

ENCLOSURE (1)

SUMMARY OF MODIFICATIONS, CHANGES AND EXPERIMENTS  
IMPLEMENTED AT JAFNPP DURING 1983

JAF-SE-81-028, Plant Modification F1-80-019

This modification involved the installation of the Post-Accident Sampling System which provides the capability of promptly obtaining pressurized and unpressurized reactor coolant samples and primary and secondary containment atmosphere samples as required by NUREG 0737, Section II.B.3. The work performed by this partial installation phase of the modification consisted of: electrical junction boxes, conduit and raceway installation, cable installation mounting of equipment and installation of various switches, terminal blocks and relays in new and existing cabinets.

JAF-SE-81-044, Plant Modification F1-79-002

This modification involved the installation of a new process pipe line and valves from the condensate system downstream of the condensate demineralizers to the Control Rod Drive (CRD) pump suction lines. This modification results in improving the quality of water to the CRD Hydraulic System to reduce the possibility of corrosion cracking of the CRD collet retainer tubes and to increase net positive suction head (NPSH) to provide higher CRD pump flow rates.

JAF-SE-81-047, Plant Modification F1-80-020

This modification involved the installation of a new Containment Hydrogen Monitoring System to provide the Control Room with a continuous indication of hydrogen concentration (0-30%) in the primary containment. This modification was necessary to fulfill the requirements of NUREG 0578, Section 2.1.9.

JAF-SE-81-084, Plant Modification F1-80-019

This modification involved the completion of the installation of a Post-Accident Sampling System to transport samples from various sample points to a sample station under all conditions including a loss of coolant accident. This modification was installed to meet requirements of NUREG 0737, Section II.B.3 which requires all nuclear plant operating license holders to have the capability of promptly obtaining pressurized and unpressurized reactor coolant samples and primary and secondary containment atmosphere samples.

JAF-SE-82-037, Rev. 1, Plant Modification F1-77-038

This plant modification involved the design and construction of a reinforced concrete radiation shield wall around the radwaste system waste surge tank. The purpose of the structure is to provide sufficient radiation shielding to reduce dose rates to conform with the requirement of JAFNPP FSAR Section 11.5.2.

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JAF-SE-82-055, Modification M1-82-071

This modification consisted of replacing the plant process computer's processor assemblies with a used but rebuilt unit to double its memory, speed and size.

JAF-SE-82-056, Modification M1-82-072

This minor modification involved converting removable covers on the Fire Protection Relay Cabinet (FPRC) to hinged doors. By placing continuous hinges on the covers, access to the FPRC for personnel inspection and operation is easier.

JAF-SE-82-063, Plant Modification F1-81-044

This modification involved the installation of the meteorological monitoring and radiological acquisition system at both JAF and Niagara Mohawk's Nine Mile Point Unit 1 and 2 in response to the requirements as outlined in NUREG 0654 and Regulatory Guide 1.23, Revision 1.

JAF-SE-83-002

This evaluation involved the substitution of three overcurrent trip devices on a breaker used to supply power to the Control Rod Drive (CRD) hydraulic pump motor. These overcurrent trip devices failed to perform their intended function properly during testing and therefore were replaced. The new device does not have the identical design specifications as the original component, but the evaluation indicates that equivalent trip points as originally specified and overload protection requirements for the CRD hydraulic pumps are met by the new device.

JAF-SE-83-003, Plant Modification F1-82-020

This plant modification is the third phase of modifications associated with the Mark I containment suppression pool (Torus). The Mark I suppression chamber original design did not consider hydrodynamic loads as a result of drywell air and steam being rapidly forced into the suppression pool during a postulated LOCA and response to safety relief valve (SRV) operation. All SRV lines were reanalyzed from the relief valves to their termination inside the torus at the T-Quenchers. The results required SRV pipe support modifications to restore margins of safety in the suppression pool. The modifications were needed to comply with the acceptance criteria contained in Appendix A to the "Mark I Containment Long-Term Program Safety Evaluation Report", NUREG 0661. Specific aspects of this evaluation included:

1. Owner's specifications and drawings for the project, delineating general requirements and design criteria.
2. Support modifications to SRV discharge lines.

3. Support modifications and additions on torus-attached piping including core spray, containment purge, reactor core isolation cooling, high pressure coolant injection, and residual heat removal.
4. Removal of knee brace supports that were attached to the ring girders on the interior of the torus to reduce torus shell stresses due to hydrodynamic loads.
5. Expansion loops for lower torus level sensing to reduce the stresses in the piping system introduced by thermal movements of the torus shell.
6. Modification of a main steam line seismic restraint to provide sufficient clearance with a snubber clamp installed as part of modifications to supports on the SRV discharge line.
7. Repair of a hole in a containment purge line caused by burn-through during attachment welding of a pipe support trunnion.

JAF-SE-83-006, Plant Modification F1-82-018

This modification involved the installation of long term scram discharge system modifications. Included in the installation were two new Scram Discharge Instrument Volumes (SDIV), vent and drain lines, isolation valves, instrumentation, supports, mechanical and electrical components. This modification was required by NRC Generic Safety Evaluation Report on the BWR Discharge System, dated December 1, 1980 and Generic Letter No. 81-18, dated March 30, 1981 for Long Term Modifications of JAFNPP Scram Discharge System.

JAF-SE-83-007, Plant Modification F1-78-033

This modification eliminated the Control Rod Drive (CRD) Hydraulic System return line to the reactor vessel. This change was prompted by concerns in NUREG 0619 relative to vessel nozzle thermal fatigue cracking and the discovery of a through-wall defect in the CRD return line piping immediately upstream of the vessel nozzle. This modification simplifies design and operation of the system while eliminating the source of potential intergranular stress corrosion cracking problem along with thermal fatigue to the vessel nozzle and has no degradation of performance of the system.

JAF-SE-83-008, Plant Modification F1-81-026

This modification involved the installation of air-operated containment isolation valves to the Reactor Building Closed Loop Cooling Water System (RBCLCWS). This modification is an improvement in plant safety when the situation warrants the use of remote manual containment isolation during postulated accidents. These isolation valves were installed in order to fully comply with 10CFR50, Appendix A, General Design Criteria 54 and 57.

JAF-SE-83-009

This safety evaluation addressed a temporary procedure required for performing a corrective maintenance activity of temporarily jumpering of two lead - calcium battery cells in the Station Batteries System.

JAF-SE-83-010, Plant Modification F1-82-018

This modification involved removal of the unused end portion of certain cable trays. This was done in order to permit installation of a concrete shield enclosure for the long term scram discharge modifications.

JAF-SE-83-011, Plant Modification F1-82-018

This modification involved changing a re-design of a pipe support attachment on the steam line to the RHR system "A" heat exchanger. The new support configuration with restraint is equal to the original design. This change was made to eliminate interferences with the scram discharge instrument volume (west) enclosure and drain line being added as part of the long term scram discharge system modifications.

JAF-SE-83-013, Modification M1-83-006

This modification involved the replacement of recorder displays which provide redundant indication of containment pressure, reactor pressure, and containment level under accident conditions. The previous units proved to be unreliable and not field serviceable and therefore were replaced with a similar type but better design.

JAF-SE-83-016, Modification M1-83-048

This modification raised the high moisture isolation dew point set point of the off-gas charcoal filters. This modification was necessary to allow the use of the off-gas charcoal filters with a high moisture load.

JAF-SE-83-018, Plant Modification F1-83-001 Partial Modification

This plant modification involved the replacement of existing electronic pressure transmitters with nuclear qualified Class 1E transmitters. This partial installation was done to meet the requirements of IE Bulletin 79-018 and to improve reliability and accuracy of some of the transmitters.

JAF-SE-83-023, Plant Modification F1-82-052

This modification involved repiping the four RHR pump discharge lines and relocation of flow-restricting orifices. This modification was necessary because discharge check valves on each RHR pump had suffered numerous fatigue-related failures. By re-locating the restrictive orifices these failures, believed to be due to flow characteristics associated with the RHR discharge piping configuration, should be significantly reduced and/or eliminated.



#### JAF-SE-83-028, Preoperational Test 66A

This preoperational test involved the functional testing of the Post-Accident Sampling Station Filtered Ventilation System. It was performed in order to verify the operability of the system installed to satisfy the requirements of NUREG 0737, Section II.B.3. Included in the testing was verification of power supplies, system logic, and satisfactory operation of all electrical and mechanical components required for the operation of this ventilation system.

#### JAF-SE-83-029, Preoperational Test 27J

In order to verify the operability of the Post-Accident Sampling System in-line solenoid valves, this preoperational test was performed. This test included operating the valves and verifying that their controls, interlocks, indicating lights, limit switches, alarm annunciators and power supplies operate properly.

#### JAF-SE-83-031

This evaluation involved the storage of piping insulation in the condensate storage tank enclosure area for the duration of outage in-service inspection of piping in the drywell. Reasons for the remote storage of the insulation included losses due to the potential of insulation appearing as trash and damage resulting from personnel stepping on or placing material on the insulation during previous outages. Also, because insulation removal historically creates airborne contamination requiring use of respirators, a single removal effort limits the number of personnel required to wear respirator equipment for the performance of work.

#### JAF-SE-83-033, Modification M1-83-010

This modification involved replacement of air operated valve components (pilot solenoid valves, valve position switches) and replacement terminal board connections with crimped connections. This modification was performed to upgrade equipment to environmental qualification status.

#### JAF-SE-83-034, Preoperational Test 27K

This test involved the functional testing of the in-line solenoid valves that have been installed in the Post-Accident Containment H<sub>2</sub> Monitoring System sample lines. These valves were installed as part of a modification to satisfy the requirements of NUREG 0737, Clarification Item II.F.1.6. Included in the test was the operation of the valves and verifying that their controls, interlocks, indicating lights, limit switches, alarm annunciators, and power supplies operate properly.

JAF-SE-83-035, Preoperational Test 27L

This test involved the functional testing of the Post-Accident Containment H<sub>2</sub> Monitoring Systems. These Containment H<sub>2</sub> Monitoring Systems were installed as part of modification F1-80-020 to satisfy the requirement of NUREG 0737, clarification Item II.F.1.6 and NUREG 0578, Item 2.1.9. This test involves operating the Post-Accident Containment H<sub>2</sub> Monitoring Systems and verifying that the controls, indicating lights, instrumentation, valves, alarm annunciators and power supplies operate properly.

JAF-SE-83-036, Preoperational Test 27M

This test involved the functional testing of the Post-Accident Sampling System installed as part of a modification implemented to satisfy NUREG 0578, Clarification Item 2.1.8.A and NUREG 0737, Clarification Item II.8.3. Included in the test were all power supplies, instrumentation, and electrical circuit components required for the operation of this system.

JAF-SE-83-037, Preoperational Test 15A

This procedure involved the testing of the pneumatic power-operated isolation valves and associated DC supplies for the valves installed on the Reactor Building Closed Loop Cooling Water System. This test verified that the valves will function in the manner required by the modification F1-81-026 which was done to fully comply with 10CFR50, Appendix A, General Design Criteria 54 and 57. Also the test verifies that the indications seen in the Control Room are as required by the design.

JAF-SE-83-038, Plant Modification M1-83-026

This modification involved the replacement of General Electric NA-200 LPRM assemblies with Westinghouse Model WL-24222 LPRM assemblies.

JAF-SE-83-039, Plant Modification M1-83-025

This modification involved the replacement of General Electric NA-200 LPRM assemblies with Reuter Strokes Model RS-C6-1100-214 LPRM assemblies.

JAF-SE-83-040, Modification M1-83-017

This modification involved a solenoid pilot valve substitution for Core Spray System testable check valve 14A0V-13A&B. There were slight dimensional changes made to valve components. The valves substituted meet all original design specifications.

JAF-SE-83-042, Preoperational Test 15C

This procedure provided for the preoperational testing of the RHR pumps for full-flow LPCI injection into the vessel during cold shutdown condition. The test verified the capability of the the RHR System to meet Technical Specifications. It was conducted as a result of RHR pump discharge piping modification F1-82-052.

JAF-SE-83-043, Modification M1-83-028

This modification involved a material substitution for shaft dogs on two (2) feedwater non-return valves recommended by the valve vendors. A comparison of ASTM Specifications show the material substituted has superior strength and ductility and possesses equal Brinell hardness values.

JAF-SE-83-044

This evaluation involved changing the facility description for the removal of the residual heat removal radiation service water (RHRSW) monitors from Section 7.12.4 of the FSAR. The RHR service water monitors were installed to detect leakage of radioactive material from the RHR heat exchangers. The radiation monitors have not been fully operational since installation due to lack of any sample flow. A modification has been initiated to remedy the situation. Allowing the RHR monitors out of service does not pose an unreviewed safety question as normal service water radiation monitors perform the same function as the RHR monitors.

JAF-SE-83-046, Plant Modification F1-83-032

This modification involved the replacement of the 125V DC station battery and a retrofit to its seismic battery rack. The battery is of the same type and manufacturer, but of a larger capacity than the original. The station battery was replaced because of the presence of cracks on some of the existing cell jars resulting from faulty installation and not due to a generic defect of the battery.

JAF-SE-83-047, Plant Modification F1-83-033

This modification involved removing part of the exhaust piping insulation on the diesel generator silencers to install tube steel stanchions. These new stanchions provide additional lateral restraints to the silencers in the event of tornado or hurricane wind loading.

JAF-SE-83-049

This evaluation was a result of part of the plant service air system becoming contaminated with radioactive material. The evaluation was necessary to comply with the recommendations of IE Circular 80-10 "Contamination of Non-Radioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to the Environment". Also due to the fact that service air is the supply to the breathing air system, the evaluation determined the adequacy of the supply as referenced by IE Information Notice 79-08.

The air in the service air system was analyzed and determined to have no significant concentrations of radioactive materials which would result in a release or personnel ingestion or exposure. Continued use and operation of the system did not present an unreviewed safety question while contaminated or during decontamination.

JAF-SE-83-050, Preoperational Test 27N

This procedure provided for the functional testing of the heat tracing system for the Post-Accident Sampling and Containment Hydrogen Monitoring System gas sample lines. This test was performed to verify the operability of the heat tracing system installed as a requirement for the gas sample lines as per NUREG 0578, Item 2.1.8.a and 2.1.9 and NUREG 0737, Item II.B.3 and II.F.1.6. Included in the testing were all power supplies, instrumentation and electrical circuit components required for the heat trace systems.

JAF-SE-83-051, Plant Modification F1-82-050

This modification involved the installation of a cabinet monitor for post-accident sampling system for stack radioiodines and particulates. The cabinet monitor consists of equipment which dilutes the sample flow by a dilution factor of 40,000: 1 in (2) two steps and also changes the cartridges for radioiodines and particulates automatically. Nitrogen is used for diluting the sample. This modification was done to meet the requirements stated in NUREG 0737, Item II.F.1.2.

JAF-SE-83-052, Plant Modification F1-82-050

This partial modification involved the installation of the reinforced concrete foundation and slab for the erection of a prefabricated building that houses the new stack monitoring equipment for the post-accident radioiodine and particulate sampling system.

JAF-SE-83-053, Plant Modification F1-83-040

This modification entailed installing a new baseplate for a main steam line seismic restraint which had been damaged during operations. The modification was necessary to ensure the integrity of the restraint.

JAF-SE-83-054, Plant Modification F1-83-038

This partial installation consisted of the installation of constant flow instrumentation and low-flow protection circuitry on the main turbine generator stator water cooling system. Applicable wiring and tubing were installed but final tie-ins to plant systems were not installed as part of this partial installation. The purpose of this modification was to upgrade the level of main generator protection.



#### JAF-SE-83-056, Preoperational Test 03D

This test of the Scram Discharge System was conducted to provide operational verification of the acceptability of the long term Scram Discharge System modifications. This preoperational test verified the ability of the Scram Discharge System to monitor the available free scram discharge volume; provide the necessary alarms, rod-block and RPS trip functions associated with infringement on the necessary scram discharge volume; and control the loss of coolant from the scram discharge system resulting from a reactor scram.

#### JAF-SE-83-057, Plant Modification F1-83-040

This modification involved installing a new baseplate under a horizontal beam on C and D main steam line restraints. Welding a length of tube steel between the beam and new baseplate was also performed to ensure the integrity of the main steam line restraint.

#### JAF-SE-83-060

This evaluation addressed the presence of a flaw detected by ultrasonic test examination in a reactor recirculation system weld. The flaw, attributed to intergranular stress corrosion cracking, was evaluated by fracture mechanics analysis. The evaluation concluded that the design margin of the piping would not be degraded by the presence of this flaw, nor would the projected flaw grow during the next operating cycle to an extent that piping integrity would be affected. Operation with the reported indication in this weld did not constitute an unreviewed safety question.

#### JAF-SE-83-061, Plant Modification F1-83-038

This modification involved the installation of constant flow instrumentation and low flow protection circuitry on the Main Turbine Stator Water Cooling System. The purpose of the modification was to upgrade the level of main generator protection.

#### JAF-SE-83-062, Preoperational Test 94B

The performance of this test was to verify that the additional turbine-generator protection shall be provided for low stator water cooling flow indicative of a system blockage. The installation of constant flow instrumentation and low-flow protection circuitry is a result of a modification to upgrade the level of main generator protection.

#### JAF-SE-83-063, Modification M1-83-044

This modification involved the addition of one set of flanges and the replacement of drain valve 02-RWR-755B valve with a new valve. The new components meet the original reactor recirculation system design requirements.

JAF-SE-83-063A, Plant Modification F1-82-050

This partial modification involved the erection of a prefabricated building to house the new stack monitoring equipment for the post-accident radioiodine and particulate sampling system.

JAF-SE-83-082, Modification M1-83-008

This modification revised the instrument data sheet for differential pressure switch 03-DPIS-202 to updated specification requirements of replacement switches. The only instrument specification that changed is the increase in specified deadband reset from +4% to +5%. The increase in the reset parameter in no way affects the performance of its design function.

JAF-SE-83-085, Modification M1-83-057

This modification involved substituting a new valve actuator for 10-MOV-39B valve. The delivered torque, stroke time and environmental qualification of the interim valve actuator has been evaluated and found to meet the applicable design requirements for the suppression pool spray isolation valve.

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Corbin A. McNeill, Jr.  
Resident Manager

June 14, 1984  
JAFP 84-0598

UNITED STATES NUCLEAR REGULATORY COMMISSION - REGION I  
Office of Inspection and Enforcement  
631 Park Avenue  
King of Prussia, PA

Attention: Dr. Thomas Murley  
Regional Administrator

SUBJECT: DOCKET 50-333- ANNUAL SUMMARY OF JAFNPP PLANT  
MODIFICATIONS, CHANGES AND EXPERIMENTS FOR 1983

Enclosure: (a) Summary of Modifications, Changes and Tests  
Implemented at JAFNPP During 1983

Gentlemen:

Enclosed for your review is a summary of modifications, changes and tests implemented at the James A. FitzPatrick Nuclear Power Plant during 1983 in accordance with 10CFR50.59 requirements.

If you have any questions concerning this report, please contact Mr. Victor M. Walz at (315)342-3840, extension 265.

Very truly yours,

A handwritten signature in cursive script, appearing to read 'Corbin', followed by a long horizontal flourish.

CORBIN A. McNEILL, JR.  
RESIDENT MANAGER

CAM:CJB:ls  
ENCLOSURE

CC: Director of Inspection & Enforcement  
U.S. Nuclear Regulatory Commission  
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