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Unit TMI-1 Budget Activity # 128004 WO/SO # 5600-41704

List of Released Items (attached)

Company	Document No.	Sheet	Rev.	Title	QCL
GPUNC	SP 1101-06-008	68	1	TMI-1 Restart Test Planning Specification Rev. 1	ITS

Special Instructions This DRF supersedes DRF 5443 issued 03-15-83.

This Specification has been distributed as listed below:

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References

DRF 5443
DRF 5446

Approved T M Hawkins Date 3-29-83

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Original (w/all) to ED & CC

GPU Nuclear	Short Form Specification	SP1101-06-008	Rev 1
Spec. Title: TMI-1 RESTART TEST PLANNING SPECIFICATION REVISION 1		QA Concur AE Barry E Callan Jr GPUN 3/7/83	Page 1 of 68
Project Title: TMI-1 RESTART STARTUP & TEST PROGRAM	Task No. /A	Prepared by/Date AE D M Hawkins GPUN 3-7-83	Approved by/Date AE J T Carroll Jr GPUN 3/10/83

GPU Nuclear

DOCUMENT NO.
SP 1101-06-008

TITLE TMI-1 Restart Test Planning Specification

REV	SUMMARY OF CHANGE	APPROVAL	DATE
1	Changed revision number to avoid confusion with the May 1981 issuance of this Test Specification. Issued the May 1981 edition as Rev. 0.	B.E. Ballard Jr J.M. Hawkins J.F. Carroll Jr	3/29/83 3/29/83 3/29/83

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1.0 PURPOSE & SCOPE

The purpose of this Test Planning Specification is to update the May 1981 NRC submittal to reflect the OTSG Repair testing impact upon the overall test program and bring the modification testing status up-to-date. All modification testing and system reinitializations that have been completed have been deleted from the drawings. OTSG Repair Program testing has been inserted into the TMI-1 Restart Test Program and constitutes the major changes in this revision. This Test Specification will be updated with further revisions as program scope or intent changes. The overall Restart Test Program continues to provide a deliberate, methodical, well planned verification of plant readiness to return to operations while demonstrating the adequacy of the OTSG repairs and providing ample operator familiarization and training.

THREE MILE ISLAND NUCLEAR STATION

UNIT 1 RESTART

TEST PLANNING SPECIFICATION

REVISION 1

APPROVAL

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Director, Startup and Test

3/10/83
Date

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3-9-83
Date

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3.7-83
Date

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
I. Plant Mods					
(1) RM-1 - Heat Shrink Tubing	Pre-op	Startup Requires	Component Operability and Calibration Checks.	Components and Instruments meet pre-modification requirements.	TP 250/1 and TP 250/2 MTX 286.5.1 - COMPLETED
	HFT	Startup Requires	1) RCS/OTSG Instrument Channel Checks.	1) Instruments meet pre-modification requirements.	Included in NNI Hot Op Cal, TP 657/1 - MTX 152.5.3.6 COMPLETED
(2) RM-2 - Upgrade Decay Heat System	Pre-op	Startup Requires	1) Remote Oiling System - verify ability to add oil & read level remotely.	Remote level indication agrees with reservoir level.	Decay Heat Pump Remote Oiler Instrument Calibration TP 250/1.1 MTX 72.5.3.1 - COMPLETED
		"	2) Automatic Pump Casing Venting - verify ability to vent pump casing remotely.	Vent valves function properly.	Decay Heat Pump Vent Control Logic Test - TP 250/2.1 MTX 72.5.1.2 - COMPLETED
		"	3) Vibration Monitoring - verify ability to monitor vibration and loose parts remotely and record baseline vibration.	Remote indicators can be used to monitor vibration and loose parts during DHR Pump operation.	Decay Heat Pump Vibration Monitors Calibration - TP 250/1.1 MTX 72.5.4.1

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(3) RM-3B-Reactor Trip on Loss of Feed/Turbine Trip	Pre-op	Restart Report Section 2.1.1.1.6, Amend. 25, NURGEG-0680 Item 1C	1) Verify proper calibration and logic and functionality for a reactor trip on loss of both feedwater pumps above 7% power or a turbine trip above 20% power.	RPS trips on simulated reactor power > 7% on a loss of both FW pumps and simulated reactor power >20% on a turbine trip.	Reactor Protection System Trip on Turbine/Feedwater - Calibration and Logic Verification TP 376/1, MTX 203.5.1.6 and Reactor Protection System Trip on Turbine/Feedwater - Input Test TP 376/2, MTX 203.5.1.7. COMPLETED
	40% power	Startup Requires	1) Trip both Main FW pumps at 40% reactor power and verify the reactor trips and record various RCS and secondary plant parameters (including main steam safety valves open to verify RM-6 installation). Verify RX trip Containment Isolation and associated bypass/reset features. Determine Emergency Feedwater pump actuation times following loss of main feedwater.	1) Reactor trips, but not on hi pressure. 2) HPI not initiated. 3) Turbine Bypass valve setpoint is transferred to and controls at 1010 ± 10 psig. 4) Pressurizer level stays between 80 and 330 inches. 5) OTSG level remains between low level limits (30" $\pm^{2"}_{10"}$ and 96% on operating range. 6) FW demand is reduced until OTSG's go on level control.	Reactor Trip on Loss of Feedwater/Turbine Trip - TP 800/2, MTX 800.5.1.7.

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(3) RM-3B cont'd.				7) PORV does not lift. 8) Turbine trips. 9) Containment Isolation and bypass/reset features function as designed	
	95-100% power	Startup Requires	1) Trip the Turbine at 95-100% reactor power and verify the reactor trips and record various RCS and secondary plant parameters (including main steam safety valves open to verify RM-6). Verify RX Trip Containment Isolation and associated bypass/reset features.	10) Turbine Driven EFW pump actuates and accelerates up to speed in under 40 sec. 11) Both Motor Driven EFW pumps actuate and accelerate to speed within 15 sec. Same as for 40% FW Pump Trip except delete:	Reactor Trip on Loss of FW/ Turbine Trip - TP 800/2, MTX 800.5.1.7
(4) RM-4A- Connect Incore Thermocouples to Computer	Pre-op	Startup Requires	1) Perform incore thermocouple checkout and calibration.	Thermocouple accuracy is within $\pm$ 5%	Incore Thermocouple Checkout and Calibration, TP 346/1, MTX 123.5.1.6. - COMPLETED
	HFT	Startup Requires	1) At various temperature plateuas, record the incore thermocouples temperature valves and compare the maximum and minimum valves obtained to the average value.	Thermocouples compare within 26^{o}F tolerance band.	Non-Nuclear Instrumentation Hot Operation and Calibration - TP 657/1, MTX 152.5.3.6. COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(4) RM-4A (Cont'd.)	PET	Startup Requires	1) At various power levels: a. Compare those in-core thermocouples that are core symmetric to each other. b. Compare all values obtained to the values predicted by computer model. c. Verify all functions established in the modcomp computer system dealing with the incore thermo-couples operate.	a. All values are ±1% of the aver of the sym-metric thermocouples. b. All recorded values are within ±2% of the value predicted by computer model. c. All computer functions operate accurately.	Incore Thermocouple Testing at Power - TP 846/1, MTX 123.5.1.7

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(5) RM-4B - Back-up Incore Thermocouple Display	Pre-op	ASLB Order Dated 04/05/82	1) Verify proper operation of the RTD Selector Switch.	1) Output voltage must be 6 ± .05 VDC	
			2) Perform Loop Calibration checks of Cold Shutdown compensation RTD's.	2) New compensation RTD's and RM-4A compensation RTD's Δ T is ± 6°F.	
			3) Perform loop calibration chekcs of incore T/C's available to both the plant computer (RM-4A) and the backup incore readout.	3) Independence of the selector switch to the desired readout. Maximum error of Backup Incore Readout is_____	Backup Incore Thermocouple Display Test - TP 346/2, MTX 123.5.2.6 COMPLETED
	PET	Startup Requires	At various power levels, temperature values obtained from the incore thermocouples and displayed on the Backup panel will be recorded and compared to values predicted by computer model.	All recorded values are within ± 2% of the value predicted by computer model.	To be performed as part of TP 846/1, MTX 123.5.1.7 Incore Thermocouple Testing at Power

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(6) RM-5B - Containment Isolation on High Radiation	Pre-op	Restart Report Sect. 2.1.1.5.3 AM 25	1) Verify selected containment isolation valves automatically close on the appropriate isolation signal of high radiation. Also the operation of override and bypass switches will be tested.	1) The appropriate valves isolate as required and open only under the appropriate reset modes.	a. Containment Isolation on High Radiation-Calibration TP 366/1, MTX 183.5.1.6 COMPLETED b. Containment Isolation on High Radiation - Valve Functional TP 366/2, MTX 183.5.1.7 COMPLETED
			2) Calibrate the radiation monitors used as input. signal sources	2) Radiation monitors isolate appropriate valves at ± 1 minor division on meter face of setpoint.	
			3) Verify proper operation of all computer and annunciator alarms.	3) All alarms function as required.	
(7) RM-5C - Containment Isolation on Reactor Trip	Pre-op	Restart Report Sect. 2.1.1.5.3 AM25	1) Verify selected containment isolation valves automatically close on the appropriate isolation signal: a. Reactor Trip b. 4 psig R.B. Pressure c. 30 psig R.B. Pressure d. 1600 psig RCS Pressure Also, operation of the override and bypass switches will be tested.	1) The appropriate valves isolate as required and open only under the appropriate reset modes.	a. Engineered Safeguards Actuation Logic Test TP 334/1, MTX 91.5.1.6 COMPLETED b. Engineered Safeguards Actuation Component Test TP 334/2, MTX 91.5.1.7 COMPLETED c. Post Installation Modification Retest TP 250/2.2, MTX 91.5.1.2 COMPLETED
			2) Verify proper operation of all computer and annunciator alarms.	2) All alarms function as required.	

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(7) RM-5C cont'd.	PET	Startup Requires	1) Following the 40% and 100% rated power reactor trips, verify that the proper containment isolation valves close.	1) All identified valves operate as designed.	Reactor Trip on Loss of Feedwater/Turbine Trip - TP 800/2, MTX 800.5.1.7
			2) Test the override/bypass switches following containment isolation.	2) Valves reopen as required	
(8) RM-5D - Containment Isolation on NSCCW and/or ICCW Pipeline Break	Pre-op	Restart Report Section 2.1.1.5.3 AM25	1) Verify selected containment isolation valves automatically close on the appropriate isolation signal of a line break. Also operation of the override and bypass switches will be tested.	1) The appropriate valves isolate as required and open only under the appropriate reset modes.	Reactor Building Isolation on Line Break Functional Test TP 334/3, MTX 91.5.2.6 COMPLETED
			2) Calibrate level loops used as input.	2) Overall loop accuracy shall be 1¼ of full scale on the indicator.	
			3) Verify proper operation of all computer and annunciator alarms.	3) All alarms function as required.	

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(9) RM-6 - Acoustic Monitor for Main Steam Safeties	Pre-op	Startup Requires	1) Calibrate the Audio monitoring equipment for the main steam safety valves.	1) Computer and annunciator alarms actuate/reset at specified setpoints.	Acoustic monitor calibration - TP 250/1.1, MTX 143.5.1.1 COMPLETED
	HFT	Startup Requires	1) This test is run in conjunction with SP 1303-11.3 (Testing MSSV's with the Hydroset). When a safety valve is lifted, the following will be verified: a. Indicator lights on the audio monitoring cabinet indicate in which group of safeties a valve has lifted. b. Plant computer indicates in which group of safeties a valve has lifted. c. The operator can listen to noise levels in the MSSV chambers through the use of the speaker and selector switch located on the audio monitoring cabinet.	a. The indicator light corresponding to the lifted safety valve energizes. No other light energizes. b. Computer point corresponding to the lifted safety valve indicates a lifted valve. No other computer point indicates a lifted valve. c. The operator can detect lifted safety valve(s) from Control Room.	Main Steam Safeties Acoustic Monitor - Functional Test - TP 654/1, MTX 143.5.1.6 COMPLETED
	PET	Startup Requires	1) During the 40% and 100% power Reactor trips, the MSSV's are expected to lift. Control Room indication of lifted MSSV's will be verified.	1) Indicators/alarms function properly.	Reactor Trip on Loss of Feedwater/Turbine Trip - TP 800/2, MTX 800.5.1.7

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(10) RM-7 - Computer Mods-High-Speed Printer	Pre-op	Startup Requires	Computer Group to Checkout operation of high-speed printer.	Printer operates satisfactorily.	No Startup involvement or procedures planned. COMPLETED
(11) RM-8 - Raise Steam Generator Level Transmitter	Pre-op	Startup Requires	Calibrate per Met-Ed SP	per SP	Met-Ed SP 1302-5.26. COMPLETED
	HFT	Startup Requires	Compare OTSG level indicators during heatup.	Indicators are within acceptable tolerance.	NNI Hot Op Cal - TP 657/1, MTX 152.5.3.6. COMPLETED
(12) RM-9 - Raise Setpoint of Power Operated Relief Valve (PORV)	Pre-op	Restart Report Sect. 8.2.1 AM 25	Calibrate PORV per Met-Ed Procedure	Setpoint is within acceptable tolerance of 2450 psig.	Met-Ed SP 1303-11.45 Met-Ed SP 1302-6.16 COMPLETED
(13) RM-10 - PORV and Safety Valve Position Indication and LM-39 - Manual Operation of PORV from Control Room and PM-4 - PORV Tailpipe Temp. Detectors	HFT	Restart Report, Sect. 2.1.1.2.3, Amend. 25 12/11/80 letter ACRS to NRC Commissioners NUREG 0680 Item 1D Page C1-14 T.S. AM 78	Lift PORV at hot functional conditions to: 1) verify adequate response of accoustic monitor 2) verify adequate response of elbow flow tap on PORV and lack of response on code safety valve elbow taps.	1) PORV lift & reseat is adequately displayed by the accoustic monitor. 2) Elbow tap range and sensitivity are adequate to determine PORV lift/reseat & interference with code safety elbow taps is at acceptably low level.	1) PORV Flow Indication Functional Test - TP 664/1, MTX 195.5.1.6. COMPLETED

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(13) RM-10, cont'd.			3) verify acceptable temperature response of PORV tailpipe thermocouple and magnitude of interference response of code safety valve tailpipe thermocouples. Compare response of thermocouples during valve opening and after closure against curve referenced in Restart Report, Sup. 1, Part 2, Question 36, and contained in TDR #238.	3) Temperature response of PORV tailpipe temperature is within the allowable band on the temperature response curves in Restart Report and TDR 238, and effect on code safety tailpipe thermocouples is at an acceptably low level.	
			4) Observe response of RCDT and tailpipe thermocouples during/after PORV lift; document sensitivity of RCDT and tailpipe thermocouples instrumentation to detect PORV lift/leakage.	4) RCDT and tailpipe thermocouple instrumentation can be used to indicate PORV/safety valve leakage.	
			5) Verify operability of manual switch to open/cls PORV from control room.	5) Manual switch functions acceptably.	
			6) Verify ability of PORV Block Valve to close, then open against an open PORV	6) Block valve closes against an open PORV	

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(14) RM-12 - Hydrogen Recombiner	Pre-op	TSCR-109 Restart Report Suppl. 1, Part 2 Question 91 AM 25	Functionally test the recombiner to verify proper operation of: 1) interlocks 2) alarms 3) instrumentation & control 4) actual air flow and temperature control vs. design.	1) All interlocks, controls, alarms, and instruments perform within acceptable tolerance of design. 2) Actual air flow and temperature values are within acceptable tolerance of design.	Hydrogen Recombiner Functional Test, TP 243/1, MTX 285.5.1.6 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(15) RM-13(a),(e) - Emergency Feedwater Auto Start	Pre-op	Restart Report Sect. 2.1.1.7.7, 3.1.2.6, & 8.2.1	Verify emergency feed pumps start on loss of both main feed pumps or on loss of all 4 RCPs.	EFPs start as required.	Emergency Feedwater System - Functional Test - TP 233/1, MTX 85.5.5.6 COMPLETED
	HFT	Restart Report, Sect. 2.1.1.7.7, Amend. 25 Restart Report, Supp. 1, Part 1, Ques. 3 & 5 Restart Report, Supp. 1, Part 2, Question 1 Amend. 25 NUREG 0680 Section C, Item 1.a.1, 1.a.3 June 1980	Perform a functional test to verify operability of the diesel generators with the loading of the emergency feed pumps.	2000 hour 3000 kw rating of diesel generators is not exceeded.	TP 622/1, MTX 600.5.1.14, Test will be performed in conjunction with Met-Ed Surveillance Procedure for Diesels, SP 1303-11.10. We will measure voltage and peak current and project these values to equivalent operationally expected values. We need input from sign for acceptance De- criteria. COMPLETED
	LPPT/PET	Startup Requires	Trip of both main FW pumps during: 1) 3% power natural circulation test (TP 700/2). 2) 40% loss of Feed Test (TP 800/2). will all bring on the emergency feedwater pumps and thus operationally verify the logic.	All 3 EFPs start for each test.	TP 700/2, MTX 700.5.1.7 TP 800/2, MTX 800.5.1.7

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(16) RM-13 (b) EFW Flow Indication	Pre-op	Restart Report, Sect. 2.1.1.7.7, Amend. 25 NUREG 0680 Section C, Item 1.a.5 June 1980	Verify operability of emergency feedwater flow indicators at Cold conditions.	Flow indicators are within ± 5% accuracy.	Emergency Feedwater Flow Indication/Cavitating Venturi Funct. Test - TP 233/3, MTX 85.5.2.6
	LPPT	Startup Requires Restart Report Supp. 1, Part 1, Question 6 Amend. 25	Use flow indicators to monitor EFW flow during performance of the 3% Low Power Nat. Circulation Test (TP 700/2).	Flow indicators provide EFW flow indication to the control room oper. per EP 1202-26A.	Low Power Natural Circulation Test - TP 700/2, MTX 700.5.1.7
(17) RM-13 (d) EF-V30A/B Manual Control Stations	Pre-op	Restart Report, Sect. 2.1.1.7.7 Amend. 25	Stroke EF-V30A/B from the new manual control stations and verify acceptable transition between ICS Control and new manual control station at Cold Shutdown.	EF-V30A/B respond acceptably when controlled by the new manual control station and transition between ICS and new manual control station is acceptable.	Emergency Feedwater System, Funct. Test - TP 233/1, MTX 85.5.5.6 COMPLETED
	LPPT	Startup Requires	During performance of Low Power Natural Circulation Test (TP 700/2), change control of EFW to the OTSG from auto. on the ICS to manual on the new control station and verify level can be maintained within an acceptable tolerance of setpoint (30" and 50%).	1) 30" $\pm^{2"}_{10"}$ 2) 50 ± 5%	Low Power Natural Circulation Test - TP 700/2, MTX 700.5.1.7

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(18) RM-13 (c) EF-V30 A/B Fail Open	Pre-op	Restart Report, Sect. 2.1.1.7.7, Supp. 1, Part 2, Question 2, Amend. 25 NUREG 0680 Section C Item 1.a.2 June 1980	Verify the failure mode of EF-V30 A/B on loss of air.	Valves fail open.	EFW-V30 A/B Fail Open Functional Test - TP 233/1, MTX 85.5.3.6 COMPLETED
(19) RM-13 (g) Annunciator Panel in Control Room	Pre-op	Startup Requires	Verify alarm annunciators in control room for each auto start of EFW System.	Alarms annunciate for each EFW auto start.	Emergency Feedwater System Functional Test TP 233/1, MTX 85.5.5.6 COMPLETED
(20) RM-13 (h) 2-hr. Air Supply for EF-V30 A/B, MS-V6, EF-V8A, B, C and MS-V4A, B	Pre-op	Startup Requires	Verify operability of valves and switching valves for Two Hour Back-up Air System at Cold conditions.	System air valves switch at 60 psig and each valve supplied by this system operates properly.	Two Hour Air Supply Functional Test - TP 248/2, MTX 131.5.2.6
	LPPT	Startup Requires Restart Report, Supp. 1, Part 1, Question 10, Amend. 25 Supp. 1, Part 2, Question 14 Amend. 25	Verify the backup air supply has the capability of supplying air to the Emergency Feedwater System following loss of the AC dependent air system.	1) SG level is maintained at 30" $\pm^{2"}_{10"}$ with passive system (no AC power) 2) EFP flow and discharge pressure are maintained within acceptable limits of design with passive system (no AC power).	Low Power Natural Circulation Test - TP 700/2, MTX 700.5.1.7

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(21) RM-13 Backup Instrument Air System	Pre-op	Restart Report Sect. 2.1.1.7.7 Amend. 25	Verify operability of valves and transfer points for backup air system at cold conditions.	System transfers to backup air at 70 psig and each valve will operate properly on backup air.	Backup Instrument Air Functional Test - TP 248/1, MTX 131.5.1.6 COMPLETED
(22) RM-13 (i) Lo-Lo Level Alarm on CST	Pre-op	Startup Requires	Perform calibration of level switches.	Alarm actuates within acceptable tolerance of setpoint.	Condensate Storage Tank Low-Low Level Alarm - TP 250/1.1, MTX 41.5.1.1 COMPLETED
(23) RM-13 (j) OTSG Level Independent of ICS	Pre-op	Startup Requires	Perform calibration of new OTSG level transmitters.	Within acceptable tolerance of calibration curve.	Instrument Test - TP 250/1, MTX 127.5.2.1 COMPLETED
	HFT	Startup Requires	Compare OTSG level signals with each other throughout the range of levels encountered during heatup.	Level indications compare within ± 4% of scale.	Data to be recorded in Controlling Procedure for Low Power Physics Testing - TP 700/1, MTX 700.5.1.6

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(24) RM-13	Pre-op	Restart Report Supplement 1, Part 1, Question 10(F) and SER 1.a (additional) .2 Restart Report Suppl.1 Part 1, Ques 54 AM 25 Restart Report Suppl.1 Part 2 Ques. 7 AM 25 NUREG 0680 Section C Item 2 June 1980	Run all three EFPs in recirc. for 48 hrs. each and monitor: 1) suction pressure 2) discharge pressure 3) bearing temperatures 4) EFW temperature 5) turbine, motor and pump vibration 6) motor current 7) turbine speed 8) room temperature and humidity Shutdown pump for 8 hours and until system $\leq$ 20°F of starting temperatures and run for one additional hour.	All values are within acceptable limits of design.	Emergency Feedwater Pumps - 48-hour-Run - TP 233/2, MTX 85.5.5.7 COMPLETED
(25) RM-14 High Pressure Injection Cross Connect	HFT 1) 550psig 2) 1200psig 3) 1800psig	Restart Report Supp. 1 Part 1, Ques 36 (c), Amend. 25 Restart Report Suppl 1 Part 3, Ques 1, AM 25	Perform cross connect functional test at 550 psig for 1 pump, A train; 1 pump, B train.	1) Total flow is $\geq$ 500 gpm and $\leq$ 550 gpm at 550psig 2) Flow split is $\geq$ 70/30 for three lowest flow legs.	High Pressure Injection System Func. Test - TP 655/1, MTX 144.5.1.6

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(25) RM-14 (Cont'd.)			Repeat test at 1200 psig.	1) Total flow is ≥ 476.4 gpm. 2) Flow split is ≥ 70/30 for three lowest flow legs.	
		Startup Requires	1) Verify ≥ 450 gpm through MU-V217 at 1800 psig.	1) Flow is ≥ 450 gpm.	1) COMPLETED
			2) Set bypass flow around MU-V17 to approximately 3 gpm.	2) 3 gpm.	2) COMPLETED
			3) Verify operability of letdown high temperature isolation of MU-V3.	3) 135 ± 3°F.	3) DELETED - Tested by Surveillance Procedures
(26) RM-16 Pressurizer Heaters Emergency Power	Pre-op	Restart Report Sections 2.1.1.3.1.1 2.1.1.3.1.2 T.S. AM 78	1) Verify operation of Kirk Key interlock is acceptable and that transfer from normal to ES bus can be made in ≤ 2 hours for heater groups 8 or 9.	1) Transfer is acceptable and can be made ≤ 2 hours.	Pressurizer Heater Emergency Power Functional Test - TP 427/2, MTX 195.5.2.6 COMPLETED
			2) Verify heaters shed from ES bus on undervoltage.	2) Heaters shed on undervoltage.	
			3) Verify heaters shed from ES bus on ES signal.	3) Heaters shed on ES.	

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(26) RM-16 (Cont'd.)	HFT	Startup Requires, Restart Report Section 2.1.1.3.1.4 Amend. 25	1) Determine heat loss from pressurizer.	1) ≤107 KW when the spray bypass flow is factored in.	1) Pressurizer Operation Test - TP 664/2, MTX 195.5.2.7.
			2) Verify RCS saturation margin can be maintained for 2 hrs. following loss of pressurizer heaters.	2) Saturation margin remains ≥ 50°F for 2 hrs. after loss of heaters.	2) COMPLETED
			3) Verify one bank of pressurizer heaters can be transferred to the ES bus in accordance with approved plant procedures.	3) Reactor Coolant System pressure does not continue to decrease following energizing 1 bank of heaters on the ES bus.	3) To be verified during TP 700/2.
	LPPT	Startup Requires	1) Verify RCS saturation margin can be maintained for 2 hrs. following loss of pressurizer heaters.	1) Saturation margin remains ≥ 20°F for 2 hrs. following loss of heaters.	Low Power Natural Circulation Test - TP 700/2, MTX 700.5.1.7
			2) Verify one bank of pressurizer heaters can be transferred to the ES bus in accordance with approved plant procedures.	2) Reactor Coolant System pressure does not continue to decrease following energizing 1 bank of heaters on the ES bus.	
	Pre-op	Restart Report, Sect. 2.1.1.3.1.6 Amend. 25	Verify pressurizer heater transfer schemes when emergency diesel generators are tested.	Same as TP 427/2.	SP 1303-11.10.

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(27) RM-17 Upgrade Power Supplies to ICS	Pre-op	Startup Requires	Verify operability of the non-automatic transfer switch for ICS/NNI power supplies.	Power supplies transfer and indications and alarms function properly.	ICS/NNI Power Supply Non-Auto Transfer Switch Test - TP 250/2.1, MTX 274.5.1.2 COMPLETED
(28) RM-21 Relocate Stack Monitor	Pre-op	Startup Requires	Perform 1302-3.1 Surveillance Procedure	SP performed satisfactorily.	
(29) RM-22 Undervoltage Relays	Pre-op	Startup Requires	De-energize 4 KV ES buses 1D and 1E and verify loads shed as required.	Loads shed as required.	4 KV ES Bus Undervoltage Relays Func. Test - TP 426/2; MTX 271.5.2.6 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(30) LM-1 Tsat Meter	Pre-op	Startup Requires	1) Verify the output of the signal characterizers provide the correct relationship between Primary Pressure and Tsat Margin.	1) Signal characterizer output is satisfactory.	Tsat Indication Calibration - TP 345/1 MTX 126.5.1.6 COMPLETED
			2) Verify proper indication of Tsat Margin by simulating input signals of T_H and Primary Pressure.	2a) Meter indication agrees with the design valve within specified tolerances. 2b) The computer program output agrees with the meter indication within specified tolerances.	
			3) Verify proper operation of the Tsat annunciator	3) Tsat Annunciator alarms at 20°F.	
			4) Verify automatic selection of the highest T_H for each loop.	4) Calculations show highest T_H is selected for Tsat calculations.	
	HFT	Startup Requires	1) Verify proper meter indication at various HFT temperature plateaus. 2) Verify proper computer program output at various HFT temperature plateaus.	Tsat Margin will be calculated from the steam tables and required plant parameters. The meter and computer values will be compared to the calculated value and shall be within ± 16°F.	Tsat Functional Test - TP 645/1, MTX 126.5.1.7 COMPLETED

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(31) LM-2 Wide Range T_h	Pre-op	Startup Requires	1) Verify proper indication of the 4-wide range T_h channels by inserting a test signal at the temperature transducer.	1) Indicator reads the same as input $\pm 13^{\circ}F$	Wide-range T_h Calibration - TP 250/1.1, MTX 152.5.3.1. COMPLETED
			2) Verify isolation between existing and new circuits by introducing a fault at the output of the new converter module.	2) Signal isolation results in no fault indication on existing indicator.	
	HFT	Startup Requires	Compare T_h signals with each other throughout the range of temperatures encountered during heatup.	Indicators compare within a $26^{\circ}F$ tolerance band.	Non-Nuclear Instrumentation Hot Operation & Calibration - TP 657/1, MTX 152.5.3.7. COMPLETED
(32) LM-4 BWST Level Switch	Pre-op	Startup Requires	Calibrate Borated Water Storage Tank level switch.	Calibration is acceptable.	Calibration of BWST Level Switch - TP 250/1.1 MTX 72.5.2.1 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(33) LM-7A Upgrade RB Spray - delete Sodium Thiosulfate	Pre-op	Startup Requires	Calibrate and verify response of ΔP indicator.	Calibration/response is acceptable.	Instrument Calibration Test - TP 250/1, MTX 194.5.1.1 COMPLETED
(34) LM-8A RB Sump Level Control Grade	Pre-op	Startup Requires	Calibrate per manufacturer specification.	Level indicates within manufacturer spec.	RB Sump Level Calibration - TP 250/1.1 MTX 197.5.1.1 COMPLETED
(35) LM-8C RB Sump Level	Pre-op	Startup Requires	Calibrate per manufacturer specification	Level indicates within manufacturer spec.	Instrument Calibration TP 250/1, MTX 197.5.2.1 COMPLETED
(36) LM-9 Raise PZR Level Xmitter	Pre-op	Startup Requires	Calibrate per Met-Ed Surveilance Procedure 1302-5.12.	Per Surveillance Procedure	MTX 152.5.4.1 COMPLETED
	HFT	Startup Requires	Compare instrument channels during heatup.	Channels agree within acceptable tolerance.	Perform per PZR Operation Test - TP 664/2, MTX 195.5.2.7 COMPLETED
(37) LM-12 RB Cooling Fan Motor Vibration	Pre-op	Startup Requires	1) Record baseline vibration.	Data has been recorded.	Vibration Monitor Checkout - TP 250/1.1, MTX 187.5.1.1 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(38) LM-13A Emergency Feedwater Cavitating Venturis	Pre-op	Startup Requires T.S. Am. 78	1) Verify that the newly installed Emergency Feedwater cavitating ventures limit the EFW flow to the OTSG's with all EFP's in operation.	1) Cavitating venturis limit EFW flow to 590 gpm to each OTSG.	EFW Flow Indication/ Cavitating Venturi Functional Test - TP 233/3, MTX 85.5.2.6
(39) LM-13B - Deletion of Main Steam Line Rupture Detection Sys. Signal to EF-V-30A/B	Pre-op	Startup Requires	1) Verify the MSLRD valves close on a low pressure signal. 2) Verify proper operation of EF-V-30A/B.	1) All MSLRD valves close on 600 psig signals. 2) The EF-V-30A/B valves do not respond to the MSLRD signals.	Main Steam Line Rupture Dectection Sys. Test - TP 250/1.1, MTX 143.5.2.1 COMPLETED
(40) LM-16 Fuel Handling Bldg. Isolation	Pre-op	Startup Requires	1) Verify cabling is intact and functional and terminations have been made correctly.	1) Cables installed and terminated satsifactorily	Electrical Test - TP 250/2, MTX 107.5.1.2 COMPLETED
(41) LM-16A Fuel Handling Bldg. Isolation Damper Control	Pre-op	Startup Requires	1) Verify proper operation of the control circuits for isolation dampers.	1) Damper interlocks function correctly.	Auxiliary and Fuel Handling Bldg. H & V Isolation Damper Control Logic Test - TP 250/2.1, MTX 104.5.1.2 COMPLETED
(42) LM-18 Industrial Cooler Chemical Addition	Pre-op	Startup requires	Verify ability of Chemical Addition system to adequately add chemicals & control water chemistry.	System operates satisfactorily.	Industrial Cooler Chemical Addition Func Test - TP 247/2, MTX 192.5.2.6. COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(43) LM-19 Reactor Coolant Pumps Surge Capacitor Removal	Pre-op	Startup Requires	Verify RC Pump motor power cables and connections following modification.	Surveillance Procedure Accpetance Criteria	Surveillance Proc. 1420-RCP-4 MTX 201.5.1.2 COMPLETED
(44) LM-21A/B/C Remote Operated Pressurizer/ High Point Vents	Pre-op	Startup Requires	1) Verify proper valve performance 2) Verify proper flow indication	1) Valves operate satisfactorily. 2) Flow indication in Control Room.	1) Electrical Test - TP 250/2, MTX 195.5.3.2 2) Instrument Test - TP 250/1, MTX 195.5.3.1
	HFT	Restart Report Sect. 2.1.2.2.7 AM 25	1) Verify proper performance of pressurizer vent controls. 2) Verify flow indication through pressurizer vent line at RCS conditions of: a. 250°F b. 525°F, 2155 psig 3) Demonstrate the capability of RC-V44 to close under full flow conditions.	1) Controls operate satisfactorily. 2) Flow is verified. 3) RC-V44 closes under full flow conditions.	RCS High Point Vent Functional Test - TP 675/1; MTX 195.5.3.6

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(45) LM-23 High Range Containment Monitoring	Pre-op	Startup Requires	1) Calibrate Monitors RM-G-22, 23	1) Satisfactory	Containment Post-accident High Range Radiation Monitors RM-G22 and RM-G23, TP 366/3, MTX 183.5.2.6. COMPLETED
			2) Check out alarms, interlocks, and controls.	2) All operate.	
(46) LM-24A Post-Accident Sampling	HFT	Restart Report, Sect. 2.1.2.4, Amend. 25 NUREG 0737 II.B.3.1-2	1) Analysis will be coupled with dry run sampling times to verify radiation exposures will be acceptable and turnaround time is less than 3 hours.	1) Exposures are calculated at $\leq$ 5 REM whole body and $\leq$ 18.75 REM to extremeties for design basis RC activity.	RC Post-Accident Sampling TP 677/1, MTX 170.5.1.6. COMPLETED
				2) Sample results are known within 3 hrs. of initiating a sample request.	Retest after Shielding and New Sample Bomb are Installed Using EP 1004.15 Post Accident Inplant Sampling.
(47) LM-24B Post Accident Reactor Bldg. Atmosphere Sampling Sys.	Pre-op	Restart Report, Sect. 2.1.2.4	1) Funccionally test operability of Containment Atmospheric Sampling System.	1) Sampling System functions as designed.	Post Accident RB Atmospheric Sampling System Test TP 277/1, MTX 168.5.1.6.
(48) LM-25A Post-Accident Monitoring	Pre-op	Startup Requires	1) Calibrate Monitors	1) Satisfactory	TP 366/4, MTX 183.5.4.6.
			2) Check out alarms, interlocks and controls.	2) All operate.	TP 366/5, MTX 183.5.4.7. TP 366/6, MTX 183.5.4.8.

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(48) LM-25A cont'd.			1) Calibrate and check alarms, interlocks, and controls for the following monitors: RM-G-24, 25, 26, 27 RM-A-5, 8, 9	1) Monitors are calibrated and function properly.	RM-G-24 Calibration - TP 366/4, MTX 183.5.4.6 RM-G-25 Calibration - TP 366/5, MTX 183.5.4.7 RM-G-26,27 Calibration TP 366/6, MTX 183.5.4.8 RM-A-5H, 8H, 9H Gas Calibration - TP 366/7 MTX 183.5.4.9 RM-A-5H, 8H, 9H Calibration - TP 366/8, MTX 183.5.4.10
(49) LM-25B Post Accident Iodine Sampling	Pre-op	Startup Requires	1) Verify sample panel operational sequence.	1) Specified requirements for operation are met.	Post Accident Iodine Sampling System Test TP 377/1 MTX 168.5.2.6
			2) Test actuation interlocks, and alarms controls.	2) All operate and function as required.	
(50) LM-26A Post Accident Containment Pressure	Pre-op	Startup Requires	1) Perform calibration.	1) Calibrated values are within acceptable tolerances.	Instrument Test TP 250/1 MTX 184.5.1.1 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(51) LM-26B Post Accident Monitoring - H_2 Indication	Pre-op	Startup Requires	1) Perform calibration of H_2 Monitors per vendor manual.	1) Calibrated values are within acceptable tolerances.	Post Accident H_2 Monitoring Test TP 377/2, MTX 168.5.3.1
(52) LM-29 High Rad. Monitor Alarm Imp.	Pre-op	Startup Requires	1) Verify alarms sound as required, when actuated.	Alarms function satisfactorily.	High Radiation Alarm System Functional Test - TP 401/1, MTX 281.5.2.6
(53) LM-32 ES Lod Reduction Study	Pre-op	Startup Requires	1) Verify appropriate loads drop off bus on ES actuation.	Loads drop off bus on ES actuation.	SP 1303-11.10 COMPLETED
(54) LM-33 ESAS Reset from Control Room	Pre-op	Startup Requires	Functionally test reset to verify proper operations	Satisfactory operation.	ESAS Logic Test - TP 334/1, MTX 91.5.1.6 COMPLETED ESAS Component Test TP 334/2, MTX 91.5.1.7 COMPLETED
	HFT	Startup Requires	Verify proper operation in operational sequence.	Satisfactory operation.	Indication Retest SP 250/2.3, MTX 91.5.1.2 Will be verified as part of TP 600/1, Controlling Procedure for Hot Functional Testing MTX 600.5.1.6. COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(55) LM-38 Remote Shutdown Panel	Pre-op	Startup Required	1) Perform instrument calibrations.	1) Calibrated values are within acceptable tolerances of required setpoints.	Remote Shutdown Panel Instrument Test - TP 250/1, MTX 127.5.1.1 COMPLETED
	HFT	Startup Requires	1) Record data as required from the Remote Shutdown Panel instrumentation at RCS plateaus of: a. cold conditions b. 250°F c. 340°F, 550 psig d. 525°, 2155 psig	1) Data has been recorded for evaluation by Tech Functions.	Controlling Procedure for Low Power Physics Testing - TP 700/1, MTX 700.5.1.6
(56) LM-39 Provide Manual PORV Actuation from the Control Room	Pre-op	Startup Requires	1) Verify proper operation of the PORV solenoid used for remote actuation from the Control Room.	1) The solenoid operates properly, i.e. opens/closes the PORV on demand.	Control Logic Test of PORV Manual Control TP 250/2.1, MTX 195.5.4.2 COMPLETED
	HFT	Startup Requires	1) Verify proper operation of the PORV manual opening switch located in the Control Room.	1) The PORV can be opened/closed from the Control Room.	PORV Flow Indication Functional Test - TP 664/1, MTX 195.5.1.6 COMPLETED
			2) Verify the PORV and block valve can close under full flow conditions.	2) After achieving full flow conditions, the PORV and block valve closes.	

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(57) LM-42 Core Flood/Decay Heat Check Valves Leak Monitoring Sys.	HFT		1) During Plant Heatup, but prior to opening CF-V1A/B; verify proper operation of the core flood/decay heat check valve leak monitoring system.	1) System operates as required.	SP 1300-3%; Pressurized Isolation Test of CF-V4, CF-V5A/B, and DH-V22A/B. COMPLETED
(58) LM-43A ICS/NNI Loss of Power Indication	Pre-op	Startup Requires	1) Perform Loss of Power test and verify analysis per TDR 172.	1) Component failure modes and alarms are in agreement with TDR 172.	ICS/NNI Power Failure Analysis Verification TP 250/1.1, MTX 132.5.1.1 COMPLETED
			2) Verify proper operation of the relays and indicator lights of the ICS/NNI power monitor cabinet.	2) Relays/Indicator lights energize/de-energize as required.	ICS/NNI Power Monitor Cabinet Operability Test TP 250/2.1, MTX 132.5.1.2 COMPLETED

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(59) LM-43B Changes in Position Failure	Pre-op	Restart Report	Verify appropriate failure position/control transfer of: 1) Atmospheric dump valves transfer/fail closed 2) Turbine bypass valves fail closed. 3) Pressurizer Spray Valve fails closed. 4) Pressurizer heater low level cutoff override functions properly.	1) ADVs transfer and fail closed. 2) TBVs fail closed. 3) PZR spray valve fails closed. 4) PZR heater low level cutoff can be manually overridden.	ICS Valve Fail Position Modification Test - TP 250/1.1, MTX 132.5.2.1 COMPLETED
(60) LM-43C Control Room Indication Indep. of ICS/NNI	Pre-op	Startup Requires	Calibrate additional instrumentation loops.	Instrument loops calibrated within acceptable tolerance.	Instrument Test - TP 250/1, MTX 127.5.3.1 COMPLETED
	HFT	Startup Requires	Record data as required from the control indicators at RCS plateaus of: a. cold conditions b. 250°F c. 340°F, 550 psig d. 525°F, 2155 psig	1) Data has been recorded for evaluation by Tech Func.	Controlling Procedure for Low Power Physics Testing; Enclosure 12 TP 700/1, MTX 700.5.1.6
(61) LM-51A Install Additional Shield Wall Aux. Bldg. 305'	Pre-op	Startup Requires	1) Verify that the cables to be relocated are functional.	1) Components operate satisfactorily	Electrical Test - TP 250/2, MTX 165.5.1.2 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(62) NM-15 New Industrial Cooler	Pre-op	Startup Requires	1) Flow balance cooling water.	1) Adequate flow to both coolers.	Industrial Coolers Functional Test - TP 247/1, MTX 192.5.1.6 COMPLETED
			2) Verify proper operation of controls.	2) Controls operate satisfactorily.	
			3) Verify design blowdown rates.	3) Minimum of 2 GPM & maximum 55 GPM blowdown rate.	
			4) Verify spray water distribution channels are leveled and functioning properly.	4) Channels level and function properly.	
			5) Verify sump water level & makeup float valve are properly adjusted.	5) Sump level & float are properly adjusted.	
			6) Verify the high and low sump alarms energize on high and low sump levels.	6) Proper alarm energizes on respective sump level.	
	HFT	Startup Requires	Verify that industrial coolers provide sufficient cooling to maintain RB temperatures less than design limits as RCS in heated up to HFT.	RB design temperature limits are not exceeded at HFT conditions.	Industrial Coolers Functional Test - TP 247/1, MTX 192.5.1.6 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(63) NM-17 IGSC Weld Repair	Pre-op	Startup Requires	1) Following the required weld repairs, perform the hydrostatic/flush procedures test on Decay Heat Removal, Bldg. Spray Makeup and Purification, and Spent Fuel Systems.	1) Tests performed satisfactorily.	Hydro/Flush Procedures MTX 287.5.1.1 thru .4
(64) NM-34 480V Bus Undervoltage Trip	Pre-op	Startup Requires	1) Verify that on an undervoltage condition on 4KV Bus 1D, the motor feeder breakers on 480V busses 1P and 1R trip.	1) Motor feeder breakers trip as required.	4KV ES Bus Undervoltage Relay Functional Test - TP 426/2, MTX 271.5.2.6 COMPLETED
			2) Verify that on an undervoltage condition on 4KV Bus 1E, the motor feeder breakers on 480V busses 1S and 1T trip.	2) Motor feeder breakers trip as required.	
NM-40 Fire Protection					
(65) NM-40 Isolation Dampers	Pre-op	Startup Requires	1) On fire dampers equipped with fusible links, disconnect the fusible link and verify damper closure.	1) Dampers close fully.	Fire Protection Isolation Damper Functional Test - TP 239/1, MTX 102.5.1.6 COMPLETED
			2) On fire dampers equipped with electric thermal links, disconnect the electrol thermal link and verify damper closure.	2) Dampers close fully.	
			3) On fire doors equipped with fusible links, disconnect the door and verify door closure.	3) Doors close fully.	

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(66) NM-40 cont'd. Fire Detectors	Pre-op	Startup Requires	1) Verify proper operation of the fire detectors and fire detection control panels in the following locations: a. Intermediate Bldg. b. Control Bldg. c. Auxiliary Bldg. d. Reactor Bldg.	1) a. Detector socket wiring is satisfactory. b. Detector sensitivity is set between 50mv and 100mv	Fire Protection Sys.- New Detector Functional Test - TP 439/1, MTX 102.5.2.6 COMPLETED
			2) Verify proper operation of the Central Alarm Station and Uninterruptable Power System Building Fire Detectors and fire detection control panel.	2) a. Detector socket wiring is satisfactory. b. Detector sensitivity is set between 50mv - and 100mv.	
(67) NM-40 Computer Room Halon System	Pre-op	Startup Requires	1) Verify that the Control Panel and related smoke detectors are operational.	1) System is operational.	Fire Protection - Computer Room Halon Functional Test - TP 239/2, MTX 102.5.3.6 COMPLETED
			2) Check the sensitivity settings of the smoke detectors.	2) Sensitivity value shall be between 50mv and 100mv.	
			3) Manually discharge the Halon bottles into the modcomp. Verify the following occurs: a. Fire dampers FD-48, FD-49 and FD-57 shut. b. Primary air conditioning unit AH-E-170 and backup air conditioning unit AH-E-65.	a. Dampers shut. b. Air conditioning units stop.	

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(67) NM-40 cont'd. Computer Room Halon System	Pre-op	Startup Requires	3) c. Stop alarm lights and associated alarms actuate. d. Measure the Halon concentration in the Modcomp Computer Room for 10 minutes.	c. Alarms/alarm lights actuate as required. d. Halon concentration after 10 minutes is $\geq$ 7%.	
(68) NM-40 Hose Reels and Sprinklers	Pre-op	Startup Requires	1) Perform Hydrostat Tests on the Fire Service System. 2) Verify operation of annunciators associated with the Hose Reels and Sprinkler System.	1) The new system does not leak under hydrostatic conditions. 2) Alarm/annunciator operate as required.	Hose Reels and Sprinkler Hydro Tests - TP 250/3, MTX 102.5.4.3 COMPLETED Fire Protection System Alarms - Functional Test - TP 439/2, MTX 102.5.6.6
(69) NM-40 Deluge System	Pre-op	Startup Requires	1) Testing of the Auxiliary Bldg. Deluge Sys. will be performed to verify the following: a. Manual actuation of the Deluge System. b. Remote electrical actuation of the Deluge System. c. Actuation of Control Room annunciators and local alarms.	a. System actuates manually. b. System actuates as required. c. Annunciators/Alarms actuate as required.	

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(70) NM-40 New Annunciator	Pre-op	Startup Requires	1) Verify operability of the test and acknowledge push buttons on the fire protection annunciator panel located on the control room panel PLF.	1) Test and acknowledge push buttons operate as required.	Fire Protection Sys. Alarms - Functional Test - TP 439/2, MTX 102.5.6.6
			2) Verify actuation of control room annunciators associated with the fire service valves tamper switches.	2) Annunciators actuate as required.	
			3) Verify actuation of local alarm bells and control room annunciators associated with Reactor, Control, and Intermediate Bldgs. & Security Area Fire Detection Panels.	3) a. Local alarm bells actuate as required. b. Control Room annunciators actuate as required.	

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(71) NM-40 cont'd. Additional Battery Powered Emergency Lighting	Pre-op	Startup Requires	1) Verify lamps actuate by depressing the test push button. 2) On loss of power to the lighting circuit, verify automatic actuation of the lamps. 3) Determine the length of time the batteries can sustain a continuous discharge while providing adequate lighting. 4) Determine the length of time the batteries require to fully recharge. 5) Verify lamps are positioned to afford maximum lighting in each area.	1) Lamps actuate. 2) Lamps actuate automatically. 3) Batteries are capable of a minimum of 8 hours continuous discharge while providing lighting. 4) Length of time shall be $\leq$ 24 hours 5) Lighting is determined to be sufficient.	Emergency Lighting Functional Test - TP 430/1, MTX 280.5.1.6 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(72) NM-43 RC and Misc. Waste Evaporator Modifications	Pre-op	Startup Requires	1) Perform a Hydrostatic test on the RC Waste Evaporator System.	1) Integrity and leak tightness of welds and joints is verified.	RC Waste Evaporator Operational Leak Check - TP 250/3.1, MTX 141.5.1.3 COMPLETED
			1) Perform a hydrostatic test on the Misc. Waste Evaporator System.	1) Integrity and leak tightness of welds and joints is verified.	Misc. Waste Evaporator Operational Leak Check TP 250/3.2, MTX 141.5.1.3 COMPLETED
			1) Perform a Flush test on the RC Waste Evaporator System.	1) Flow through the system is verified.	RC Waste Evaporator Flush - TP 250/4.1, MTX 141.5.1.4 COMPLETED
			1) Perform a Flush test on the Misc. Waste Evaporator System.	1) Flow through the system is verified.	Misc. Waste Evaporator Flush - TP 250/4.2, MTX 141.5.1.4 COMPLETED
(73) NM-47 Control Room Emergency Phone Vital Power Supply	Pre-op	Startup Requires	1) Terminal voltage at receptacles in Shift Supervisor's office and Control Room.	1) Terminal voltage shall be approximately the same as bus voltage at panel TRB.	Control Room Emergency Phone Vital Power Supply - TP 250/2, MTX 274.5.2.2 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(74) PM-1 Reactor Building Emergency Cooling - Replace RB-V7	Pre-op	Startup Requires	1) Cycle RB-V7 and observe proper light indications in the Control Room.	1) Valve position indication operates correctly.	RB-V7 Control Logic TP 250/2.1, MTX 192.5.3.2 COMPLETED
			2) Verify the newly installed test switch in the Control Room allows for partial stroking of RB-V7.	2) New installed test switch operates correctly.	
(75) PM-3 Purge and Vent Valves - Installation of Thermal Air Flow Sensor/ Transmitter	Pre-op	Startup Requires	1) Perform Loop Calibration on the Flow Sensor/ Transmitter.	1) Calibrated values are within acceptable tolerances.	Instrumentation Test TP 250/1, MTX 191.5.1.1
(76) PM-4 Tailpipe Temperature Detectors on PORV and Code Safety Valves	Pre-op	Startup Requires	1) Perform Loop Calibration on the tailpipe temperature detectors.	1) Calibrated values are within acceptable tolerances.	PORV and Code Safety Valves Discharge Line Thermocouples Instrument Loop Calibration and Logic Test - TP 250/1.1, MTX 195.5.5.1
	HFT	Restart Report Supp. 1, Part 2, Question 36 AM 25	1) At hot shutdown conditions, the PORV will be lifted. Verify the temperature response of the tailpipe thermocouple on the PORV is sufficient to enable the operator to determine if the PORV is open.	1) Temperature response of Tailpipe Thermocouple on PORV is sufficient to determine PORV open/ closed position.	PORV Flow Indication Functional Test - TP 664/1, MTX 195.5.1.6 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(76) PM-4 cont'd.	HFT	Restart Report Supp. 1 Part 2, Question 36 AM 25	2) Verify that lifting the PORV does not adversely effect the tailpipe thermocouples on the code safety valves.	2) The temprature values from the tailpipe thermocouples on the code safeties increase less than 10°F from the pre-PORV lift value.	
			3) Record and plot the temperature response of the PORV tailpipe thermocouple following closure of the PORV.	3) Compare the resulting graph to the graph supplied by Tech Func. showing the predicted cooldown durve.	
(77) PM-8A Technical Support Center Computer Connections	Pre-op	Startup Requires	1) Verify lamps actuate by depressing the test push button.	1) Lamps actuate.	Test of Technical Support Center Emergency Lights - TP 250/2.1, MTX 36.5.2.2 COMPLETED
			2) On loss of power to the lighting circuit, verify automatic actuation of the lamps.	2) Lamps actuate automatically.	
			3) Determine the length of time the batteries can sustain a continuous discharge while providing adequate lighting.	3) Batteries are capable of a minimum of 3 hours of continuous discharge while providing lighting.	
			4) Determine the length of time the batteries require to fully recharge.	4) Length of time shall be $\leq$ 24 hours.	
			5) Verify lamps are positioned to afford maximum lighting in the area served.	5) Lighting as determined to be sufficient.	

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(78) PM-10 (Multiple Tasks)					
1. Control Room Console Arrangement	Pre-op	Startup Requires	1) Verify proper control logic of the MDEFP's (EF-P2A/B) after the removal of the alternate power feeds and controls.	1) The control switch in Control Roqm opens/ closes circuit breakers as required.	Motor Driven Emergency Feedwater Pump Control Logic Test - TP 250/2.1, MTX 49.5.1.2 COMPLETED
2. Emergency Feedwater Mimic	Pre-op	Startup Requires	1) Cycle selected main steam, condensate and Emergency Feedwater valves from the Control Room and observe position indication.	1) Valve indication agrees with valve position.	EFW Mimic Component Operational Check - TP 250/2.1, MTX 49.5.2.2 COMPLETED
			2) Test operation of the Defeat/Normal Selector	2) Alarms and indicating lamps operate as required.	
			3) Test operation of the condensate make-up and dump mode selector and corresponding indicator lamps.	3) Proper indicator light corresponding to push button selected lights.	

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(78) PM-10 cont'd.					
3. ESAS Panel PCR Human Factors Improvements	Pre-op	Startup Requires	1) Verify that the press-to-test function of the indicating lamps on panel PCR is operable.	1) Press-to-test function operates properly.	ESAS Panel Indication Test - TP 250/2.1, MTX 91.5.4.2 COMPLETED
			2) Verify the indicating lamps on Panel PCR illuminate and provide correct equipment position indication.	2) All indicating lamps light and indicate correct equipment position.	
4. Control Room Annunciator Revised Locations	Pre-op	Startup Requires	1) Verify annunciator window locations and legends are correct.	1) Installed alarm windows agree in location, legend, and color code with design documents.	Verification of Annunciator Windows/ Alarm Circuit Modification Test - TP 250/2.1, MTX 281.5.4.2 COMPLETED
			2) Verify proper alarm response to selected alarm windows.	2) Alarms respond as designed.	
(79) PM-11 Remote Shutdown Panel Area Communicator	Pre-op	Startup Requires	1) Verify cable/wiring terminations have been completed correctly.	1) Cable/wiring terminations are correct.	Electrical Test - TP 250/2, MTX 279.5.1.2 COMPLETED
(80) PM-18 Vital Power to Telephone Equipment	Pre-op	Startup Requires	1) Verify cable/wiring terminations have been completed correctly.	1) Cable/wiring terminatons are correct.	Electrical Test - TP 250/2, MTX 274.5.3.2 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(81) Aux. Bldg. HVAC Flow Measurements	Pre-op	Startup Requires	1) Verify Aux. Bldg. exhaust fan performance.	1) AH-E-14A/B/C/D fans meet performance curve requirements.	Aux. Bldg./Fuel Handling Bldg. Air Flow Measurements - SP 141/2, MTX 12.5.1.6
			2) Perform air flow measurements of the Branch ducts of the Auxiliary Building HVAC System.	2) Aux. Bldg. HVAC Flow measurements transmitted to Tech Functiond Design engineer for evaluation.	
(82) Reactor Bldg. Purge Flow Measurements	Pre-op	Startup Requires	1) Perform air flow measurements on various RB Purge Fan combinations.	RB Purge Air Flow data transmitted to Tech Functions Design engineer for evaluation.	Reactor Bldg. Purge Air Flow Measurements SP 141/1, MTX 191.5.1.6
			2) Determine the effect of RB Purge operation on Aux. Building HVAC.		
(83) Source Range/Intermediate Range Detectors	Pre-op	Startup Requires	1) Following high density moderating sleeve replacements, verify baseline count rates for source range and intermediate range detectors to support Reactor startup following the extended shutdown.	Optimize Source Range/Intermediate Range Detector Instrumentation equipment. Determine background noise.	Source/Intermediate Range Detector Test - TP 358/1, MTX 153.5.1.6 COMPLETED
	HFT	Startup Requires	Record source range detector count rates at various RCS temperature plateaus and control rod positions during HFT.	Source range detectors track reactivity changes during RCS temperature changes and control rod movements.	Controlling Procedure for Hot Functional Testing - TP 600/1, MTX 600.5.1.6 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(84) NM-39 Hittman Sys.	Pre-op	Startup Requires	Verify leak tightness of new piping.	No visible leakage.	Hittman System Operational Leak Test - TP 250/3.1, MTX 245.5.1.3
(85) Beckman H_2/O_2 Analyzer	Pre-op	Startup Requires	Verify H_2/O_2 Analyzers perform in accordance with design.	Analyzers perform within vendor manual tolerance	Beckman H_2/O_2 Analyzer Functional Test - TP 377/3, MTX 111.5.2.6
(86) OTSG Task 8 Modifications	Pre-op	Startup Requires			
1. A-3 Reroute Secondary PLT Drains	Pre-op	Startup Requires	Verify drainage flow paths and Industrial Coolers Blowdown Collection Tank interlocks.	1) Flow paths per design.	1) Flow Verification Test - TP 250/4.1, MTX 262.5.1.4 COMPLETED
				2) Collection tank sump pump interlocks operate per design.	2) Electrical Test - TP 250/2.1, MTX 192.5.5.2
2. A-5 Turbine Bldg. Sump Radiation Monitor	Pre-op	Startup Requires	Verify calibration of TB Sump/Powdex Sump Rad. Monitors and their associated pump interlocks and alarms.	Calibration within design tolerance and interlocks and alarms operate per design.	Electrical Test - TP 250/2.1, MTX 183.5.6.2
3. A-6 IWTS Piping Mod	Pre-op	Startup Requires	Perform Operational Leak/Flow Test on Modification	No leakage observed and flow through truck off loading station verified.	Operational Leak Test TP 250/3.1, MTX 124.5.1.3 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(86) OTSG Task 8 Cont'd.					
4. B Mods Powdex Backwash Recovery System and Dewatering System	Pre-op	Startup Requires	Verify Modified System performs per design by demonstrating the ability to sluice resins, separate the resins, recover the water and dewater the spent resins.	System operates per design.	Powdex Backwash Recovery System Func. Test - TP 265/1, MTX 172.5.3.6
5. C Mod - Water Storage Tank	Pre-op	Startup Requires	Verify leak tightness of cross connection piping from TB sump to storage tank.	No visible leakage.	Operational Leak Test SP 250/3.1, MTX 41.5.2.3

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
II. Non Modified Systems	Pre-op	Startup and Plant requires	Verify electrical interlocks and control functions of system components.	System interlocks and control functions perform satisfactorily.	The 17 systems were selected based on the fact these systems were not included in the Surveillance Program to verify performance.
(1) Auxiliary and Fuel Handling Building Heating and Vent	"	"	"	"	TP 941/1, MTX 900.5.1.16 COMPLETED
(2) Circulating Water	"	"	"	"	TP 908/1, MTX 900.5.1.1 COMPLETED
(3) Condensate System	"	"	"	"	TP 912/1, MTX 900.5.1.2 COMPLETED
(4) Condenser Air Removal - Main and Auxiliary	"	"	"	"	TP 913/1, MTX 900.5.1.3 COMPLETED
(5) Fluid Block System	"	"	"	"	TP 940/1, MTX 900.5.1. COMPLETED
(6) Gaseous Waste Disposal	"	"	"	"	TP 968/1, MTX 900.5.1.12 COMPLETED
(7) Instrument Air System	"	"	"	"	TP 948/1, MTX 900.5.1.5 COMPLETED
(8) Intermediate Cooling Water System	"	"	"	"	TP 951/1, MTX 900.5.1.6
(9) Main Steam System	"	"	"	"	TP 954/1, MTX 900.5.1.7 CANCELLED

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
II. Non Modified Systems(cont'd.)	Pre-op	Startup and Plant requires	Verify electrical interlocks and control functions of system components.	System interlocks and control functions perform satisfactorily.	The 17 systems were selected based on the fact these systems were not included in the Surveillance Program to verify performance.
(10) Nuclear Service Closed Cooling Water	"	"	"	"	TP 959/1, MTX 900.5.1.8 COMPLETED
(11) Nuclear Service River Water	"	"	"	"	TP 960/1, MTX 900.5.1.9 COMPLETED
(12) Penetration Cooling System	"	"	"	"	TP 963/1, MTX 900.5.1.11 COMPLETED
(13) Penetration Pressurization System	"	"	"	"	TP 962/1, MTX 900.5.1.10 COMPLETED
(14) Reclaimed Water System	"	"	"	"	TP 972/1, MTX 900.5.1.13 COMPLETED
(15) Secondary Service Closed Cooling Water	"	"	"	"	TP 978/1, MTX 900.5.1.14 COMPLETED
(16) Secondary Service River Water	"	"	"	"	TP 979/1, MTX 900.5.1.15 COMPLETED

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
II. Non Modified Systems (Cont'd.)					
(17) Alternate Shutdown Panel	Pre-op/HFT	Startup Requires	1) Verify selected analog inputs are connected to the proper panel location. 2) Verify all input signals are functional.	1) Connections are correct. 2) All input signals are functional.	Plant Test Panel Input Verification TP 944/1 - MTX 127.5.1.6

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
III. Subject					
(1) RCP Operation/ Test	HFT	Startup Requires	Record various RC pump operational parameters at 532°F, 2155 psig with various combinations of RCPs.	Vibration, flow, seal leakoff, etc. are within acceptable tolerance of design.	RCP Operation/Flow Test, TP 674/1, MTX 600.5.1.10. COMPLETED
(2) RCP Flow Test	PET	NRC requires per 5/17/79 letter Reid to Herbein (50-289)	Verify 4RCP core flow at 100% power is greater than 106.5% of design flow rate.	Flow is greater than 106.5% of design at 100% core power or $\geq$ 141.9 X 10^6 #/hour	SP 1303-1.2
(3) Turbine Generator Operation	PET	Startup Requires	Verify acceptability of various TG acceleration, speed and loading parameters and characteristics. Verify proper operation and performance of TG vs. load. (15, 40, 76, 100%).	Acceleration speed sets and load set function as required. TG performance is acceptable.	TG Operation Test - TP 885/1, MTX 800.5.1.13.
(4) Main Steam to EFP Turbine	HFT	Startup Requires	Verify that EFP turbine does not overspeed trip on fail open to mechanical stop of MS-V6 and pump delivers flow in 30 seconds or less.	EFP turbine does not overspeed trip on failure of MS-V6 open and pump delivers flow in 30 seconds or less.	Main Steam to EFP - TP 654/2, MTX 143.5.1.7.
(5) Nuclear Chemical Addition	HFT	Startup Requires	Verify various features of Nuc Chem Add System, such as sample cooler outlet temperature, sampling capability, Hays Gas Analyzer operation, proper operation of boric acid pumps and valve closing times?	1) CA-C1 outlet temperature $\leq$ 120°F. 2) CA-C2A/B outlet temperature $\leq$ 100°F. 3) Samples flow at $\geq$ 0.4 gpm.	Perform TP 677/2 - Nuclear Chemical Addition and Sampling System Operational Test, MTX 600.5.1.11.

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(6) Intermediate Cooling Water System Flow Test	HFT	Startup Requires	Flow balance Intermediate Cooling Water to various components during heatup and at HFT and determine heat removal capacity of letdown coolers.	1) Component discharge temperatures are acceptable. 2) Letdown cooler maximum heat removal capacity is determined.	TP 651/1, MTX 600.5.1.12 COMPLETED
(7) Main Feedwater Block & Control Valve Testing	HFT/	Startup Requires	1) Determing the seat Leakage by the FW block and control valves.	1) FW control and block valve leakage is $\leq$ 5% full flow.	1) Feedwater Block and Control Valve Functional and Leakage Test - TP 636/1, MTX 600.5.1.14. 2) Need scope and detailed from Systems Engineering, including evaluation of and further definition of acceptance criteria.
(8) Pressurizer Operation Test	HFT	Startup Requires	1) Determine pressurizer heat losses. 2) Verify RCS saturation margin can be maintained. 3) Verify ability of 126 KW of pressurizer heater to stabilize RCS pressurizer and saturation margin. 4) Verify acceptable operation of pressurizer level and pressure alarms, interlocks & controls.	1) $\leq$107KW when the spray bypass flow is factored in. 2) Saturation margin remains $\geq 20^{\circ}F$ for 2 hours following loss of heaters. 3) Saturation margin does not continue to decrease following energizing 1 bank of heaters on the ES bus. 4) Alarms, interlocks & controls operate as required.	Pressurizer Operation Test - TP 664/2, MTX 195.5.2.7.

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(9) Non-Nuclear Instrumentation	HFT	Startup Requires	Compare various non-nuclear instrument channels with each other during heatup to HFT.	Indicator compare within acceptable tolerance	Non-Nuclear Instrumentation Hot Operation and Calibration TP 657/1, MTX 152.5.3.7. COMPLETED
(10) Thermal Expansion checks for Hangers, Supports, and LOCA Restraints	HFT	Startup Requires	Verify proper installation and adjustment of hangers, supports and LOCA restraints prior to heatup and at various pre-selected temperature plateaus during heatup to HFT (includes Main Steam Heated Post Supports).	Hangers, restraints and LOCA supports respond to temperature within an acceptable tolerance of design.	Thermal Expansion Checks for Hangers, Supports, and LOCA Restraints (HFT) - TP 600/3, MTX 600.5.1.8. COMPLETED
	PET	Startup Requires	Verify proper thermal movement of hangers, supports and LOCA restraints during escalation to full power for those systems whose thermal movement is a function of power.	Hangers, supports and LOCA restraints respond to temperature within an acceptable tolerance of design.	Thermal Expansion Checks for Hangers, Supports, and LOCA Restraints (PET) - TP 800/3, MTX 800.5.1.8.
(11) HFT Checkpoints	HFT	Startup Requires	1) Monitor ventilation system performance by recording ambient temperature at various locations as a function of RCS heatup to HFT. Areas checked include a) Reactor Building b) Nuclear Services & De-	1) Ventilation is adequate to maintain temperatures less than acceptable tolerance from design.	HFT Checkpoints - TP 600/4, MTX 600.5.1.9. DELETED

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(11) HFT Check-points (cont'd)			cay Heat Closed Area and Intermediate Building. 2) Verify adequate flow balancing of coolers in DHCCW, NSCCW, and SSCCW systems.	 2) System cooler discharge temperatures are within acceptable limits of design.	Same as previous page.
(12) Controlling Procedure for Hot Functional Testing	HFT	Startup Requires	1) Sequences the performance of tests, Surveillance Procedures and Emergency Procedures during heatings to HFT and HFT conditions.	NA	Controlling Procedure for Hot Functional Testing - TP 600/1, MTX 600.5.1.6. COMPLETED
(13) Zero Power Physics Testing	Zero and Low-Power Testing	Reg. Guide for refueling Testing Requirements.	1) Determine critical boron concentrations. 2) Determine sensible heat and NI overlap. 3) Determine isothermal temperature coefficient. 4) Determine differential and integral Control Rod WORTHS 5) Determine "all rods out" boron concentration and differential boron worth	1230 $\pm$ 100 PPmb 1 X 10^{-7} and 1 decade of overlap Extrapolated to provide negative moderator coefficient above 95% power. $\pm$ 10% of predicted total worth and $\pm$ 15% of individual group worths 1255 $\pm$ 100 PPmb	1) Zero Power Physics Test - TP 700/1, MTX 700.5.1.6. will include RP 1550-02.

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(13) (cont'd.)			6) Determine "all rods out" isothermal temperature coefficient.	Extrapolated to provide negative moderator coefficient above 95%.	
			7) Perform shutdown margin verification.	>1%	
			8) Perform ejected rod worth measurements.	<1% K/K	
			9) Verify method of reactivity measurement VS calculations.	$\pm$ 5% of calculations using doubling time.	
(14) Low Power Natural Circulation Testing	3% Power	1) TMI-1 Restart Hearings	1) Verify OTSG level control at 30" on SU range with EFPs on trip of main FPs.	30" $\pm$ 2" / 10"	Low Power Natural Circulation Test - TP 700/2, MTX 700.5.1.7
		2) NUREG 0737	2) Verify auto start of EFPs on trip of main FPs.	all 3 EFPs start	
		3) Restart Report Section 8.4.9	3) EFW flow indicators in control room can be used to monitor EFW flow.	Flow indicators provide EFW flow indications to CROs per EP 1202-26A	
		4) 6/16/80 NRC memo (Hanauer to Eisenhut)	4) Verify ability to control OTSG level with new manual EF-V30A/B control stations.	30" $\pm$ 2" / 10" 50 $\pm$ 5%	

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(14) (cont'd.)		5) 1/20/81 NRC letter (Reid to Hukill)	5) Verify bottled air supply has the capability of supplying air to the emergency feedwater system for 2 hours following loss of the AC dependent air system.	1) SG level is maintained at 30" $\pm$ 10" with passive system (no AC power). 2) EFP flow and discharge pressures are within acceptable limits of design with passive system (no AC power).	
		6) Restart Report Sect. 2.1.1.7, 2.1.2.6, & 8.2.1 AM25	6) Verify smooth transition to natural circulation flow and ability to control at 50% on OTSG OP range.	50 $\pm$ 5%	
		7) Restart Report Supp. 1,Part 1 Quest. 19 & 55 AM25	7) Train operators on various aspects of natural circulation flow.	all shifts trained.	
		8) Restart Report Supp.1 Part 2, Ques. 2 & 14 AM 25	8) Verify that the operator can maintain $\geq$ 20°F saturation margin using existing plant procedures - OP 1102/16.	$\geq$20°F saturation margin can be maintained.	
		9) NUREG 0694 Sect. II E.1.2 June 1980	9) Verify a minimum of 20°F saturation margin can be maintained for at least 2 hours following loss of pressurizer heaters.	$\geq$20°F saturation margin for 2 hours.	

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(14) (cont'd.)		10) SER Short Term Actions, Additional Item 6, June 1980	10) Verify that 126 KW of pressurizer heaters is sufficient to stabilize RCS pressure.	RCS pressure & saturation margin do not decrease after pressurizer heaters are energized from ES bus.	
			11) Determine the effect of decreasing OTSG level on natural circulation flow and saturation margin.	The effect of decreasing steam generator level on natural circulation flow & saturation margin are within acceptable tolerance band of predictions.	
(15) Nuclear Instrumentation Calibration	PET	Tech Specs	Calibrate neutron detectors at 15, 40, 76, and 100% power 1) Set power to heat balance. 2) Set gains on sum and difference amplifiers.	± 2%	SP 1302-1.1 - Power Range Calibration
(16) Unit Load Steady State Testing	PET	Startup Requires	Plot various RCS and Secondary plant operating parameters against their maximum /minimum curves at 15, 40, 76, and 100% power.	Values fall between maximum and minimum curves.	TP 800/5, MTX 800.5.1.10. Unit Load Steady State Test.
(17) Unit Load Transient Testing	PET	Startup Requires	Perform various transient tests to verify plant response & enable optimum tuning of ICS in each mode of operation. 1) Trip one FW pump from 90 - 100% power. 2) Initiate CRD runback (simulated) from 76% power.	Plant exhibits acceptable response.	Unit Load Transient Test - TP 800/6, MTX 800.5.1.11. DELETED

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(18) Heat Balance	PET	Tech. Specs. Require	1) Perform heat balance calculations per OP 1103/16 and compare with computer program at 15, 40, 76, and 100% power. 2) Use heat balance power to adjust power range nuclear detectors at 15, 40, 76, and 100% power.	± 2%	OP 1103/16 - Heat Balance Calculations.
(19) Turbine Bypass Valve Testing	PET	1) Startup Requires	1) Determine bypass valve response to setpoint and changes in setpoint at 10% power.	Acceptable response	Turbine Bypass Valve Test - TP 885/2, MTX 800.5.1.9.
		2) 4/10/80 letter from Pat Walsh to Tom Hawkins PA/055	2) Determine bypass valve opening time and peak steam line pressure reached during the 40% loss of FW trip & the 100% turbine trip and verify correct setpoint change on reactor trip.	≤3 seconds opening time and ≤1100 psia peak pressure.	
(20) Feedwater System Operations and Tuning	PET	Startup Requires	1) Verify proper operation of feedwater heater drains, extraction system and feedwater cycle at 15, 40, 76, and 100% power.	Operation acceptable.	TP 836/1, MTX 800.5.1.15, Feedwater System Operation and Tuning.

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(21) Integrated Control System Tuning	PET	Startup Requires	Perform required tuning to optimize ICS response during escalation to power.	Control is acceptable during steady state and transient testing and operations.	Integrated Control System Tuning - TP 849/1, MTX 800.5.1.14.
(22) PET Checkpoints	PET	Startup, Requires	Flow balance secondary service closed cooling water to components at 15, 40, 76, and 100% power.	Design outlet flow temperatures are not exceeded.	PET Checkpoints - TP 800/7, MTX 800.5.1.12. DELETED
(23) Core Power Distribution Verification	PET	Reg Guide on Refueling Testing Requirements	Determine Core Power distribution at power levels of 15, 40, 76, and 100%. Verify linear heat rate and DNBR values are acceptable.	Core power distribution DNBR, and linear heat rate are acceptable.	RP 1550-08 - Core Power Dist. Verification and SP 1301-9-8 - Core Power Map Distribution.
(24) Incore Neutron Detectors	PET	Tech Specs Require	Calibrate backup incore detectors and verify proper operation at 15 and 40% power	Minimum number of detectors operable and backup detectors calibrated.	SP 1301-5.3
(25) Power Imbalance Detector Correlation	PET	Reg Guide on Refueling Testing Requirements	Determine the relationship between incore detector readings and out-of-core detector readings and adjust the offset slope accordingly at 40% power.	Slope adjusted to minimum of 1.15.	RP 1550-04 - Power Imbalance Detector Correlation Test
(26) Reactivity Coefficients at Power	PET	Reg Guide on Refueling Testing Requirements	Determine isothermal temperature coefficient and calculated moderator coefficient at 100% power; also determine power Doppler Coefficient.	1/Moderator coefficient not positive above 95% power. 2/Power Doppler Coefficient $\leq$ -5.5 PCM/% power.	RP 1550-05 - Reactivity Coefficients at Power Test.

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(27) Unit Acceptance Test	PET	Plant Requires	Verify steam output ≥ NSS contract warranty at 100% power.	≥ 10,020,000 #/hr steam at 925 psig and 570°F when supplied with feedwater at 1020 psig and 450°F.	RP 1550-09.
(28) Turbine Overspeed Testing	PET	Tech Spec 4.1-1.39 requires	Perform turbine overspeed testing following shell warming and initial loading to ≥ 12%.	Mechanical turbine overspeed 110-111% (1980-1998 RPM); backup overspeed 112% (2016 $^{+0}_{-10}$ RPM)	SP 1303-11.19
(29) RCS Leakage	HFT	Tech Specs Require	Perform RCS hot leakrate measurements and compare with computer program.	≤ 1gPM unidentified leakage. ≤ 10gPM identified leakage.	SP 1303-1[illegible]1
(30) Leakage Reduction Surveillance Testing	HFT	SER, Section 2.1.6.a, pgs. C8-31 and 32.	RC Sampling System leakage testing and criteria establishment will be accomplished during restart testing at hot shutdown.	Leakage reduced to as low as pratical.	SP 1303-11.30
(31) DH-V22 and CF-V Leak Check	HFT	TLL 137 (Herbein to Eisenhut)	CF-V5A/B, CF-V4A/B and DH-V22A/B will be tested by placing RCS pressure on the upstream side of each check valve and monitoring leakage on the downstream side.	Leakage is within acceptable tolerance.	SP 1300-3T

Mod/System/Subject	Plant Status	Committment Source	Test Scope	Acceptance Criteria	Remarks
(32) RCS Overcooling Control Test	PET	Tech Functions Requires	1) Demonstrate that CRO can properly throttle EFW flow to prevent overcooling of the RCS following loss of RCPs with OTSG level initially at 30" on startup range. 2) Verify EP 1102-16	1) The CRO can throttle EFW flow to prevent RCS overcooling. 2) EP 1102-16 provides adequate guidance to prevent overcooling.	TP 800/8, MTX 800.5.1.16 RCS Overcooling Control Test Will be performed following 40% loss of feed test.
(33) Natural Circulation Level Control Test	PET	Tech Functions Requires	Determine lowest level in OTSG that sustains natural circulation flow while on main feedwater.	Lowest level is determined.	Natural Circulation Level Control Test TP 800/9, MTX 800.5.1.17. Will be performed following 100% turbine trip test.

Mod/System/Subject	Plant Status	Commitment Source	Test Scope	Acceptance Criteria	Remarks
(34) Controlling Sequence Testing for OTSG Repair Testing	HFT	Topical Report 008 SER for OTSG Repairs	Provide the controlling sequence for OTSG Tube Repair Testing by heating up and cooling down the RCS in a controlled manner while monitoring for leakage.	Leakage monitoring results are psotive, indicating that the OTSG Tube Repair Program will support power operations.	Controlling Sequence for OTSG Repair Testing - TP 600/2, MTX 600.5.1.7
(35) ORCS Hydrogen Peroxide Cleanup Testing	HFT	Startup Requires	Provide the controlling sequence for RCS, MU, and DH Systems Cleanup using Hydrogen Peroxide to remove residual sulphur.	Removal of residual sulphur to an acceptable level as determined by the Chemistry Department of Tech Functions.	RCS H_2O_2 Cleanup Test TP 600/4, MTX 600.5.1.9

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