Reactor Vessel Water Level - Low Low Low Level 1	$\geq - 143 \text{ inches}^*$	$\geq - 147 \text{ inches}$



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 24 TO FACILITY OPERATING LICENSE NO. NPF-47

GULF STATES UTILITIES COMPANY

RIVER BEND STATION, UNIT 1

DOCKET NO. 50-458

1.0 BACKGROUND

By letter dated June 5, 1987 as modified May 13, 1988, Gulf States Utilities Company (GSU) (the licensee) requested an amendment to Facility Operating License No. NPF-47 for the River Bend Station, Unit 1. The proposed amendment, as modified, would (1) raise the drywell average air temperature from 140°F to 145°F; (2) raise the allowable temperature for the main steam line (MSL) tunnel north from 122°F to 135°F; and (3) increase the main steam line tunnel north instrumentation setpoints and allowable temperature values for (a) MSL isolation, reactor core isolation cooling (RCIC) system isolation, and reactor water cleanup (RWCU) system isolation; and (b) MSL tunnel (cooler) high temperature differential temperatures for MSL isolation, and RCIC and RWCU isolation. The licensee's May 13, 1988 submittal withdrew that portion of the TS change request relating to items 2.h.1 and 2.h.2 of Table 3.3.2-2 in Attachment 3 of the June 5, 1987 application. This evaluation addresses the proposed changes to the TS as specified in Attachment 3 of the application (item (3), above). The staff's evaluation of Attachments 1 and 2 will be the subject of separate correspondence.

2.0 INTRODUCTION

MAIN STEAM LINE TUNNEL NORTH (MSLTN)

DESCRIPTION OF MSLTN: MSLTN has a volume of 26,775 cu.ft. and is cooled by a heat exchanger type cooler, UC-8(-R) mounted outside the MSLTN in the Auxiliary Building drawing and returning air to the tunnel at 18,000 cfm. For a heat sink, the cooler is supplied with a fixed amount [116 gpm] of service water (SW). The SW is supplied by SW pumps drawing directly from the basin of the plant cooling tower and is therefore subject to variation with seasonal ambient conditions. The Technical Specifications include a maximum SW temperature of 95°F. Any moisture separation in the cooler resulting from steam/water vapor in the MSLTN, is drained to an individual open sump (DFR-DNH 2120) which is then drained to an Auxiliary Building Floor Drain Sump (DFR-TK5A) which collects from many sources.

Three principal high energy piping systems connected to the Reactor Coolant System (RCS) and through Reactor Coolant Pressure Boundary (RCPB)/Containment isolation valves, are routed through this tunnel section: the Main Steam Line System (MSLS), the steam supply for the Reactor Core Isolation Cooling System Pump Turbine Drive (RCIS), and the Reactor Water Clean Up System (RWCU).

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The initial design basis for this MSLTN with a SW temperature and flow of 95°F and 63 gpm respectively, and a dry tunnel heat load of approx. 0.340 MBtu/h. resulted in an ambient temperature in the tunnel of 122°F with a delta T across the UC-8(-R) heat exchanger of 19.3°F.

Since commencement of operations at the facility, evidence has shown larger dry heat loads than design. Further, recent experience shows that this load is approximately 0.64 MBtu/h. Consequently, service water flow to the cooler has been increased to 116 gpm, which with a SW temperature of 95°F will result in a maximum MSLTN operating temp of 137°F at zero steam leakage conditions. During plant operation, the licensee has noted that during the winter months, MSLTN temperatures rarely were less than 105°F.

3.0 EVALUATION

3.1 Leak Detection

To identify potential cracks in those RCS interconnected piping systems inside MSLTN, a leak detection system as an early warning for effective procedural and protective action, is provided as indicated in the FSAR. The leak detection system as installed consists of an ambient temperature (T) measurement and a delta T measurement across the UC-8(-R) cooler.

3.2 Elevated MSLTN temperatures as a setpoint for a 5 gpm Leakage Alarm

This temperature set point was determined based upon the expected ambient temperature in the tunnel and for the temperature increase expected from a 5 gpm of steam leakage. It currently activates an audible and visual alarm.

The value for the setpoint was conservatively calculated by the licensee on the basis of an expected normal tunnel temperature of 105°F. However, as service water temperature increased with the warmer months of the year so did the observed tunnel temperature so that the alarm setpoint could be reached without any evidence of steam leakage. After visually checking for steam leakage inside MSLTN, the licensee cancelled the audible alarm and proceeded with power operations. When the next temperature increase was reached, the licensee again inspected and in this manner operating alarm temperatures have been increased up to approximately 131°F.

At this time, the licensee plans to remove the 5 gpm leakage alarm point and use the same channels to alarm a) the maximum temperature on the tunnel for which the equipment is environmentally qualified during normal operation, and b) as an early warning of the approach to the proposed Isolation setpoint of 141°F.

NRC audit calculations for a 5 gpm steam leak into the tunnel (from 137°F MSLT temperature) show a range of maximum tunnel temperatures from 154°F to 180°F. The results show the temperatures proposed by the licensee for a 25 gpm steam leakage rate will in fact detect a 5 gpm steam leak and that the proposed value of 141°F (setpoint) is acceptable for this purpose, for a range of starting tunnel temperatures from 105°F to 137°F.

Therefore, 5 gpm steam leak into MSLTN can be detected in an acceptable manner by the setpoint values being proposed for isolation purposes. Also the proposed precursor alarm of 135°F is an acceptable early alarm for reviewing the need for precautionary and/or protective action.

3.3 25 gpm Leakage/Isolation Setpoint

The purpose of this alarm setpoint is to identify a relatively large crack which is a potential precursor of a major pipe rupture. Its function is anticipatory protective action for the major rupture.

3.3.1 Main Steam Line Tunnel (MSLT) Ambient Temperature High

Using an initial MSLTN temperature of 105°F, for a 25 gpm leakage, the licensee proposed an expected increase in tunnel temperature to be greater than 142.5°F over a one hour period. The licensee proposed an allowable value of 142.5°F and a corresponding isolation setpoint value of 135°F.

However, because of increases in tunnel temperatures without any steam leakage, it has become necessary to take action to prevent an unnecessary (inadvertent) actuation of the related protective logic with potentially severe, but "acceptable" circumstances. The licensee proposes to increase the allowable value to 148.5°F with an increase in the related isolation setpoint value to 141.0°F.

The NRC review shows that the proposed increase in setpoint and allowable values for MSLT ambient temperature high remains conservative with respect to a 25 gpm leakage rate. We, therefore, find the proposed change acceptable.

3.3.2 Main Steam Line Tunnel Cooler Temperature Differential

As a result of the increasing ambient tunnel temperatures the licensee also proposed to increase the MSLT differential temperature alarm setpoint from 51°F to 57°F and corresponding allowable temperatures from 55°F to 61°F.

By increasing the allowable and setpoint ambient temperature values the licensee acknowledged that when operating at reduced ambient tunnel temperatures of 105°F, isolation would occur at a leakage of 32 gpm which was beyond the licensee's 25 gpm design criteria. Additionally, as ambient temperatures increase, isolation will be initiated by lower leak rates.

The NRC finds that the proposed increase in the setpoint to 57°F and the allowable value to 61°F, are nominal changes which do not significantly alter the threshold at which a leak will be detected and automatic isolation will occur. Based on this, we accept the change.

As discussed above, the staff finds the proposed changes to MSLTN allowable and isolation setpoints to be conservative with respect to leak detection and therefore, acceptable.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The 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 exposures. 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. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Section 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 staff 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, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: June 3, 1988

Principal Contributor: J. Kudrick

June 3, 1988

purposes. The staff plans to further evaluate these concerns as a general issue. If after further evaluation these concerns prove valid, they will be resolved on a generic basis.

Sincerely,

Original signed by
Walter A. Paulson, Project Manager
Project Directorate - IV
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 24 to
License No. NPF-47
2. Safety Evaluation

cc w/enclosures:
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