14.3 POWER UPRATE TEST PROGRAM

START HISTORICAL

14.3.1 Summary of Power Uprate Test Program and Objectives

Following the power uprate implementation refueling and inspection outage, the plant was returned to power operations culminating with operation at a new 100% power level of 3441 MWt. Our approach to this new uprated 100% power level was conducted with at least the same considerations for tests and administrative controls that were used during the Initial Test Program's Startup Test Program.

The Power Uprate Test Program encompassed the scope of events commencing with the verification of the newly configured reactor core and terminating with the completion of the Final Test Program Review. Formal tests, denoted as Power Uprate Tests, were conducted during this program. The objective of these tests was to demonstrate that the plant could operate safely at uprated power conditions and that the systems responded as expected.

Existing plant programs and procedures were used to the extent practical in order to maximize benefits associated with the existing programs. Supplemental administrative controls required for implementation and control of the testing and power ascension were provided through a new administrative procedure.

14.3.2 Organization and Staffing

The existing organizational structure as described in Chapter 13 was used to prepare for and implement the Power Uprate Test Program. Complementary organizational enhancements were established for implementation and control of the testing and power ascension. Among these organizations were the Test Review Committee and the Power Uprate Project Test Group.

14.3.2.1 Test Review Committee

The Test Review Committee (TRC) was a temporary subcommittee of the Plant Operations Review Committee (PORC) established specifically for the Power Uprate Test Program. All TRC members were PP&L employees from the Nuclear Engineering and Nuclear Operations organizations. The TRC assisted PORC in fulfilling the following responsibilities for implementing the Power Uprate Test Program:

Reviewing Test Exception Report Resolutions and Subsequent Actions and recommending approval.

Reviewing the total test program, recommending approval of Test Plateau Reviews and the Final Test Program Review, and recommending the escalation of Test Plateaus.

14.3.2.2 Power Uprate Project Test Group

The Power Uprate Project Test Group was a temporary matrix organization established specifically for implementing the Power Uprate Test Program. The group consisted primarily of the Power Uprate Test Program Director and the Shift Test Coordinators. The Shift Test Coordinators coordinated on-shift Power Uprate Test Program related activities; whereas, the Power Uprate Test Program Director coordinated off-shift Power Uprate Test Program related activities.

14.3.3 Test Procedures

The term "Power Uprate Test" is a generic term used to describe all test procedures used for demonstrating that the Acceptance Criteria specified in section 14.3.7 were satisfied during the Power Uprate Test Program. Section 14.3.7 used a test numbering scheme and test titles consistent with FSAR section 14.2. Table 14.3-1 lists those test numbers and titles. Tests with a test number greater than 40 were written specifically for the Power Uprate Test Program and were not necessarily conducted during the Initial Test Program. In order to demonstrate that all Acceptance Criteria specified in section 14.3.7 were satisfied during the Power Uprate Test Program, one or more Power Uprate Tests were conducted for each test listed in Table 14.3-1.

All Power Uprate Tests were prepared, reviewed and approved in accordance with existing plant programs. The Power Uprate Test Program Director was responsible for ensuring that all Acceptance Criteria were properly incorporated into the Power Uprate Tests.

14.3.4 Conduct of Test Program

The administrative controls that governed conduct during the Power Uprate Test Program were specified by administrative procedures. These administrative procedures were PP&L controlled and approved documents that defined tasks to be performed, prescribed methods, and assigned responsibilities for performing them.

Most of the administrative controls necessary for the conduct of the Power Uprate Test Program were already delineated in existing procedures. The complementary administrative controls established for implementation and control of the testing and power ascension are described below.

14.3.4.1 Test Performance

Power Uprate testing performed during the Power Uprate Test Program was in accordance with approved Power Uprate Tests. Preparation, review and approval of

test procedures was in accordance with established plant administrative programs. The test director for each Power Uprate Test was assigned by the group responsible for normally performing the test outside of the Power Uprate Test Program. The Test Director met or exceeded the qualifications for performing the test as established by the responsible group. An additional responsibility of the test director for Power Uprate Testing was the documenting and reporting of test exceptions using the form and methods established specifically for the Power Uprate Test Program, and the completion of a Power Uprate Test Results Summary for each Power Uprate Test conducted.

Implementation of each test as defined in Table 14.3-1 was assigned to one or more Test Conditions. Each Test Condition is defined in Table 14 .3-2. Table 14.3-1 lists all of the tests and each Test Condition for which each test is assigned.

Test exceptions occurred whenever test results failed to satisfy an Acceptance Criterion or when a step could not be satisfactorily completed. All test exceptions were documented on a Test Exception Report form.

An Acceptance Criterion was designated either as a Level 1 or Level 2. A Level 1 criterion normally related to the value of a process variable assigned in the design of the plant, component systems or associated equipment. If a Level 1 criterion was not satisfied, the plant was be placed in a suitable hold condition until resolution was obtained. Tests compatible with this hold condition could have been continued. Following resolution, applicable tests were required to be repeated to verify that the requirements of the Level 1 criterion were satisfied. A Level 2 criterion was associated with expectations relating to the performance of systems. If a Level 2 criterion was not satisfied, operating and testing plans would not necessarily be altered. As part of the resolution, an investigation of how the data was obtained and/or the basis for the development of the Level 2 Acceptance Criterion was normally considered.

14.3.4.2 Test Prerequisites

Specific test prerequisites were identified in each Power Uprate Test as applicable. The test director verified that each prerequisite was completed and properly documented prior to signoff in the procedure. Failure to satisfy a prerequisite was remedied in accordance with established plant procedures.

14.3.4.3 Procedure Modifications

Power Uprate Tests were conducted in accordance with approved procedures. If necessary, these procedures were modified to complete testing. Such procedure modifications were documented and processed in accordance with established plant procedures.

14.3.4.4 Design Problems

In the process of Power Uprate Testing, design problems may be encountered. Where such design problems were encountered, formal documentation and processing in accordance with established plant procedures were accomplished.

14.3.4.5 Control or Rework, Modifications, and Repairs

All additional work items identified during Power Uprate Testing were formally documented and processed in accordance with established plant procedures.

14.3.4.6 Test Phase Prerequisites

There were no Test Phases associated with the Power Uprate Test Program as there was during the Initial Test Program. However, like the Initial Test Program's Startup Test Program, Power Uprate Testing was conducted in distinct and sequential Test Plateaus. These Test Plateaus encompassed one or more Test Conditions as defined in Table 14.3-2.

Completion of each Test Plateau was a prerequisite to starting the succeeding Test Plateau. Table 14.3-1 combined with Table 14.3-2 identifies the specific testing scheduled to be conducted during each of the Test Plateaus. A Test Plateau was considered complete only after the Test Plateau Review was approved.

14.3.5 Review, Evaluation, and Approval of Test Results

PP&L had overall responsibility for review, evaluation, and approval of test results. The following sections establish the requirements for review, evaluation, and approval of individual test results, major test phase test results, and test plateau test results.

14.3.5.1 Individual Test Results

Review of individual Power Uprate Test results was formally documented and processed in accordance with established plant procedures.

Power Uprate Test Results Summaries were reviewed by the Power Uprate Test Program Director or Shift Test Coordinator, and the Test Review Committee.

Test Exception Reports were processed either independent or in conjunction with Power Uprate Test Results Summaries. Test Exception Report resolutions were recommended for approval by the TRC and PORC and approved by the Vice President - Nuclear Operations. Subsequent actions to resolve the test exception, if required by the resolution, were documented on the Test Exception Report form.

Subsequent Actions were also recommended for approval by the TRC and PORC and approved by the Vice President - Nuclear Operations

14.3.5.2 Major Test Phases - Test Results

There were no Test Phases associated with the Power Uprate Test Program as there was during the Initial Test Program.

14.3.5.3 Power Ascension Testing - Test Results

Power Ascension Testing as used in this section is defined as all testing performed in Test Conditions B, C, D and E as well as that testing performed in Test Condition A which started after closure of the generator synchronization breaker.

Testing during Power Uprate was sequenced in four distinct test plateaus. Prior to proceeding from one test plateau to the next, a Test Plateau Review was approved and the TRC and PORC recommend power escalation to the next Test Plateau.

The following items were completed in order to approve the Test Plateau Review:

The performance of all Power Uprate Tests scheduled for the current Test Plateau were completed, or Test Exception Reports were written to document and resolve exceptions.

Power Uprate Test Results Summaries for all Power Uprate Tests completed during the current Test Plateau were reviewed, or Test Exception Reports were written to document and resolve exceptions

All Test Exception Reports written against all Power Uprate Tests scheduled for the current Test Plateau were resolved.

Following completion of Test Plateau E, a Final Test Program Review was conducted. The following items were completed in order to approve the Final Test Program Review:

The performance of all Power Uprate Tests scheduled for the Power Uprate Test Program were completed, or Test Exception Reports were written to document and resolve exceptions.

Power Uprate Test Results Summaries for all Power Uprate Tests completed during the Power Uprate Test Program were reviewed, or Test Exception Reports were written to document and resolve exceptions.

All Test Exception Reports written against all Power Uprate Tests scheduled for the Power Uprate Test Program were closed.

14.3.6 Test Records

Test records were formally documented and processed in accordance with established plant procedures.

14.3.7 Individual Test Descriptions

The individual tests for the Power Uprate Test Program are listed in Table 14.3-1. Descriptions of these tests are listed in the following sections in numerical order. These descriptions identify each test by title and number, provide an abstract of the test objectives and/or a summary description of the test method, and establish the test acceptance criteria.

14.3.7.1 Chemistry Tests

Test 1 - Chemical and Radiochemical
Test 37 - Gaseous Radwaste System

Abstract:

Descriptions of tests 1 and 37 are combined in this chapter since both tests verify that plant effluents met Technical Specification requirements.

Test 1 secured information on the chemistry of the reactor coolant at uprate conditions and ensured that reactor coolant Acceptance Criteria were satisfied.

Test 37 secured information on offgas system effluents and demonstrated that gaseous and particulate effluents satisfied Acceptance Criteria.

Level 1 Criteria:

(a) Chemical factors defined in the Technical Specifications must be maintained within the limits specified.

(b) The release of radioactive gaseous and particulate effluents must not exceed the limits specified in the SSES Technical Specifications.

Level 2 Criteria:

None

14.3.7.2 Test 2 - Radiological

Abstract:

At the uprate power level, gamma dose rate measurements and, where appropriate, neutron dose rate measurements were made at predesignated locations to identify and assess the impact of the SSES uprate on actual plant area dose rates.

Level 1 Criteria:

(a) The radiation doses of plant origin and the occupancy times of personnel in radiation zones shall be controlled consistent with the guidelines of The Standard for Protection Against Radiation as outlined in 10CFR20.

Level 2 Criteria:

(a) The radiation doses of plant origin shall meet the following limits depending upon the Radiation Zone in which the radiation measurement point is located:

Radiation Zone	Limit
I	0.5 mRem/hr
II	2.5 mRem/hr
III	15 mRem/hr
IV	100 mRem/hr

Note: All areas designated Radiation Zone V have potential radiation doses of 100 mRem/hr. Readings taken in Zone V during the Startup Test Program may be less than 100 mRem/hr; however, since Zone V is defined in terms of potential levels, there are no Acceptance Criteria for Zone V survey points.

14.3.7.3 Test 3 - Fuel Loading

Abstract:

The objective of this test was to achieve the full and proper core complement of nuclear fuel assemblies through a safe and efficient fuel loading evolution. Fuel loading was performed in accordance with plant procedures and the Fuel and Core Component Transfer Authorization Sheet (FACCTAS). The FACCTAS was prepared according to RE-0TP-042, FACCTAS Preparation Guideline for Refueling Outages.

Level 1 Criteria:

(a) The core must be verified to conform with the reference core design used in the various licensing analyses. The verifications to be performed include fuel bundle location, fuel bundle orientation, and proper seating of the fuel bundles within the core. Any discrepancies discovered in the loading will be promptly corrected and the affected bundles shall be reverified prior to unit startup.

Level 2 Criteria:

None

14.3.7.4 Test 4 - Full Core Shutdown Margin

Abstract:

The objective of this test was to assure at least the minimum required shutdown margin existed with the strongest worth control rod fully withdrawn, to calculate the actual shutdown margin of the core, and to demonstrate that no reactivity anomaly exists.

Level 1 Criteria:

(a) The reactor must remain subcritical with the highest worth control rod fully withdrawn and additional control rods withdrawn to greater than or equal to (.38% + R) Δ K/K notch position.

(b) The calculated Shutdown Margin with an immovable control rod at its stuck position and with the analytically highest worth rod at its full out position is equal to or greater than (.38% + R) Δ K/K.

(c) The calculated Shutdown Margin must be greater than or equal to 0.38% Δ K/K.

Level 2 Criteria:

(a) The difference between predicted and actual critical control rod positions must be less than 1% Δ K/K.

14.3.7.5 Test 5 - Control Rod Drive (CRD)

Abstract:

The objective of this test was to demonstrate that dynamic CRD friction was within acceptable limits prior to operating the reactor at uprated pressure conditions, and to demonstrate acceptable scram times at uprated reactor pressure.

Level 1 Criteria:

(a) The maximum scram insertion time of each control rod from the fully withdrawn position to notch position 5, based on de-energization of scram pilot valve solenoids as time zero, shall not exceed 7.0 seconds (T.S. 3.1.3.2)

(b) The average scram insertion time of all OPERABLE Rods from the fully withdrawn position, based on de-energization of the scram pilot valve solenoids as time zero, shall not exceed any of the following: (T.S. 3.1.3.3)

Position	Seconds
45	0.43
39	0.86
25	1.93
05	3.49

(c) The average scram insertion time from the fully withdrawn position for the three fastest control rods in each group of four control rods arranged in a two-by-two array based on de-energization of the scram pilot valve solenoids as time zero, shall not exceed any of the following: (T.S. 3.1.3.4)

Position	Seconds
45	0.45
39	0.92
25	2.05
05	3.70

Level 2 Criteria:

(a) For each control rod drive, either:

(1) drive piston differential pressure does not vary by more than 15 psi from position 48 to position 02; or,

(2) the settling pressure for all notches is greater than 30 psi.

(b) Each control rod drive's as-left stroke times shall be:

(1) 48 to 58 seconds for the withdraw stroke, and

(2) 39 to 49 seconds for the insert stroke.

14.3.7.6 Test 11 - LPRM Calibration

Abstract:

The LPRM channels were calibrated to make the LPRM readings proportional to the neutron flux in the LPRM water gap at the chamber elevation. Calibration factors were obtained through an off-line or a process computer calculation that related the LPRM reading to the average fuel assembly power at the chamber height.

Level 1 Criteria:

None

Level 2 Criteria:

None (Plant procedure RE-1TP(2TP)-012 requires that all LPRM Gain Adjustment Factors which are outside of the 0.95 to 1.05 range are evaluated and resolved by Reactor Engineering personnel)

14.3.7.7 Test 12 - APRM Calibration

Abstract:

The Average Power Range Monitor System (APRMs) was calibrated according to SR-178(278)-002 Weekly APRM Calibration.

Level 1 Criteria:

(a) APRM Channels must be calibrated to read actual core thermal power ± 2% of Rated Thermal Power.

Level 2 Criteria:

None

14.3.7.8 Test 14 - RCIC System

Abstract:

This test verified the proper operation of the Reactor Core Isolation Cooling (RCIC) System at uprated reactor operating pressure and provided baseline data for future surveillance testing.

Level 1 Criteria:

(a) Results of all inservice testing of ASME Code Class 1, 2 and 3 pumps and valves shall meet criteria specified in SO-150(250)-002.

(b) The RCIC pump develops a flow of greater than or equal to 600 gpm in the test flow path with a system head corresponding to reactor vessel operating pressure when steam is being supplied to the turbine at 920, + 140, - 0 psig. (from SO-150(250)-002)

(c) RCIC develops a flow of greater than or equal to 600 gpm in the test flow path when steam is supplied to the turbine at a pressure of 150, + 15, - 0 psig. (from SO-150(250)-005).

(d) The average RCIC pump discharge flow shall be equal to or greater than the 100% rated value within 30 seconds from automatic initiation at any reactor pressure between 150 psig and rated.

Level 2 Criteria:

(a) The transient start initial and subsequent speed peaks shall not exceed 105% of the rated RCIC turbine speed.

14.3.7.9 Test 15 - HPCI System

Abstract:

This test verified the proper operation of the High Pressure Core Injection (HPCI) System at the uprated reactor operating pressure and provided baseline data for future surveillance testing.

Level 1 Criteria:

(a) The HPCI pump develops a flow of at least 5,000 gpm against a test line pressure of $\geq$ 1140 psig when steam is being supplied to the turbine at 920, + 140, - 20 psig. (from SO-152(252)-002)

(b) Results of all inservice testing of ASME Code Class 1, 2 and 3 pumps and valves shall meet criteria specified in SO-152(252)-002 and SO-152(252)-005.

(c) Verify that the system develops a flow of at least 5000 gpm against a test line pressure of greater than or equal to 245 psig when steam is being supplied to the turbine at 150 ± 15 psig. (from SO-152(252)-005)

(d) HPCI System Response Time $\leq$ 29.5 sec. (from SO-152(252)-005)

Level 2 Criteria:

(a) The transient start initial peak shall not come closer than 15% (of rated turbine speed) of the overspeed trip, and subsequent speed peaks shall not exceed 105% of the rated HPCI turbine speed.

14.3.7.10 Test 18 - TIP Uncertainty

Abstract:

The purpose of this test was to check core symmetry by performing a statistical uncertainty analysis on the Traversing In-Core Probe (TIP) System. Also, by the performance of this test, the proper operation of the TIP system was assured.

Level 1 Criteria:

(a) The x^2 value calculated shall be less than 36.19 (as determined by Siemens). If the calculated x^2 value exceeds the critical value, the instrumentation and data processing system should be reviewed for any problems which may contribute to abnormal TIP asymmetries. A second determination of x^2 should then be made. If the new measured value of x^2 exceeds the critical value, Nuclear Fuels Engineering shall be consulted and appropriate action taken to assure that a larger than anticipated TIP asymmetry does not adversely affect the safe operation of the reactor.

Level 2 Criteria:

None

14.3.7.11 Test 19 - Thermal Limits Evaluation

Abstract:

The objective of this test was to evaluate core thermal power and demonstrate that safety thermal limits were maintained during the ascension to uprate conditions.

Level 1 Criteria:

(a) The core thermal limits CMPRAT, CMFLCPR, CMFDLRX and CMFDLRC are less than 1.0.

Level 2 Criteria:

None

14.3.7.12 Test 22 - Pressure Regulator

Abstract:

This test (a) confirmed the continued adequacy of the settings for the pressure control system by analysis of the transients induced in the reactor pressure control system by means of the pressure regulators; (b) demonstrated the backup capability of the pressure regulators through simulated failure of the controlling pressure regulator; and

(c) demonstrated that other effected parameters were within acceptable limits during pressure regulator induced transient maneuvers.

Level 1 Criteria:

(a) The transient response of any pressure control system related variable to any test input must not diverge.

Level 2 Criteria:

(a) Pressure control system related variables may contain oscillatory modes of response. In these cases, the decay ratio for each controlled mode of response must be less than or equal to 0.25. (This criterion does not apply to tests involving simulated failure of one regulator with the backup regulator taking over.)

(b) The pressure response time from initiation of pressure setpoint change to the turbine inlet pressure peak shall be ≤ 10 seconds.

(c) Pressure control system deadband, delay, etc., shall be small enough that steady state limit cycles (if any) produce steam flow variations no larger than ± 0.5% of rated steam flow.

(d) The peak neutron flux and/or peak vessel pressure shall remain below the scram settings by at least 7.5% and 10 psi respectively for all pressure regulator transients.

(e) The variation in incremental regulation (ratio of the maximum to the minimum value of the quantity "incremental change in pressure control signal/incremental change in steam flow" for each flow range) shall meet the following:

% of Steam Flow Obtained With Valves Wide Open	Variation
0 to 85%	≤ 4:1
85% to 97%	≤ 2:1
85% to 99%	≤ 5:1

(f) Turbine control valves 1, 2, and 3 shall be full open when the fourth valve is modulating system pressure for reactor power levels from about 95% to 100% of nuclear boiler rated.

(g) The design prediction of the total steam flow versus total turbine control valve position shall be monitored. The actual total control valve position shall not exceed the predicted value by more than 3% from zero to 80% turbine steam flow and by more than 1.5% from 80% to rated turbine steam flow.

14.3.7.13 Test 23 - Feedwater System

Abstract:

This test verified that the feedwater system was adjusted to provide acceptable reactor water level control and confirm the continued adequacy of the feedwater control system when operating on new load lines and over new flow ranges.

Level 1 Criteria:

(a) The transient response of any level control system related variable to any test input shall not diverge.

Level 2 Criteria:

(a) Level control system related variables may contain oscillatory modes of response. In these cases, the decay ratio for each controlled mode of response must be ≤ 0.25.

(b) At steady state generation in the three element mode, the input scaling to the mismatch gain shall be adjusted such that the level error due to biased mismatch gain output shall be within ± 1 inch per IC-045-006.

14.3.7.14 Test 24 - Turbine Valve Surveillance

Abstract:

The objective of this test was to demonstrate acceptable margins to scram at maximum power levels recommended for periodic Main Turbine Valve surveillance testing.

Level 1 Criteria:

None

Level 2 Criteria:

(a) 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.

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

14.3.7.15 Test 25 - Main Steam Isolation Valves

Abstract:

One of the objectives of Initial Startup Testing on the MSIVs was to demonstrate that licensing assumptions concerning the full isolation transient were conservative. Test results proved that the analysis tools were conservative. Since the increase in power level is small, a repeat of the test is not warranted.

Other objectives of Initial Startup Testing on the MSIVs were to demonstrate the proper operation of the MSIVs and to demonstrate the maximum power level at which full closure of a single MSIV surveillance testing can be performed without causing a scram. During the Power Uprate Test Program, testing was performed at the highest power level at which MSIV surveillance testing is normally performed to demonstrate adequate margin to scram for the uprated conditions.

Level 1 Criteria:

(a) MSIV closure times shall meet the requirements of SO-184(284)-003, "Quarterly Main Steam Isolation Exercising," thus satisfying the 3 to 5 second limit stroke times of Plant Technical Specifications.

Level 2 Criteria:

(a) During full closure of individual valves, peak vessel pressure must be 10 psi below scram, peak neutron flux must be 7.5% below scram and steam flow in individual lines must be 10% below the isolation trip setpoints. The peak heat flux must be 5% less than its scram setpoint.

14.3.7.16 Test 29 - Recirculation Flow Control System

Abstract:

This test demonstrated the flow control capability of the plant over the entire normal pump operating speed range and verified that all electrical compensators and controllers were set for desired system performance and stability. The new power-flow envelope included an increased maximum core flow. This test verified the ability of the recirculation flow control system to continue to provide adequate performance.

Level 1 Criteria:

(a) The transient response of any recirculation system related variable to any test input must not diverge.

Level 2 Criteria:

(a) A scram shall not occur due to recirculation flow control maneuvers. The APRM neutron flux trip avoidance margin shall be ≥ 7.5% and the heat flux trip avoidance margin shall be ≥ 5% when the power maneuver effects are extrapolated to those that would occur along the 100% rated rod line.

(b) The decay ratio of any oscillatory controlled variable must be ≤ 0.25.

(c) Steady state limit cycles (if any) shall not produce turbine steam flow variations greater than ± 0.5% of rated steam flow.

14.3.7.17 Test 32 - Containment Atmosphere Cooling

Abstract:

The objective of this test was to verify the ability of the drywell cooling system to maintain the drywell within technical specification limits. There were no changes made for power uprate which affected the airflow distribution within the drywell; therefore, a repeat of the original Containment Atmosphere and Steam Tunnel Cooling Test was not warranted.

Level 1 Criteria:

(a) The drywell average air temperature shall not exceed 135EF per Technical Specification 3.6.1.7.

Level 2 Criteria:

None

14.3.7.18 Test 35 - Recirculation System Flow Calibration

Abstract:

This test performed a complete calibration of the installed recirculation system flow instrumentation and included specific signals to the plant process computer.

Level 1 Criteria:

None

Level 2 Criteria:

(a) The difference between Indicated Jet Pump Loop Flows and Calculated Jet Pump Loop Flows shall not be greater than 2%.

(b) The difference between calculated Calibrated Jet Pump Loop Flows and indicated total Core Flow shall not be greater than 3%.

(c) The difference between Indicated Total Core Flow and Calculated Total Core Flow shall not be greater than 1%.

14.3.7.19 Test 37 - Gaseous Radwaste System

Refer to section 14.3.7.1 for discussion of this test.

14.3.7.20 Test 42 - I&C Surveillance

Abstract:

I&C Surveillance testing was performed on each Technical Specification related instrument that was recalibrated due to power uprate.

14.3.7.21 Test 43 - Steady State Data Collection

Abstract:

Steady state data of important plant parameters were taken at 90%, 95.7% (old 100% power), 98% and 100% uprated power. Following data collection at 95.7% and 98% power, extrapolations were made to 98% and 100%, respectively. Data taken at 98% and 100% was compared to the appropriate extrapolated values. Data points taken included all core performance parameters, core thermal power, control valve positions, turbine inlet pressure, reactor pressure, condenser pressure, circulating water temperature, feedwater heater pressures, feedwater temperatures and generator output.

Level 1 Criteria:

None

Level 2 Criteria:

(a) Actual values taken at 98% and 100% power shall be within 2% of extrapolated values.

14.3.7.22 Test 45 - Main Steam High Flow

Abstract:

The technical specification setpoint for main steam line high flow was verified at uprate conditions.

14.3.7.23 Test 46 - Main Steam Line High Tunnel Temperature

Abstract:

The technical specification setpoints for reactor and turbine building main steam line tunnel high temperature and reactor building main steam line tunnel high delta temperature were verified at uprate conditions.

14.3.7.24 Test 47 - Recirculation Single Loop Operation

Abstract:

Data was taken during single loop operation at a power level consistent with core stability to confirm single loop operation Technical Specification limits.

14.3.7.25 Test 48 - Loose Parts Monitor

Abstract:

Data was taken with the loose parts monitoring system after power and core flow was increased to uprated conditions. This data established an uprate power operating baseline.

14.3.7.26 Test 49 - Main Steam Line Radiation Monitor

Abstract:

The setpoint of the main steam line radiation monitor was adjusted as necessary after power was increased to the uprated 100% power level.

14.3.7.27 Test 50 - Core Spray Leak Detection

Abstract:

The alarm setpoint of the core spray leak detection instruments PDIS-E21-1 (2) N004A/B was verified as adequate by comparing the reading of these instruments at the old 100% core flow conditions with their reading at the uprate conditions with increased core flow.

14.3.7.28 Test 61- Unit 1 Reactor Recirculation Hydraulic Response Test

Abstract:

The new power-flow envelope included an increased maximum core flow. The higher recirculation system pump speeds produced vane passing pulses in a frequency range which the Units had not previously experienced. This test verified that any increased levels of vibration would not result in unacceptable pipe stresses and valve accelerations. Containment and piping vibration along with reactor building noise was monitored during the initial increase in core flow from the existing limit of 100 Mlb/Hr to the new limit of 108 Mlb/Hr.

Level 1 Criteria:

None

Level 2 Criteria:

(a) The following special pipe vibration monitoring locations specified by DCP 95-9002 shall be less than the following acceleration values:

Location 1:	LOOP “A”	HORIZONTAL (X)	15 g’s
Location 2:	LOOP “A”	VERTICAL (Y)	6 g’s
Location 3:	LOOP “A/B”	HORIZONTAL (X)	3 g’s
Location 3:	LOOP “A/B”	Axial (Z)	2.25 g’s
Location 4:	LOOP “A/B”	VERTICAL (Y)	10 g’s
Location 4:	LOOP “A”	HORIZONTAL (X)	5 g’s
Location 4:	LOOP “A/B”	Axial (Z)	5 g’s
Location 5:	LOOP “A”	VERTICAL (Y)	15 g’s
Location 6:	LOOP “A”	HORIZONTAL (X)	9 g’s
Location 7:	LOOP “A”	HORIZONTAL (X)	8 g’s
Location 8:	LOOP “A”	VERTICAL (Y)	6 g’s

END HISTORICAL

TABLE 14.3-1

POWER UPRATE TEST PROCEDURES

TEST NUMBER	TEST NAME	TEST CONDITIONS				
		A	B	C	D	E
1	Chemical and Radiochemical			X		X
2	Radiation Measurements			X	X	X
3	Fuel Loading	X				
4	Full Core Shutdown Margin	X				
5	Control Rod Drive	X				
11	LPRM Calibration	X		X		X
12	APRM Calibration	X	X	X	X	X
14	RCIC	X				X
15	HPCI	X				X
18	TIP Uncertainty					X
19	Core Performance		X	X	X	X
22	Pressure Regulator	X	X	X	X	X
23	Feedwater	X		X	X	
24	Turbine Valve Surveillance	X		X	X	
25	Main Steam Isolation Valves	X				
29	Recirculation Flow Control	X	X	X	X	X
32	Containment Atm & Steam Tunnel Cooling			X		X
35	Recirc System Flow Calibration		X	X		X
37	Gaseous Radwaste					X
42	I&C Surveillances	X				
43	Steady State Data Collection		X	X	X	X
45	Main Steam Line High Flow					X
46	Main Steam Line High Tunnel Temp					X
47	Recirc Single Loop Operation					X
48	Loose Parts Monitor			X		X
49	Main Steam Line Rad Monitor					X
50	Core Spray Leak Detection			X		X
61	Unit 1 Reactor Recirc Hydraulic Response Test				X	X

TABLE 14.3-2

TEST PLATEAU AND TEST CONDITION DEFINITION

TEST PLATEAU	TEST CONDITION	UPRATE POWER LEVEL[2]	CORE FLOW
A/B	A	<90%	Note 3
A/B	B	89-90%	Note 3
C	C[1]	95-96%	Note 3
D	D	97-98%	Note 3
E	E	99-100%	Note 3

Notes: All testing is assigned to a specific Test Condition for convenience even though some testing is performed at power levels lower than the bounds of the assigned Test Condition. A Test Condition also includes testing on the startup path to the defined power level.

1. The old 100% power level (3293 MWt) is in this test condition at ≈ 95.7% power.
2. 100% uprate power level = 3441 MWt.
3. Any flow within the safe operating region of the Power/Flow Map that will produce the required power level.