

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-388/84-31

Docket No. 50-388

License No. MPF-22 Priority -- Category C

Licensee: Pennsylvania Power and Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Facility Name: Susquehanna Steam Electric Station, Unit 2

Inspection At: Salem Township, Pennsylvania

Inspection Conducted: July 18-20, July 24-26, August 6-9, 1984

Inspectors: D. J. Florek 8/29/84
D. J. Florek, Reactor Engineer date
S. Kucharski 9/10/84
S. Kucharski, Reactor Engineer date
Approved by: L. H. Bettenhausen 9/9/84
L. H. Bettenhausen, Chief, date
Test Programs Section

Inspection Summary: Inspection on July 18-20, 24-26, August 6-9, 1984 (Report No. 50-388/84-31)

Areas Inspected: Routine unannounced inspection of Unit 2 Startup Test Program during test condition TC-2. Inspection included startup test procedure review, witnessing the conduct of the safety relief valve tests and the test of turbine generator trip with loss of offsite power, startup test results evaluation and power level plateau data review. The inspection involved 83 hours onsite and two hours in office by two region based inspectors.

Results: Within the scope of this inspection, no items of non compliance were identified.

DETAILS

1. Persons Contacted

Pennsylvania Power and Light Company

J. Blakeslee, Senior Results Engineer
R. Byram, Technical Supervisor
*T. Clymer, NQA Coordinator
J. Doxey, Reactor Engineering Supervisor
T. Iorfida, Plant Engineering Supervisor
H. Keiser, Plant Superintendent
K. Klucar, Lead Shift Test Engineer
R. Kreider, QA Engineer
C. McClain, PORC Secretary
T. Nork, Startup Coordinator
L. O'Neil, Maintenance Supervisor
M. Sager, Nuclear Plant Engineer
*R. Sheranko, Startup Test Group Supervisor
C. Smith, Power Production Engineer Nuclear
*D. Thompson, Assistant Plant Superintendent
*J. Todd, Compliance Engineer
J. Zentz, Startup Test Engineer

General Electric Corporation

T. Czubakowski, Lead Startup Test Engineer
K. Mertes, Operations Manager

Bechtel Power Corporation

P. McDaniel, Engineer

U. S. Nuclear Regulatory Commission

*R. Jacobs, Senior Resident Inspector
*L. Plisco, Resident Inspector

The inspector also contacted several other licensing employees including members of the technical and engineering staffs, shift supervisors, unit supervisors, reactor and auxiliary operators.

*Denotes those present at exit meeting on August 9, 1984

2. Licensee Action on Previous Inspection Items

(Closed) Unresolved Item (388/84-01-06) Licensee to provide analysis to support safe conduct of loss of offsite power startup test. The inspector reviewed memorandum EE-591 dated July 11, 1984 regarding loss of offsite power to Unit 1 concurrent with performance of ST-31.1. The inspector

also verified by review of ST-31.1 Revision 3 that step 31.1.3.10 implemented the precautions identified in the memorandum. The inspector had no further questions. This item is closed.

(Closed) Inspector Follow-up Item (388/84-07-03) Revise ST-99.5 to include startup test ST-33.3. The inspector reviewed STCN-111 which added ST-33.3 to ST-99.5. STCN-111 was approved in accordance with the administrative procedures on August 6, 1984. The inspector had no further questions. This item is closed.

3.0 Startup Test Program

References

- SSES Final Safety Analysis Report
- SSES Safety Evaluation Report and Supplements 1, 2, 3, 4 and 5
- Regulatory Guide 1.68 Initial Test Programs for Water Cooled Reactor Power Plants
- SSES Startup Test Schedule
- AD-TY-460 Startup Test Administrative Procedure

3.1 Startup Test Procedure Review

The inspector reviewed procedure ST-31.1 "Loss of Turbine-Generator and Offsite Power" Revision 3 dated July 24, 1984 to verify: procedure format; acceptance criteria include automatic transfer of plant loads, all safety systems function without manual assistance, and normal core temperatures are maintained without actuation of ADS; precautions include test conditions not exceeding turbine overspeed conditions; crew assignments for manual recovery and recovery procedures are reviewed and available; initial conditions are reactor power greater than 10%; test conditions include data recording on high speed equipment; trip of the plant to assure loss of output from generator and incoming circuits; restoration of plant to normal and verification of adequate plant response.

Findings

The inspector's review of the procedure and discussions with the Startup Test Group Supervisor regarding the procedure and previous NRC questions were found to be acceptable. The inspector independently verified using revision 14 of drawing E-1 that the breaker lineup per the startup test would result in the Unit 2 ESS loads only being supplied by the diesel generators without assistance from the Unit 1 supply. The inspector had no further questions.

3.2 Startup Test Witnessing

Scope

The inspector witnessed portions of three startup tests:

- ST-26.2 "Safety Relief Valve Rated Pressure Test"
- ST-31.1 "Loss of Turbine Generator with Loss of Offsite Power" (two attempts)

Inspection report 50-388/84-21 Section 2.5 describes the scope of the test witnessing inspections.

Findings

ST-26.2

ST-26.2 was conducted on July 25, 1984. The test began at approximately 10:15 A.M. and was completed at approximately 11:45 A.M. The inspector verified that an official test copy was maintained for the test. Minimum crew requirements were met both for the operating staff and startup test engineers. A sampling indicated that test prerequisites were satisfied. The inspector observed that the startup test engineer briefed the operating staff and other startup test personnel prior to the conduct of the test. Communications were established between test personnel. Data was quickly assessed. Data was collected per procedure.

The inspector observed use of the results of Unit 1 as an aid in performance of this startup test. The inspector observed the lifting of the 16 safety relief valves and repeat of SRV M to obtain all the test data. The inspector observed that Operations Quality Assurance was performing a surveillance during the conduct of ST-26.2.

On several SRV lifts, the inspector observed electrical generator output reduction during the opening of the relief valve and an increase in the generator output following closure of the relief valve. The inspector also observed on several SRV lifts an increase in SRV tail pipe temperature following the opening of the valve. The inspector monitored the reduction in tailpipe temperature after valve closure. These are identified in table 3.2-1. The inspector observed that SRV G and S did not meet the level 2 acceptance criteria to return to within 10°F of the initial tail pipe temperature following the SRV lift. ST-31.1 was conducted at 0137 on July 26, 1984 and required a reactor scram which precluded any additional data taking on tail pipe temperature.

Table 3.2-1

SRV	Initial Temperature	Observed Peak Temp 1015-1145 hrs	Temp 1330 hrs	Temp 1635 hrs	Temp 2100 hrs	Temp 0020 hrs
A	123	-	185	130	120	115
B	120	-	195	145	130	125
C	141	329	205	165	150	145
D	115	339	175	130	125	120
E	174	-	205	185	185	180
F	125	-	205	160	135	130
G	155	349	210	205	205	200
H	103	341	145	115	105	105
J	143	-	210	170	150	150
K	125	300	205	140	125	120
L	105	341	135	110	110	105
M	140	340	207	170	150	145
N	112	336	175	130	120	115
P	207	345	210	205	205	205
R	115	329	200	145	125	120
S	147	345	230	205	175	165

The licensee prepared a test exception on this data. The inspector will review the test exception closeout in a subsequent inspection. The inspector also observed that the licensee was utilizing the results of this test to calibrate the acoustic monitoring devices on the SRV. The inspector had no further questions.

ST-31.1

The inspector in conjunction with the two resident inspectors witnessed the startup test loss of turbine generator with loss of off-site power. The test was performed twice. The first attempt on July 26, 1984 resulted in all four diesel generators failing to start because of improper breaker rackout on all four ESS busses. This event resulted in an exhaustive special inspection and is reported in inspection report 50-388/84-34. The second test was performed on August 7, 1984. Two region based inspectors and the two resident inspectors witnessed the conduct of the second test.

The inspector verified that an official test copy was maintained for each test, Revision 3 for the first test and Revision 4 for the second test. The licensee had an extra shift of operators and startup engineers for performance of the tests by carrying over the afternoon shift to assist the night shift in performance of the test. The inspector witnessed portions of the initial breaker lineups during the conduct of the first test and observed that breakers were placed in the proper position. In the first test, the breakers from the Unit 1 supply to the four Unit 2 ESS busses were racked out incorrectly by a single operator. The DC power to the bus logic circuitry was disabled rather than the DC power to the specific breaker.

This activity was not witnessed by the inspector. This resulted in all four diesel generators failing to start and once manually started failed to automatically load onto the bus. In the second test the inspectors witnessed separate operators and independent verifiers rack out these breakers satisfactorily. The inspector witnessed shift briefings just prior to conduct of the test and noted by interviews and review of startup logs that several other briefings were conducted prior to the test being conducted. The inspector observed communication was established between control room and personnel stationed out in the plant. The operator and plant response to the first event on July 26, 1984, is described in inspection report 50-388/84-34.

The second event is described in the following discussion. Four inspectors witnessed the test performed on August 7, 1984 conducted at 5:03 A.M. One resident inspector was near the diesel/RCIC panel area, one resident inspector was in the Technical Support Center, one region based inspector was near the reactor and standby information panel and one region based inspector was located in one of the diesel generator bays. The observations of the resident inspectors will be contained in their monthly inspection report. The inspector observed the tripping of the generator output breaker, reactor scram and isolation of the startup transformer. The inspector observed the startup of the D diesel generator and verified it reached load within 10 seconds. The inspector also observed the operation of the three other diesel generators and identified no problems with their operation.

The inspector witnessed the OD-7 control rod display attempt following the scram and just prior to diesel generators picking up load. The operator was not able to get an OD-7 during this time period but obtained one at 0504:13 with all rods in at zero except rod 19-18 which indicated 99 and rod 14-59 which had an indeterminate 3. Following diesel generator operation the inspector observed instrumentation on the standby instrumentation panel was powered and provided information to the operator.

The inspector observed that SRV E lifted six times and reseated by observation of the acoustic monitor. The SRV was observed to lift at 0509, 0513, 0518, 0522, 0527 and 0532. Following the thirty minute test duration wherein no manual action was to be taken, RCIC was started at 0535 and SRV E lifted at 0542. The initial suppression pool temperature was 83.4°F and at 0547 was at 90°F.

The inspector observed that all level I acceptance criteria were satisfied during the test.

3.3 Test Results Evaluation

Scope

The 36 test results in Appendix A were reviewed. Inspection report 50-388/84-21, Section 2.6, describes the scope of the test results evaluations inspection.

Findings

Except as noted below each test and change therein was approved in accordance with the administrative procedures; test objectives were met; test exceptions were noted and resolved by management; all data was obtained; test steps and data sheets were properly signed; an independent evaluation of test data was performed; test results were compared with acceptance criteria; there was a documented review and acceptance of test results; QA reviewed the test results; test results were approved and test briefings were conducted prior to each test. A summary of each ST is provided below.

- ST-1.7 - All acceptance criteria were satisfied with no test exception.
- ST-5.1 - Fourteen rods required repair and were retested satisfactorily.

One test exception (TER-56) was written on rod 30-07 because position 48 would not indicate on RPIS. The rod was timed from position 46 and extrapolated to position 48 and met acceptance criteria.

- ST-5.2 - Acceptance criteria were met. The measured delta pressure was 45 psid and the acceptance criterion was 90 psid.
- ST-10.2 - All acceptance criteria were satisfied with no test exceptions.

IRM Readings at Overlap

A	26
B	13
C	36
D	21
E	25
F	33
G	18
H	26

APRM Readings at Overlap

A	7
B	6
C	6
D	6
E	6
F	7

- ST-11.3 - Gain adjust factors fell within the level 2 criteria. One test exception (TER-83) was written because 4 LPRM's (32-17C, 8-33A, 48, 41C and 32-49C) were bypassed during the test. These LPRM's will be repaired and tested at a later plateau.

- ST-12.2 - All acceptance criteria were met with no test exceptions
APRM's were adjusted to read 39.89%.

APRM	INITIAL	FINAL
A	40	39.89
C	40	39.89
E	35	39.89
B	38	39.89
D	36	39.89
F	40	39.89

- ST-13.1 - Four level 2 test exceptions were identified. (TER 73, 74, 75 and 82)

TER-73 11 LPRM's deviated by more than 2 units from the LPRM drawer units and 3 LPRM's were bypassed. These would be repaired and retested at TC-3.

TER-74 OD-3 calculated power and indicated values did not agree within 2% due to recirculation pump perturbations. This would be reperformed following recirculation flow control adjustment at TC-3.

TER-75 Several steps could not be performed in sequence and were repeated at a later time in the procedure.

TER-82 P-2 at midnight did not automatically run and was requested manually.

The values of LHGR, CPR and APLHGR from the process computer and off line computer program BUCLE were compared. The values either occurred in the same location or, if in a different location, the values in the same location were in accord with the acceptance criteria. The values are summarized here:

	P-1		BUCLE	
	Value	Location	Value	Location
LHGR	5.30	17-26-11	5.31	17-26-11
MCPR	2.723	25-26	2.746	43-34
APLHGR	4.59	41-26-12	4.59	17-28-12
MCPR	2.753	43-34		
APLHGR	4.58	17-28-12		

The values printed out in the P-1 displayed a rotational symmetry.

- ST-14.1 - This test was conducted following replacement of the governor to reduce the speed peaks identified as test exceptions on previous RCIC startup tests. This test was conducted twice. The first test required adjustment necessitating a second test.

In the second test RCIC achieved 600 gpm in approximately 14 seconds with no turbine trip. The turbine speed peaks were 3625 rpm for the first and 4520 rpm for the second. A test exception TER-96 was written on the pressure sensor setpoints. Pressure setpoints derived from tests for the RCIC line break isolation were less conservative than allowed by technical specification Table 3.3.2-2 item 5d. The footnote in the table indicates that the final setpoint is to be determined during the startup test and any change shall be submitted within 90 days of test completion. This test exception has occurred previously on other RCIC startup tests.

- ST-14.2 - This test was rerun following replacement of the governor to resolve previous test exceptions on speed peaks during RCIC startup tests. RCIC achieved 600 gpm in approximately 15 seconds with reactor at 40% power and 933 psig. The speed peaks met acceptance criteria 3860 rpm for the first and 4480 rpm for the second. Test exception (TER-97) was written on the pressure sensors response and was the same problem as seen on ST-14.1.
- ST-14.3 - Two cold quick starts to the vessel were performed. The response was essentially the same. RCIC achieved 600 GPM in approximately 15 seconds and did not trip. There were test exceptions on exceeding the level 2 speed peak criterion (TER-59, 78) and the pressure sensor response (see ST-14.1) (TER 60, 80). These tests will be repeated since the RCIC governor valve has been replaced.
- ST-15.1 - Acceptance criteria were met with no test exceptions. HPCI reached rated flow in approximately 15 seconds. The calculated NPSH was 45.18 ft. The reactor was at 160 psig for this test.
- ST-17.4 - All level I criteria were satisfied. Three level 2 test exceptions were identified (TER-65, 67, 68). The resolution of the test exceptions was accepted by licensee management.
- ST-17.7 - All level 1 acceptance criteria were met. Two level 2 acceptance criteria (TER-8790) regarding 47 hangers not in operating range and 4 points not judged acceptable in field.
- ST-19.1 - All acceptance criteria were satisfied

Core Thermal Power	39.9%
CMFLCP	.556
CMFLPD	.385
FMPF	2.342
Reactor Pressure	945.7 psig
DHS	34.63
WT	45.57 X10 ⁶ lbs/hr

Control rod positions input into BUCLE agreed with plant configuration. TIP machine No. 2 data input was reviewed and found to be acceptable.

- ST-22.1 - All acceptance criteria were met
- ST-22.2 - All acceptance criteria were met
- ST-22.3 - All acceptance criteria were met
- ST-23.2 - For the A pump there were two level 2 test exceptions (TER-66, 72); for the B pump there were two level 2 test exceptions (TER-71, 77); for the C pump there were two level 2 test exceptions (TER-69, 70). The licensee accepted the pump test exceptions following analysis of the test results.
- ST-23.3 - This test was conducted twice. Both tests met the acceptance criteria with no test exceptions.
- ST-26.2 - All SRV's met the test objective. All SRV's except G&S were within 10°F of the initial tailpipe temperature prior to conduct of ST-31.1. TER-99 was written. The average generator output reduction was 41.6 MWE with the minimum value of 37.2 and the maximum value of 51.7 MWE.
- ST-27.3 - All acceptance criteria were satisfied. The time delay from control valve closure to bypass valve opening was 0.05 seconds with the acceptance criteria being <0.1 seconds. The maximum water level was 40 inches. The reactor did not scram and reactor pressure increase was 6 psig.
- ST-29.1 - The A pump met all the level I acceptance criteria, there was no divergence of process parameters. One level 2 test exception (TER-79) was issued on the decay ratio of the response of the A pump. This will be resolved after tune up of the recirc pump during TC-3.

The B pump met all acceptance criteria with no test exceptions.

- ST-31.1 - The test was conducted twice. The first attempt on July 26, 1984 resulted in the diesel generators failing to start and was the subject of an NRC special investigation (50-388/84-31). The second test was performed on August 7, 1984. The licensee conducted a breaker lineup walkdown 2200 on August 5, 1984, shift briefing 2300 on August 5, 1984, shift supervisor and unit supervisor briefing 0000 on August 6, 1984, startup and test briefing 2100 on August 6, 1984 and the final briefing for all test personnel 0300 on August 7, 1984. All prerequisites were satisfied. The reactor was at 31.1% power SRV E lifted 8 to control pressure as read on GETRS from 1070-990 psig. The lowest reactor water level was -37 inches on the wide range.

The only manual action taken during the test was to bleed off the B loop RHR heat exchanger pressure when it reached 450 psig. All acceptance criteria were satisfied.

- ST-32.2 - All level I criteria were satisfied. Four level 2 test exceptions were noted (TER-61, 62, 63, 64). The drywell head area exceeded 135°F, the area inside the shield wall was less than 100°F, the CRD area under the vessel was less than 100°F and the test was terminated prior to the support shift flange temperature reaching steady state. The licensee has installed additional temperature monitoring devices and had developed procedures to operate specific sequence of fans and coolers to maintain temperature within technical specification limits. Upon obtaining additional data a permanent solution will be provided to the test exceptions.
- ST-33.1 - All acceptance criteria were met with no test exceptions.
- ST-33.2 - All acceptance criteria were met with no test exceptions.
- ST-39.1 - Two test exceptions were noted when the test was conducted in conjunction with ST-27.3. Several steps were not able to be completed and data was not available. With the subsequent running in conjunction with ST-31.1 all acceptance criteria were met with no test exceptions.
- ST-39.2 - All acceptance criteria were met with no test exceptions.

3.4 Power Level Plateau Data Review

The inspector witnessed conduct of the TRC and PORC committees during TC-2 and just prior to proceeding into TC-3. The inspector also utilized startup procedure logs to determine if all testing was completed and all test exceptions had been resolved by the licensee and that the review was conducted in accordance with the administrative procedures.

The inspector reviewed ST-99.4 "Test Plateau 2 Test Condition 2", revision 1 dated February 13, 1984.

Findings

The inspector witnessed portions of TRC Meetings:

84-23	July 24, 1984,
84-26	August 6, 1984,
84-27	August 8, 1984.

The inspector witnessed portions of PORC Meetings:

84-158	July 24, 1984,
84-171	August 6, 1984,
84-172	August 8, 1984.

TRC Meeting 84-23 recommended approval of test results for ST-33.2, 39.1, 22.1, 22.2, 22.3, 27.3 and 12.2 and test exceptions TER-61, 62, 63 and 64. The TRC meeting also reviewed and recommended approval of ST-31.1.

PORC Meeting 84-158 reviewed ST-31.1 Revision 3 for use to conduct ST-31.1. TRC Meeting 84-26 and PORC Meeting 84-171 reviewed ST-31.1 Revision 4 for use to conduct ST-31.1 (second attempt). TRC Meeting 84-27 and PORC Meeting 84-172 was convened to review the completed tests of TC-2 prior to escalating to TC-3. The licensee reviewed completed tests not previously reviewed and all open test exceptions. The licensee reviewed completed ST-S 26.2, 33.1, 31.0, 10.0, 35.0, 26.0, 15.1, 14.1, 14.2 and 99.4. Test exceptions reviewed were TER 86, 87, 89, 95, 96, 97, 98 and 99. The open test exceptions carried over into TC-3 include TER 1, 9, 22, 32, 44, 46, 51, 59, 61, 62, 63, 64, 65, 73, 74, 83, 88, 90, 98 and 99.

The licensee list of open test exceptions agreed with that developed by the inspector. Open test exceptions are those test exceptions that have a resolution but the actions to complete the resolution are not yet completed.

TRC and PORC meetings were held in accordance with their administrative program.

The inspector review indicated that all tests required to be completed in TC-2 were completed. The inspector also verified that all tests completed in TC-1 had received TRC and PORC review and management approval. No unacceptable conditions were noted.

3.5 Test Exception Resolution

The inspector reviewed the closeout response to the following exceptions: TER-42, 55, 56, 57, 58, 60, 66, 67, 68, 69, 70, 71, 72, 75, 76, 77, 78, 79, 80, 81, 82, 84, 86, 87, 89, 91, 92, 93, 94, 95, 96, 97 and the resolution of TER 59, 61, 62, 63, 64, 65, 73, 74, 83, 88, 90, 98, 99 to determine the adequacy of the response and to determine that they are in accordance with the administrative procedures.

Findings

No unacceptable conditions were noted. The open test exceptions and future test exceptions will be reviewed in subsequent inspection.

3.6 Overall Startup Program

Scope

The inspector reviewed the licensee planned startup testing in TC-2 and 3 to verify that it was consistent with the FSAR. The inspector also reviewed the licensee APRM scram setpoints to verify that they were set 20% above the limit for TC-2 testing. The inspector also reviewed ST-99.4 to verify QA had completed their review of completed startup tests.

Findings

The inspector verified that the planned and provisional tests in TC-2 and TC-3 are consistent with the FSAR. The inspector review of WA V-47318 confirmed that the APRM scram setpoints were set to 65% (20% above TC-2 limit) in accordance with Regulatory Guide 1.68. The inspector also verified that QA had reviewed the completed tests in TC-2. No unacceptable conditions were noted.

4.0 Post Scram Recovery Activities

Scope

The inspector reviewed the licensee response to reactor scrams that have occurred on June 13, 1984 and July 3, 1984 to determine if they were conducted in accordance with their administrative procedure AD-QA-415 "Post Transient/Reactor Scram Evaluation Revision 0 dated October 24, 1983.

Findings

Discussion with the Plant Engineering Supervisor, review of PLIS-17.034, and overview presentation from the July 3, 1984 scram identified no unacceptable conditions.

5.0 Quality Assurance Interface

The inspector reviewed the Quality Assurance startup testing surveillance logs. The inspector observed that the licensee conducted 9 surveillances during TC-2. The inspector reviewed QASR 84-70 and 84-78. QASR 84-70 identified a finding regarding incomplete data on STCN's during the conduct of ST-13.1. The Startup Test Group Supervisor was not aware of the finding either officially or informally. The official record was issued on August 6, 1984 and the finding identified during the period July 20-26, 1984. The licensee QA representative indicated that the QA practice is to discuss the findings with the responsible individuals at the time of finding. Because of the short time duration and speed at which the startup program is conducted, the QA representative indicated that additional effort, informal contact, between QA and the Startup and Test group supervisor will be taken when QA findings are made under surveillance activities. The licensee surveillance activities were found to be consistent

with administrative procedure NDI-QA-8-1-1. "Performance of QA Audits and Surveillance Activities" Revision 1, March 17, 1983.

The QA organization has instituted QA coverage on a two shift basis during the week and coverage on an as needed basis on weekends. This is an improvement in QA coverage. QA presence was observed on several occasions during the conduct of ST-26.2 and 31.1.

The inspector reviewed the QA surveillance plans for TC-3. The licensee plans to conduct 10 surveillances during this testing period. The inspector had no further questions at this time.

6.0 Tours of Facility

The inspector made several tours of the facility during the course of the inspection, indicating the reactor building, turbine building, control structure, control room and refueling. The inspector verified that the Unit 2 4160V ESS busses were restored to the normal electrical supply lineup following the second performance of ST-31.1. The inspector also observed work in progress, housekeeping, and cleanliness.

No unacceptable conditions were noted.

7.0 Exit Interview

At the conclusion of the site inspection on August 9, 1984 an exit meeting was conducted with the licensee's senior site representatives (denoted in paragraph 1). The findings were identified and previous inspection items were discussed. At no time during this inspection was written material provided to the licensee by the inspector.

APPENDIX A

Test Results Evaluation

1. ST-1.7 "Chemistry Data - Power Ascension Tests", Revision 1 Test Implemented July 20, 1984
2. ST-5.1 "CRD Insert Withdrawal Checks", Revision 2 Test Implemented July 8, 1984
3. ST-5.8 "CRD Post Scram Differential Pressure Measurement", Revision 1 Test Implemented July 25, 1984
4. ST-16.2 "IRM-APRM Overlap Verification", Revision 2 Test Implemented July 8, 1984
5. ST-11.3 "LPRM Calibration with Process Computer", Revision 2 Test Implemented July 22, 1984
6. ST-12.2 "APRM Calibration at High Power" Revision 2 Test Implemented July 11, 1984
7. ST-13.1 "Dynamic Systems Test Case", Revision 2 Test Implemented July 13, 1984
8. ST-14.1 "RCIC Condensate Storage Tank Injection", Revision 3 Test Implemented August 4, 1984
9. ST-14.1 "RCIC Condensate Storage Tank Injection", Revision 3 Test Implemented August 4, 1984
10. ST-14.2 "RCIC Reactor Vessel Injection", Revision 3 Test Implemented August 5, 1984
11. ST-14.3 "RCIC Rated Pressure Auto Quick Starts to Vessel" Revision 3 Test Implemented July 11, 1983
12. ST-14.3 "RCIC Rated Pressure Auto Quick Starts to Vessel", Revision 3 Test Implemented July 11, 1983
13. ST-15.1 "HPCI Condensate Storage Tank Injection" Revision 2 Test Implemented July 7, 1984
14. ST-17.4 "Feedwater System Data Collection" Revision 3 Test Implemented July 18, 1984
15. ST-17.7 "RHR System Piping Outside Containment", Revision 2 Test Implemented July 26, 1984
16. ST-19.1 "Core Performance Using BUCLE" Revision 2 Test Implemented July 10, 1984

17. ST-22.1 "Pressure Regulator Control Valve Controlling", Revision 1 Test Implemented July 13, 1984
18. ST-22.2 "Pressure Regulator Control Valve and Bypass Valve Controlling", Revision 1 Test Implemented July 13, 1984
19. ST-22.3 "Pressure Regulator Bypass Valve Controlling", Revision 1 Test Implemented July 13, 1984
20. ST-23.2 "Feedwater Manual Flow Step Changes (A Pump)", Revision 2 Test Implemented July 19, 1984
21. ST-23.2 "Feedwater Manual Flow Step Changes (C Pump) Revision 2 Test Implemented July 19, 1984
22. ST-23.2 "Feedwater Manual Flow Step Changes (B Pump) Revision 2 Test Implemented July 21, 1984
23. ST-23.3 "Feedwater Level Setpoint Changes", Revision 2 Test Implemented July 15, 1984
24. ST-23.3 "Feedwater Level Setpoint Changes", Revision 2 Test Implemented July 20, 1984
25. ST-26.2 "Relief Valve Rated Pressure Test", Revision 3 Test Implemented July 26, 1984
26. ST-27.3 "Generator Load Reject Within Bypass Valve Capability", Revision 3 Test Implemented July 9, 1984
27. ST-29.1 "Recirc Flow Steps in Local Manual (A Pump)", Revision 2 Test Implemented July 23, 1984
28. ST-29.1 "Recirc Flow Steps in Local Manual (B Pump)", Revision 2 Test Implemented July 23, 1984
29. ST-31.1 "Loss of Turbine Generator and Offsite Power", Revision 4 Test Implemented August 7, 1984
30. ST-31.1 "Loss of Turbine Generator and Offsite Power", Revision 4 Test Implemented August 7, 1984
31. ST-32.2 "Containment Temperature at Steady State" Revision 1 Test Implemented date not obtained.
32. ST-33.1 "Steady State Vibration Main Steam Piping Outside Drywell" Revision 2 Test Implemented July 10, 1984
33. ST-33.2 "Steady State Vibration Main Steam and Feedwater Outside Drywell" Revision 1 Test Implemented July 9, 1984

34. ST-39.1 "Main Steam Piping During Turbine Trip" Revision 3 Test Implemented July 9, 1984
35. ST-39.1 "Main Steam Piping During Turbine Trip" Revision 3 Test Implemented July 26, 1984
36. ST-39.2 "Main Steam/SRV Piping During SRV Lifts", Revision 3 Test Implemented July 26, 1984