Nuclear Operating Company
South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

South Texas Project
Unit 1
Docket No. STN 50-498
Unit 1 Cycle 11 Power Uprate Startup Testing Summary Report

South Texas Project Technical Specification 6.9.1.1 requires a summary report of appropriate plant startup and power escalation testing results following an amendment to the license involving a planned increase in power level. During Cycle 11, South Texas Project Unit 1 implemented a power uprate of 1.4% from 3800 Megawatts Thermal to 3853 Megawatts Thermal following issuance of Amendment 138 to the Operating License.

The attachment to this letter is a summary report of the test results taken during the power ascension. No corrective actions were required to obtain satisfactory operation.

There are no new licensing commitments contained in this letter. If there are any questions, please contact Mr. R. L. Prater at (361) 972-8425 or me at (361) 972-7902.

T. J. Jordan
Vice President,
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kjt/

Attachment: South Texas Project Unit 1 Cycle 11 Power Uprate Summary Testing Report

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cc:
(paper copy)

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ATTACHMENT

SOUTH TEXAS PROJECT

UNIT 1 CYCLE 11

POWER UPRATE SUMMARY TESTING REPORT

South Texas Project
Unit 1 Cycle 11 Power Uprate Summary Testing Report

Introduction

South Texas Project implemented Amendment 138 to the Unit 1 Operating License for a mid-cycle power uprate on May 13, 2002. Reactor power was raised to the new maximum power level of 3853 megawatts thermal on May 16, 2002. A summary report of appropriate plant power escalation testing results follows.

Only certain portions of the following tests identified in Section 14.2.12.3 of the Updated Final Safety Analysis Report were applicable to the power uprate. These affected tests were:

14. Radiation Survey Test
15. Nuclear Instrumentation Calibration Test
22. Evaluations of Core Performance Test

Radiation Survey Test

The objective of this test was to verify shielding effectiveness by measuring neutron and gamma radiation dose levels at selected points throughout the plant. For the power uprate, neutron and gamma surveys were performed at selected locations in the Reactor Containment Building after power was raised to 3853 megawatts. The surveys indicated no change in dose rates when compared to surveys performed before the power uprate.

Nuclear Instrumentation Calibration Test

The objective of this test was to calibrate the power-range channels to reflect actual power levels. Prior to raising power to 3853 megawatts, software changes were made to the computer program that was used to perform the calculation of reactor power. These software changes reflected the changes in the power calculation methodology that was used to justify the increase in licensed power level. Power-range channels were calibrated to reflect actual power levels both before and after raising power to 3853 megawatts using the procedure to daily calibrate the power range channels in accordance with Technical Specifications.

Evaluations of Core Performance Test

The objective of this test was to verify that core performance margins are within design predictions for expected normal and abnormal rod configurations. Prior to raising power to 3853 megawatts, adjustments were made to delta-temperature amplifier gains to reflect the change in rated thermal power. These adjustments of the delta-temperature amplifier gains were evaluated after raising power to 3853 megawatts and no further adjustments were required. Monthly surveillances were completed the week prior to the power uprate. The flux map surveillance was used to ensure there was sufficient peaking factor margin to raise power 1.4%. Monthly surveillances were also completed the third week after power uprate. The flux map surveillance was used to ensure acceptable peaking factors and a core reactivity balance was used to verify acceptable differences between measured and predicted RCS boron concentrations. The results of these flux map surveillances are tabulated on the following page.

I. POWER DISTRIBUTION MEASUREMENTS:

Design Review Criteria (DRC): Incore Quadrant Power Tilt ≤ 1.02
Assembly Power Error ≤ ±10% [(M-P)/P] or
≤ ±0.1 (M-P), which ever is greater

Acceptance Criteria (AC): FDHN < Technical Specification (TS) 3.2.3 Limit
F_{xy} ≤ TS 3.2.2 Limit

	Incore Quadrant Power Tilts		Most Limiting FDHN	FDHN Limit	FDHN Margin	Most Limiting F_{xy}	F_{xy} Limit	Fxy Margin	Largest Assembly Power Error
Before Uprate Flux Map # 111010 performed 5/8/02	0.99732	0.99456	1.4351	1.53	6.20%	1.6198	1.7744	8.71%	10.3% 0.049
	1.00787	1.00025							
After Uprate Flux Map # 111011 performed 6/3/02	0.99859	0.99744	1.4411	1.53	5.81%	1.6151	1.7744	8.98%	10.2% 0.045
	1.00139	1.00258							

FDHN: Nuclear Enthalpy Rise Hot Channel Factor
Incore Tilt: Measured Incore Tilt in Excess of Designed Core Asymmetry

II. FULL POWER CRITICAL BORON (PPM):

Design Review Criteria (DRC): ±50 ppm

Acceptance Criteria (AC): ±1000 pcm

Burnup (EFPD)	Measured (M)	Predicted (P)	(M-P)	Pass/Fail DRC	Pass/Fail AC
Before Uprate Burnup: 193.561 EFPD	1138.0	1077.0	61.0 ppm -408.7 pcm	F *	P
After Uprate Burnup: 220.275 EFPD	1036.0	981.5	54.5 ppm -370.6 pcm	F *	P

* A Measured minus Predicted error greater than 50 ppm is expected during long runs at full power due to Boron-10 depletion. B-10 depletion occurs when a B-10 atom absorbs a neutron that results in a Li-7 atom and an alpha particle. B-10 depletion causes the B-10/B-11 ratio to decrease and results in a less negative Differential Boron Worth (DBW)