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O. J. "Ike" Zeringue
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FEB 18 1992

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of) Docket Nos. 50-259
Tennessee Valley Authority) 50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - REQUEST FOR ADDITIONAL INFORMATION REGARDING THE RESTART TEST PROGRAM FOR UNITS 1 AND 3

Reference: TVA letter dated September 27, 1991, "Browns Ferry Nuclear Plant (BFN) - Restart Test Program (RTP) Description for Units 1 and 3"

This letter provides the scope of testing planned for BFN Units 1 and 3 for both the Restart Test Program and Power Ascension Testing Program to support NRC Staff review of these programs. In the referenced letter, TVA provided an overview of the Unit 2 Restart Test Program and a discussion of lessons learned, and defined the Restart Test Program planned for Units 1 and 3. On November 5, 1991, the NRC requested TVA provide a comparison of the similarities and differences between planned testing for Units 1 and 3 and actual Unit 2 testing. The Staff also requested that TVA relate how Unit 2 met Regulatory Guide (RG) 1.68 criteria and how TVA plans to meet that criteria for Units 1 and 3.

Enclosures 1 and 2 provide this information for the Restart Test Program and the Power Ascension Testing (PAT) Program respectively. The criteria review provided as part of each enclosure apply to both Units 1 and 3. Each enclosure has a table that correlates actual Unit 2 tests to planned Unit 3 tests. For the Restart Test Program (Enclosure 1, Table 1), there

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are 53 system functions (approximately 20 percent of the total) in which TVA can not conclusively determine whether a Unit 3 RTP test will be required until the Baseline Test Requirements Documents (BTRDs) are completed. The BTRDs contain the evaluation necessary to determine the full extent of testing required. TVA will provide the NRC an update of the table in Enclosure 1 to reflect the outcome of BTRD evaluations by December 31, 1992. However, this information is not needed to evaluate the Units 1 and 3 RTP and its conformance to RG 1.68 guidelines. Therefore, TVA requests that the NRC review and approve the RTP and the PAT Program for BFN Units 1 and 3, as described in Enclosures 1 and 2 and the referenced letter by June 1992.

A summary list of commitments contained in this letter is provided in Enclosure 3. If you have any questions, please contact Raul R. Baron, Site Licensing Manager, at (205) 729-7570.

Sincerely,

O. J. Zeringue

Enclosures
cc (Enclosures):
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ENCLOSURE 1

BROWNS FERRY NUCLEAR PLANT

UNITS 1 AND 3

RESTART TEST PROGRAMS

BROWNS FERRY NUCLEAR PLANT
UNITS 1 AND 3 RESTART TEST PROGRAMS

I. BACKGROUND

TVA's Restart Test Program Plan for BFN Unit 2 was initially submitted to the NRC by TVA letter dated October 7, 1986 and supplemented by letter dated July 13, 1987. The proposed program was also described in Volume III, Section 8.0 of the Nuclear Performance Plan. TVA presented the BFN Restart Test Program (RTP) to the NRC Staff during meetings held on April 26, 1988, and June 21, 1988. The NRC conducted several inspections of the implementation of the RTP as documented in Inspection Reports (IRs) 50-260/87-12, 87-27, 87-30, 87-33, 87-37, 87-42, 87-46, 88-02, 88-04, 88-05, 88-10, 88-16, 88-18, and 88-21. TVA's RTP was accepted by the NRC Staff as documented in Enclosure 2 to NRC letter dated August 12, 1988 and NUREG-1232, Volume 3, Supplement 1 dated October 24, 1989.

During the April 26, 1988 meeting between TVA and the NRC, the NRC requested additional information regarding the differences between typical preoperational test requirements, as described in Regulatory Guide 1.68, "Initial Test Programs For Water-Cooled Nuclear Power Plants, Revision 2, August 1978," and the BFN RTP. TVA provided the NRC with information that explained and justified the differences between the criteria used by BFN to identify system functions that require testing and the criteria in Section C.1 of the Regulatory Guide during the June 21, 1988 meeting. TVA also compared the types of testing identified in the Regulatory Guide and the types of testing that would be required at BFN Unit 2 prior to restart.

Subsequent to our September 27, 1991 submittal that described the RTP planned for Units 1 and 3, the NRC requested that TVA provide similar information for the Units 1 and 3 programs. This information is provided in Parts II and III of this Enclosure. Part II also provides a brief restatement of the Unit 1 and 3 RTP differences that were identified in the September 27, 1991 submittal.

II. UNITS 1 AND 3 RTP DIFFERENCES

As stated in TVA's September 27, 1991 RTP submittal, Units 1 and 3 will use the experience gained in the Unit 2 RTP to effect program improvements, to eliminate previous problem areas and to realize program efficiencies. For those systems that support safe shutdown, an assessment of the Unit 2 System Test Specifications (STS), test procedures, and test results will be performed. The results of that assessment, in conjunction with the Unit 3 baseline test requirements, will be the initiating basis for the Unit 3 STS. The differences between the STS for Units 1 & 3 and the STS for Unit 2 will be the result of differences identified in baseline test requirements, other engineering specified test requirements, system modifications, and system maintenance. The restart tests will be performed as an integrated part of the Startup Test Programs for Units 1 and 3, which will include post modification, post maintenance, restart, and surveillance tests.

BROWNS FERRY NUCLEAR PLANT
UNITS 1 AND 3 RESTART TEST PROGRAMS

While there are differences between BFN testing criteria and RG 1.68 testing criteria, there are no differences between the comparison of BFN testing criteria to RG 1.68 testing criteria provided in Part III, below and the similar comparison performed for BFN Unit 2 that was provided to NRC Staff during the June 21, 1988 meeting discussed in Part I, above. There are differences in the comparison of tests performed. These are categorized as follows:

- Testing performed during the Unit 2 RTP that fully satisfy requirements for Units 2 and 3 do not require reperformance.
- Additional testing may be required due to analysis of shared system modes (i.e., functions) between Units 2 and 3, and between Units 1, 2, and 3, in comparison to Unit 2 system modes alone.
- Additional testing may be required due to the addition of new system modes.

The extent of additional testing remains to be determined. The evaluation of these system mode differences will be made during the generation of the Baseline Test Requirements Documents (BTRD's). A detailed comparison of the BFN Units 1 and 3 RTP Criteria to RG 1.68 Criteria is provided in Part III below. Correlation of actual Unit 2 RTP tests to planned Unit 3 RTP tests is provided in Table 1 of this Enclosure. The RTP tests for Unit 3 are correlated to system modes (functions tested), as was done for the Unit 2 RTP. Since the Unit 3 RTP takes into consideration Unit 2/3 shared system interactions, there are system modes listed in Table 1 that were not identified during the Unit 2 RTP. The listing addresses only RTP tests. Therefore, surveillance tests that are performed to demonstrate operability, as required by Technical Specifications, are not identified. The RTP will take credit for some surveillance tests as satisfying RTP test requirements, however, these will be given an RTP test number.

III. Comparison of BFN Criteria to RG 1.68 Criteria

Regulatory Guide 1.68, Revision 2, describes the general scope and depth of initial test programs acceptable to the NRC staff for light-water-cooled nuclear power plants. Section A, below, explains and justifies the differences between the criteria used by BFN to identify system functions that require testing and the criteria in Section C.1 of the Regulatory Guide. Section B compares the types of testing identified in the Regulatory Guide and the types of testing that will be required at BFN Units 1 and 3 prior to restart. This information demonstrates that the BFN generation of testing requirements for Units 1 and 3 will cover all required aspects of system performance necessary to confirm functional configuration and, in combination with calculation/analyses will ensure adequate performance to mitigate FSAR Chapter 14 events as discussed in the BFN Nuclear Performance Plan, Volume 3.

A. Selection of Plant Features to be tested

Section C.1 of RG 1.68, Revision 2, provides criteria for selection of plant features to be tested. The criteria in subsections b, d, and e of

this section are consistent with BFN's approach for identifying the equipment necessary to support safe shutdown of BFN in the Design Baseline and Verification Program (DBVP). The DBVP evaluations for Units 1 and 3 will identify the equipment necessary to support safe shutdown for FSAR Chapter 14 design basis events. The Unit 2/3 Safe Shutdown Analysis (SSA), which is being documented as a BFN calculation, was performed to ensure that systems and portions of systems used to mitigate design basis events were identified. This included a thorough review of BFN event analyses and licensing commitments. (The NRC reviewed a similar calculation during an NRC audit of the DBVP for Unit 2 and found it to be acceptable). The Unit 3 RTP takes into consideration Unit 2/3 shared system interactions. Multi-unit functionality will be determined by test or analysis.

The following bases are used for not including features supporting criteria in C.1.a, c, and f of the Regulatory Guide.

- Criteria C.1.a - Those plant structures, systems, and components that will be used for shutdown and cooldown of the reactor under normal plant conditions and for maintaining the reactor in a safe condition for an extended shutdown period.

  Basis - Operation of equipment associated with normal plant cooldown will be excluded from consideration by identifying their mechanical/electrical interfaces with the systems required for shutdown from transients, accidents, and special events and ensure the "normal plant cooldown" systems' failure would not prevent the capability of achieving safe shutdown. In addition, the capability of these systems to perform their normal functions were tested during initial plant startup, have been demonstrated during plant operations since then, and may be demonstrated in support of other plant testing. This provides assurance that safe shutdown can be accomplished during normal plant conditions.

- Criteria C.1.c - Those plant structures, systems, and components that will be used for establishing conformance with safety limits or limiting conditions for operation that will be included in the facility technical specifications.

  Basis - BFN already has Technical Specifications/Surveillance Instructions. The requirements established by Technical Specifications are maintained independent of the test program. Therefore, this criterion is not applicable to the RTP.

- Criteria C.1.f - Those plant structures, systems, and components that will be used to process, store, control, or limit the release of radioactive material.

  Basis - This criteria will be applied to those systems required to support safe shutdown from transients, accidents, and special events. For other systems that this criteria may apply to, refer to the basis given for Criteria C.1.a, above.

B. Comparison of RG 1.68 Appendix A Recommended Testing to BFN Development of Test

RG 1.68, Appendix A provides details concerning the type of testing performed during preoperational testing programs. The following compares Appendix A recommended testing to the BFN development of tests. The headings correspond to Appendix A of RG 1.68. Some testing recommended by Appendix A is testing that is only performed prior to initial plant operation and does not apply to the BFN RTP.

- Appendix A - Section 1

  This section states that testing should include, as appropriate, manual operation, automatic operation, operation in alternate or secondary modes of control, and operation and verification tests to demonstrate expected operation following loss of power sources and degraded modes for which the systems are designed to remain operational. For the scope of testing defined for BFN in Part III.A above, these operational conditions are being considered and testing is being identified to demonstrate the capability to operate under these conditions, as appropriate, with exception of testing in the degraded mode. This exception is taken based on calculations that demonstrate the systems or portions of systems necessary to mitigate/provide for safe shutdown can perform their required functions during worst case conditions for the events/scenarios that they are required for.

  This section also states that testing should include, as appropriate, proper function of instrumentation and controls, permissive and prohibit interlocks, equipment protective devices whose malfunction or premature actuation may shut down or defeat the operation of systems or equipment, and system vibration, expansion, and restraint testing. For the scope of testing defined by BFN above, testing will be considered to address these functions with the exception of system vibration, expansion, and restraint testing.

  Vibration testing has been evaluated based on the testing performed during the BFN preoperational test program, the corrections made at that time, and the vibration problems identified during plant operation and the corrective action taken. Based on past operational performance and normal surveillance of critical pumps, BFN has identified and initiated appropriate action to address system vibration problems. In addition, the Power Ascension Testing (PAT) Program will monitor a list of specific locations (see Enclosure 2).

  System expansion and restraint testing is performed primarily during system heatup/startup testing and therefore, falls outside the scope of the BFN RTP, which is prior to nuclear heatup.

System/component alarm functions will not be verified as part of the RTP since no credit was taken for them for safe shutdown of the plant (some exceptions to this rule may apply on individual systems). Primary process variable indications necessary to perform manual actions are considered for testing where necessary.

RG 1.68 Appendix A, Sections 1.a through 1.o address system specific functional test requirements. The following provides TVA's basis for not performing certain types of tests recommended. It addresses only those types of tests not considered for inclusion in the BFN RTP for Units 1 and 3.

- Appendix A, Section 1.a - Reactor Coolant System (RCS)

  Integrated System Test - This test is focused on expansion and restraint test. During initial startup at BFN, testing was performed in this area, as described in FSAR Section 13.5.2. Since only minor modifications were made to this system, no additional testing is required.

  Reactor Vessel Internals - During initial testing at BFN the reactor vessel internals were tested as described in FSAR Section 13.5.2. Due to their passive role in performing their function and the minor modifications performed, no additional testing is specified for this portion of RCS.

  Both of these types of tests were performed during the power ascension part of the initial BFN preoperational test program.

- Appendix A, Section 1.b - Reactivity Control Systems

  Testing identified in this section was considered for inclusion in the RTP, as described in Appendix A, Section 1 above.

- Appendix A, Section 1.c - Reactor Protection System (RPS) and Engineered Safety Feature (ESF) Systems

  Response Time Testing - The integrated response time of the reactor protection system (RPS), in combination with its input sensors, will be verified by analyses/calculations. This is based upon reviews of the actual configuration and the maximum allowable time to perform the integrated function.

  Calibration - Credit is taken for the plant instrument calibration program for ensuring the accuracy of the process sensing instrumentation inputs. Calibration frequency and methodology is considered in instrumentation calculations.

- Appendix A, Section 1.d - Residual or Decay Heat Removal Systems

  Testing identified in this section was considered for inclusion in the RTP, as described in Appendix A, Section 1 above.

- Appendix A, Section 1.e - Power Conversion Systems

  This section is outside the scope of testing per the criteria review in Part III.A above.

- Appendix A, Section 1.f - Waste Heat Rejection Systems

  This section is outside the scope of testing per the criteria review in Part III.A above.

- Appendix A, Section 1.g - Electrical Systems

  Protective Devices/Trip Devices - Current and differential actuated tripping devices were not verified by test. They were verified based upon calculations/analyses being performed to show adequate fault protection and a coordinated protection scheme for the standby AC and DC power distribution system as appropriate.

  Load Carrying Capability of Equipment - The capability of the transformers, motor control centers, switchgear, etc. will be verified by calculation/analyses and procurement data. Therefore, no testing was required in this area except for the diesel generators.

  Degraded (minimum/maximum) Voltage Conditions - Only the protective transfers to onsite sources is verified by testing. Capability of loads to perform during degraded voltage conditions prior to transfers will be verified by analyses/calculations.

  Design Loading of Battery - A system integrated test to verify the battery loading is not required as part of the RTP. Calculations are provided to ensure the battery capacity is sufficient to perform its design function.

  Emergency Lighting - No baseline testing will be required on this system.

- Appendix A, Section 1.h - Engineered Safety Features

  Expansion/Restraint Tests - See the discussion for Appendix A, Section 1, above.

- Appendix A, Section 1.i - Primary and Secondary Containments

  Containment Design Overpressure Structural Test - This testing was performed during the initial plant construction part for code compliance as described in FSAR Section 5.2. This is a test that is ordinarily performed once to demonstrate code compliance.

  Secondary Containment Individual Valve Leakage Test - An integrated test was performed on Secondary Containment during the Unit 2 RTP to verify adequate subatmospheric pressures could be maintained

with the required equipment since secondary containment is common to all three units. No further baseline testing is considered necessary.

- Appendix A, Section 1.j - Instrumentation and Control Systems

  Testing identified in this section was considered for inclusion in the RTP, as described in Appendix A, Section 1 above.

- Appendix A, Section 1.k - Radiation Protection Systems

  Personnel Monitors and Radiation Equipment Survey Testing - This section is outside the scope of testing per the criteria review in Part III.A above.

  Laboratory Equipment - This section is outside the scope of testing per the criteria review in Part III.A above.

- Appendix A, Section 1.l - Radioactive Waste Handling and Storage Systems

  This section is outside the scope of testing per the criteria review in Part III.A above.

- Appendix A, Section 1.m - Fuel Storage and Handling Systems

  Operability and Leak Testing for gaskets and bellows - This function is not required based on an adequate quantity of water being available were the pool to drain to the level of the gaskets and bellows.

  Dynamic and Static Load Testing - Normal surveillance testing is performed on the fuel handling equipment prior to normal usage. Worst case failures of this equipment is bounded by the fuel handling accident. Equipment required to mitigate this event is included and appropriate testing performed.

- Appendix A, Section 1.n - Auxiliary and Miscellaneous Systems

  Control Room Habitability - Pressurization, isolation, and flow rates were verified during the Unit 2 RTP. Leak tightness is verified as necessary for pressurization during the pressurization test. Concerns with leak tightness on control room personnel exposure are addressed by calculations. Testing required as a result of any future modifications to this system would be addressed by the plant modification test program.

- Appendix A, Section 1.o - Reactor Components Handling System

  See response to Section 1.m above.

TABLE 1

CORRELATION BETWEEN BROWNS FERRY NUCLEAR PLANT UNITS 2 AND 3 RESTART TEST PROGRAMS

SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
001-01	PROVIDE MAIN TURBINE STOP VALVES < 90% OPEN TRIP SIGNAL TO REACTOR PROTECTION SYSTEM (99)	2-BFN-RTP-001	YES	
001-02	PROVIDE MAIN STEAMLINE ISOLATION VALVE < 90% OPEN TRIP SIGNAL TO REACTOR PROTECTION SYSTEM (99)	2-BFN-RTP-001	YES	
001-03	CLOSE MAIN STEAMLINE ISOLATION VALVES ON PRIMARY CONTAINMENT SYSTEM (64) GROUP 1 ISOLATION SIGNAL.	2-BFN-RTP-001	YES	
001-04	CLOSE MAIN STEAM DRAIN LINE VALVES ON PRIMARY CONTAINMENT SYSTEM (64) GROUP 1 ISOLATION SIGNAL	2-BFN-RTP-001	YES	
001-05	OPEN MAIN TURBINE STEAM BYPASS VALVES ON TURBINE CONTROL SYSTEM (47) TURBINE TRIP SIGNAL	2-BFN-RTP-047	YES	
001-06	CONTROLLED MANUAL DEPRESSURIZATION OF RPV BY OPENING ADS SAFETY RELIEF VALVES (SRVS).	2-BFN-RTP-001	YES	
001-07	OPEN SAFETY RELIEF VALVES (SRVS) ON HIGH REACTOR PRESSURE TO PROVIDE RPV PRESSURE RELIEF.	2-BFN-RTP-001	YES	
001-08	AUTO OPENING OF ADS SRVS UPON COINCIDENT SIGNALS OF 2 CS PUMPS (75) OR 1 RHR PUMP (74) AND EITHER LWL (L1&L3 FROM SYS 03) HIGH DW PRESSURE (SYS 64) AND TIME DELAY OR LWL (L1 FROM SYS 03) AND HIGH DW PRESSURE BYPASS TIME DELAY.	2-BFN-RTP-001	YES	
001-09	CLOSE MAIN TURBINE STOP VALVES UPON TURBINE CONTROL SYSTEM (47) DIVERSION OF HYDRAULIC PRESSURE DUE TO LOW CONDENSER VACUUM SIGNAL (SYSTEM 47).	2-BFN-RTP-047	YES	
001-10	MAIN STEAMLINE FLOW RESTRICTORS PASSIVELY LIMIT THE MASS FLOW RATE OF COOLANT BEING EJECTED FOLLOWING THE LINE BREAK UNTIL MSIV CLOSURE OCCURS.	NONE	NO	JUSTIFICATION BY ENGINEERING ANALYSIS
001-11	MANUALLY DEACTIVATE NON-ADS SRVS AND MSIV TEST CIRCUITS TO PREVENT INADVERTENT RPV DEPRESSURIZATION AND LOSS OF COOLANT.	2-BFN-RTP-001	YES	
001-12	PROVIDE LOW PRESSURE SIGNAL (IN MAIN STEAM LINE AT TURBINE) TO PRIMARY CONTAINMENT SYSTEM (64) GROUP 1 ISOLATION LOGIC (RUN MODE).	2-BFN-RTP-001	YES	
001-13	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY (RCPB).	2-BFN-RTP-068	YES	
001-14	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
001-15	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
001-16	CLOSE FEEDWATER PUMP TURBINE STOP VALVES (TO TRIP FEEDWATER TURBINE) ON LOSS OF HYDRAULIC PRESSURE DUE TO ENERGIZATION OF FEEDWATER SYSTEM SOLENOID.	2-BFN-RTP-003B	YES	

TBD TO BE DETERMINED
BTRD BASELINE TEST REQUIREMENTS DOCUMENT

TABLE 1

CORRELATION BETWEEN BROWNS FERRY NUCLEAR PLANT
UNITS 2 AND 3 RESTART TEST PROGRAMS

SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
001-17	PROVIDE MAIN STEAM LINE HIGH FLOW AND HIGH STEAM TUNNEL TEMPERATURE SIGNALS TO PRIMARY CONTAINMENT SYSTEM (64) GROUP 1 ISOLATION	2-BFN-RTP-001	YES	
001-18	PROVIDE STEAM FOR HPCI (73) TURBINE.	NONE	NO	PASSIVE COMPONENT FUNCTION
001-19	PROVIDE STEAM FOR RCIC (71) TURBINE.	NONE	NO	PASSIVE COMPONENT FUNCTION
001-21	PROVIDE MAIN TURBINE STOP VALVE CLOSURE POSITION SIGNALS TO TURBINE CONTROL SYSTEM (47) WHICH INITIATES OPENING OF MAIN TURBINE BYPASS VALVES.	2-BFN-RTP-047	YES	
001-22	CLOSE MAIN TURBINE BYPASS VALVES UPON TURBINE CONTROL SYSTEM (47) DIVERSION OF HYDRAULIC PRESSURE DUE TO LOW CONDENSER VACUUM SIGNAL (SYSTEM 47).	2-BFN-RTP-001	YES	
001-23	PROVIDE >30% TURBINE FIRST STAGE PRESSURE INTERLOCK SIGNAL TO REACTOR PROTECTION SYSTEM (99) FAIL-SAFE LOGIC.	2-BFN-RTP-001	YES	
001-24	PROVIDE MAIN STEAM LINE PRESSURE SIGNAL TO TURBINE CONTROL SYSTEM (47) FOR OPERATION OF MAIN TURBINE BYPASS VALVES.	2-BFN-RTP-001	YES	
001-25	MANUALLY CLOSE MAIN STEAMLINE ISOLATION VALVES (MSIVS) AND MAIN STEAM DRAIN LINE VALVES.	2-BFN-RTP-001	YES	
002-02	PROVIDE NORMALLY OPEN WATER SUPPLY TO RCIC SYSTEM (71) PUMP.	NONE	NO	PASSIVE COMPONENT FUNCTION
002-05	PROVIDE NORMALLY OPEN WATER SUPPLY TO RHR SYSTEM (74) PIPING FLOW PATH WHICH CONTINUES TO HPCI SYSTEM PIPING UPSTREAM OF HPCI SYSTEM PUMP.	NONE	NO	PASSIVE COMPONENT FUNCTION
002-06	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
002-08	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
002-09	CONFIRM AS-BUILT DESIGN MEETS 100 DEG. F ASSUMPTION FOR MAXIMUM FEEDWATER TEMPERATURE DROP THAT CAN OCCUR FOR ANY SINGLE ACTION OR FAILURE OF FW HEATER(S). ALSO SEE EXTRACTION STM (05) AND FW (03) SYSTEMS.	NONE	NO	JUSTIFICATION BY ENGINEERING ANALYSIS
003-01	PROVIDE HIGH REACTOR VESSEL PRESSURE TRIP SIGNAL TO REACTOR PROTECTION SYSTEM (99) FAIL-SAFE LOGIC.	2-BFN-RTP-003A	YES	
003-02	PROVIDE RPV LOW WATER LEVEL (L3) TRIP SIGNAL TO REACTOR PROTECTION SYSTEM (99).	2-BFN-RTP-003A	YES	

TBD TO BE DETERMINED
BTRD BASELINE TEST REQUIREMENTS DOCUMENT

TABLE 1

CORRELATION BETWEEN BROWNS FERRY NUCLEAR PLANT
UNITS 2 AND 3 RESTART TEST PROGRAMS

SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
003-03	PROVIDE RPV LOW WATER LEVEL (L2) SIGNAL TO HPCI SYSTEM (73).	2-BFN-RTP-003A	YES	
003-04	PROVIDE RPV LOW WATER LEVEL (L3) PERMISSIVE SIGNAL TO MAIN STEAM SYSTEM (01) FOR ADS.	2-BFN-RTP-003A	YES	
003-05	PROVIDE RPV HIGH WATER LEVEL (L8) SIGNAL TO RCIC SYSTEM (71) AND/OR HPCI SYSTEM (73) FOR TURBINE TRIP.	2-BFN-RTP-003A	YES	
003-06	PROVIDE HIGH REACTOR VESSEL PRESSURE SIGNAL TO 250 VDC SYSTEM (573) TO OPEN RECIRCULATION PUMP M/G SET DRIVE MOTOR BREAKERS FOR TRIP OF RECIRCULATION PUMPS AND TO CRD SYSTEM (85) TO INITIATE ALTERNATE ROD INSERT.	2-BFN-RTP-003A 2-BFN-RTP-068	YES	ATWS WAS TESTED BY RTP-068
003-07	PROVIDE LOW CONDENSER VACUUM SIGNAL TO ENERGIZE REACTOR FEEDWATER SYSTEM (3) SOLENOID TO CLOSE MAIN STEAM SYSTEM (1) FEEDWATER TURBINE STEAM SUPPLY STOP VALVES.	2-BFN-RTP-003B	YES	
003-08	PROVIDE RPV WATER LEVEL INDICATION AT BACKUP CONTROL CENTER.	2-BFN-RTP-003A	YES	
003-09	PROVIDE LOW REACTOR PRESSURE PERMISSIVE SIGNALS TO CORE SPRAY SYSTEM (75) FOR OPENING OF LOW PRESSURE ECCS INJECTION VALVES AND TO RHR SYSTEM (74) FOR CLOSING OF RECIRCULATION PUMP DISCHARGE VALVES.	2-BFN-RTP-003A	YES	
003-10	PROVIDE RPV LOW WATER LEVEL (L1) SIGNAL TO PRIMARY CONTAINMENT SYSTEM (64) GROUP 1 ISOLATION LOGIC.	2-BFN-RTP-003A	YES	
003-11	PROVIDE RPV HIGH WATER LEVEL (L8) SIGNAL TO FEEDWATER CONTROL SYSTEM (46) FOR MAIN TURBINE AND REACTOR FEEDWATER PUMP TURBINE TRIPS.	2-BFN-RTP-003A	YES	
003-12	PROVIDE REACTOR CONTAINMENT PRESSURE BOUNDARY (RCPB).	2-BFN-RTP-068	YES	
003-13	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
003-14	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
003-15	PROVIDE RPV LOW WATER LEVEL (L2) SIGNAL TO 250 SYSTEM (573) TO OPEN RECIRCULATION PUMP M/G SET DRIVE MOTOR BREAKERS FOR TRIP OF RECIRCULATION PUMPS AND TO CRD SYSTEM (85) TO INITIATE ALTERNATE ROD INSERT.	2-BFN-RTP-068	YES	
003-16	PROVIDE RPV PRESSURE INDICATION IN MAIN CONTROL ROOM.	2-BFN-RTP-003A	YES	
003-17	PROVIDE PATH FOR RCIC SYSTEM (71) AND/OR HPCI SYSTEM (73) FLOW TO THE RPV THROUGH THE FEEDWATER SPARGERS.	NONE	NO	PASSIVE FUNCTION VERIFIED BY WALKDOWN

TBD TO BE DETERMINED
BTPD BASELINE TEST REQUIREMENTS DOCUMENT

TABLE 1

CORRELATION BETWEEN BROWNS FERRY NUCLEAR PLANT
UNITS 2 AND 3 RESTART TEST PROGRAMS

SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
003-18	CLOSE MAIN STEAM SYSTEM (1) FEEDWATER TURBINE STEAM SUPPLY STOP VALVES ON LOW CONDENSER VACUUM OR RPV HIGH WATER LEVEL (L8) SIGNALS.	2-BFN-RTP-003A	YES	
003-19	INDICATE RPV WATER LEVEL IN THE CONTROL ROOM.	2-BFN-RTP-003A	YES	
003-20	PROVIDE RPV LOW WATER LEVEL (L2) SIGNAL VIA RHR SYSTEM (74) FOR AUTOMATIC RCIC SYSTEM (71) INITIATION.	2-BFN-RTP-003A	YES	
003-21	PROVIDE RPV LOW WATER LEVEL (L1) SIGNAL TO MAIN STEAM SYSTEM (1) FOR ADS.	2-BFN-RTP-003A	YES	
003-22	PROVIDE RPV LOW WATER LEVEL (L1) SIGNAL TO CORE SPRAY SYSTEM (75) FOR CORE SPRAY RHR-LPCI (74) AND DIESEL GENERATOR (82) START.	2-BFN-RTP-003A	YES	
003-23	PROVIDE RPV PRESSURE INDICATION AT BACKUP CONTROL CENTER.	2-BFN-RTP-003A	YES	
003-24	CONFIRM AS-BUILT DESIGN MEETS 100 DEG. F ASSUMPTION FOR MAXIMUM FEEDWATER TEMPERATURE DROP THAT CAN OCCUR FOR ANY SINGLE ACTION OR FAILURE OF FW HEATER(S). ALSO SEE CONDENSATE (02) AND EXTRACTION STM (05) SYSTEMS.	NONE	NO	JUSTIFICATION BY ENGINEERING ANALYSIS
003-25	THE UPPER LIMIT ON FEEDWATER FLOW MUST RESTRICT FLOW TO ABOUT 130% (RELOAD ANALYSIS ASSUMPTION).	NONE	TBD	UNKNOWN AT THIS TIME, PENDING BTRD ISSUANCE
003-26	PROVIDE UNITS 2/3 CORE COVERAGE PERMISSIVE SIGNAL TO RHR SYSTEM (74) FOR CONTAINMENT COOLING (DRYWELL SPRAY, TORUS SPRAY OR POOL COOLING) MODE.	NONE	TBD	UNKNOWN AT THIS TIME, PENDING BTRD ISSUANCE
005-01	CONFIRM AS-BUILT DESIGN MEETS 100 DEG. F ASSUMPTION FOR MAXIMUM FEEDWATER TEMPERATURE DROP THAT CAN OCCUR FOR ANY SINGLE ACTION OR FAILURE OF FW HEATER(S). ALSO SEE FW (03) AND CONDENSATE (02) SYSTEMS.	NONE	NO	JUSTIFICATION BY ENGINEERING ANALYSIS
010-01	PROVIDE PATH FOR MAIN STEAM SYSTEM (1) SRVS STEAM SLOWDOWN TO PRIMARY CONTAINMENT SYSTEM (64) SUPPRESSION POOL.	2-BFN-RTP-003A	YES	TEST VACUUM BREAKER VALVES ONLY
010-02	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY (RCPB).	2-BFN-RTP-068	YES	
012-01	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
012-02	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	

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SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
018-01	PROVIDE DIESEL FUEL OIL TO DIESEL GENERATOR SYSTEM (82).	2-BFN-RTP-082	NO	UNIT 2 TEST ADEQUATELY SATISFIED REQUIREMENT
018-02	MAINTAIN 7 DAY (LONG TERM) SUPPLY OF FUEL OIL IN STORAGE TANKS IN SUPPORT OF DIESEL GENERATOR SYSTEM (82).	2-BFN-RTP-082	NO	UNIT 2 TEST ADEQUATELY SATISFIED REQUIREMENT
018-03	MAINTAIN SHORT TERM SUPPLY OF FUEL OIL IN 7 DAY STORAGE TANKS BY TRANSFERRING FUEL OIL BETWEEN AVAILABLE FUEL OIL STORAGE TANKS IN SUPPORT OF DIESEL GENERATOR SYSTEM (82).	NONE	TBD	PENDING ISSUANCE OF BTRD
023-01	PROVIDE COOLING WATER TO RHR SYSTEM (74) HEAT EXCHANGERS.	2-BFN-RTP-023	YES	
023-03	PROVIDE COOLING WATER TO EECW SYSTEM (67) UPON START OF THE RHRSW PUMPS.	2-BFN-RTP-023	YES	
023-04	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
023-06	PROVIDE WHEELER LAKE LEVEL INDICATION/ALARM AT ELEVATION 558 FEET AND RISING AS WELL AS AT ELEVATION 564 FEET AND RISING.	2-BFN-RTP-023	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
023-07	PROVIDE PRIMARY CONTAINMENT BOUNDARY. CLOSE RHR SERVICE WATER SYSTEM VALVES 1-FSV-23-56 AND 2-FSV-23-56 ON RHR SYSTEM (74) UNIT CROSS-TIE VALVES OPEN POSITION SIGNAL.	2-BFN-RTP-023	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
023-08	MANUAL RHRSW SYSTEM OPERATION TO PROVIDE COOLING WATER TO RHR SYSTEM (74) HEAT EXCHANGERS FROM OUTSIDE OF MAIN CONTROL ROOM.	2-BFN-RTP-023	YES	
023-09	PROVIDE SUMP PUMP CAPABILITY	2-BFN-RTP-023	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
024-01	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
024-02	PROVIDE PRESSURE BOUNDARY INTEGRITY TO EECW SYSTEM (67).	2-BFN-RTP-024	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
024-05	PROVIDE RCW SUPPLY HEADER LOW PRESSURE PERMISSIVE SIGNAL TO 4-KV POWER DISTRIBUTION SYSTEM (57S) FOR STARTING OF RHRSW SYSTEM (23) PUMPS.	2-BFN-RTP-024	NO	UNIT 2 TEST SATISFIES REQUIREMENTS

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SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
024-06	PROVIDE MANUAL CONTROL FROM OUTSIDE THE MAIN CONTROL ROOM OF RCW PUMPS 1D AND 3D TO PREVENT OVERLOADING OF DIESEL GENERATORS (SYSTEM 82).	2-BFN-RTP-BUC	YES	
025-01	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-[illegible]065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
025-03	PROVIDE PRESSURE BOUNDARY INTEGRITY TO RCW SYSTEM (24) IN SUPPORT OF EECW SYSTEM (67) PRESSURE BOUNDARY.	NONE	NO	JUSTIFICATION BY ENGINEERING ANALYSIS
025-04	PREVENT AUTOMATIC START OF HIGH PRESSURE FIRE PROTECTION SYSTEM (26) PUMPS (LOCK-OUT) TO PREVENT OVERLOADING THE DIESEL GENERATORS (SYSTEM 82).	2-BFN-RTP-025	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
025-05	PREVENT START OF HIGH PRESSURE FIRE PROTECTION SYSTEM (26) PUMPS (FROM OUTSIDE THE MAIN CONTROL ROOM) TO PREVENT OVERLOADING THE DIESEL GENERATORS (SYSTEM 82).	2-BFN-RTP-BUC	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
026-01	SUPPORT SECONDARY CONTAINMENT FUNCTION.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
027-01	PROVIDE WARM WATER CHANNEL LEVEL INDICATION IN THE MAIN CONTROL ROOM.	2-BFN-RTP-027	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
027-02	PROVIDE FOREBAY LEVEL INDICATION IN THE MAIN CONTROL ROOM FOR MANUAL ACTIONS TO REDUCE POWER OR IF NECESSARY INITIATE SCRAM.	2-BFN-RTP-027	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
027-03	PROVIDE COOLING TOWER LIFT PUMP DISCHARGE WATER HIGH TEMPERATURE SIGNAL TO 4-KV POWER DISTRIBUTION SYSTEM (57S) FOR TRIPPING OF THE CORRESPONDING COOLING TOWER LIFT PUMP.	NONE	TBD	UNKNOWN, PENDING BTRD ISSUANCE
027-04	PROVIDE MANUAL VACUUM BREAKING CAPABILITY TO PREVENT BACKFLOW OF COOLING TOWER WARM WATER DISCHARGE INTO THE FOREBAY UPON TRIP OF THE CCW PUMPS.	2-BFN-RTP-027	YES	
027-05	PROVIDE FOREBAY/WARM WATER CHANNEL DIFFERENTIAL LEVEL INDICATION IN THE MAIN CONTROL ROOM.	2-BFN-RTP-027	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
029-01	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
030-01	PROVIDE VENTILATION TO UNITS 1 AND 2 DIESEL GENERATOR BUILDING.	2-BFN-RTP-030	NO	UNIT 2 TEST SATISFIES REQUIREMENTS

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SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
030-02	PROVIDE VENTILATION TO UNIT 3 DIESEL GENERATOR BUILDING.	2-BFN-RTP-030	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
030-03	PROVIDE VENTILATION TO 250V BATTERY ROOM 3EB IN THE UNIT 3 DIESEL GENERATOR BUILDING TO PREVENT A BUILDUP OF HYDROGEN GAS DURING BATTERY CHARGING.	2-BFN-RTP-030	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
031-01	ISOLATE SUPPLY DUCTS AND SUPPLY PRESSURIZED FILTERED OUTDOOR AIR TO MAIN CONTROL ROOM ON PRIMARY CONTAINMENT SYSTEM (64) GROUP 6 ISOLATION SIGNAL OR RADIATION MONITORING SYSTEM (90) INITIATION SIGNAL.	2-BFN-RTP-031B	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
031-02	PROVIDE VENTILATION TO REACTOR BUILDING BOARD ROOMS AND CONTROL BAY MECHANICAL EQUIPMENT ROOMS.	2-BFN-RTP-031B	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
031-03	PROVIDE RECIRCULATION AIR COOLING TO REACTOR BUILDING BOARD ROOMS.	2-BFN-RTP-031B	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
031-04	PROVIDE VENTILATION AND AIR CONDITIONING TO UNIT 3 DIESEL GENERATOR BUILDING BOARD ROOMS.	2-BFN-RTP-031B	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
031-05	PROVIDE RECIRCULATION AIR CONDITIONING TO CONTROL ROOMS AND AUXILIARY INSTRUMENT ROOMS.	2-BFN-RTP-031B	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
031-06	PROVIDE VENTILATION TO BATTERY ROOMS.	2-BFN-RTP-031B	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
031-08	PROVIDE MANUAL LINEUP OF HVAC EQUIPMENT WITH TOTAL LOSS OF CONTROL AIR.	2-BFN-RTP-031A	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
031-09	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
032-01	PERFORM ISOLATION ACTION(S) UPON RECEIVING PRIMARY CONTAINMENT SYSTEM (64) GROUP 6 ISOLATION SIGNALS.	2-BFN-RTP-032	YES	
032-02	PROVIDE COMPRESSED AIR TO MAIN STEAM SYSTEM (01) ADS SAFETY RELIEF VALVES (SRVS).	2-BFN-RTP-001	YES	
032-03	PROVIDE COMPRESSED AIR FOR CLOSURE OF MAIN STEAM ISOLATION VALVES (SYSTEM 01).	2-BFN-RTP-001	YES	
032-04	PROVIDE COMPRESSED AIR TO EQUIPMENT ACCESS LOCK SEALS TO PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-032	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
032-05	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
032-06	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING

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SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
032-07	PROVIDE CONTAINMENT ATMOSPHERIC DILUTION SYSTEM (84) COMPRESSED GAS (NITROGEN) TO MAIN STEAM SYSTEM (1) ADS SAFETY RELIEF VALVES (SRVS) FOR LONGER TERM OPERABILITY.	NONE	TBD	BTRD ISSUANCE PENDING FOR UNIT 3, JUSTIFIED BY ANALYSIS ON UNIT 2
032-08	PROVIDE FLOW PATH INTEGRITY FOR SUPPLY OF CONTROL NITROGEN TO CAD VENT PATH VALVES	NONE	NO	PASSIVE COMPONENT VERIFIED BY WALKDOWN
033-01	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
033-02	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
037-01	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
039-01	INHIBIT SPURIOUS CO2 INITIATION SIGNAL WHEN VENTILATION (SYSTEM 30) IS REQUIRED IN DIESEL GENERATOR BUILDINGS.	2-BFN-RTP-039	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
040-01	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
040-02	PROVIDE VALVE CLOSURE OR PIPING GEOMETRY TO PREVENT WATER WHICH FLOODED THE BASE OF THE STACK STANDBY GAS TREATMENT AND OFF GAS BUILDING FROM FLOWING INTO THE RADWASTE BUILDING.	NONE	NO	NO BTRD ISSUED FOR UNIT 2 - JUSTIFICATION BY ENGINEERING ANALYSIS
043-01	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY (RCPB).	2-BFN-RTP-068	YES	
043-02	CLOSE SWQ SYSTEM ISOLATION VALVES ON PRIMARY CONTAINMENT SYSTEM (64) GROUP 1 ISOLATION SIGNAL (ONLY ON RPV LOW WATER LEVEL (L1) AND MAIN STEAM LINE HIGH RADIATION).	2-BFN-RTP-069	YES	
043-03	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
043-04	MAINTAIN RHRSW SYSTEM (23) PRESSURE BOUNDARY INTEGRITY.	2-BFN-RTP-023	YES	
043-05	PROVIDE CAPABILITY OF MANUAL BACKUP CONTROL ISOLATION (VALVE CLOSURE) TO PREVENT LOSS OF REACTOR WATER INVENTORY.	2-BFN-RTP-BUC	YES	
043-06	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING

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SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
043-07	CLOSE POST ACCIDENT SUPPLY SYSTEM ISOLATION VALVES UPON RECEIVING PRIMARY CONTAINMENT SYSTEM (64) GROUP 6 ISOLATION SIGNAL.	NONE	YES	NEW MODE TESTED BY PMT ON UNIT 2
044-01	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
046-01	PROVIDE RPV HIGH WATER LEVEL (L8) SIGNAL TO ENERGIZE REACTOR FEEDWATER SYSTEM (3) SOLENOID TO CLOSE MAIN STEAM SYSTEM (1) FEEDWATER TURBINE STEAM SUPPLY STOP VALVES.	2-BFN-RTP-003B	YES	
047-01	PROVIDE MAIN TURBINE CONTROL VALVE FAST CLOSURE SIGNAL TO REACTOR PROTECTION SYSTEM (99).	2-BFN-RTP-047	YES	
047-03	PROVIDE HYDRAULIC CLOSURE OF MAIN STEAM SYS (01) TURBINE STOP VALVES UPON LOW CONDENSER VACUUM (APPROXIMATELY 20 HG) SIGNAL.	2-BFN-RTP-047	YES	
047-04	PROVIDE HYDRAULIC CLOSURE OF MAIN STEAM SYS (01) MAIN TURBINE BYPASS VALVES UPON LOW CONDENSER VACUUM (APPROXIMATELY 7 HG) SIGNAL.	2-BFN-RTP-047	YES	
047-05	PROVIDE HYDRAULIC CONTROL TO OPEN MAIN STEAM SYS (01) MAIN TURBINE BYPASS VALVES ON TURBINE TRIP (MAIN TURBINE STOP VALVE CLOSURE) SIGNAL.	2-BFN-RTP-047	YES	
047-06	MAXIMUM STEAM FLOW THROUGH TURBINE PLUS BYPASS VALVES WITH THE PRESSURE REGULATOR FAILED OPEN IS 125% PER UFSAR ANALYSIS (CONTROL ROOM MANUALLY ADJUSTED LIMIT).	NONE	TBD	THIS WAS A POWER ASCENSION TEST ON UNIT 2. UNIT 3 TEST UNKNOWN PENDING BTRD ISSUANCE
050-01	PROVIDE PRESSURE BOUNDARY INTEGRITY TO EECW SYSTEM (67).	NONE	NO	PASSIVE FUNCTION VERIFIED BY WALKDOWN
053-01	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
063-01	MANUAL INJECTION OF BORON SOLUTION INTO REACTOR GIVEN INDICATION OF INCOMPLETE INSERTION OF CONTROL RODS (CRD SYSTEM 85) AND REACTOR NOT BEING IN SUBCRITICAL CONDITION (NMS SYSTEM 92).	2-BFN-RTP-063	YES	
063-02	PROVIDE SLCS INITIATION SIGNAL TO RWCU SYSTEM (69) FOR ISOLATION OF RWCU SYSTEM FROM THE REACTOR TO PREVENT ENTRY OF BORON SOLUTION INTO RWCU SYSTEM.	2-BFN-RTP-069	YES	
063-03	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY.	2-BFN-RTP-068	YES	
063-04	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	

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SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
064-01	PROVIDE SIGNAL TO CLOSE GROUP 1 PRIMARY CONTAINMENT ISOLATION VALVES (MAIN STEAM SYSTEM (1) AND SWQ SYSTEM (43)).	2-BFN-RTP-064A	YES	
064-02	PROVIDE SIGNAL TO CLOSE GROUP 2 PRIMARY CONTAINMENT ISOLATION VALVES (RHR SYSTEM (74) CORE SPRAY SYSTEM (75) AND RADWASTE SYSTEM (77)).	2-BFN-RTP-064A	YES	
064-03	PROVIDE SIGNAL TO CLOSE GROUP 3 PRIMARY CONTAINMENT ISOLATION VALVES (RWCU SYSTEM (69)).	2-BFN-RTP-064A	YES	
064-04	PROVIDE SIGNAL TO CLOSE GROUP 6 PRIMARY CONTAINMENT ISOLATION VALVES (SYSTEMS 3243647684 AND 90) ISOLATE AC SYSTEM (31) SUPPLY DUCTS TO MCR INITIATE EMERGENCY PRESSURIZATION SYSTEM (31) TRIP FANS & POSITION DAMPERS (64) & INITIATE SGTS (65).	2-BFN-RTP-064A	YES	
064-05	PROVIDE SIGNAL TO CLOSE GROUP 8 ISOLATION VALVES. SYSTEM (94) IS NOT TO PERFORM ACTIVE ISOLATION FUNCTION.	2-BFN-RTP-064A	YES	
064-06	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
064-08	PROVIDE HIGH DRYWELL PRESSURE TRIP SIGNAL TO REACTOR PROTECTION SYSTEM (99).	2-BFN-RTP-064A	YES	
064-09	PROVIDE HIGH DRYWELL PRESSURE SIGNAL TO RHR SYSTEM (74) FOR LPCI INITIATION LOGIC AND TO CORE SPRAY SYSTEM (75) FOR SYSTEM INITIATION LOGIC 480V LOAD SHED LOGIC DIESEL GENERATOR START LOGIC AND HPCI SYSTEM (73) INITIATION LOGIC.	2-BFN-RTP-064A	YES	
064-10	PROVIDE VACUUM RELIEF SYSTEM (VACUUM BREAKER VALVES) TO PREVENT DRYWELL OR SUPPRESSION CHAMBER (TORUS) NEGATIVE PRESSURE FROM DAMAGING CONTAINMENT STRUCTURE.	2-BFN-RTP-064A	YES	
064-11	PROVIDE DRYWELL TEMPERATURE INDICATION IN MAIN CONTROL ROOM IN SUPPORT OF RHR SYSTEM (74) DRYWELL SPRAY (CONTAINMENT COOLING) MODE.	2-BFN-RTP-064A	YES	
064-12	PROVIDE SUPPRESSION POOL TEMPERATURE INDICATION IN MAIN CONTROL ROOM IN SUPPORT OF RHR SYSTEM (74) CONTAINMENT COOLING (TORUS COOLING AND DRYWELL/TORUS SPRAY) MAIN STEAM SYSTEM MANUAL RPV DEPRESSURIZATION AND RPS SYSTEM (99) MANUAL SCRAM.	2-BFN-RTP-064A	YES	
064-13	PROVIDE SUPPRESSION POOL LEVEL INDICATION IN MAIN CONTROL ROOM IN SUPPORT OF RHR SYSTEM (74) CONTAINMENT COOLING AND MAIN STEAM SYSTEM (1) MANUAL RPV DEPRESSURIZATION. PROVIDE PRESSURE BOUNDARY INTEGRITY TO HPCI SYSTEM (73).	2-BFN-RTP-064A	YES	

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SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
064-14	PROVIDE DRYWELL PRESSURE INDICATION IN MAIN CONTROL ROOM IN SUPPORT OF RHR SYSTEM (74) CONTAINMENT COOLING (DRYWELL/TORUS SPRAY) AND CONTAINMENT ATMOSPHERE DILUTION SYSTEM (84) CONTAINMENT VENTING AFTER A LOCA.	2-BFN-RTP-064A	YES	
064-15	PROVIDE DRYWELL TEMPERATURE INDICATION OUTSIDE THE MAIN CONTROL ROOM IN SUPPORT OF MAIN STEAM SYSTEM (1) MANUAL RPV DEPRESSURIZATION AND RHR SYSTEM (74) OPERATION FROM OUTSIDE THE MAIN CONTROL ROOM.	2-BFN-RTP-064A	YES	
064-16	PROVIDE SUPPRESSION POOL TEMPERATURE INDICATION OUTSIDE THE MAIN CONTROL ROOM (MCR) IN SUPPORT OF MAIN STEAM SYSTEM (1) MANUAL RPV DEPRESSURIZATION RHR SYSTEM (74) OPERATION AND REACTOR PROTECTION SYSTEM (99) MANUAL SCRAM FROM OUTSIDE THE MCR.	2-BFN-RTP-064A	YES	
064-17	PROVIDE SUPPRESSION POOL LEVEL INDICATION OUTSIDE THE MAIN CONTROL ROOM IN SUPPORT OF MAIN STEAM SYSTEM (1) MANUAL RPV DEPRESSURIZATION RCIC SYSTEM (71) OPERATION AND RHR SYSTEM (74) OPERATION FROM OUTSIDE THE MAIN CONTROL ROOM.	2-BFN-RTP-064A	YES	
064-18	PROVIDE DRYWELL PRESSURE INDICATION OUTSIDE THE MAIN CONTROL ROOM IN SUPPORT OF RHR SYSTEM OPERATION FROM OUTSIDE THE MAIN CONTROL ROOM.	2-BFN-RTP-064A	YES	
064-19	PROVIDE FLOW (VENT) PATH FOR THE CONTAINMENT ATMOSPHERE FROM EITHER THE SUPPRESSION CHAMBER OR DRYWELL TO THE CONTAINMENT ATMOSPHERE DILUTION SYSTEM (84).	NONE	TBD	UNIT 3 TEST PENDING BTRD ISSUANCE, MODE WAS REMOVED FROM RESTART SCOPE FOR UNIT 2
064-20	PROVIDE PRESSURE SUPPRESSION BY COOLING/CONDENSATION OF SAFETY RELIEF VALVES (SRVS) STEAM (FROM BOILER DRAINS AND VENTS SYSTEM (10)) AND RCIC SYSTEM (71) AND HPCI SYSTEM (73) TURBINE EXHAUST STEAM. ACCEPT RCIC & HPCI SYSTEM PUMP MINIMUM BYPASS FLOW.	NONE	TBD	UNIT 3 TEST PENDING BTRD ISSUANCE. TEST NOT REQUIRED FOR UNIT 2.
064-21	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
064-23	PROVIDE FORCED AIR COOLING FOR RHR SYSTEM (74) AND CORE SPRAY SYSTEM (75) PUMP MOTORS.	2-BFN-RTP-030	YES	
064-24	PROVIDE WATER SUPPLY TO HPCI SYSTEM (73) CORE SPRAY SYSTEM (75) AND/OR RHR SYSTEM (74) PUMPS.	NONE	NO	JUSTIFICATION BY ENGINEERING ANALYSIS
064-25	PROVIDE HIGH DRYWELL PRESSURE SIGNAL TO MAIN STEAM SYSTEM (1) FOR AUTOMATIC DEPRESSURIZATION SYSTEM (ADS) LOGIC.	2-BFN-RTP-054A	YES	

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SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
064-26	PROVIDE STRUCTURAL SUPPORT FOR THE CONTROL ROD DRIVE SYSTEM (85) HOUSINGS.	NONE	NO	PASSIVE COMPONENTS JUSTIFIED BY ANALYSIS
064-27	CLOSE PRIMARY CONTAINMENT VENTILATION SYSTEM ISOLATION VALVES ON PRIMARY CONTAINMENT SYSTEM (64) GROUP 6 ISOLATION SIGNAL.	2-BFN-RTP-065	YES	
064-28	PERFORM ISOLATION ACTION(S) [TRIP FANS CLOSURE OF DAMPERS OPENING OF DAMPERS TO SGTS (65)] ON PRIMARY CONTAINMENT SYSTEM (64) GROUP 6 ISOLATION SIGNALS.	2-BFN-RTP-064A	YES	
065-01	MAINTAIN NEGATIVE PRESSURE IN SECONDARY CONTAINMENT ON PRIMARY CONTAINMENT SYSTEM (64) GROUP 6 ISOLATION SIGNAL. FILTER AIRBORNE PARTICULATE & GASES [INCLUDING THAT FROM HPCI SYSTEM (73) & CAD SYSTEM (34)] PRIOR TO DISCHARGE TO OFF-GAS SYSTEM (66).	2-BFN-RTP-065	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
065-03	MAINTAIN NEGATIVE PRESSURE IN SECONDARY CONTAINMENT ON PRIMARY CONTAINMENT SYSTEM (64) SIGNAL DUE TO RADIATION MONITORING SYSTEM REFUELING ZONE HIGH RADIATION SIGNAL. FILTER AIRBORNE PARTICULATE & GASES PRIOR TO DISCHARGE TO OFF-GAS SYSTEM (66).	2-BFN-RTP-065	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
065-04	PROVIDE SECONDARY CONTAINMENT INTEGRITY.	2-BFN-RTP-065	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
066-02	PROVIDE FLOW PATH INTEGRITY FOR THE RELEASE OF THE FILTERED STANDBY GAS TREATMENT SYSTEM (65) GASES TO THE STACKS.	2-BFN-RTP-065	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
066-03	PROVIDE VALVES OR PIPING GEOMETRY TO SUPPORT RADWASTE SYSTEM (77) TO PREVENT RADWASTE BUILDING FLOODING.	NONE	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
066-04	OFF-GAS DILUTION FAN ISOLATION DAMPERS SHALL BE CLOSED ON INITIATION OF THE SGT SYSTEM (65).	2-BFN-RTP-065	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
067-01	PROVIDE COOLING WATER TO AC SYSTEM (31) CHILLERS RHR SYSTEM (74) PUMP SEAL COOLERS CIS (76) 02 & H2 GAS ANALYZERS DIESEL ENGINES (82) RHR & CORE SPRAY EQUIPMENT ROOM COOLERS (64) & FUEL POOL (79). MAINTAIN EECW SYSTEM (23) PRESSURE BOUNDARY.	2-BFN-RTP-067	YES	
067-02	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
067-03	FOR SHUTDOWN FROM OUTSIDE OF MAIN CONTROL ROOM: (1) PROVIDE COOLING WATER TO RHR & CORE SPRAY EQUIPMENT ROOM COOLERS (64) RHR SYSTEM (74) PUMP SEAL COOLERS DIESEL ENGINES (82) & FUEL POOL (79) (2) MAINTAIN EECW SYSTEM (23) PRESSURE BOUNDARY.	2-BFN-RTP-067	YES	

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TABLE 1

CORRELATION BETWEEN BROWNS FERRY NUCLEAR PLANT
UNITS 2 AND 3 RESTART TEST PROGRAMS

SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
067-04	RHR SERVICE WATER PUMPS MUST MAINTAIN CAPABILITY FOR SHUTDOWN HEAT REMOVAL UNDER TORNADO DESIGN CONDITIONS (PASSIVE).	NONE	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
067-05	ATTACH A FIRE HOSE TO EECW TO MAINTAIN WATER LEVEL IN THE FUEL POOL.	2-BFN-RTP-067	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
068-01	CLOSE RECIRCULATION PUMP DISCHARGE VALVES ON RHR SYSTEM (74) AUTOMATIC LPCI MODE INITIATION SIGNAL.	2-BFN-RTP-068	YES	
068-02	OPEN RECIRCULATION PUMP MOTOR BREAKERS ON REACTOR PROTECTION SYSTEM (99) SIGNAL DUE TO >30% TURBINE FIRST STAGE PRESSURE AND EITHER MAIN TURBINE CONTROL VALVE FAST CLOSURE OR MAIN TURBINE STOP VALVES <90% OPEN MANUALLY ENABLED END-OF-CYCLE RPT).	2-BFN-RTP-068	YES	
068-03	CLOSE RECIRCULATION PUMP DISCHARGE VALVES MANUALLY IN SUPPORT OF MANUALLY INITIATED RHR SYSTEM (74) SHUTDOWN COOLING MODE AND LPCI MODE (FROM MAIN CONTROL ROOM AND OUTSIDE MAIN CONTROL ROOM).	2-BFN-RTP-068	YES	
068-04	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY (RCPB).	2-BFN-RTP-068	YES	
068-05	PROVIDE LOW REACTOR PRESSURE PERMISSIVE SIGNALS TO CORE SPRAY SYSTEM (75) AND RHR SYSTEM (74).	2-BFN-RTP-068	YES	
068-06	TRIP RECIRCULATION PUMP MOTOR MOTOR-GENERATOR SET ON OPENING OF 4KV POWER DISTRIBUTION SYSTEM (57S) M-G SET DRIVE MOTOR BREAKERS DUE TO HIGH REACTOR PRESSURE OR LOW WATER LEVEL (L2).	2-BFN-RTP-068	YES	
068-07	PROVIDE RECIRCULATION FLOW SIGNAL TO THE NEUTRON MONITORING SYSTEM (92) IN SUPPORT OF ROD BLOCK MONITOR TRIP SIGNAL (VARYING WITH RECIRCULATION FLOW) TO PREVENT CONTROL ROD WITHDRAWAL.	NONE	TBD	REMOVED FROM UNIT 2 RESTART SCOPE PENDING ISSUANCE OF UNIT 3 BTRD
068-08	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
068-09	ASSURE THAT MOTOR-GENERATOR (M-G) SET SPEED CHANGES STAY WITHIN ANALYZED LIMITS (ACCELERATION AT MAXIMUM RATE OF 25% OF FULL SPEED PER SECOND MAXIMUM FLOW OF 105% OF RATED FLOW AT 100% RATED POWER).	NONE	TBD	REMOVED FROM UNIT 2 RESTART SCOPE PENDING ISSUANCE OF UNIT 3 BTRD
068-10	PLANT TECHNICAL SPECS AND PROCEDURES REQUIRE WARMUP OF THE LOOP BEFORE PUMP START.	NONE	NO	JUSTIFICATION BY ENGINEERING ANALYSIS
069-01	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
069-02	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING

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UNITS 2 AND 3 RESTART TEST PROGRAMS

SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
069-03	CLOSE RWCU SYSTEM ISOLATION VALVES ON PRIMARY CONTAINMENT SYSTEM (64) GROUP 3 ISOLATION SIGNAL.	2-BFN-RTP-069	YES	
069-04	CLOSE RWCU SYSTEM SUCTION LINE ISOLATION VALVES ON STANDBY LIQUID CONTROL SYSTEM (63) INITIATION SIGNAL TO PREVENT ENTRY OF BORON SOLUTION INTO RWCU SYSTEM.	2-BFN-RTP-069	YES	
069-05	PROVIDE HIGH ... RWCU SYSTEM EQUIPMENT AREA ATMOSPHERE AND DRAIN TEMPERATURE SIGNALS TO PRIMARY CONTAINMENT SYSTEM (64) GROUP 3 ISOLATION LOGIC.	2-BFN-RTP-069	YES	
069-06	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY (RCPB).	2-BFN-RTP-068	YES	
069-07	PROVIDE SYSTEM PRESSURE BOUNDARY SUPPORT (CHECK VALVE) TO HPCI SYSTEM (73) TO PREVENT DIVERSION OF HPCI SYSTEM CORE COOLING WATER FROM REACTOR VESSEL.	2-BFN-RTP-069	YES	
069-08	PROVIDE FLOW PATH FOR RCIC SYSTEM (71) CORE COOLING WATER TO REACTOR FEEDWATER SYSTEM (3) SPARGERS.	2-BFN-RTP-069	YES	
069-09	PROVIDE CAPABILITY OF MANUAL BACKUP CONTROL ISOLATION (VALVE CLOSURE) TO PREVENT LOSS OF REACTOR WATER INVENTORY.	2-BFN-RTP-BUC	YES	
070-01	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
070-02	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
070-03	PROVIDE DRYWELL COOLING WHEN POWER AND COOLING WATER ARE AVAILABLE.	2-BFN-RTP-030	TBD	UNKNOWN, PENDING ISSUANCE OF UNIT 3 BTRD
071-01	AUTOMATIC RCIC SYSTEM INITIATION ON REACTOR FEEDWATER SYSTEM (3) RPV LOW WATER LEVEL (L2) SIGNAL TRANSMITTED VIA RHR SYSTEM (74). AUTOMATIC RCIC SYSTEM SHUTOFF (IF OPERATING) ON REACTOR FEEDWATER SYSTEM (3) RPV HIGH WATER LEVEL (L8) SIGNAL.	2-BFN-RTP-071	YES	
071-02	MANUAL RCIC INITIATION AND TRIP TO CONTROL LEVEL. (NON-LOCA UNIT)	2-BFN-RTP-071	YES	
071-03	CLOSE RCIC SYSTEM STEAM SUPPLY LINE ISOLATION VALVES ON RCIC SYSTEM GROUP 5 ISOLATION SIGNALS (HIGH STEAM LINE DIFFERENTIAL PRESSURE HIGH STEM LINE SPACE TEMPERATURE OR LOW STEAM LINE PRESSURE).	2-BFN-RTP-071	YES	
071-04	MANUALLY CLOSE RCIC SYSTEM STEAM SUPPLY LINE ISOLATION VALVES ON REACTOR FEEDWATER SYSTEM (3) INDICATION OF LOW RPV PRESSURE.	2-BFN-RTP-071	YES	
071-05	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY (RCPB).	2-BFN-RTP-068	YES	
071-07	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	

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SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
071-08	PROVIDE SYSTEM PRESSURE BOUNDARY IN SUPPORT OF RHR SYSTEM (74) CONTAINMENT (TORUS) COOLING FUNCTION.	2-BFN-RTP-068	YES	
071-09	MANUAL RCIC SYSTEM OPERATION FROM OUTSIDE THE MAIN CONTROL ROOM TO MAINTAIN NORMAL RPV WATER INVENTORY WHILE RPV PRESSURE IS ABOVE 100 PSIG.	2-BFN-RTP-071	YES	
071-10	PROVIDE POWER TO ECCS DIVISION I AND II ANALOG TRIP UNITS [REACTOR FEEDWATER SYSTEM (3) PRIMARY CONTAINMENT SYSTEM (64) REACTOR WATER RECIRCULATION SYSTEM (68) RCIC SYSTEM (71) AND HPCI SYSTEM (73)].	2-BFN-RTP-071	YES	
071-11	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
073-01	AUTOMATIC HPCI SYSTEM INITIATION ON REACTOR FEEDWATER SYSTEM (3) RPV LOW WATER LEVEL (L2) SIGNAL. AUTOMATIC HPCI SYSTEM SHUTOFF (IF OPERATING) ON REACTOR FEEDWATER SYSTEM (3) RPV HIGH WATER LEVEL (L8) SIGNAL.	2-BFN-RTP-073	YES	
073-03	CLOSE HPCI SYSTEM STEAM SUPPLY LINE ISOLATION VALVES ON HPCI SYSTEM GROUP 4 ISOLATION SIGNALS (HIGH STEAM LINE DIFFERENTIAL PRESSURE HIGH STEAM LINE SPACE TEMPERATURE OR LOW STEAM LINE PRESSURE).	2-BFN-RTP-073	YES	
073-04	MANUALLY CLOSE HPCI SYSTEM STEAM SUPPLY LINE ISOLATION VALVES ON REACTOR FEEDWATER SYSTEM (3) INDICATION OF LOW RPV PRESSURE.	2-BFN-RTP-073	YES	
073-05	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY (RCPB) DURING HPCI SYSTEM STANDBY.	2-BFN-RTP-068	YES	
073-06	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY (RCPB) DURING HPCI SYSTEM OPERATION.	2-BFN-RTP-068	YES	
073-07	PROVIDE PRIMARY CONTAINMENT BOUNDARY DURING HPCI SYSTEM STANDBY.	2-BFN-RTP-064A	YES	
073-08	PROVIDE PRIMARY CONTAINMENT BOUNDARY DURING HPCI SYSTEM OPERATION.	2-BFN-RTP-064A	YES	
073-09	MANUALLY TRIP HPCI SYSTEM FROM OUTSIDE THE MAIN CONTROL ROOM TO PREVENT RPV OVERFILL.	2-BFN-RTP-073	YES	
073-10	LIMIT THE LOSS OF COOLANT THROUGH HPCI SYSTEM STEAM SUPPLY LINE BREAK (PASSIVE FLOW RESTRICTOR BUILT INTO STEAM LINE).	NONE	NO	PASSIVE COMPONENT JUSTIFIED BY ENGINEERING ANALYSIS

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UNITS 2 AND 3 RESTART TEST PROGRAMS

SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
073-11	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
073-12	PROVIDE POWER TO PRIMARY CONTAINMENT SYSTEM (64) DRYWELL PRESSURE INDICATORS IN SUPPORT OF RHR SYSTEM DRYWELL/TORUS SPRAY MODE AND CONTAINMENT ATMOSPHERE DILUTION SYSTEM POST-LOCA CONTAINMENT VENTING MODE.	2-BFN-RTP-064A	YES	
074-01	AUTOMATIC LPCI MODE INITIATION ON RPV LOW WATER LEVEL (L1) SIGNAL OR HIGH DRYWELL PRESSURE SIGNAL WITH CONCURRENT LOW RPV PRESSURE PERMISSIVE SIGNAL. MANUAL LPCI MODE INITIATION FROM THE MAIN CONTROL ROOM.	2-BFN-RTP-074	YES	
074-02	PROVIDE SUPPRESSION POOL WATER COOLING TO MAINTAIN SUPPRESSION POOL WATER TEMPERATURE BELOW LIMITS TO ASSURE THAT PUMP NPSH REQUIREMENTS ARE MET AND THAT COMPLETE CONDENSATION OF BLOWDOWN STEAM FROM A DESIGN BASIS LOCA CAN BE EXPECTED.	2-BFN-RTP-074	YES	
074-03	PROVIDE SPRAY TO DRYWELL AND TORUS FOR CONTAINMENT COOLING AND LOWERING OF CONTAINMENT PRESSURE UNDER POST-ACCIDENT CONDITIONS.	2-BFN-RTP-074	YES	
074-04	PROVIDE SHUTDOWN COOLING MODE (MANUAL) TO RESTORE REACTOR TEMPERATURE TO NORMAL.	2-BFN-RTP-074	YES	
074-09	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
074-10	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY (RCPB).	2-BFN-RTP-068	YES	
074-11	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
074-12	PROVIDE SIGNAL (THAT A RHR PUMP IS RUNNING) TO MAIN STEAM SYSTEM (1) AUTOMATIC DEPRESSURIZATION SYSTEM (ADS) INITIATION LOGIC.	2-BFN-RTP-074	YES	
074-14	PROVIDE RHR SYSTEM PIPING FLOW PATH FOR TRANSMISSION OF CONDENSATE AND DEMINERALIZED WATER SYSTEM (2) WATER SUPPLY TO HPCI SYSTEM (73) PIPING UPSTREAM OF HPCI SYSTEM PUMP.	NONE	NO	PASSIVE COMPONENTS VERIFIED BY WALKDOWN
074-15	PROVIDE RHR SYSTEM PIPING FLOW PATH FROM HPCI SYSTEM (73) PUMP MINIMUM FLOW BYPASS LINE TO PRIMARY CONTAINMENT SYSTEM (64) SUPPRESSION POOL.	NONE	NO	PASSIVE COMPONENTS VERIFIED BY WALKDOWN
074-16	PROVIDE RHR SYSTEM PIPING FLOW PATH FROM RCIC SYSTEM (71) PUMP MINIMUM FLOW BYPASS LINE TO PRIMARY CONTAINMENT SYSTEM (64) SUPPRESSION POOL.	NONE	NO	PASSIVE COMPONENTS VERIFIED BY WALKDOWN

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SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
074-17	PROVIDE AUTOMATIC LPCI MODE INITIATION SIGNAL FOR CLOSURE OF REACTOR WATER RECIRCULATION SYSTEM (68) PUMP DISCHARGE VALVES.	2-BFN-RTP-074	YES	
074-19	MANUAL RHR SYSTEM OPERATION (LPCI TORUS COOLING AND SHUTDOWN COOLING MODES) FROM OUTSIDE THE MAIN CONTROL ROOM.	2-BFN-RTP-BUC	YES	
074-20	PROVIDE FLOW PATH AND PRESSURE BOUNDARY INTEGRITY FOR RHR SERVICE WATER SYSTEM (23) COOLANT TO THE MAIN RHR SYSTEM HEAT EXCHANGERS.	2-BFN-RTP-074	YES	
074-21	PROVIDE REACTOR FEEDWATER SYSTEM (3) RPV LOW WATER LEVEL (L2) SIGNAL FOR AUTOMATIC RCIC SYSTEM (71) INITIATION.	2-BFN-RTP-07'	YES	
074-22	PROVIDE RHR SYSTEM UNIT CROSS-TIE VALVES OPEN POSITION SIGNAL TO RHR SERVICE WATER SYSTEM (23) FOR CLOSURE OF RHR SERVICE WATER VALVES TO MAINTAIN PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-023	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
074-23	RHR ISOLATION SIGNAL TRIPPED ON SIGNAL FROM PRIMARY CONTAINMENT SYSTEM (64).	2-BFN-RTP-064A	YES	
074-24	INHIBIT AUTOMATIC INITIATION OF RHR IN UNIT 2 GIVEN A LOCA SIGNAL FROM THE RHR SYSTEM OF UNIT 1. (UNIT 1 ACCIDENT SIGNAL ASSUMED TO BE DISABLED).	NONE	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
074-25	PROVIDE A LOCA SIGNAL FROM UNIT 2 TO INHIBIT AUTOMATIC INITIATION OF RHR (74) OF UNIT 1.	NONE	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
075-01	SUPPLY COOLING WATER TO REACTOR - AUTO INITIATION.	2-BFN-RTP-075	YES	
075-03	PROVIDE CS PUMP POWER DISCONNECT FROM OUTSIDE MCR.	2-BFN-RTP-075	YES	
075-04	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY.	2-BFN-RTP-068	YES	
075-05	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
075-06	PROVIDE ACCIDENT SIGNAL INPUT TO 480V LOAD SHED LOGIC.	2-BFN-RTP-075	YES	
075-07	PROVIDE START SIGNAL TO DIESEL GENERATOR ON LOW LEVEL (L1) OR HIGH DRYWELL PRESSURE.	2-BFN-RTP-075	YES	
075-08	PROVIDE PRIMARY CONTAINMENT SYSTEM (64) HIGH DRYWELL PRESSURE SIGNAL FOR AUTOMATIC HPCI SYSTEM (73) OPERATION.	2-BFN-RTP-073	YES	

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UNITS 2 AND 3 RESTART TEST PROGRAMS

SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
075-09	PROVIDE CORE SPRAY SYSTEM PIPING FLOW PATH FROM PRIMARY CONTAINMENT SYSTEM (64) SUPPRESSION POOL TO RCIC SYSTEM (71) PIPING UPSTREAM OF RCIC SYSTEM PUMP FOR MANUAL RCIC SYSTEM OPERATION FOR OUTSIDE THE MAIN CONTROL ROOM.	NONE	NO	PASSIVE COMPONENTS VERIFIED BY WALKDOWN
075-10	PROVIDE SIGNALS (THAT CORE SPRAY PUMPS ARE RUNNING) TO MAIN STEAM SYSTEM (1) AUTOMATIC DEPRESSURIZATION SYSTEM (ADS) INITIATION LOGIC	2-BFN-RTP-075	YES	
075-11	PROVIDE REACTOR FEEDWATER SYSTEM (2) LOW WATER LEVEL (L1) SIGNAL TO RHR SYSTEM (74) LPCI MODE INITIATION LOGIC.	2-BFN-RTP-074	YES	
075-12	PROVIDE REACTOR FEEDWATER SYSTEM (2) AND REACTOR WATER RECIRCULATION SYSTEM (68) LOW REACTOR PRESSURE SIGNALS TO RHR SYSTEM (74) LPCI MODE INITIATION LOGIC.	2-BFN-RTP-006	YES	
075-13	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
075-14	PERFORM ISOLATION ACTIONS UPON RECEIVING ISOLATION SIGNAL (LOW LEVEL L3 OR HIGH DRYWELL PRESSURE) FROM THE PRIMARY CONTAINMENT SYSTEM (64).	2-BFN-RTP-064A	YES	
075-15	PROVIDE A LOCA SIGNAL FROM UNIT 2 TO INHIBIT AUTOMATIC INITIATION OF CORE SPRAY (75) OF UNIT 1. (UNIT 1 ACCIDENT SIGNAL ASSUMED TO BE DISABLED).	NONE	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
075-16	INHIBIT AUTOMATIC INITIATION OF CORE SPRAY IN UNIT 2 GIVEN A LOCA SIGNAL FROM THE CORE SPRAY SYSTEM (75) OF UNIT 1.	NONE	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
076-01	CLOSE CONTAINMENT INERTING SYSTEM ISOLATION VALVES ON PRIMARY CONTAINMENT SYSTEM (64) GROUP 6 ISOLATION SIGNAL.	2-BFN-RTP-084	YES	
076-02	PROVIDE OXYGEN AND HYDROGEN GAS ANALYZERS AND INDICATORS TO MONITOR GAS CONCENTRATIONS INSIDE THE PRIMARY CONTAINMENT IN SUPPORT OF CONTAINMENT ATMOSPHERE DILUTION SYSTEM (84) OPERATION.	2-BFN-RTP-084	YES	
076-03	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
076-04	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
077-01	CLOSE RADWASTE SYSTEM ISOLATION VALVES ON PRIMARY CONTAINMENT SYSTEM (64) GROUP 2 ISOLATION SIGNALS.	2-BFN-RTP-024	YES	

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SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
077-02	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
077-03	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
077-06	PREVENT BACKFLOODING OF RADWASTE BLDG THRU SGT BLDG OFF-GAS BLDG & OFF-GAS STACK DRAINS.	NONE	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
078-01	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
078-02	PROVIDE PRESSURE BOUNDARY INTEGRITY AT RHR/FPC INTERFACE.	2-BFN-RTP-074	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
078-03	PREVENT INADVERTENT SIPHONING OF THE SPENT FUEL POOL.	2-BFN-RTP-069	YES	
078-04	PROVIDE FUEL POOL COOLING WHEN POWER AND COOLING WATER ARE AVAILABLE.	NONE	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
079-01	PROVIDE SAFE FUEL HANDLING USING REFUEL BRIDGE & EQUIPMENT.	2-BFN-RTP-079	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
079-02	PROVIDE INTERLOCKS TO CRD SYSTEM DURING FUEL MOVEMENT.	2-BFN-RTP-085	YES	
079-03	PROVIDE SAFE STORAGE FOR NEW AND SPENT FUEL.	NONE	NO	PASSIVE COMPONENTS JUSTIFIED BY ENGINEERING ANALYSIS
079-06	MAINTAIN SPENT FUEL POOL WATER LEVEL.	NONE	NO	JUSTIFICATION BY ENGINEERING ANALYSIS
079-07	REFUELING PLATFORMS ARE TO BE TIED DOWN UNDER TORNADO CONDITIONS. WITH THIS PROVISION THE REFUELING PLATFORMS MUST WITHSTAND TORNADO DESIGN LOADS.	NONE	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
082-01	START STANDBY AC POWER SOURCE FOR 4KV SYSTEM(575)	2-BFN-RTP-082	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
082-02	PROVIDE POWER TO 4KV SYSTEM (575) UPON D/G AVAILABILITY AND LOSS OF OFF-SITE POWER.	2-BFN-RTP-082	YES	
082-03	PROVIDE D/G POWER TO DIESEL FUEL TRANSFER PUMPS(SYSTEM 18).	2-BFN-RTP-082	NO	UNIT 2 TEST SATISFIES ALL REQUIREMENTS

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UNITS 2 AND 3 RESTART TEST PROGRAMS

SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
084-01	PROVIDE DILUTION OF THE PRIMARY CONTAINMENT ATMOSPHERE WITH NITROGEN AFTER A LOCA TO MAINTAIN COMBUSTIBLE GAS (OXYGEN AND HYDROGEN) CONCENTRATIONS BELOW LEVELS (OXYGEN 5% BY VOLUME) WHICH COULD) PRODUCE A COMBUSTIBLE GAS MIXTURE.	2-BFN-RTP-084	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
084-02	VENT PRIMARY CONTAINMENT ATMOSPHERE FROM PRIMARY CONTAINMENT SYSTEM (64) FLOW PATH TO STANDBY GAS TREATMENT SYSTEM (65) AFTER A LOCA. SUPPLY CONTROL NITROGEN TO OPEN PRIMARY CONTAINMENT SYSTEM (64) ISOLATION VALVES ON FLOW PATH TO CAD SYSTEM (84).	NONE	TBD	REMOVED FROM UNIT 2 RESTART SCOPE. UNIT 3 TEST PENDING BTRD ISSUANCE.
084-03	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
084-04	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
084-05	PROVIDE NITROGEN TO THE CONTROL AIR SYSTEM (32) IN SUPPORT OF LONG TERN OPERABILITY OF MAIN STEAM SYSTEM ADS SAFETY RELIEF VALVES (SRVS) - APPENDIX R.	NONE	TBD	UNIT 2 TESTING BY POST MODIFICATION TEST. UNIT 3 PENDING ISSUANCE OF BTRD.
084-06	CLOSE CAD SYSTEM VENT VALVES ON PRIMARY CONTAINMENT SYSTEM (64) GROUP 6 ISOLATION SIGNAL.	2-BFN-RTP-084	YES	
085-01	PROVIDE SCRAM (99) AND CLOSE SDV VENT DRAIN VALVES.	2-BFN-RTP-085	YES	
085-02	PROVIDE PRIMARY CONTAINMENT BOUNDARY.	2-BFN-RTP-064A	YES	
085-03	PROVIDE SECONDARY CONTAINMENT BOUNDARY.	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
085-04	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY (RCPB).	2-BFN-RTP-068	YES	
085-05	PREVENT ROD WITHDRAWAL.	2-BFN-RTP-085	YES	
085-06	PROVIDE HOUSING SUPPORT TO KEEP RODS IN PLACE.	NONE	NO	JUSTIFICATION BY ENGINEERING ANALYSIS
085-07	LIMIT ROD DROP RATE TO LESS THAN 3.11 FT/SEC.	NONE	NO	JUSTIFICATION BY ENGINEERING ANALYSIS
085-08	PROVIDE MCR ROD POSITION INDICATION.	2-BFN-RTP-085	YES	
085-09	PROVIDE SCRAM DISCHARGE HIGH WATER LEVEL SIGNAL.	2-BFN-RTP-085	YES	

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SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
085-10	PROVIDE SCRAM DISCHARGE LOW AIR HEADER PRESSURE SIGNAL.	2-BFN-RTP-085	YES	
085-11	PROVIDE REMOTE BACKUP CONTROL FROM OUTSIDE THE MAIN CONTROL ROOM.	2-BFN-RTP-BUC	YES	
085-12	PROVIDE SYSTEM PRESSURE BOUNDARY SUPPORT TO MAIN STEAM SYSTEM (1) >30% TURBINE FIRST STAGE PRESSURE INSTRUMENTATION.	NONE	NO	PASSIVE FUNCTION JUSTIFIED BY ANALYSIS
085-13	PROVIDE SYSTEM PRESSURE BOUNDARY IN SUPPORT OF RCIC SYSTEM (71) AUTOMATIC INITIATION MODE AND MANUAL OPERATION FROM OUTSIDE THE MAIN CONTROL ROOM.	NONE	NO	PASSIVE FUNCTION JUSTIFIED BY ANALYSIS
085-14	PROVIDE ALTERNATE ROD INSERTION BY OPENING BACKUP SCRAM VALVES ON FEEDWATER SYSTEM (3) RPV LOW WATER LEVEL (L2) SIGNAL OR HIGH REACTOR VESSEL PRESSURE SIGNAL.	2-BFN-RTP-085	YES	
086-01	PROVIDE DIESEL STARTING AIR TO DIESEL GENERATOR SYSTEM (82).	2-BFN-RTP-082	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
090-01	PROVIDE MAIN STEAM LIVE HIGH RADIATION SIGNAL TO REACTOR PROTECTION SYSTEM (99).	2-BFN-RTP-090	YES	
090-02	PROVIDE PRIMARY CONTAINMENT BOUNDARY (UP TO 2-FCV-90-254AB-255-257AB).	2-BFN-RTP-064A	YES	
090-03	PROVIDE REACTOR BUILDING VENTILATION EXHAUST LINE AND REFUELING ZONE AREA (ADJACENT TO THE FUEL POOLS) HIGH RADIATION SIGNALS TO PRIMARY CONTAINMENT SYSTEM (64) GROUP 6 ISOLATION LOGIC.	2-BFN-RTP-090	YES	
090-04	PROVIDE CONTROL ROOM INTAKE AIR DUCTS EXCESSIVE RADIATION SIGNAL TO AIR CONDITIONING SYSTEM (31) FOR INITIATION OF CONTROL ROOM EMERGENCY VENTILATION (ISOLATION OF INTAKE DUCTS AND SUPPLY OF PRESSURIZED FILTERED OUTDOOR AIR).	2-BFN-RTP-031B	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
090-05	CLOSE VALVES ON SUCTION AND RETURN LINES TO THE DRYWELL RADIOACTIVE PARTICULATE IODINE AND GASEOUS MONITOR ON PRIMARY CONTAINMENT SYSTEM (64) GROUP 6 ISOLATION SIGNAL.	2-BFN-RTP-090	YES	
090-06	PROVIDE SYSTEM PRESSURE BOUNDARY INTEGRITY (WITH ALL MECHANICAL JOINTS AND COMPONENTS ASSOCIATED WITH THE OFF-LINE LIQUID MONITORS) TO RAW COOLING WATER SYSTEM (24) IN SUPPORT OF EECW SYSTEM (67) PRESSURE BOUNDARY INTEGRITY.	NONE	NO	PASSIVE FUNCTION JUSTIFIED BY ENGINEERING ANALYSIS
090-07	PROVIDE SYSTEM PRESSURE BOUNDARY INTEGRITY (WITH ALL MECHANICAL JOINTS AND COMPONENTS ASSOCIATED WITH THE OFF-LINE LIQUID MONITORS) TO RHR SERVICE WATER SYSTEM (23) COOLING WATER FOR RHR SYSTEM (74) HEAT EXCHANGERS.	NONE	NO	PASSIVE FUNCTION JUSTIFIED BY ENGINEERING ANALYSIS

TBD TO BE DETERMINED
BTRD BASELINE TEST REQUIREMENTS DOCUMENT

TABLE 1

CORRELATION BETWEEN BROWNS FERRY NUCLEAR PLANT
UNITS 2 AND 3 RESTART TEST PROGRAMS

SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
090-08	PROVIDE SECONDARY CONTAINMENT BOUNDARY	2-BFN-RTP-065	NO	SECONDARY CONTAINMENT WAS TESTED AS A WHOLE DURING UNIT 2 TESTING
092-01	PROVIDE IRM HIGH NEUTRON FLUX TRIP SIGNAL TO REACTOR PROTECTION SYSTEM	2-BFN-RTP-092	YES	
092-02	PROVIDE APRM HIGH NEUTRON FLUX TRIP SIGNAL TO REACTOR PROTECTION SYSTEM (99).	2-BFN-RTP-092	YES	
092-04	PROVIDE ROD BLOCK MONITOR TRIP SIGNAL (VARIABLE WITH REACTOR WATER RECIRCULATION SYSTEM (68) FLOW) TO THE REACTOR MANUAL CONTROL SUBSYSTEM OF THE CONTROL ROD DRIVE SYSTEM (85) TO INHIBIT CONTROL ROD WITHDRAWAL.	NONE	TBD	REMOVED FROM UNIT 2 RESTART SCOPE. UNIT 3 DECISION PENDING ISSUANCE OF BTRD.
092-05	PROVIDE INDICATION IN MAIN CONTROL ROOM OF POWER/NEUTRON FLUX LEVEL AS MONITORED ON THE SRMS IRMS OR APRMS (AS APPLICABLE) AS THE EVENT IS IDENTIFIED AND THE STANDBY LIQUID CONTROL SYSTEM (63) INJECTS THE BORON SOLUTION INTO THE REACTOR.	NONE	TBD	REMOVED FROM UNIT 2 RESTART SCOPE. UNIT 3 DECISION PENDING ISSUANCE OF BTRD.
092-07	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY (RCPB).	2-BFN-RTP-068	YES	
094-01	PROVIDE PRIMARY CONTAINMENT INTEGRITY.	2-BFN-RTP-064A	YES	
094-03	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY (RCPB) (PASSIVE FUNCTION ONLY)	2-BFN-RTP-064A	YES	
099-01	PROVIDE AUTO SCRAM & SDV VENT/DRAIN VALVE ISOLATION SIGNAL TO CRD SYSTEM(85).	2-BFN-RTP-099	YES	
099-02	PROVIDE MANUAL SCRAM SIGNAL AND SDV VENT/DRAIN VALVE ISOLATION SIGNALS TO CRD SYSTEM(85).	2-BFN-RTP-099	YES	
099-03	PROVIDE 'RUN' MODE SGNL TO PCIS (64) FOR LOW STEAMLINE PRESSURE ISOLATION PERMISSIVE.	2-BFN-RTP-099	YES	
099-04	PROVIDE REFUEL INTERLOCK TO REACTOR MANUAL CONTROL SYSTEM. (85)	2-BFN-RTP-085	YES	
099-05	PROVIDE TRIP SIGNAL TO RECIRC PUMP MOTOR BREAKERS (SYSTEM 68).	2-BFN-RTP-068	YES	
099-06	PROVIDE SIGNALS TO PRIMARY CONTAINMENT ISOLATION SYSTEM (64) LOGIC.	2-BFN-RTP-099	YES	
111-01	REACTOR BUILDING CRANE IS TO BE TIED DOWN UNDER TORNADO CONDITIONS. WITH THIS PROVISION THE CRANE MUST WITHSTAND FULL DESIGN LOADS (PASSIVE).	NONE	TBD	PASSIVE MODE - PENDING ISSUANCE OF BTRD
244-01	PROVIDE COMMUNICATION FROM LOCAL PANELS FOR SHUTDOWN FROM OUTSIDE THE MCR.	2-BFN-RTP-244	NO	UNIT 2 TEST SATISFIES REQUIREMENTS

TBD TO BE DETERMINED
BTRD BASELINE TEST REQUIREMENTS DOCUMENT

TABLE 1

CORRELATION BETWEEN BROWNS FERRY NUCLEAR PLANT
UNITS 2 AND 3 RESTART TEST PROGRAMS

SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
303-01	MAINTAIN CONFIGURATION INTEGRITY OF STRUCTURES DURING EARTHQUAKE.	NONE	NO	JUSTIFICATION BY ENGINEERING ANALYSIS
303-02	PROVIDE PROTECTION AGAINST THE EFFECTS OF FLOODING.	NONE	NO	JUSTIFICATION BY ENGINEERING ANALYSIS
303-03	MAINTAIN CONFIGURATION INTEGRITY OF STRUCTURES DURING TORNADO	NONE	NO	JUSTIFICATION BY ENGINEERING ANALYSIS
303-04	SECONDARY CONTAINMENT LEAKAGE RATE CRITERIA MUST BE MAINTAINED BY THE REACTOR BUILDING.	2-BFN-RTP-065	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
571-01	PROVIDE 125V DC CONTROL POWER TO DG CIRCUITRY (SYSTEM 82).	2-BFN-RTP-57-1	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
572-01	PROVIDE 208/120V I & C BUS POWER DISTRIBUTION.	NONE	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
572-02	PROVIDE UNIT PREFERRED POWER DISTRIBUTION.	2-BFN-RTP-57-2	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
572-03	PROVIDE 120V AC POWER FOR RPS SYSTEM.	2-BFN-RTP-57-2	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
573-01	PROVIDE CONTROL & LOGIC POWER TO 4KV & 480V SWITCHGEAR.	2-BFN-RTP-57-3	TBD	PENDING ISSUANCE OF UNIT 3 BTRD
573-02	PROVIDE SWITCHYARD (500KV-161KV) RELAYING & TRIPPING POWER.	NONE	TBD	REMOVED FROM UNIT 2 SCOPE, UNIT 3 PENDING ISSUANCE OF UNIT 3 BTRD.
573-03	PROVIDE MOTIVE POWER & LOGIC POWER TO EQUIPMENT.	2-BFN-RTP-57-3	TBD	UNIT 2 TESTED BATTERIES ONLY, UNIT 3 PENDING ISSUANCE OF UNIT 3 BTRD.
573-04	PROVIDE DISTRIBUTION POINT FOR NUMEROUS ELECTRIC SYSTEMS.	NONE	TBD	REMOVED FROM UNIT 2 SCOPE, UNIT 3 PENDING ISSUANCE OF UNIT 3 BTRD.
573-05	PROVIDE LOGIC POWER TO 480V LOAD SHED LOGIC.	2-BFN-RTP-57-3	TBD	UNIT 2 TESTED BATTERIES ONLY, UNIT 3 PENDING ISSUANCE OF UNIT 3 BTRD.
574-01	PROVIDE 480V SWITCHGEAR DISTRIBUTION.	2-BFN-RTP-57-4	TBD	UNIT 3 SCOPE PENDING ISSUANCE OF BTRD
574-02	PROVIDE 480V MCC DISTRIBUTION.	2-BFN-RTP-57-4	TBD	UNIT 3 SCOPE PENDING ISSUANCE OF BTRD

TBD TO BE DETERMINED
BTRD BASELINE TEST REQUIREMENTS DOCUMENT

TABLE 1

CORRELATION BETWEEN BROWNS FERRY NUCLEAR PLANT
UNITS 2 AND 3 RESTART TEST PROGRAMS

SYSTEM MODE	MODE DESCRIPTION	UNIT 2 TEST	TEST FOR U3	COMMENTS
574-03	PROVIDE 480V LOAD SHED LOGIC SYSTEM.	2-BFN-RTP-57-4	TBD	UNIT 3 SCOPE PENDING ISSUANCE OF BTRD
574-04	PROVIDE 480V AC DISTRIBUTION BACKUP CONTROL.	2-BFN-RTP-BUC	TBD	UNIT 3 SCOPE PENDING ISSUANCE OF BTRD
575-01	PROVIDE 4 KV POWER DISTRIBUTION FOR DG LOADING (SYSTEM 82).	2-BFN-RTP-57-5	TBD	UNIT 3 SCOPE PENDING ISSUANCE OF BTRD
575-02	PROVIDE RECIRCULATION PUMP TRIP UPON SIGNAL.	2-BFN-RTP-068	YES	
575-03	PROVIDE INSTRUMENTATION FOR DG PARALLELING (SYSTEM 82)	2-BFN-RTP-57-5	TBD	UNIT 3 SCOPE PENDING ISSUANCE OF BTRD
575-04	PROVIDE INITIATION SIGNAL TO DIESELS (SYSTEM 82).	2-BFN-RTP-57-5	TBD	UNIT 3 SCOPE PENDING ISSUANCE OF BTRD
575-05	PROVIDE COOLING TOWER LIFT PUMP TRIP ON CONDENSER CIRCULATION WATER SYSTEM (27) COOLING TOWER LIFT PUMP DISCHARGE WATER HIGH TEMPERATURE SIGNAL.	NONE	TBD	UNIT 3 SCOPE PENDING ISSUANCE OF BTRD
575-06	BACKUP CONTROL FOR 4KV FEEDER BREAKERS OUTSIDE THE CONTROL BAY.	2-BFN-RTP-BUC	NO	UNIT 2 TEST SATISFIES REQUIREMENTS
575-07	LOAD SHEDDING TO PREVENT OVERLOADING OF 4KV SYSTEM (575).	2-BFN-RTP-57-5	TBD	UNIT 3 SCOPE PENDING ISSUANCE OF BTRD
576-01	PROVIDE OFF-SITE POWER TO 4KV DISTRIBUTION (575)	NONE	TBD	UNIT 3 SCOPE PENDING ISSUANCE OF BTRD
576-02	PROVIDE 24V DC POWER.	NONE	TBD	UNIT 3 SCOPE PENDING ISSUANCE OF BTRD

TBD TO BE DETERMINED
BTRD BASELINE TEST REQUIREMENTS DOCUMENT

ENCLOSURE 2

BROWNS FERRY NUCLEAR PLANT

UNITS 1 AND 3

POWER ASCENSION TESTING PROGRAMS

BROWNS FERRY NUCLEAR PLANT
UNITS 1 AND 3 POWER ASCENSION TESTING PROGRAMS

I BACKGROUND

TVA's Power Ascension Testing (PAT) Program for BFN Unit 2 was initially described in a TVA letter to the NRC dated February 14, 1989, and supplemented by letters dated September 8, 1989, October 30, 1989, April 12, 1990, August 10, 1990, November 16, 1990, January 17, 1990. TVA correlated the BFN PAT Program to RG 1.68 guidance in the April 12, 1990 letter per NRC request (NRC letter dated February 12, 1990). The NRC's review and acceptance of the Unit 2 PAT Program is documented by NRC letters dated September 22, 1989, February 12, 1990, July 6, 1990 and April 3, 1991. TVA plans to administer similar PAT Programs for Units 1 and 3. The following addresses the differences and correlates the Units 1 and 3 PAT Programs to RG 1.68 as was done for the Unit 2 PAT Program in the April 12, 1990 letter. Power Ascension testing hold points are not addressed.

II UNITS 1 AND 3 PAT PROGRAM DIFFERENCES

The PAT Programs for Units 1 and 3 will deviate slightly from the specific testing identified for the Unit 2 PAT Program. Table 1 of this enclosure provides a comparison of the actual Unit 2 tests to the planned Unit 3 tests. In general, for Unit 3, TVA does not does not plan to perform the Turbine Trip test, the feedwater pump trip, and the backup control system test (Shutdown from Outside the Control Room test) during power ascension as was done for Unit 2. The BFN training simulator has been upgraded to more accurately model the plant's response to transients. This, coupled with the desire to minimize the transients inflicted on the plant, led to the decision not to perform these tests. The Feedwater System test will include tuning as was done on Unit 2. A backup control system test (Shutdown from Outside the Control test) will be performed during open vessel testing to demonstrate the system is functional. These departures from the Unit 2 PAT program are discussed in more detail in Part III, below (III.F, G, and I).

III Comparison of BFN Criteria to RG 1.68 Criteria

Table 1 also provides a detailed comparison of Regulatory Guide (RG) 1.68 and BFN's PAT Program. A detailed discussion of the significant differences is provided below. The correlation to RG 1.68 applies to both Units 1 and 3 except as noted. This information is provided in similar format to that provided for the Unit 2 PAT program (provided by TVA's April 12 1990 letter). In general, significant differences between the BFN PAT program and RG 1.68 fall into the following categories:

- Performing test at the plateaus specified by BFN FSAR in Section 13.10 versus those plateaus listed in RG 1.68.

- Not performing baseline determination testing for those parameters unaffected by the long outage.

- Not performing selected transients (e.g., natural circulation, loss of feedwater heating, main steam isolation valve closure) to verify specific dynamic core response, which could only be affected by a new core design and for which sufficient data is already available.

- Not performing testing on equipment which is not installed on BFN Unit 1 and 3 (Inclined Fuel Transfer, Suppression Pool Makeup, Partial Scram, etc.).

A. Control Rod Drive (CRD) System

During an initial plant startup, additional control rod data is collected for selected rods at various temperatures to verify that thermal expansion of the vessel internals will not affect control rod performance. These rods are also monitored during planned reactor scrams to verify proper performance. As this was verified in the initial startup program and no significant work will be done to the reactor internals, these tests will not be repeated. The following table summarizes the planned operations for the CRD system.

PRESSURE	DESCRIPTIONS
0	Control Rod Coupling Check
0	Insert and Withdrawal Timing
0	Functional Check of Position Indication
0	Running and Stall Flow
0	Friction Testing
Rated	Individual Control Rod Scram Timing
Rated	Core Scram with Less than 50% density

B. Reactor Core Isolation Cooling (RCIC) System

During an initial plant startup, baseline readings are taken on RCIC steam supply line high-flow isolation circuitry to provide an accurate value for the setpoint. As this value was obtained during the initial startup test program, and no work will be performed which would affect this data, these setpoints will not be adjusted.

During an initial plant startup, additional "cold start" demonstrations are performed to improve the confidence level in system performance. As the plant was in operation for several years, and the RCIC system performed reliably during this time period, TVA considers that the present program adequately demonstrates system reliability. The following table summarizes the planned operations of the system.

PRESSURE	INJECTION PATH	DESCRIPTION
150 PSIG	Condensate Storage Tank	Rated Flow with Auxiliary Boiler
Rated	Condensate Storage Tank	Hot Quick-Start
Rated	Condensate Storage Tank	Cold Quick-Start
150 PSIG	Condensate Storage Tank	Hot Quick-Start
Rated	Reactor Vessel	Hot Quick-Start

C. High Pressure Coolant Injection (HPCI) System

During an initial plant startup, baseline readings are taken on HPCI steam supply line high-flow isolation circuitry to provide an accurate value for the setpoint. As this value was obtained during the initial plant startup test program, and no work will be performed which will affect this data, these setpoints will not be adjusted.

Additional "cold start" demonstrations are performed to improve the confidence level in system performance. As the plant was in operation for several years, TVA considers that the present program adequately demonstrates system reliability. The following table summarizes the planned operations of the system.

PRESSURE	INJECTION PATH	DESCRIPTION
150 PSIG	Condensate Storage Tank	Rated Flow with Auxiliary Boiler
Rated	Condensate Storage Tank	Hot Quick-Start
Rated	Condensate Storage Tank	Cold Quick-Start
150 PSIG	Condensate Storage Tank	Hot Quick-Start
Rated	Reactor Vessel	Hot Quick-Start

D. Selected Process Temperature

During a Near Term Operating License (NTOL) startup, recirculation flow is lowered to ensure that temperature stratification does no occur in the reactor at the lowest possible recirculation flow. As the setpoint for the recirculation MG set low speed limiter has not been changed, there is no requirement to repeat this test.

E. Core Power Void Mode Response Test

This test was performed on early boiling water reactor plants to prove that the transient response of the reactor to a reactivity perturbation was sufficiently stable. This test was performed during the initial startup of BFN Units 1 and 3 and no changes to the basic core design have been made

during this outage which would affect the dynamic stability of the core. Additionally, the test was normally performed in test condition 4 (natural circulation), and BFN Units 1 and 3 will not operate in this region.

F. Feedwater System

During an initial plant startup, trips of reactor feed pumps are performed to verify plant performance. This testing was satisfactorily demonstrated during the initial startup of Units 1 and 3. No modifications will be made that would significantly affect plant performance. A feedwater pump trip from high power was performed during the power ascension test program of Unit 2 for cycle 6. This test was performed specifically to acquaint operations personnel with the integrated plant response to this transient. The BFN training simulator has been upgraded to more accurately model the plant's response to transients. This, coupled with the desire to minimize the transients inflicted on the plant, led to the decision not to perform this test. Feedwater System tuning will be performed as was done on Unit 2. The reactor feedwater pump turbine (RFPT) trips listed in Enclosure 1 will be performed prior to unit startup or with the RFPT in a condition that is not supplying coolant to the reactor.

G. Main Steam Isolation Valve (MSIV) Testing

During an initial plant startup, a closure of all MSIVs is performed at high power (90-100 percent) to verify plant performance. This test was satisfactorily demonstrated during the initial startup of Units 1 and 3. No modifications will be made that would significantly affect plant performance; therefore, this test does not need to be repeated.

H. Turbine Trip

During an initial plant startup, a turbine generator load reject (TGLR) is performed at High Power (90-100 percent) to verify plant performance. Additionally, turbine trips within the capacity of the turbine bypass valves are performed to verify that the reactor does not scram. This testing was satisfactorily demonstrated during the initial plant startup of Units 1 and 3. No modifications will be made that would significantly affect the response of the plant.

A turbine trip at high power was performed during the power ascension testing program of Unit 2 for cycle 6. This test was performed specifically to acquaint operations personnel with the integrated plant response to this transient. The BFN training simulator has been upgraded to more accurately model the plant's response to transients. This, coupled with the desire to minimize the transients inflicted on the plant, led to the decision not to perform this test.

I. Shutdown from Outside the Control Room

This test was successfully performed at power during the initial startup test program of Units 1 and 3. A Unit 3 backup control system will be demonstrated to be functional during open vessel testing. This testing will utilize voltage checks, indicating lights, annunciations, and visually inspecting

components. A backup control system test at power was performed to demonstrate personnel and procedural adequacy during the power ascension test program of Unit 2 for cycle 6. The BFN training simulator has been upgraded to include a fully functional backup control panel which is utilized for procedure validation and personnel training. This, coupled with the desire to minimize the transients inflicted on the plant, led to the decision not to perform this test.

J. Recirculation System Testing

During a NTOL startup, individual and dual trips of recirculation pumps are performed to verify dynamic core response. This testing is not planned as it was satisfactorily demonstrated during the initial startup test program.

K. Loss of Offsite Power and Turbine Trip

During a NTOL startup, a loss of offsite power coincident with a turbine generator trip are performed to verify electrical and reactor system transient performance during a loss of auxiliary power. In order to minimize electrical transients to plant switchgear as well as transients to balance of plant systems (i.e., feedwater, condensate, turbine support systems, etc.), TVA does not plan to perform this test at power.

L. Drywell Vibration

During an initial startup, all safety-related piping systems in the drywell are monitored during scheduled transients to develop baseline vibration levels. Browns Ferry Nuclear Plant (BFN) is developing a list of specific locations to be monitored, consistent with the modifications which will be performed.

M. Reactor Vessel Internals Vibration

This testing requires special equipment to be installed inside the reactor vessel. It was performed during the initial test program, and no work will be performed inside the vessel which would require repeating this test.

N. Residual Heat Removal (RHR) System

During an initial test program, RHR heat exchanger performance is verified with the system operating in the shutdown cooling mode and the suppression pool cooling mode. This data was taken during the initial startup test program and need not be repeated.

TABLE 1

CORRELATION BETWEEN BFN UNITS 2 AND 3 PAT PROGRAMS
AND REGULATORY GUIDE 1.68

BFN TEST	TEST NAME	UNIT 2 TEST	TEST FOR UNIT 3	OPEN VESSEL	0-55%	55 - 100%
SI 4.6.B.1-4	CHEMICAL/RADIOCHEMICAL	YES	YES	X/N	X/N	X/N
RCI 1	RADIATION MEASUREMENTS	YES	YES		X/N	X/N
SI 4.3.A.1	REACTIVITY MARGIN TEST	YES	YES		X/N	
TI 20	CONTROL ROD DRIVE SYSTEM	YES	YES	X/N	X/N	N
GOI-100-1A	SOURCE RANGE MONITOR	YES	YES		X/N	
TI 149	WATER LEVEL MEASUREMENTS	YES	YES		X/N	X
SI 4.2.C-3	INTERMEDIATE RANGE MONITOR	YES	YES		X/N	
SI 4.1.B-3	LOCAL POWER RANGE MONITOR CALIBRATION	YES	YES		X/N	X/N
TI 136	AVERAGE POWER RANGE MONITOR (CONSTANT HEATUP)	YES	YES		X/N	
SI 4.1.B-2	AVERAGE POWER RANGE MONITOR CALIBRATION	YES	YES		X/N	X/N
TI 135	PROCESS COMPUTER	YES	YES		X/N	X/N
TI 188	REACTOR CORE ISOLATION COOLING SYSTEM	YES	YES		X/N	
TI 189	HIGH PRESSURE COOLANT INJECTION SYSTEM	YES	YES		X/N	X/N
TI 149	SELECTED PROCESS TEMPERATURE	YES	YES		X/N	X/N
TI 190	SYSTEM EXPANSION	YES	YES		X/N	
TI 137	CORE POWER DISTRIBUTION	YES	YES		X/N	X/N
SI 2.1	CORE PERFORMANCE	YES	YES		X/N	X/N
NA	CORE POWER VOID MODE RESPONSE	NA	NA		N	
TI 130	PRESSURE REGULATOR	YES	YES		X/N	X/N
TI 131	FEEDWATER SYSTEM	YES	YES*		X/N	X/N
SI 4.1.A.15	TURBINE SURVEILLANCE	YES	YES		X/N	X/N
SI 4.7.D	MAIN STEAM ISOLATION VALVE	YES	YES		X/N	N
SI 4.6.D	SAFETY RELIEF VALVE	YES	YES		X/N	
NA	TURBINE TRIP	YES	NO*			N
TI 73	SHUTDOWN FROM OUTSIDE CONTROL ROOM	YES	YES	X	N	N
TI 132	RECIRCULATION SYSTEM TUNING	YES	YES	X	X/N	X/N
NA	RECIRCULATION SYSTEM	NA	NA		N	N

X BROWNS FERRY TEST
N REQUIRED BY NEAR TERM OPERATING LICENSE (RG 1.68)
* DIFFERS FROM BFN UNIT 2 PAT PROGRAM
NA NOT APPLICABLE
TBD TO BE DETERMINED

TABLE 1

CORRELATION BETWEEN BFN UNITS 2 AND 3 PAT PROGRAMS
AND REGULATORY GUIDE 1.68

BFN TEST	TEST NAME	UNIT 2 TEST	TEST FOR UNIT 3	OPEN VESSEL	0-55%	55 - 100%
NA	LOSS OF OFFSITE POWER TURBINE TRIP	NA	NA		N	
TBD	DRYWELL PIPING VIBRATION	YES	YES	X/N	X/N	
NA	REACTOR PRESSURE VESSEL INTERNALS VIBRATION	NA	NA		N	N
TI 174	RECIRCULATION FLOW CALIBRATION	YES	YES		N	X/N
TI 183	REACTOR WATER CLEANUP SYSTEM	YES	YES		X/N	
NA	RESIDUAL HEAT REMOVAL SYSTEM	NA	NA		N	N
TI 82	DRYWELL TEMPERATURES	YES	YES		X/N	X/N
SI 4.8.B.1.a.1	OFFGAS SYSTEM	YES	YES		X/N	X/N

X BROWNS FERRY TEST
N REQUIRED BY NEAR TERM OPERATING LICENSE (RG 1.68)
* DIFFERS FROM BFN UNIT 2 PAT PROGRAM
NA NOT APPLICABLE
TBD TO BE DETERMINED

ENCLOSURE 3

SUMMARY OF COMMITMENTS

TVA will provide the NRC an update of the table in Enclosure 1 to reflect the outcome of BTRD evaluations by December 31, 1992.