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Nuclear

May 18, 2001

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

LaSalle County Station, Unit 2
Facility Operating License No. NPF-18
NRC Docket No. 50-374

Subject: Supplemental Startup Report for LaSalle County Station Unit 2 Uprate Power Ascension

References: (1) Letter from C. G. Pardee (ComEd) to U.S. NRC, "Startup Report for LaSalle County Station Units 1 and 2 Uprate Power Ascension," dated August 18, 2000.

(2) Letter from R. M. Krich (ComEd) to U.S. NRC, "Request for License Amendment for Power Uprate Operation," dated July 14, 1999.

Enclosed, in accordance with Reference (1), is the Supplemental Startup Report for LaSalle County Station Unit 2 Uprate Power Ascension. The submittal of this report is required within 90 days following completion of the startup program for an amendment to the license involving a planned increase in power level.

The power ascension test program performed by Exelon Generation Company (EGC), LLC, formerly Commonwealth Edison (ComEd) Company, implements the testing and equipment performance monitoring commitments made in Reference (2).

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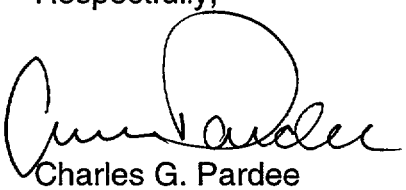
Reference (1) addressed the Unit 2 uprate test program performed prior to the completion of the Unit 2 turbine modifications and the repair of the high pressure heaters. The modifications and repairs were made during the refueling outage, L2R08, followed by the startup testing program.

The attached Supplemental Startup Report for LaSalle County Station Unit 2 Uprate Power Ascension summarizes the startup test program and results.

All test data was reviewed in accordance with the applicable test procedures, and exceptions to any acceptance criteria were evaluated to verify compliance with Technical Specification limits and to ensure the acceptability of subsequent test results.

Should you have any questions concerning this letter, please contact Mr. William Riffer, Regulatory Assurance Manager, at (815) 357-6761, extension 2383.

Respectfully,



Charles G. Pardee
Site Vice President
LaSalle County Station

Attachment

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector - LaSalle County Station

ATTACHMENT

SUPPLEMENTAL STARTUP REPORT FOR

LASALLE COUNTY STATION UNIT 2

UPRATE POWER ASCENSION

Supplemental Startup Report for LaSalle County Station
Unit 2 Uprate Power Ascension

INDEX

Executive Summary

This Supplemental Startup Test report is submitted to the Nuclear Regulatory Commission (NRC) in accordance with the letter from C. G. Pardee (ComEd) to U.S. NRC, "Startup Report for LaSalle County Station Units 1 and 2 Uprate Power Ascension," dated August 18, 2000 (Reference (1)). Per Reference (1), a supplemental report would be submitted within 90 days of the completion of the final phase of testing.

The power ascension test program performed by Exelon Generation Company (EGC), LLC, implements the testing and equipment performance monitoring commitments contained within Licensing Topical Report, "Generic Guidelines for General Electric BWR Generic Power Uprate," NEDC-31897P-A, Class III, May 1992 (LTR-1)," and the letter from R. M. Krich (Commonwealth Edison Company) to the USNRC dated July 14, 1999, "Request for License Amendment for Power Uprate Operation," (Reference (2)) with Attachment E: General Electric Nuclear Energy, Licensing Topical Report NEDC-32701P, Revision 2, "Power Uprate Safety Analysis Report (SAR) for LaSalle County Station, Units 1 and 2," dated July 1999 (Proprietary).

The LaSalle County Station Power Uprate Project was a zero reactor pressure increase (no increase in the reactor operating pressure) power uprate. As a result, dynamic transient testing associated with pressure increase uprates was not required to be performed at LaSalle.

Unit 2 uprate power ascension test program to installed capacity began on May 23, 2000 and was completed June 8, 2000. The installed capacity was initially determined to be 3434 megawatts thermal (MWt) with the limiting condition being the Turbine Control Valve position.

Subsequent to the uprate of Unit 2 to installed capacity, degradation of the 26A/B high pressure heaters resulted in a reduction in heater performance, thus reducing the steam flow to the main turbine and Turbine Control Valve position. With the elimination of this limiting installed capacity condition, the Unit 2 Power Ascension Test Program was revised to allow recovery of electrical generation capacity. No other Installed Capacity Limiting Condition was reached prior to reaching 3489 MWt on July 13, 2000.

The final testing commenced on December 5, 2000, and completed February 19, 2001. During L2R08 the repair of the 26A/B High Pressure Heaters and installation of modifications to the Main Turbine were completed. Following L2R08, turbine driven reactor feed pump (TDRFP) issues needed to be resolved prior to successfully completing the testing.

After the completion of refueling outage L2R08, the Unit 2 uprate initial power ascension testing commenced December 5, 2000 and was completed December 8, 2000. The initial data was taken at 3434 MWt and power was increased to the uprate licensed power level of 3489 MWt. This initial power ascension was completed with one TDRFP in manual, and the second TDRFP in 3-element automatic control due to control issues experienced

after L2R08. Subsequent to the initial power ascension, the TDRFP control issues were resolved and the feedwater test data acquisition was again performed. A turbine generator 100 hour demonstration run was performed December 25-29, 2000. The turbine generator performance tests were completed January 12-14, 2001. The reactor water level control system issues were addressed. The final phase of testing after the feedwater adjustments were made took place February 18-19, 2001. At this time, the test program was considered complete. No equipment or system performance problems resulted from the power uprate and all acceptance criteria were satisfied.

Supplemental Startup Report for LaSalle County Station Unit 2 Uprate Power Ascension

1.0 Purpose

This Supplemental Power Uprate Startup Report is submitted to the Nuclear Regulatory Commission pursuant to Reference (2).

2.0 Uprate Power Ascension Program Scope

2.1 Program Development

The LaSalle County Station Power Ascension Test Program was developed in accordance with the generic guidelines provided in Licensing Topical Report (LTR) NEDC-31897P-A, "Generic Guidelines for General Electric Boiling Water Reactor Power Uprate," the License Amendment Request including the Safety Analysis Report and Power Uprate Project (PUP) Task Report 1005, Startup Recommendations. The power ascension test program also included testing or equipment monitoring recommendations from other PUP Task Reports. According to NEDC-32424P, section 5.11.9, "Power Uprate Testing," item (4) requires that large transient tests (e.g., isolation) will not be required for uprates less than or equal to 10% of the original licensed thermal power. Initial plant testing and experience during plant operation is considered to be sufficient. Consequently, no large transients were included within the LaSalle County Station Uprate Power Ascension Test Program.

Per the original report of Reference (1), the power ascension test program for both units are essentially the same with Unit 2's program being performed in phases. The first phase took Unit 2 to its installed capacity with normal secondary plant configuration. The second phase took it to its licensed capacity with the degraded feedwater heaters. The next phase took Unit 2 to its licensed power level of 3489 MWt with the normal secondary plant configuration. This supplemental report addresses the final phase for Unit 2 power uprate, Unit 2 at licensed power level of 3489 MWt with the normal secondary plant configuration.

The final phase of the Unit 2 Uprate Power Ascension Test Program verified the following.

- Plant systems and equipment affected by power uprate are operating within design limits.
- Nuclear fuel thermal limits are maintained within expected margins.
- The response of the main steam pressure control system is stable.
- The response of the reactor water level control system is stable.
- The response of the reactor core flow control system is stable and bistable core flow is within acceptable limits.
- The feedwater heater drains and level control system are stable.
- Reliable system operation continues, as demonstrated by a 100 hour test run at uprate power level.

- Warranted net gain in electrical output was achieved, as demonstrated by the performance of post and pre-uprate thermal power testing.
- Radiation levels are acceptable and stable.

2.2 Prerequisites to Power Ascension Testing

Prior to the commencement of power ascension testing, the test procedure required the completion of numerous activities, which included the following.

- All plant modifications were reviewed to assure they were completed as required and had no exception which could affect the uprate test program.
- The Out of Service log, Temporary Modifications log, Operator Work Arounds log, and the Operation Configuration Change log were reviewed to assure there was no effect on uprate testing.

2.3 Uprate Power Ascension Testing

Power Ascension was performed in accordance with a LaSalle Special Test Procedure LST-2000-008. Heightened Level of Awareness (HLA) briefings were completed prior to power ascension.

Power ascension occurred in two steps, 3434 MWt and 3489 MWt, each including a period of data collection and evaluation.

Following each power increase, testing and equipment performance data were collected and evaluated in accordance with established acceptance criteria. At each step in power ascension, the following activities were performed:

- Core Thermal Performance data evaluated.
- Reactor pressure control system stability, steam flows limit cycling, and variation in incremental regulation performance data evaluated.
- Turbine Driven Reactor Feedwater Pump (TDRFP) speed, reactor water level control and the variation in incremental regulation performance data evaluated.
- Electro-Hydraulic Control (EHC) System oil pressure to the Turbine control valve oscillation data evaluated.
- Feedwater heater level control performance data evaluated.
- Bistable reactor recirculation flow data evaluated.
- Testing and control system performance data evaluation of one Main Turbine Stop Valve (TSV) and Bypass Valve.
- A complete set of equipment performance data (e.g., control room readings, local readings, process computer and Transient Analysis Data System (TADS) computer data) was collected, evaluated and predictive performance at the next power level determined.
- Radiation surveys performed and evaluated at key points in the power ascension sequence.
- Main Generator stator internal temperatures data collected and evaluated.

After power ascension to 3489 MWt was completed, a demonstration run was performed followed by two performance tests. The performance tests were at 3323 MWt and 3489 MWt, respectively The difference in electrical generation between these two tests determined the gain in electrical output attributable to uprating the plant.

2.4 Test Acceptance Criteria

General Discussion

The development of the power uprate test recommendations and acceptance criteria was based on the review of similar test programs performed at other plants, Chapter 14 of the LaSalle County Station Updated Final Safety Analysis Report (UFSAR), the outputs of the NSSS heat balance (PUP Task Report 100) and power flow map (PUP Task Report 201) tasks, the LaSalle County Station Unit 2 Startup Test Program Summary Report, November 1984 and General Electric Licensing Topical Report (LTR) NEDC-31897P-A.

Following each step increase in power level, test data was evaluated against its performance acceptance criteria (i.e., design predictions or limits). If the test data satisfied the acceptance criteria then system and component performance were determined to comply with their design requirements.

Plant parameters during power ascension were evaluated with two levels of acceptance criteria. The criteria associated with plant safety are classified as Level 1. The criteria associated with design expectations are classified as Level 2. The following paragraphs describe the actions required to be taken if an individual criterion was not satisfied.

Level 1 Acceptance Criteria

Level 1 acceptance criteria relate to the values of process variables assigned in the design of the plant, component systems or associated equipment. If a Level 1 test criterion is not satisfied, the plant must be placed in a hold condition that is judged to be satisfactory and safe, based upon prior testing. Plant operating or test procedures or the Technical Specifications guide the decision on the direction to be taken. Tests consistent with this hold condition may be continued. Resolution of the problem must be immediately pursued by equipment adjustments or through engineering evaluation as appropriate. Following resolution, the applicable test portion must be repeated to verify that the Level 1 requirement is satisfied. A description of the problem must be included in the report documenting successful completion of the test.

Level 1 acceptance criteria for power ascension included requirements that reactor feedwater flow, reactor water level, reactor pressure and other reactor systems are expected to exhibit stable full power operating characteristics. This Level 1 acceptance criterion of requiring all plant systems to exhibit normal high power level operating behavior (i.e., stable reactor water level control, feedwater flow, and TDRFP speed with

acceptable limit cycling, if any) is to assure that that this testing stays in a low risk category.

Level 2 Acceptance Criteria Equipment Performance

If a Level 2 test criterion is not satisfied, plant operating or test plans would not necessarily be altered. The limits stated in this category are usually associated with expectations of system transient performance whose characteristics can be improved by equipment adjustments. An investigation of the related adjustments, as well as the measurement and analysis methods, would be initiated.

If all Level 2 requirements in a test are ultimately met, there is no need to document a temporary failure in the test report, unless there is a lessons learned benefit involved. Following resolution of temporary Level 2 test criterion failures, the applicable test portion must be repeated to verify that the Level 2 requirement is satisfied.

If a certain controller-related Level 2 criterion is not satisfied after a reasonable effort, the control engineers may choose to document that result with a full explanation of their recommendations. This report must discuss alternative actions, as well as concluding recommendations to facilitate evaluation by all related parties.

For the LaSalle County Station Power Uprate, specific Level 2 acceptance criteria were established as detailed in the following paragraphs

EHC/Reactor Pressure Control

Pressure control system deadband and delay shall be small enough such that steady state limit cycles (if any) shall produce steam flow variations no larger than $\pm$ 0.5% of rated steam flow.
The variation in incremental regulation (ratio of the maximum to minimum value of the quantity, "incremental change in pressure control signal/incremental change in steam flow" for each flow range) should meet the following criteria:

% of Steam Flow Obtained with Valves Wide Open (VWO)	Variation
0 to 85%	$\leq$ 4:1
85% to 97%	< 2:1
85% to 99%	< 5:1

Reactor Water Level and Feedwater (FW) Control

The variation in incremental regulation (i.e., ratio of the maximum to the minimum value of the incremental change in feedwater flow demand signal/incremental change in feedwater flow for each flow range) should not exceed 2:1.

The turbine speed regulation between the feedwater pumps should match within ± 5% of rated speed (i.e., the average of their individual speed) over the controllable speed range.

Feedwater control system deadband and delay shall be small enough that steady state limit cycles (if any) shall not produce narrow range water level variations that exceed ± 1.5 inch.

TDRFP speed during steady state conditions does not exceed 5,050 rpm, (i.e., TDRFP electrical high speed stop).

Generator Stator Temperatures

All operable resistance temperature detectors (RTD's) between bus bars shall be read before exceeding 3323 MWt to establish a current set of baseline temperature data before increasing the load on the generator.

The maximum allowable RTD temperature limit is 77 degrees C. All operable stator cooling outlet thermocouples shall be read before exceeding 3323 MWt to obtain a set of current baseline before increasing generator load. The maximum allowable thermocouple reading is 82 degrees C.

The responsible system engineer shall evaluate the above readings (based upon historical performance data of temperature spread and maximum temperatures) to determine that the maximum allowable temperature will not be exceeded as power level is increased to the next level as required by this procedure.

Bistable Reactor Recirculation Flow

The maximum neutron flux spike associated with bistable flow occurrence shall not exceed 8%.

The maximum recirculation total jet pump flow change associated with bistable flow shall not exceed 3%.

Turbine Stop and Bypass Valve Testing

Peak neutron flux must be at least 7.5% below the scram trip setting. Peak vessel pressure must remain at least 10 psi below the high pressure scram setting. Peak heat flux must remain at least 5.0% below its scram trip point.

Peak steam flow in each line must remain 10% below the high flow isolation trip setting.

The bypass valves should not open during TSV testing.

2.5 Differences between Unit 1 and Unit 2

2.5.1 Differences in Physical Configuration

Prior to L2R08, there were several physical differences between the units due to modifications having been already made to Unit 1. Modifications to balance of plant (BOP) systems were performed on Unit 2 during L2R08 in order to continue the power uprate project. A brief description of modifications which have been installed on Unit 2 during L2R08 are as follows:

- Modification of the high pressure turbine to increase the steam passing capacity,

- Modification of the Turbine Driven Reactor Feed Pumps to eliminate speed restrictions currently in place as a result of GE Technical Information Letter (TIL) 1129,

- Modification of the 24A Low Pressure Feedwater Heater normal drain valve to the 23A heater with a valve designed to pass more flow,

- Re-calibration of Diode Function Generator logic which controls bias to the Turbine Control Valves (TCV) to increase the stability of TCV operation at increased steam flow, and

- Installation of a second Steam Line Resonance Compensator Card to increase the stability of the EHC system at increased power levels.

3.0 Unit 2 - Summary of Uprate Testing and Equipment Performance Results to Installed Capacity

3.1 Key Events

Unit 2 Power Ascension Chronological Sequence of Events

No.	Event Description	Date
1	Authorization granted to commence uprate power ascension testing	05-23-00
2	Down power to establish rod pattern for power ascension	05-23-00
3	Start testing at 3343 MWt	05-23-00
4	Start testing at 3363 MWt	05-24-00
5	Start testing at 3383 MWt	05-25-00
6	Start testing at 3403 MWt	05-26-00
7	Revision 1 of LST-2000-007 Issued	06-02-00
10	Start testing at 3423 MWt	06-05-00
11	Start testing at 3443 MWt	06-08-00
12	Reactor Power Administratively Limited to 3434 MWt to comply with TCV Level 2 Limit	06-08-00
13	Failure of 26A/B heaters resulted in Feedwater temperature reduction and reduced TCV position	06-25-00
14	Authorization granted to raise power to 3489 MWt	07-10-00
15	Start testing at 3454 MWt	07-11-00
16	Start testing at 3474 MWt	07-12-00
17	Start testing at 3489 MWt	07-13-00

3.2 Unit 2 - Testing and Equipment Performance Results

Unit 2 - Control Systems Performance Results

Control Systems most affected by uprate were monitored to assure acceptable performance and compliance with their specific Level 1 and 2 acceptance criteria. The following table summarizes these control systems.

Unit 2 - Control System Performance Results

No.	Control System Description	Level 1 Acceptance Criteria	Level 2 Acceptance Criteria	Tuning Adjustments Required
1	Reactor Water Level Control System	Satisfied	Satisfied	No
2	EHC and Reactor Pressure Control System	Satisfied	Satisfied	No
3	Feedwater Heater Level Control System	Satisfied	Satisfied	Yes
4	Rx. Recirculation and Bistable Flow	Satisfied	Satisfied	No

Unit 2 - Equipment Performance Results

The following systems and selected equipment within these systems most affected by uprate were closely monitored to assure that equipment performed as predicted and that they operated within their design requirements.

Unit 2 - Equipment Performance Results

No.	System Description	Level 1 Acceptance Criteria	Level 2 Acceptance Criteria	Predictive Performance
1	Condensate System	Satisfied	Satisfied	Acceptable
2	Condensate Booster System	Satisfied	Satisfied	Acceptable
3	Feedwater System	Satisfied	Satisfied	Acceptable
4	Heater Drain System	Satisfied	Satisfied	Acceptable
5	Main Generator and Alternator	Satisfied	Note 1	Acceptable
6	Nuclear Boiler	Satisfied	Satisfied	Acceptable
7	Reactor Recirculation System	Satisfied	Satisfied	Acceptable
8	Main Turbine	Satisfied	Satisfied	Acceptable
10	Main Transformer	Satisfied	Satisfied	Acceptable
11	Stator Cooling System	Satisfied	Satisfied	Acceptable
12	Isophase Bus Cooling	Satisfied	Satisfied	Acceptable
13	TBCCW System	Satisfied	Satisfied	Acceptable

Note 1: Three stator thermocouple (T/C) readings indicate at or near Level 2 criteria. However, these 3 T/C historically read high, were evaluated by Engineering as acceptable prior to commencement of power ascension and are considered to be a pre-existing condition. All remaining T/C readings satisfied their acceptance criteria.

Unit 2 - Reactor and Core Performance Results

1. Core thermal hydraulic parameters were verified to be within Technical Specification limits.

2. During surveillance testing of the TSVs and bypass valves there was no discernible indication of flux spiking or a reactor pressure transient.

3. Core Bi-Stable flow was intermittent with no discernable difference in the magnitude or frequency of its occurrence from historical operating experience.

4. Reactor operation on a higher Flow Control Line (FCL) was stable with no discernable change in reactor performance from pre-uprate full power operating conditions other than reduced jet pump flow and total core flows. The core operated in a manner consistent with predictive expectations.

Unit 2 - Radiation and Chemistry Results

Radiation surveys were performed at 3363 MWt, 3403 MWt, and again at 3489 MWt with no measurable change in plant radiation levels from pre uprate full power operating conditions.

Chemistry monitoring (reactor water, condensate water and off gas) continued throughout the uprate power ascension test program with no discernable change from prior full power operating conditions

Unit 2 - Net Gross Electrical Output Gain From Uprate

The net electrical output increased 37 MWE as a result of increasing reactor thermal power from 3323 to the installed capability of 3434 MWt. Subsequent to the completion of the initial phase of power ascension, degradation of the 26A/B Feedwater heaters resulted in a reduction in FW temperature. Unit 2 is currently at the maximum thermal power level of 3489MW. Further increases in electrical output will be performed subsequent to repairs to the 26A/B heaters as well as completion of Power Uprate modifications to the Turbine generator.

3.3 Unit 2 - Exceptions

Equipment and Test Exceptions

There were none during phase 1, all Level 1 and 2 acceptance criteria were satisfied and equipment and system performance behaved in accordance with predictive expectations with no anomalies. The three high reading stator T/C are considered a pre-existing condition and had been evaluated as acceptable prior to commencement of power ascension and are not considered a power uprate test or equipment performance exception.

Administrative Exceptions

There were none.

4.0 Unit 2 – Summary of Uprate Testing and Equipment Performance Results – Power Ascension From L2R08

4.1 Key Events

Unit 2 Power Ascension Chronological Sequence of Events

No.	Event Description	Date
1	Authorization granted to commence uprate power ascension testing after L2R08 per LST-2000-008	12/05/00
2	Initial Conditions Data Acquisition at 3434 MWt	12/05/00
3	Start testing at 3489 MWt	12/07/00
4	Start 100 Hour Demonstration Run, Test No. 3	12/11/00
5	Stop 100 Hour Demonstration Run due to TDRFP issues	12/12/00
6	Re-start 100 Hour Demonstration Run, Test No.3	12/25/00
7	Complete Continuous 100 Hour Run and Test No. 3	12/29/00
8	Start TG Performance Test No. 2	01/12/01
9	Start TG Performance Test No. 1	01/14/01
10	TG Performance Test Report Issued by GE	02/05/01
11	Data acquisition on power ascension from final TDRFP repairs.	02/19/01
12	LaSalle acceptance of the GE Report	03/08/01

4.2 Unit 2 – Testing and Equipment Performance Results

Unit 2 – Control Systems Performance Results

Control systems most affected by uprate were monitored to assure acceptable performance and compliance with their specific Level 1 and Level 2 acceptance criteria. The following table summarizes these control systems.

No.	Control System Description	Level 1 Acceptance Criteria	Level 2 Acceptance Criteria	Tuning Adjustments Required
1	Reactor Water Level Control System	Satisfied	See Note 1	No
2	EHC and Reactor Pressure Control System	Satisfied	Satisfied	No
3	Feedwater Heater Level Control System	Satisfied	Satisfied	Yes
4	Rx. Recirculation and Bistable Flow	Satisfied	Satisfied	No

Note 1:
During the initial power ascension from L2R08, the plant was experiencing control problems with the reactor water level control system. The Level 2 acceptance criteria for reactor water level control (RWLC) were not met during the initial power ascension of December 5-8, 2000. It was determined that RWLC issues were not related to uprated power conditions. Data was collected on February 19, 2001 on power ascension after maintenance to the TDRFPs. All Level 1 and 2 acceptance criteria for the RWLC system were met during the February performance. See Section 4.3, Unit 2 – Exceptions.

Unit 2 – Equipment Performance Results

The following systems and selected equipment within these systems most affected by uprate were closely monitored to assure that equipment performed as predicted and operated within design requirements.

Unit 2 - Equipment Performance Results

No.	System Description	Level 1 Acceptance Criteria	Level 2 Acceptance Criteria	Predictive Performance
1	Condensate System	Satisfied	Satisfied	Acceptable
2	Condensate Booster System	Satisfied	Satisfied	Acceptable
3	Feedwater System	Satisfied	Note 1	Note 1
4	Heater Drain System	Satisfied	Satisfied	Acceptable
5	Main Generator and Alternator	Satisfied	Note 2	Acceptable
6	Nuclear Boiler	Satisfied	Satisfied	Acceptable
7	Reactor Recirculation System	Satisfied	Satisfied	Acceptable
8	Main Turbine	Satisfied	Satisfied	Acceptable
10	Main Transformer	Satisfied	Satisfied	Acceptable
11	Stator Cooling System	Satisfied	Satisfied	Acceptable
12	Isophase Bus Cooling	Satisfied	Satisfied	Acceptable
13	TBCCW System	Satisfied	Satisfied	Acceptable

Note 1: The Level 2 Acceptance Criteria for the Feedwater Control System were not met during the initial power ascension. See exceptions in Section 4.3.

Note 2: Three stator thermocouple (T/C) readings indicated at or near Level 2 criteria with T/C #89 exceeding the Level 2 criteria. However, these 3 T/C historically read high, and were evaluated by Engineering as acceptable prior to commencement of power ascension and are considered to be a preexisting condition. All remaining T/C readings satisfied their acceptance criteria.

Unit 2 - Reactor and Core Performance Results

1. Core thermal hydraulic parameters were verified to be within Technical Specification limits.

2. During surveillance testing of the TSVs and bypass valves there was no discernible indication of flux spiking or a reactor pressure transient.

3. Core bistable flow was intermittent with no discernable difference in the magnitude or frequency of its occurrence from historical operating experience.

4. Reactor operation on a higher Flow Control Line (FCL) was stable with no discernable change in reactor performance from pre uprate full power operating conditions other than reduced jet pump flow and total core flows. The core operated in a manner consistent with predictive expectations.

Unit 2 - Radiation and Chemistry Results

Radiation surveys were performed at 3434 MWt and at 3489 MWt with no measurable change in plant radiation levels from pre-L2R08 uprate full power operating conditions.

Chemistry monitoring (reactor water, condensate water and off gas) continued throughout the uprate power ascension test program with no discernable change from prior full power operating conditions

Unit 2 - Net Gross Electrical Output Gain From Uprate

The net electrical output increased 56.78 megawatts electric (MWe) as a result of increasing reactor thermal power from 3323 to 3489 MWt and installing the necessary modifications.

4.3 Unit 2 - Exceptions

Equipment and Test Exceptions

Prior to test completion, all Level 1 and 2 acceptance criteria were satisfied and equipment and system performance behaved in accordance with predictive expectations.

As discussed earlier, stator thermocouple #79 exceeded the stated Level 2 criteria. This is considered a pre-existing condition and had been evaluated as acceptable prior to commencement of the test. Therefore, this is not considered a power uprate test or equipment performance exception.

The Level 2 criteria for the feedwater control system was not met during the initial power ascension from L2R08. This was identified and determined to be due to problems associated with the control oil quality and not to uprated conditions. Repairs and modifications to install oil filtration were completed in February of 2001, and have returned the TDRFPs and the Feedwater system to an acceptable level of performance meeting all the Level 2 acceptance criteria.

Administrative Exceptions

There were no administrative exceptions.

5.0 Application of the FSAR Initial Startup Test Program to the LaSalle Power Uprate Project

5.1 General Discussion

The LaSalle County Station PUP Safety Analysis Report section 10.4, "Required Testing," requires this report to include brief discussions as to why it was not necessary to repeat specific tests listed in UFSAR Section 14, during the power uprate test program. This section of the Uprate Startup Test addresses this requirement with respect to the Power Uprate Project. The UFSAR Section 14 addresses the LaSalle initial startup test program. The initial startup test program was divided into three main parts: Construction tests and Equipment Demonstrations, Preoperational tests and System Demonstrations, and Startup Tests and Operational Demonstrations. Each of these programs is discussed in the following paragraphs with respect to the LaSalle Power Uprate Project.

5.1.1 Construction Tests and Equipment Demonstrations

Construction tests (safety-related) are those tests, which demonstrate that safety-related equipment meets functional operability requirements. These tests cover a wide variety of checks to assure that components are properly installed and adjusted according to manufacturers instructions, Architect Engineering drawings and specifications, satisfy code requirements, comply with UFSAR requirements, etc. They include, but are not limited to, hydrostatic pressure tests, electrical megger tests, load tests, cleanliness inspections, rotational tests, alignment tests, etc.

Equipment demonstrations (non-safety-related) are those tests used to demonstrate that non-safety-related equipment meets functional operability performance requirements.

As applied to the PUP, this category of testing is conducted as part of the modification process. These tests are included within the installation directions and in the modification (software) package. Required construction tests for PUP modifications were successfully completed as part of the modification closure process.

5.1.2 Preoperational Tests and Operational Demonstrations

Preoperational test (safety-related) are those tests conducted prior to fuel loading to demonstrate that the plant has been properly designed and constructed, and that the safety-related structures, systems and components meet safety-related performance requirements.

System demonstrations (non-safety-related) consist of those tests conducted to demonstrate that non-safety-related system and components function as required to meet normal plant operating requirements.

This category of testing is conducted as part of the post modification testing process. Power uprate modifications were successfully completed as part of the modification closure process.

5.1.3 Startup Tests and Operational Demonstrations

UFSAR Requirements

Startup Tests are safety-related tests and consist of such activities as fuel loading, pre-critical tests, critical and low power tests and power ascension tests that ensure fuel loading in a safe manner, confirm the design bases, demonstrates where practical that the plant is capable of withstanding the anticipated transients and postulated accidents, and ensure that the plant is safely brought to rated capacity and sustained power operation.

LaSalle Power Uprate Startup Program Development

The following was used in establishing uprate testing requirements, based on Power Uprate Project Task Report 1005.

The development of the power uprate test recommendations and acceptance criteria is based on the review of similar test programs performed at other plants, Chapter 14 of the LaSalle FSAR, the outputs of the NSSS heat balance (PUP Project Task Report 100) and power to flow map (PUP Project Task Report 201) tasks, the LaSalle Unit 2 Startup Test Program Summary Report, November 1984 and the PUP LTR1. From the total population of tests identified in the preceding programs, a set of tests were selected for further evaluation and incorporation into the LaSalle uprate test program. The effect of the power uprate at LaSalle on the operational parameters, performance characteristics and acceptance criteria of these tests were examined. If the test was potentially impacted by power uprate, it was then evaluated for applicability and inclusion within the LaSalle Uprate Power Ascension Test Program. This evaluation resulted in a final set of test recommendations to be performed during the initial ascension and operation at full 105% uprated power.

The recommendations are the result of a test selection process that is based upon a review of the original startup test program and changes resulting from the power uprate. The tests and equipment performance monitoring included in these recommendations fall into the following categories:

1. Tests involving control systems with specific performance expectations assumed in the power uprate transient analyses and specific performance expectations for operational considerations,

2. Tests affected by power uprate,

3. Tests required based on engineering judgement, and

4. Performance monitoring of equipment impacted by power uprate.

In general, most of these tests can be satisfied by completion of existing surveillance or functional tests, performance of instrumentation calibration and equipment setup, evaluation of the results of post modification testing, or through steady state data collection as part of normal system monitoring.

Transient Testing

As applied to the PUP and allowed by the SAR, system transient and control system dynamic response testing to demonstrate acceptable system performance was performed during the Unit's startup from their last outage as part of post modification testing. Post modification test data was reviewed to assure compliance with the acceptance criteria for power ascension testing for uprate affected equipment. Required post-modification power ascension tests for PUP modifications were successfully completed as part of the Unit startup from the last refueling outage. Similar testing for Unit 2 modifications was performed as part of the startup from L2R08.

Comparison of Power Uprate Tests to FSAR Power Ascension Tests

As required by the SAR, the following Table addresses each of the initial power ascension tests and their applicability to the LaSalle Uprate Power Ascension Test Program. Tests identified with a yes were incorporated in the LaSalle Uprate Test program unless credit was taken for another activity (i.e., surveillance test), that satisfies the requirement.

Results of FSAR Initial Startup Testing Evaluation For Inclusion In The Uprate Power Ascension Test Program

Test No.	Power Ascension Test Description	Required In Uprate Test Procedure(1)	Acceptance Criteria Same as FSAR
101	Chemical and Radiochemical	Yes (2)	Yes
102	Radiation Measurements	Yes	Yes
103	Fuel Loading	No	NA
104	Full Core Shutdown Margin	No	NA
105	Control Rod Drive System	No	NA
106	SRM Performance and Control Rod Sequence	No	NA
107	Water Level Measurements	No	NA
108	Intermediate Range Monitor Performance	No	NA
109	Local Power Range Monitor Calibration	No	NA
110	Average Power Range Monitor Calibration	Yes	Yes
111	Process Computer	Yes	Yes
112	Reactor Core Isolation Cooling System	No	NA
113	Selected Process Temperatures	Yes	Yes
114	System Expansion	No	NA
115	Core Power Distribution	Yes	Yes
116	Core Performance	Yes	Yes
117	Steam Production	Yes	Yes
118	Core Power-Void Mode Response	No	NA
119	Pressure Regulator	Yes (3)	Yes
120	Feedwater Control System	Yes (3)	Yes
121	Turbine Valve Surveillance	Yes	Yes
122	Main Steam Isolation Valves	No	NA
123	Relief Valves	No	NA
124	TSV Trips and Generator Load Rejections	No	NA
125	Shutdown From Outside The Control Room	No	NA
126	Recirculation Flow Control System	No	NA
127	Recirculation System	No	NA
128	Loss Of Turbine Generator and Offsite Power	No	NA
129	Deleted	NA	NA
130	Vibration Measurements	No	NA
131	Deleted	NA	NA
132	Recirculation System Flow Calibrations	No	NA
133	Reactor Water Cleanup System	No	NA
134	Residual Heat Removal System	No	NA
135	Control Rod Sequence Exchange	No	NA
136	Drywell Piping Vibrations	No	NA
137	Off-Gas System	No	NA

Notes (1) From Task Report 1005, Startup Test Recommendations, Testing Required
(2) Credit Taken for Surveillance Monitoring Program
(3) Credit Taken for post modification testing