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File No.: G20.01
10CFR50.59

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

South Texas Project Electric Generating Station
Unit 1
Docket No. STN 50-498
Change in Initial Test Program: Perform Flux Mapping in the Zero Power Physics Test Range, Rather than 3% to 5% Power

Pursuant to license condition 2.C(4) of Facility Operating License No. NPF-71, Houston Lighting & Power Company (HL&P) submits the attached description of a change in the South Texas Project Electric Generating Station Initial Test Program as described in Section 14 of the Final Safety Analysis Report. The description addresses performance of flux mapping with reactor power in the zero power physics test range, instead of the currently specified 3 to 5 percent power range. This change affects Initial Startup Test Description #1, "Moveable Incore Detector Test," and Initial Startup Test Description #17, "Flux Description Measurements with Normal Rod Pattern Test." The attached evaluation pursuant to 10CFR50.59 confirms that the change does not constitute an unreviewed safety question.

If there are any questions on this matter, please contact Mr. M. A. McBurnett at (512) 972-8530.

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Attachment: Unreviewed Safety Question Evaluation 88-031

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ST-HL-AE-2575
File No.: G20.01
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Unreviewed Safety Question Evaluation #88-031

Subject: Flux Mapping Power Level

Description:

FSAR Section 14.2.12.3 Test Descriptions #1, "Movable Incore Detector Test," and #17, "Flux Distribution Measurements with Normal Rod Pattern Test," specify that flux mapping is to be performed with reactor power at approximately 3 to 5 percent of rated thermal power. These test methods originally required 3 to 5 percent power because the incore system was not sensitive enough to perform the flux mapping at zero power as specified by Regulatory Guide 1.68. (The Regulatory Guide allows power to be increased if necessary.) The South Texas Project Electric Generating Station now has the capability to perform the maps in the zero power physics test range.

Safety Evaluation:

1) Does the subject of this evaluation increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report?

   This change in the test methods described in test descriptions #1 and #17 of FSAR 14.2.12.3 allows reactor power to remain in the zero power physics test range to perform flux mapping, instead of the currently specified 3 to 5 percent power. Since operation of the plant in the zero power physics test range is evaluated in the safety analysis report, the subject of this evaluation does not increase the probability of occurrence or consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report.

2) Does the subject of this evaluation create the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report?

   This change in the FSAR test methods allows reactor power to remain in the range specified for zero power physics testing. Therefore, this change does not create the possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report.

Unreviewed Safety Question Evaluation #88-031 (Cont'd)

3) Does the subject of this evaluation reduce the margin of safety as defined in the basis for any technical specification?

This change in the FSAR test methods allows reactor power to remain in the range specified for zero power physics testing. The Technical Specifications do not specify the power level at which flux mapping is to be conducted. Therefore, this change does not reduce the margin of safety as defined in the basis for any technical specification.

Based on the above, there is no unreviewed safety question.

Approved: 2/25/88

21. Rod Control System At-Power Test
22. Evaluations of Core Performance Test
23. Full Load Rejection Test — 2 Q423.
24. Loss of Offsite Power (LOOP) Test (Deleted) — 10 Q423. 33 (n) | 56
25. Shutdown from Outside the Control Room Test — 10 Q423. 22
26. Dynamic Rod Drop Test
27. Static RCCA Drop and RCCA Below-Bank Position Measurements Test
28. Pseudo Rod Ejection Test
29. Chemistry and Radiochemistry Test | 48
30. RCS Loose Parts Monitoring Test
31. Feedwater Temperature Reduction Test
32. Automatic Steam Generator Level Control Test — 29 Q640. 08N
33. Control of Margin to Saturation Test

1. Moveable Incore Detector Test

a. Test Objective - This test will demonstrate proper alignment response and operation of the moveable incore detectors. A test at low power will be performed to verify detector response to actual flux. | 10 Q423. 33(n)

b. Acceptance Criteria - A minimum number of detectors and thimbles, as required by the Plant Technical Specifications, are operable.

c. Prerequisites

1) Moveable micro detector thimbles are inserted into the core.

2) Upper internals are installed in the reactor vessel.

3) The reactor vessel head is installed with studs tensioned.

4) The RCS is in the cold shutdown condition or at a power level of 5 percent or less as dictated by the test requirement. | 10 Q423. 33(a)

d. Method

1) With the reactor in the cold shutdown standby condition, the system is operated manually and automatically in all modes after setting the indexing and limit switches. | 10 Q423. 33(a) | 48

2) With the reactor in the hot standby condition, the response of each channel to simulated detector outputs is verified.

3) With the reactor at ~~approximately~~ less than 5 percent power, the response of each channel to actual flux is verified.

2. Rod Position Indication Test

a. Test Objective - This test will verify that the Digital Rod Position Indication System satisfactorily performs the required indication and alarm functions for each individual control rod under hot standby conditions. | 48

b. Acceptance Criteria - Performance of the Rod Position Indication System for each rod cluster control assembly (RCCA) over its entire length of travel has been verified in accordance with the vendor technical manual. | 10 Q 423 .33(b) | 48

c. Prerequisites

1) The reactor is at hot standby, no-load operating temperature and pressure with at least two RCPs running. | 48 | 60

2) All Rod Control System equipment has been installed, and all preliminary testing and calibrations have been completed, including testing to demonstrate the operability of inhibit and block functions.. | 27 Q640 .19N

3) Preliminary tests on the Digital Rod Position Indication System have been completed, including the testing to demonstrate the operability of the Rod Insertion Limit Monitor.

4) Pulse-to-analog converters have been aligned.

5) Plant source-range channels shall be in operation and monitored at all times when rods are being moved.

d. Method

1) Verify with all rods fully inserted that rod bottom indication and alarm exists.

2) Verify that the rod bottom indication clears for each rod as it is withdrawn. | 10

3) Verify the rod bottom indication setpoint for each rod as it nears the fully-inserted position. | Q423 .23(b)

4) With one rod of a bank electrically disconnected, verify that a rod deviation alarm occurs as the other rods in that bank are positioned the required distance.

b. Acceptance Criteria

1) The installed effluent and process monitors indicate as verified by independent laboratory analysis the radioactive content of the effluent or process fluid. 10 Q423 .33(j)

2) Area radiation monitors properly indicate radiation levels as confirmed by exposure to a check source. 10 Q423 .33(j) 60

c. Prerequisites

1) The reactor has been operating at the stable, steady-state power level specified in the procedure for a time sufficient to generate representative effluents and process samples. 10 Q423 .32 27 Q640 .09N

2) The effluent, process and area monitors have been calibrated against known sources. 10 Q423 .33(j)

d. Methods - The test described below will be conducted at power levels less than 5 and approximately 30 percent. 27 Q640 .09N

1) Following plant procedures, the suitability of effluents for discharge is verified by radiochemical analysis. 10 Q423 .22 (4.t)

2) Discharge is commenced, and the response of effluent monitors is observed and recorded.

3) By radiochemical analysis of the process and effluent samples, confirm the satisfactory performance of the process and effluent monitors. 10 Q423 .33(j)

4) Area radiation monitor detectors will be exposed to check sources in the range of the instrument, to verify detector operability and proper response. 60

17. Flux Distribution Measurements with Normal Rod Pattern Test

a. Test Objective - This test will verify that the hot-channel factors are less than or equal to design safety limits.

b. Acceptance Criteria - Flux distribution measurement analysis yields hot-channel factors less than or equal to technical specification limits. 48

c. Prerequisites 10 Q423 .22 (4.t)

1) Reactor is critical at a steady-state power level of ~~approximately 3 to~~ less than 5 percent.

2) The Incore Instrumentation System preoperational test is complete, and the system is operable.

3) The computer is operable as required for incore map processing.

d. Method - The reactor power level is stabilized, and complete incore flux maps are obtained and processed.

18. Axial Xenon Oscillation Test

a. Test Objective - This test will demonstrate the stability of the 3,800-MWt core to axial xenon oscillations.

b. Acceptance Criteria - The reactor core stability index is less than or equal to the value specified in the fuel vendors core design report. | 48

c. Prerequisites

1) The reactor is critical at a steady-state power level of approximately 75 percent.

2) Pertinent data to be monitored is specified and connected to recording devices as required by the test procedure.

d. Method

1) Axial xenon oscillations are introduced by a specified maneuvering of control rod banks over a specified time period.

2) Data is recorded and analyzed as required in the test procedure. | 10 Q423. 22(4.t)

19. Power Coefficient and Power Defect Measurement Test

a. Test Objective - This test will determine the differential power coefficient of reactivity and the integral power defect.

b. Acceptance Criteria

1) The differential power coefficient is equal to or more conservative than the power coefficient assumed in the safety analysis. | 10 Q423. 33(k)

2) The measured power defect agrees within ± 10 percent of the value shown in the fuel vendors core design report. | 48

c. Prerequisites

1) The reactor is critical at specified power levels from zero to 100 percent.

2) The instrumentation necessary for data collection is installed, calibrated, and operable.