

The Light company

Houston Lighting & Power

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December 21, 1980
ST-HL-AE-3642
File No.: G9.06, G20.01
10CFR50.90
10CFR50.92
10CFR50.54(f)

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project Electric Generating Station
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
Proposed Amendment to the Unit 1
and Unit 2 Technical Specifications 3/4.4.4 and 3/4.4.9.3

Pursuant to 10CFR50.90, Houston Lighting & Power Company (HL&P) hereby proposes to amend its Operating Licenses NPF-76 and NPF-80 by incorporating the attached proposed change to the Technical Specifications for the South Texas Project Electric Generating Station (STPEGS) Units 1 and 2.

Based on technical studies for GI-70 (NUREG 1316) and GI-94 (NUREG 1326), pursuant to 10CFR50.54(f) the staff requested that actions identified in Generic Letter 90-06, Enclosure(s) A and B of Section 3, be taken by licensees in order to increase plant safety and reliability. Implementation of the 10CFR50.54(f) request requires HL&P to modify Technical Specifications 3/4.4.4 and 3/4.4.9.3.

Attached is the proposed change to the STPEGS Technical Specifications. In addition, changes to allow verification of PORV operability during MODES 5 & 6 are included.

HL&P has reviewed the proposed amendment pursuant to 10CFR50.92 and determined that it does not involve a significant hazards consideration. The basis for this determination is provided in the attachments. In addition, based on the information contained in this submittal and in the NRC Final Environmental Statement related to the operation of STPEGS Units 1 and 2, HL&P has concluded that, pursuant to 10CFR51, there are no significant radiological or non-radiological impacts associated with the proposed action and the proposed license amendment will not have a significant effect on the quality of the environment.

The STPEGS Nuclear Safety Review Board has reviewed and approved the proposed changes.

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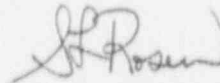
A Subsidiary of Houston Industries Incorporated

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In accordance with 10CFR50.91(b), HL&P is providing the State of Texas with a copy of this proposed amendment.

If you should have any questions concerning this matter, please contact Mr. A. W. Harrison at (512) 972-7298 or myself at (512) 972-7138.



S. L. Rosen
Vice President,
Nuclear Engineering

SDP/sgs

- Attachments: 1. Proposed Technical Specification Changes
2. Significant Hazards Evaluation

Houston Lighting & Power Company
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter)
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Houston Lighting & Power) Dock Nos. 50-498
Company, et al.,) 50-499
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South Texas Project)
Units 1 and 2)

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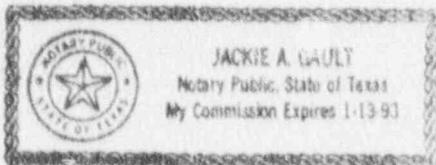
S. L. Rosen being duly sworn, hereby deposes and says that he is Vice President, Nuclear Engineering of Houston Lighting & Power Company; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the Proposed Amendment to the Unit 1 and Unit 2 Technical Specifications 3/4.4.4 and 3/4.4.9.3; is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge and belief.



S. L. Rosen
Vice President,
Nuclear Engineering

STATE OF TEXAS)
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Subscribed and sworn to before me, a Notary Public in and for
The State of Texas this 21st day of DECEMBER, 1990.



Notary Public in and for the
State of Texas

PROPOSED TECHNICAL SPECIFICATION CHANGES

The proposed changes made to the current STPEGS Technical Specifications incorporate the recommendations provided in Enclosure A and Enclosure B of Generic Letter 90-06. Changes to improve clarity and accuracy of the Technical Specifications are also included. Additional changes are included to allow verification of PORV operability during MODES 5 & 6.

CHANGES IN RESPONSE TO GL 90-06

DESCRIPTION OF CHANGES AND JUSTIFICATION

Technical Specification 3/4.4.4

LCO 3.4.4:

The Limiting Condition for Operation statement is clarified by replacing "All" with "Both" since the STPEGS COMS system consists of two I 's.

Justification:

This change is in accordance with Attachment A-1 of Generic Letter 90-06 and the STPEGS plant design.

Action (a.):

The action statement is clarified by changing "more" to "both" since only two PORVs are provided in the design. The statement "with power maintained to the block valve(s)" is added. The requirement to reach "COLD SHUTDOWN within the following 30 hours" is changed to "HOT SHUTDOWN within the following 6 hours".

Justification:

Changes to Action (a.) are consistent with the guidance provided in Generic Letter 90-06.

Action (b.):

The requirement to reach "COLD SHUTDOWN within 30 hours" is changed to "HOT SHUTDOWN within 6 hours" in accordance with Generic Letter 90-06.

Justification:

This change is consistent with the guidance provided in Generic Letter 90-06.

Action (c.):

The requirement to reach "COLD SHUTDOWN within 30 hours" is changed to "HOT SHUTDOWN within 6 hours" in accordance with Generic Letter 90-06. In addition, the reference to "PORV(s)" and "valve(s)" is changed to "PORVs" and "valves" since this action only applies when both PORVs are inoperable. The statement "within 1 hour either restore each of the PORVs" is unchanged from the current STPEGS Technical Specifications.

Justification: This change is consistent with the guidance provided in Generic Letter 90-06. The use of "PORVs and valves" instead of "PORV(s)

and valve(s)" improves clarity since this action is applicable only to the case when both PORVs are inoperable. The recommended Technical Specification changes provided in Attachment A-1 to the Generic Letter states that "within 1 hour restore at least one PORV". The intent of this action is to provide for the removal of power from a closed block valve as additional assurance to preclude any inadvertent opening of a block valve at a time when the PORV may not be closed due to maintenance to restore it to operable condition. Since the entry condition for this action statement is both PORVs inoperable, it follows that each should be restored within 1 hour or their block valves closed.

Action (d.):

This action applies to the case when one block valve is inoperable and is the result of splitting the previous Technical Specification action (d.) into two action statements for clarity. The PORVs are to be placed in "closed position" rather than "manual control" as recommended in the Generic Letter.

Justification:

This change is made to provide an action statement applicable to one block valve inoperable and an action statement applicable to two block valves inoperable. This improves clarity and is consistent with the guidance provided in Generic Letter 90-06. Placing the valves in "closed position" rather than "manual control" is appropriate since this action is required to prevent the automatic opening of the PORVs which is the intent of the step in the recommended Technical Specification change.

Action (e.):

This action applies to the case when both block valves are inoperable and incorporates the guidance provided in the Generic Letter.

Justification:

This change is made to provide an action statement applicable to one block valve inoperable and an action statement applicable to two block valves inoperable. This improves clarity and is consistent with the guidance provided in Generic Letter 90-06.

Surveillance Requirement 4.4.4.1.a:

The statement "on the PORV actuation channel" is added to address the Generic Letter requirement.

Justification:

This change is consistent with the guidance provided in Generic Letter 90-06 and provides consistency with Surveillance Requirement 4.4.9.3.1.b..

Surveillance Requirement 4.4.4.1.b:

The statement "during MODES 3, 4, or 5" is incorporated.

Justification:

This change is consistent with the guidance provided in Generic Letter 90-06 in that testing is performed prior to establishing conditions where the PORVs are used for low temperature overpressure protection but not during power operations. The addition of MODE 5 to this surveillance requirement provides additional operational flexibility in the performance of the required test.

Surveillance Requirement 4.4.4.2:

The statement "with power removed" is deleted.

Justification:

This statement is not required since it is incorporated into the requirements of ACTION b. and c. of specification 3.4.4. This change is consistent with the guidance provided in Generic Letter 90-06.

Generic Letter Surveillance Requirement 4.4.4.3:

Surveillance Requirement 4.4.4.3, provided in the Generic Letter, is not incorporated.

Justification:

This Surveillance Requirement is provided in the Generic Letter to require testing of emergency (backup) power supplies for plants with non-safety grade power. This surveillance requirement is not included in the STPEGS Technical Specifications since the STPEGS PORVs are normally powered from class 1E buses.

Generic Letter Surveillance Requirement 4.4.4.1.b:

Surveillance Requirement 4.4.4.1.b as provided in the Technical Specification changes recommended by Generic Letter 90-06 is not incorporated.

Justification:

This Surveillance Requirement applies to plants with air-operated PORVs. This is not applicable to STPEGS since solenoid operated PORV are installed.

Technical Specification 3/4.4.9

Surveillance Requirement 4.4.9.1.2:

Technical Specification figure 3.4-4 is added to the listing of figures to be updated based on the results of the RPV irradiation surveillance program.

Justification:

The change is made to emphasize the need to update the figure and the allowable PORV setpoint based on results of the RPV irradiation surveillance program.

Technical Specification 3.4.9.3

Limiting Condition for Operation 3.4.9.3:

This LCO is unchanged from the current STPEGS Technical Specification. The Generic Letter recommendation to include the PORV setpoint in the LCO is not incorporated.

Justification:

This format provides the same information as the LCO provided in the Generic Letter while enhancing clarity. In addition the specification of the PORV lift setting within the LCO, as in the Generic Letter, could require future revision to accommodate changes in the PORV setpoint resulting from the RPV irradiation surveillance program. Instead of specifying the specific setpoint in the LCO as in the Generic Letter, the STPEGS LCO provides a reference to figure 3.4-4. This complies with the intent of the Generic Letter.

Applicability:

The MODE 6 applicability of this Technical Specification is changed to "when the head is on the reactor vessel" to improve clarity. The MODE 4 applicability provided in the Generic Letter, "where the temperature of any RCS cold leg is less than or equal to [275°F]", is not incorporated. The additional MODE 6 applicability restriction provided in the Generic Letter, "and the RCS is not vented through a ___ square inch or larger vent", is not incorporated.

Justification:

The MODE 4 applicability restriction to RCS temperatures less than or equal to 275°F is omitted because MODE 4 is defined to be an average RCS temperature of 350°F or less which is the temperature at which the PORVs are manually armed. The MODE 6 applicability restriction is not incorporated because this restriction is provided in the LCO.

Action (a.):

The clarification, "in MODE 4", is added in accordance with the Generic Letter to clarify that this ACTION is applicable only to MODE 4 operations.

Justification:

This change is consistent with the guidance provided in Generic Letter 90-06.

Action (b.):

A new action (b.) is added to the STPEGS Technical Specifications. The action (b.) provided in the Generic Letter for MODES 5 & 6 is incorporated directly into the STPEGS Technical Specifications. The only changes from the recommended action are the deletion of step numbers, the inclusion of the plant specific vent size, and the use of "the next 8 hours" instead of "a total of 32 hours".

Justification:

These changes improve clarity and increase the accuracy of the Technical Specification. These changes are consistent with the guidance provided in Generic Letter 90-06.

Action (c.):

This action was previously action (b.) and has been renumbered only.

Action (d.):

This action was previously action (c.) and has been renumbered only.

Action (e.):

This action was not previously included in this Technical Specification and is being incorporated now to comply with the recommendations of the Generic Letter.

Justification:

This change is consistent with the guidance provided in Generic Letter 90-06.

Note:

A note concerning the application of actions (b.) and (c.) has been added to allow functional testing to verify PORV operability.

Justification:

Detailed justification for the proposed verification of PORV operability is provided in Enclosure 1.

Bases 3/4.4.9, Low Temperature Overpressure Protection

The Low Temperature Overpressure Protection Bases is revised to add details concerning the use of RHR relief valves to provide COMS during the stroke testing of inoperable PORV(s).

Justification:

Detailed justification for the proposed verification of PORV operability is provided in Enclosure 1.

ENCLOSURE 1

VERIFICATION OF PORV OPERABILITY

BACKGROUND:

Technical Specification 3/4.4.9, Pressure/Temperature Limits Reactor Coolant System, establishes the limiting Reactor Coolant System (RCS) pressure and temperature for all operating modes. The requirements for the overpressure protection systems are given in Limiting Condition for Operation (LCO) 3.4.9.3. This LCO states that two power-operated relief valves (PORVs) are to be operable during modes 4 & 5, and mode 6 with the head on the reactor vessel, or the RCS be depressurized with an RCS vent of greater than or equal to 2.0 square inches. Action a. of this LCO states that with one PORV inoperable, the inoperable PORV is to be restored to OPERABLE status within 7 days or the Reactor Pressure Vessel (RPV) is to be depressurized and vented through a 2.0 square inch vent within the next 8 hours. Action b. of this LCO states that with both PORVs inoperable, depressurization and venting of the RCS through a 2.0 square inch vent is required within 8 hours.

Pressurizing the RCS to stroke test a Pressurizer PORV following the performance of required maintenance or repairs as required by Technical Specification 4.0.5 creates a conflict with Technical Specification 3.4.9.3 requirements since a nominal test pressure is required to overcome the internal spring pressure of the solenoid operated PORVs. The conflicting requirements were identified and reported to the NRC following a Unit 1 refueling outage (ref. 1).

The required test provides verification of valve operability in accordance with the ASME code requirements. This proposed test complies with the requirements of technical Specification 4.0.5 and the intent of Generic Letter 90-06 (ref. 2). Prior to this test the ANALOG CHANNEL OPERATIONAL TEST specified in surveillance requirement 4.4.9.3.1.a would be performed to provide reasonable assurance that the administratively declared inoperable PORV will function if required. The ASME operability test cannot be performed without suspending the requirement to depressurize and vent the RPV if one or both PORVs are inoperable since a nominal reactor coolant system pressure is necessary to perform the test. To resolve this conflict, HL&P requests that the requirement to depressurize and vent the RCS if one PORV is inoperable (LCO 3.4.9.3.a) be waived for the duration of the required test (not to exceed 7 days). A similar change to LCO Action 3.4.9.3.b is requested for the case when two PORVs are inoperable. During the test interval, the possibility of a cold overpressure event will be minimized by administrative controls and the consequences of an overpressure transient will be mitigated by use of two RHR discharge relief valves or one RHR discharge relief valve and one operable PORV.

TECHNICAL SPECIFICATION REQUIREMENTS:

Technical Specification 3/4.4.9, Pressure/Temperature Limits Reactor Coolant System, provides within LCO 3.4.9.3 the basic operability requirements for mitigating the effects of cold overpressure events. LCO 3.4.9.3 action statements a. and b. require that if either or both of the PORVs are inoperable for longer than the allowable outage time, then the RCS must be depressurized and vented through a vent of at least 2.0 square inches. Surveillance Requirement (SR) 4.4.9.3.1.a requires the performance of an ANALOG CHANNEL OPERATIONAL TEST on the PORV actuation channel, but excluding valve operation, prior to entering an operating regime in which cold overpressure protection may be required and every 31 days thereafter.

JUSTIFICATION FOR PROPOSED TEST METHOD:

Branch Technical Position RSB 5-2 requires that the cold overpressure mitigation (COM) system operational readiness be demonstrated by the performance of testing as follows:

- a. Testing of the system electronics to assure operability prior to each shutdown.
- b. Valve operability testing in accordance with ASME Code Section XI.
- c. Subsequent to system, valve, or electronics maintenance, a test on that portion(s) of the system must be performed prior to declaring the system operational.

The design of the STPEGS COM system complies with all requirements of the Branch Technical Position except for the ability to perform a complete operational test following maintenance. If one or both PORVs are removed from service for the performance of required maintenance or repairs, a conflict with the Technical Specification requirements is created since a nominal test pressure (i.e., RCS pressure) is required to overcome the internal spring pressure of the solenoid operated PORVs. The proposed changes to the requirements of Technical Specification Actions 3.4.9.3.(a) and 3.4.9.3.(b.) would allow suspending the requirement to depressurize and vent the RPV if one or both PORVs are inoperable for the period necessary to perform the required operability verification test. Prior to the performance of the operability test, the ANALOG CHANNEL OPERATIONAL TEST for the inoperable PORV(s) would be performed in accordance with surveillance requirement 4.4.9.3.1.a to provide reasonable assurance that the PORV(s) would operate, if required, to mitigate an overpressure transient during the test period. In addition to this precaution, two RHR discharge relief valves associated with two OPERABLE and operating RHR loops would be utilized to mitigate the effects of a cold overpressure event if both PORVs are inoperable. In the event that only one PORV is inoperable, the remaining OPERABLE PORV would be available to mitigate the effects of a cold overpressure event in addition to one RHR relief valve. As a result, cold overpressure protection is provided during the testing of

the inoperable PORV(s). The ANALOG CHANNEL OPERATIONAL TEST would be followed by the ASME operability test at the minimum pressure required to overcome the PORV(s) spring pressure (325-400 psig).

Based on a review of the literature on cold overpressure events, most of the past low temperature overpressure (LTOP) events were attributable to one of the following initiators:

Frequency

1. Charging/Letdown Mismatch	0.035/yr
2. Spurious SI Actuation	0.016
3. RHR Isolation	0.004
4. RCP Initiation	0.035

The first category, charging/letdown flow mismatch, consists of those events in which a flow imbalance exists between the letdown flow via the RHR and the CVCS charging flow. This event results in a net mass increase into the RCS and a corresponding pressure increase. A flow imbalance could be created by a decrease in the letdown flow (closure of the CVCS letdown pressure control valve) or an increase in the charging flow due to operator or instrument error. This type of event is not considered to be a significant hazard during the proposed testing interval since the RCS pressure will be monitored to maintain the pressure below the Technical Specification pressure limit for the given temperature. If a charging/letdown flow mismatch occurs it would be terminated by operator action, actuation of the RHR discharge relief valve(s), actuation of the administratively declared inoperable PORV(s), or actuation of the OPERABLE PORV before reaching the STPEGS administrative limits on RCS pressure.

The second event category, spurious SI initiation results in a sudden increase in the mass input into the RCS and a corresponding sudden pressure rise. This event is prevented by the implementation of administrative controls during the PORV testing to allow only one centrifugal charging pump (CCP) to be operable to minimize the potential for mass input overpressure transients. In addition, the High Head Safety Injection System (HHSI) pumps will be inoperable during water solid operations with one or both COMS PORVs inoperable. In accordance with STPEGS Technical Specification LCO 3.5.3.2, all HHSI pumps are to be inoperable in MODES 5 & 6 with the head on the reactor vessel. As stated in this LCO, the HHSI pumps may be energized for testing or for filling the accumulators in MODES 5 & 6 with the head on the reactor vessel only if the pump discharge is isolated from the RCS by a closed isolation valve with the power removed from the valve operator or by a manual isolation valve secured in position. In addition the these requirements, administrative controls will be provided to prevent operation of the HHSI pumps during the PORV test. These requirements minimize the potential for creating a mass input overpressure transient.

The third event category, RHR isolation results in a sudden loss of letdown with continuation of charging flow which creates a mass input transient. The probability of a sudden loss of letdown is minimized since the RHR auto closure interlock is bypassed [or deleted] during this test. This type of event would be terminated by the isolation of charging flow by the operator, by actuation of the RHR relief valve(s), actuation of the administratively declared inoperable PORV(s), or by actuation of the OPERABLE PORV.

The final event category, RCP initiation, creates a heat input transient because of the temperature difference between the RCS and the steam generator secondary side. This event is prevented by administrative controls which will not allow starting or restarting a Reactor Coolant Pump with the RCS water solid unless this action does not result in a heat input injection transient. These controls will minimize the potential for pressure transients resulting from RCP initiation.

The following administrative controls and Technical Specification requirements assure that the potential for a low temperature overpressure event is minimized during plant heatup and PORV testing:

- a. When RCS pressure is being maintained by the low pressure letdown control valve, the normal letdown orifices are bypassed but not isolated.
- b. Only one centrifugal charging pump (CCP) will be allowed to be operable; this minimizes the potential for a mass input overpressure transient.
- c. Administrative controls will be in place to insure that the High Heat Safety Injection (HHSI) pumps will not operate during water solid operations with the PORV(s) inoperable to minimize the potential for creating a cold overpressure transient.
- d. The RPV pressure will be controlled at the minimum value necessary to perform the required testing of the inoperable PORV(s) (325-400 psig).
- e. A Reactor Coolant Pump shall not be started with one or more of the RCS cold leg temperatures less than or equal to 350°F unless the secondary side water temperature of each steam generator is less than 50°F above the RCS cold leg temperature (ref. Technical Specification 3.4.1.4.1.a).
- f. The positive displacement pump will be demonstrated inoperable during the water solid operations to minimize the potential for a mass input overpressure event.

- g. The RHR auto closure interlock will be bypassed [or deleted] during water solid operations to prevent the loss of letdown capability which could produce a mass input overpressure transient.
- h. The Pressurizer Heaters will be inoperable during water solid operations to minimize the potential for a heat input overpressure transient.

Based on the above administrative controls, the possibility of a cold overpressure event during testing of the inoperable PORV(s) is considered remote. Prompt operator action, actuation of the RHR relief valve(s), actuation of the PORV(s) being tested, or actuation of the OPERABLE PORV will ensure that the ASME III, Appendix G limits are not exceeded.

Therefore the intent of the current Technical Specification is addressed through an engineering evaluation which demonstrates that adequate precautions or measures that minimize the severity of, or the potential for, a cold overpressure transient are maintained during the operability test. HL&P believes that eliminating the requirement to maintain the RCS depressurized does not involve a significant hazards consideration and results in more reliable and safer operations.

REFERENCES:

1. STPEGS LER 90-008, dated June 4, 1990
2. Generic Letter 90-06, "RESOLUTION OF GENERIC ISSUE 70, "POWER-OPERATED RELIEF VALVE AND BLOCK VALVE RELIABILITY," AND GENERIC ISSUE 94, "ADDITIONAL LOW-TEMPERATURE OVERPRESSURE PROTECTION FOR LIGHT- WATER REACTORS," PURSUANT TO 10 CFR 50.54(f)", Dated June 25, 1990.