

January 24, 2002

Mr. Robert J. Barrett
Vice President, Operations
Entergy Nuclear Operations, Inc.
Indian Point Nuclear Generating Unit 3
295 Broadway, Suite 3
Post Office Box 308
Buchanan, NY 10511-0308

SUBJECT: INDIAN POINT UNIT 3 - NRC INSPECTION REPORT NO. 50-286/01-011

Dear Mr. Barrett:

On December 13, 2001, the NRC completed a team inspection at your Indian Point Unit 3 Nuclear Power Station. The enclosed report documents the results of that inspection which were discussed with you, and other members of your staff, on December 13, 2001.

This inspection was an examination of activities conducted under your license as related to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observation of activities, and interviews with personnel.

Based on the results of this inspection, the team identified two findings that were determined to be of very low safety significance (Green). Both issues were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they have been entered in your corrective action program, the NRC is treating these issues as non-cited violations in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny the non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, Region I, the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001, and the NRC Resident Inspector at the Indian Point Unit 3 Nuclear Power Station.

R. J. Barrett

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Sincerely,

/RA/

Lawrence T. Doerflein, Chief
Systems Branch
Division of Reactor Safety

Docket No. 50-286
License No. DPR-64

Enclosure: Indian Point Unit 3 - NRC Inspection Report 50-286/01-011

Attachments: Supplemental Information

cc w/encl:

J. Yelverton, Chief Executive Officer
M. Kansler, Senior Vice President and CEO
J. DeRoy, General Manager - Operations
D. Pace, Vice President - Engineering
J. Knubel, Vice President Operations Support
F. Dacimo, Vice President - Operations-IP2
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C. D. Faison, Manager - Licensing
H. P. Salmon, Jr., Director of Oversight
J. Comiotes, Director, Nuclear Safety Assurance
J. Donnelly, Licensing Manager
A. Donahue, Mayor, Village of Buchanan
J. McCann, Manager - Nuclear Safety and Licensing - IP2
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Chairman, Standing Committee on Environmental Conservation, NYS Assembly
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J. Rampe, Orange County Executive
M. Elie, Citizens Awareness Network

R. J. Barrett

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos: 50-286

License No: DPR-64

Report No: 50-286/01-011

Licensee: Entergy Nuclear Generation Company

Facility: Indian Point Unit 3 Nuclear Power Station

Dates: November 26-30 and December 10-13, 2001

Inspectors: E. Harold Gray, Senior Reactor Inspector, Team Leader, DRS
H. Anderson, Engineering Consultant
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S. Pindale, Reactor Inspector, DRS
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Approved by: Lawrence T. Doerflein, Chief
Systems Branch
Division of Reactor Safety

SUMMARY OF FINDINGS

IR 050000286/01-011; on 11/26-12/13/2001; Entergy Nuclear Generation Company; Indian Point Unit 3 Nuclear Power Station; Safety System Design and Performance Capability.

This inspection was conducted by five region-based inspectors and a consultant. This inspection identified two Green findings, both of which were determined to be non-cited violations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at <http://www.nrc.gov/reactors/operating/oversight.html>

A. Inspector Identified Findings

Cornerstone: Mitigating Systems

- 1 Green. The team identified a failure to adequately verify the correct valve lineup for the auxiliary feedwater (AFW) system as required by Technical Specification Surveillance Requirement 3.7.5.1. The existing procedure valve lineup failed to incorporate a verification of a valve jacking device on one group of valves and failed to include an alignment verification on another group of valves.

This finding was determined to be of very low safety significance by the Significance Determination Process (SDP), Phase 1, because a subsequent lineup found the valves to be properly aligned and the deficiency did not affect AFW system operability as a mitigating system. Since the finding was of very low safety significance and the issue was entered into the licensee's Corrective Action program, the finding was treated as a Non-Cited Violation, consistent with Section VI.A.1 of the NRC Enforcement Policy. (Section 1R21)

- 2 Green. The team identified that the suction piping for the auxiliary feedwater (AFW) system was not being pressure leak tested in accordance with Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code. The licensee's procedures used to perform this activity did not include the required leak test, and no leak test had been performed on the system.

This finding was determined to be of very low safety significance by the Significance Determination Process (SDP), Phase 1, because there was no indication of leakage from the pipe and the last operational test of the AFW system verified that required system flow was achieved. Therefore, the finding did not affect AFW system operability as a mitigating system. Since the finding was of very low safety significance and the issue was entered into the licensee's Corrective Action program, the finding was treated as a Non-Cited Violation, consistent with Section VI.A.1 of the NRC Enforcement Policy. (Section 1R21)

Report Details

1. REACTOR SAFETY

Cornerstones: Mitigating Systems and Barrier Integrity

1R02 Evaluations of Changes, Tests, or Experiments (IP71111.02)

a. Inspection Scope

The team reviewed selected safety evaluations (SES) performed by Entergy. The review was conducted to verify that changes to the facility and/or procedures as described in the Updated Final Safety Analysis Report (UFSAR), and tests and experiments not described in the UFSAR, were evaluated and documented by the licensee in accordance with 10 CFR 50.59. The team reviewed eleven (11) safety evaluations, eleven (11) screenings, six (6) Deviation/Event Reports (DERs), and six (6) procedures/miscellaneous documents. Two of the evaluations pertained to initiating events, two were related to barrier integrity, and the remaining seven covered mitigating systems. As part of the review, the team verified that the licensee had appropriately considered the conditions under which the changes to the facility and procedures could be made, that safety issues related to the changes, tests, and experiments had been resolved, and that the licensee had appropriately concluded that these changes, tests, or experiments did not require prior approval by NRC or a license amendment.

The inspection included discussions with cognizant engineering personnel, and review of supporting technical information, i.e. calculations, analyses, and industry recommendations. For the one safety evaluation reviewed which indicated the need for a license amendment, the team verified it was properly processed and a license amendment was issued by the NRC. Additionally, the inspector verified that the licensee was appropriately identifying problems that may have been related to the effective working of the 50.59 safety evaluation program through self-assessments and QA audits, and was documenting these concerns/problems for inclusion into their corrective action system for appropriate resolution.

b. Findings

No findings of significance were identified.

1R21 Safety System Design and Performance Capability (IP 71111.21)

a. Inspection Scope

The team selected the emergency diesel generators (EDGs), the turbine driven auxiliary feedwater system (TDAFW), and the ability of containment to function during an event requiring either of these mitigating safety systems, for their review of the design and performance capability of safety systems at the Indian Point Unit 3 (IP3) Station. The two systems and the function of the containment were selected due to their risk significance. The Inspection Procedure used for this effort was IP 71111, Attachment 21.

The team reviewed the EDG system design and licensing basis documents, including applicable portions of the Updated Final Safety Analysis Report, the plant Technical Specifications (TS), the Design Basis Document (DBD), and the Individual Plant Examination (IPE). This review was performed to determine the system and component functional requirements during transient and accident conditions. The reviews also verified that selected design documents, such as drawings and design calculations, were correct. The documents reviewed included engineering analyses, calculations, evaluation reports, plant modifications, piping and instrumentation drawings (P&IDs), electrical schematics, instrumentation and control drawings, logic diagrams, and instrument setpoints. Additionally, operations, maintenance and surveillance plant procedures and surveillance tests results were reviewed to ensure they supported the system licensing and design bases.

For selected calculations and analyses, the team verified that the assumptions were appropriate and agreed with current plant configurations, that proper engineering methods and models were used, and that there were adequate technical bases to support the conclusions. When appropriate, the team performed independent calculations to evaluate the document adequacy. For selected plant modifications including changes to procedures, the team verified that the ability of the system to perform its design function was not adversely affected by the change.

In accordance with the inspection procedure, the team selected several major components for an in-depth inspection. These components included the generator load capability under static and dynamic loading, the main station batteries supplying diesel generator 33 control power, the control of the diesel circuit breaker connection to the 480 Volt bus and the diesel start timing relays. The team also reviewed selected portions of design documents of interfacing systems, such as the fuel oil storage tanks, diesel auxiliary systems and diesel room ventilation. For these systems, the team assessed the capability of the supporting systems to satisfy the design functions of the system.

The team reviewed the TDAFW system design and licensing bases documents and information to verify that: (1) the system design bases were in accordance with the licensing commitments and regulatory requirements; and (2) the design documents, such as drawings and design calculations, were correct.

The team reviewed the configuration, operation, testing and maintenance of the TDAFW system to determine if they were consistent with the licensing and design bases. The team also reviewed related operating instructions, surveillance and test procedures, normal, abnormal, and emergency operating procedures to determine if they were consistent with design bases and operating assumptions. The review included the system interfaces (instrumentation, controls, and alarms) available to operators to support operator decision making. The team also reviewed the capability of the motor driven auxiliary feedwater (AFW) pump motors and the associated power supplies and control circuits with emphasis on the service factor duty of the motors. In addition, the team reviewed the technical specifications required performance data acquired during recent surveillance testing activities to verify that the results met the acceptance criteria and demonstrated the system's functional capability.

The team assessed the reliability and availability of the TDAFW system by reviewing selected corrective and preventive maintenance work orders issued over the past year. The team performed plant walkdowns of the TDAFW system, specifically focusing on the turbine, pump, valves, piping, and control system, to assess their material condition. The team also interviewed operators, maintenance technicians, and engineers to discuss current system configuration, performance and status.

The team evaluated the response of the containment barrier system when the EDGs or TDAFW system were required. This included initiation signals and motive power to containment barrier system equipment in the event of loss of normal power, as well as other events or situations where the containment barriers were required. Engineered safety system initiating logic, normal and backup power to valves, valve logics, design bases calculations, completed surveillance test procedures, and operator rounds documentation were evaluated to ensure they established and demonstrated the appropriate design bases requirements.

The team reviewed the UFSAR and system design basis documents to establish the design and licensing basis for other portions of primary containment systems and the attributes needed for proper functioning of containment. The piping and instrumentation drawings, electrical drawings and the installed configuration outside containment were reviewed to assess the capability of containment to satisfy the design intent. The team reviewed the containment structure and associated isolation system valves and challenges to maintaining containment integrity. The IP3 procedure for conducting containment integrity tests and the results of the most recent test were reviewed. The team reviewed a number of activities to verify that the selected primary containment components were installed, operated and maintained consistent with the design and licensing basis. The team also reviewed the design basis for the protection provided for the containment electrical penetration assemblies associated with the safety-related recirculation pumps and containment recirculation fan units. In addition, the team reviewed the licensee's response and corrective actions to address GL 96-06, "Assurance of Equipment Operability and Integrity During Design-Basis Accident Conditions," as it applied to the containment leak detection system.

Finally, the team reviewed the licensee's effectiveness in identifying problems associated with the EDG, TDAFW, and related containment systems. The team also reviewed a sample of Deviation Event Reports related to the selected systems to evaluate the adequacy and timeliness of the corrective actions resulting from the identified problems. For selected event reports, the team reviewed the adequacy of the operability determinations and verified the completion of the corrective actions.

b. Findings

1. Valve Alignment Verification

The team identified that the licensee failed to properly conduct Technical Specification (TS) Surveillance Requirement 3.7.5.1. regarding valve alignment verification of the auxiliary feedwater system. The finding was considered to be of very low safety significance (Green) since there was no actual loss of AFW system safety function, and determined to be a Non-Cited Violation (NCV).

TS Surveillance Requirement 3.7.5.1 requires that the licensee perform a periodic (31-day frequency) valve alignment verification of the manual, power operated and automatic valves in the AFW system water and steam supply flow paths to ensure proper AFW operation. The licensee used procedure 3PT-M097, Revision 2, "AFW System and City Water Header Supply Monthly Alignment Verification," to fulfill this surveillance requirement, which was last performed on November 25, 2001. The team's review of the procedure found several valves missing from the lineup and several valves that were not being properly verified for operation.

The team identified that the valve lineup did not include valves that could isolate cooling water flow to the AFW turbine and pump bearings (cooling water provided from the discharge of the turbine driven AFW pump). The following valves were not included in the valve lineup: CD-121, CD-124-1, CD-124-2, CD-125, BFD-73-1, BFD-73-2, and PVC-1213. Misalignment of any one of these valves during operation would result in the loss of cooling flow to the pump or turbine bearings, and ultimately in failure of the turbine driven AFW train.

The team also identified the valve lineup did not verify the operability of several air operated control valves in the system. The following valves were not properly assessed: BFD-FVR-405 A through D, BFD-FVR-406 A through D, MS-PCV-1139, HVC-1118, BFD-FCV-1123, and BFD-FCV-1121. These valves are normally closed, and they open to allow flow as required by the system design. They are air-to-close, spring-to-open air operated diaphragm valves and are equipped with hand wheels (jacking devices) to manually operate the valves if required during a loss of air incident. The valve lineup did not include verifying that the jacking devices were not engaged. If a jacking device was engaged, the valve would remain closed when it was required to open. This would have prevented flow from entering the SG in the case of the 405 and 406 valves or would have prevented steam from reaching the AFW pump turbine in the case of the 1139 and 1118 valves.

The team considered this issue to be more than minor because the failure to adequately verify the correct alignment of the AFW system had a credible impact on safety since misaligned AFW valves would have affected the operability of the AFW system and thus affect the mitigating systems cornerstone. When evaluated in accordance with the Significance Determination Process (SDP) Phase 1 worksheet, the issue was considered to be of very low safety significance (Green) since a subsequent lineup found the valves to be properly aligned and there was no actual loss of the AFW system safety function.

The team concluded that the licensee, contrary to TS Surveillance Requirement 3.7.5.1, did not verify the correct valve alignment of the AFW system. However, because of the low safety significance, and because the licensee has entered the issue into its corrective action program, this violation is being treated as a non-cited violation consistent with Section VI.A.1 of the NRC Enforcement Policy issued May 1, 2000 (65FR25368). The licensee entered this issue into the corrective action process as DER 01-04423. **(NCV 50-286/2001-011-01)**

2. Inservice Testing of Auxiliary Feedwater Piping

The team identified that the licensee failed to perform a pressure leak test on the isolable portion of the AFW buried suction piping as required by Section XI of the ASME [American Society of Mechanical Engineers] Boiler and Pressure Vessel Code (Code) for Class III buried pipe. In addition, the procedure used for conducting inservice pressure testing did not include the requirement for this test. The finding was considered to be of very low safety significance (Green) since there was no indication of leakage, the system performed as required during previous operational inservice testing, and there was no actual loss of AFW system safety function. This finding was determined to be a non-cited violation (NCV).

10CFR50.55a(g)(4)(ii) requires that the licensee perform inservice examinations of components and system pressure tests in accordance with the requirements of the latest edition, at the beginning of the testing cycle, of the ASME Code, Section XI. The inservice test is used to indicate if the piping integrity has deteriorated. ASME Code Section XI IWD-2510 requires that a Visual Examination (VT-2) be performed, in accordance with Table IWA-2500-1 (Item D1.10), in conjunction with the system pressure test on Class III pressure retaining components within the system boundary. The periodicity for the test is set forth in Table IWD 2411-1 and 2412-1. The pressure test and visual examination requirements are set forth in ASME Section XI, Article IWA-5000.

The licensee used procedure 3PT-V32P, Revision 0, "Inservice Pressure Test of Condensate System," for inservice pressure testing of piping to fulfill the ASME requirements related to the AFW system. This procedure was last used in August 1999. The procedure was based on the 1983 ASME Code which was in effect at the beginning of the last 10 year Inservice Test Cycle. The licensee has entered a new 10-year Inservice Test Cycle since the last test and is currently using the 1989 ASME Code, however, no revisions to the procedures had been made.

The licensee failed to incorporate the requirements of IWA-5244 (Buried Components) into the test procedure. The AFW system suction piping has an approximate 50 foot section of pipe that is buried and isolable. This portion of buried piping is non-redundant and a failure of the pipe could prevent the operation of the AFW system. The 1989 edition of the ASME Code requires that in lieu of a VT-2 test for non-redundant, isolable underground pipe, a leak test that determines the rate of pressure loss be conducted. For the AFW pipe section in question the licensee did not conduct the leak test.

The team considered this issue to be more than minor because the failure to adequately leak test the buried AFW suction piping, if left uncorrected, could become a more safety significant concern and could affect the operability of the AFW system (a mitigating system). When evaluated in accordance with the SDP Phase 1 worksheet, the issue was determined to be of very low safety significance (Green) since there was no actual loss of the AFW system safety function.

The team concluded that contrary to 10CFR50.55a(g)(4)(ii) and ASME Code Section XI, the licensee did not adequately leak test the AFW suction piping. However, because of the low safety significance and because the licensee has entered the issue into the corrective action program, this violation is being treated as a non-cited violation

consistent with Section VI.A.1 of the NRC Enforcement Policy issued May 1, 2000 (65FR25368). The licensee entered this issue into the corrective action process as DER 01-04447. **(NCV 50-286/2001-011-02)**

4OA6 Meetings, Including Exit

.1 Management Meeting

The team presented the inspection results to Mr. R. J. Barrett, and other members of licensee management at an exit meeting on December 13, 2001. The team verified that the inspection report does not contain proprietary information.

Attachment

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Indian Point Unit 3

K. Baumbach, Performance Planner
J. Barnes, Systems Engineering Mgr
R. Barrett, VP-Operations, IP3
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R. Cavaliere, Mgr P&S/O
J. Comiotes, DSA/Admin IP3
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J. DeRoy, General Mgr-Plant Operations
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R. Dolansky, IST Engineer
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A. Picciano, Acting QAS
J. Raffaele, Elec Eng Supervisor
V. Rizzo, Sr. Maintenance Engineer
R. Schimpf, Sr I&C Engineer
G. Simpson, Operations
M. Smith, Director-Engineering
M. Troy, PEG Supervisor
A. Vitale, Mgr, Maintenance

ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

None

Opened/Closed

50-286/2001-011-01 NCV Valve alignment verification for the AFW system, DER 01-04423.

50-286/2001-011-02 NCV Failure to pressure test buried AFW suction piping to ASME Code Section XI requirement, DER 01-04447.

Opened

None

LIST OF DOCUMENTS REVIEWED

Design Drawings and P&IDs (Piping and Instrumentation drawings)

9321-F-20173, Rev. 62, Flow Diagram Main Steam
 9321-F-20183, Rev. 55, Flow Diagram Condensate-Boiler Feed Pump Suction
 9321-F-20193, Rev. 56, Flow Diagram, Boiler Feedwater
 9321-F-20363, Rev. 6, Flow Diagram, Instrument Air
 9321-H-13103, Rev. 07, Containment Building Liner-Electrical Penetrations
 9321-H-20283, Rev. 20, Flow Diagram, Jacket Water to Diesel Generators
 9321-H-20293, Rev. 21, Flow Diagram, Starting Air to Diesel Generators
 9321-H-20303, Rev. 27, Flow Diagram, Fuel Oil to Diesel Generators
 9321-H-21193, Rev. 07, Flow Diagram, Lube Oil to Diesel Generators
 9321-F-30043, Rev. 47, Single Line Diagram, 480V Motor Control Centers
 9321-F-30053, Rev. 60, Single Line Diagram, 480V Motor Control Centers
 9321-F-30063, Rev. 70, Single Line Diagram, 480V Motor Control Centers
 9321-F-30073, Rev. 25, Three Line Diagram, Low Voltage
 9321-F-30083, Rev. 49, Single Line Diagram, D.C. System
 9321-F-30633, Rev. 19, Electrical Penetrations and Cable Trays-Elevation 46
 9321-F-30673, Rev. 11, Electrical Penetrations and Cable Trays-elevations and Details
 9321-F-32043, Rev. 42, Wiring Diagram, 125 VDC and 120 VAC Power Panels
 9321-F-33853, Rev. 16, Electrical Distribution and Transmission System
 9321-F-41023, Rev. 20, Flow Diagram, Ventilation System for EDG...and Auxiliary Feed Pump Building
 9321-LL-31173, Sh. 3, Rev. 18, Schematic Diagram, 480V Switchgear 31, Bus 5A Relay
 9321-LL-31173, Sh. 5, Rev. 20, Schematic Diagram, 480V Switchgear 31, Relays
 9321-LL-31173, Sh. 6, Rev. 22, Schematic Diagram, 480V Switchgear 31, Relays
 9321-LL-31173, Sh. 7, Rev. 11, Schematic Diagram, 480V Switchgear 31, Bkr 52/5A
 9321-LL-31173, Sh. 8, Rev. 13, Schematic Diagram, 480V Switchgear 31, Bkr 52/EG3
 9321-LL-31173, Sh. 12, Rev. 6, Schematic Diagram, 480V Switchgear 31, Bkr 52/2AT5A
 9321-LL-31183, Sh. 4, Rev. 20, Schematic Diagram, 480V Switchgear 32, Relays
 9321-LL-31183, Sh. 5, Rev. 22, Schematic Diagram, 480V Switchgear 32, AFW Pump
 9321-LL-31183, Sh. 6, Rev. 10, Schematic Diagram, 480V Switchgear 32, Auto-Start
 9321-LL-31183, Sh. 7, Rev. 10, Schematic Diagram, 480V Switchgear 32, Bkr. 52/3A
 9321-LL-31183, Sh. 11, Rev. 6, Schematic Diagram, 480V Switchgear 32, AFW Pump31
 9321-LL-31183, Sh. 16, Rev. 5, Schematic Diagram, 480V Switchgear 32, AFW Pump33
 5651D72, Sh.7, Rev.10, Logic Diagram, EDG Starting and 480 V Bus Clearing
 5651D72, Sh.7A, Rev.3, Logic Diagram, EDG Starting and 480 V Bus Clearing
 5651D72, Sh.8, Rev. 9, Logic Diagram
 5651D72, Sh.8A, Rev. 4, Logic Diagram
 5651D72, Sh.8B, Rev. 5, Logic Diagram
 617F644, Rev. 29, 480V One Line Diagram
 IP3V-13-0002, Rev. 14, Breaker Control Schematic
 113E303, Sh. 4, Rev. 27, Actuation Schematics
 113E303, Sh. 6, Rev. 19, Actuation Schematics
 500B971, Sh. 96, Rev. 11, Elementary Wiring Diagram Valve Table - Pilot Sol. & Sol.
 500B971, Sh. 96A, Rev. 4, Elementary Wiring Diagram Valve Table - Pilot Sol. & Sol.
 500B971, Sh. 96B, Rev. 1, Elementary Wiring Diagram Valve Table - Pilot Sol. & Sol.

500B971, Sh. 111, Rev. 11, Elementary Wiring Diag. Valve Table - MOV
 500B971, Sh. 112, Rev. 16, Elementary Wiring Diagram Valve Table - MOV
 500B971, Sh. 114, Rev. 12, Elementary Wiring Diagram Valve Table - MOV
 500B971, Sh. 115, Rev. 6, Elementary Wiring Diag. Valve Table - MOV
 500B971, Sh. 117A, Rev. 6, Elementary Wiring Diag. Valve Table - MOV
 500B971, Sh. 124B, Rev. 4, Elementary Wiring Diagram, Remote Operated Valve (IVSWS valves 1410 and 1413)
 500B971, Sh. 129, Rev. 8, Elementary Wiring Diagram Motor Operated Valves
 500B971, Sh. 130, Rev. 10, Elementary Wiring Diagram Motor Operated Valves.
 500B971, Sh. 138, Rev. 11, Elementary Wiring Diagram Motor Operated Valves
 500B971, Sh. 209, Rev. 2, Elementary Wiring Diagram - Hydrogen Sample Isolation Valves
 500B971, Sh 210, Rev. 2, Elementary Wiring Diagram - Weld Channel Solenoid Valves
 500B971, Sh. 211, Rev. 6, Elementary Wiring Diagram Motor Operated Valves
 9321-F-27263 Rev. 41, Flow Diagram Penetration & Liner Weld Joint Channel Pressurization System
 9321-F-27463 Rev. 28, Flow Diagram Isolation Valve Seal Water System
 9321-F-70343, Sh. 2, Rev. 12, Penetration & Liner Weld Joint Channel Pressurization Piping - Sheet No. 2 Instrumentation
 9321-LL-31313, Sh. 1, Rev. 14, Schematic Diagram Misc. Solenoid Valves
 9321-LL-31313, Sh. 46, Rev. 2, Schematic Diagram Seal Water Isolation Valve SOV 6201
 9321-LL-31313, Sh. 47, Rev. 2, Schematic Diagram Seal Water Isolation Valve SOV 6200
 9321-LL-31313, Sh. 47A, Rev. 1, Containment Isolation Valve Automation Schematic Block Diagram Solenoid Operated Valves
 9321-LL-31383, Sh. 1 Rev. 9 Cable Schematic Solenoid Valves

Engineering Calculations, Analyses and Reports

Turbine Driven AFWP , October 6, 1967, (7.4)
 Auxiliary Feedwater System, February 13, 1969 (7.8)
 MNE 87-0950-C-2, Rev 0, Auxiliary Feedwater Pump Discharge Pressure (7.27)
 6604.164-F-AFW-035, Rev. 0, Analysis of CST Supply Pressure (NPSHA) to Auxiliary Feedwater Pumps" June 12, 1992 (7.30)
 Instrument Accuracy Calculation for F-1201, Auxiliary Feedwater Flow to Steam Generator #32 Rev. 2, May 12, 1993 (7.38)
 IP3-CALC-MULT-382, Rev. 0, Nitrogen Backup to Aux. FW BLDG Valves and MS Atm Dump, February 2, 1995 (7.47)
 IP3-ANAL-EDG-01411, Rev.4, Evaluation of the EDG Units for their Transient Performance Capability to Ensure Safe Operation of IP3, August 2001.
 IP3-CALC-ED-00207, Rev. 7, 480 Volt Bus 2A, 3A, 5A, &6A and EDGs 31,32 & 33 Accident Loading, June 16, 2000.
 IP3 -CALC-ED-01133, Rev. 1, 480 Volt Interlock Timer Setpoint Adequacy
 IP3-CALC-ED-01303, Rev. 0, 480 Volt Bus Degraded Voltage Relay Time Delay Setpoint Calculation
 IP3-CALC-EG-00217, Rev. 4, EDG Storage Tank Level Setpoints, July 28, 1998.
 IP3-CALC-EL-03316, Rev. 0, Temporary Battery 31
 IP3-CALC-EL-03317, Rev. 0, Temporary Battery 32
 IP3-RPT-EDG-02685, Assessing the Capability of the EDG Units, January 1998.
 IP3-RPT-ED-02695, Starting Duty Limits for Large 480 Volt Motors.

IP3-RPT-EDG-02780, EDG Testing in Parallel with the System During Normal Plant Operation, July 1998.
 IPT-RPT-EDG-02963, Assessing the Effect of Clarifying EDG Short-Term Capability Rating with Regard to EDG Ancillary Systems
 Report 3422.001, Supporting Analysis for Nuclear Safety Evaluation for Containment Electrical Penetrations, March 1993.
 IP3-CALC-IVSW-00938, Rev. 0, Verification of Seal Water Tank Capacity (System - Isolation Valve Seal Water)
 IP3-CALC-IVSW-01823, Rev. 0, Nitrogen Bank Pressure (System-D14-0103 / Isolation Valve Seal Water)
 IP3-CALC-IVSW-02921, Rev. 1, System D14-0103 / Isolation Valve Seal Water System Determination of Allowable N2 Gas Consumption for the Testing of N2-Sealed Containment Isolation Valves
 IP3-CALC-WCCPP-01357, Rev. 2 and 3, System D17-0212 / Weld Channel & Containment Penetration Pressurization Charging Pressure of Nitrogen Cylinders

Electrical Distribution System Coordination Curves

IP3-CRVE-ED-CC-Bus 2A-29BC/30C, Rev. 0, Feeder to MCC 34
 IP3-CRVE-ED-CC-Bus 5A-18BC/23C, Rev. 0, Feeder to MCC 39
 IP3-CRVE-ED-CC-Bus 5A-20D, Rev. 0, Recirculation Pump 31
 IP3-CRVE-ED-CC-Bus 6A-15BC/12C, Rev. 0, Feeder to MCC 37
 3A-6D R3, AFW Pump 31
 5A-18D R1, Containment Recirculation Fan 31
 5A-22B R1, Containment Recirculation Fan 33
 6A-11D R2, AFW Pump 33

Modifications

DC-96-03-430 EG/EDG, Diesel Generator Cell High Temperature Alarm
 DC-00-03-018 DCPWR, Replacement of Station Battery 31 and 32

Design Bases Documents

IP-3 DBD-316, Rev. 2, Containment Isolation System, Sections 1, 4 and 5
 PFM-22E, Rev. 1, Inservice Testing Program Basis Document
 Safety Evaluation Report for IP-3, September 21, 1973
 CLAS-97-03-320-AFW, Rev. 0, Control System for the Turbine-Driven AFW Pressure Control Valve, PCV-1139
 IP3-RPT-SG-01796, Rev. 3, Steam Generator Program
 MCM-6B, Rev 5, Classification of Structures, Systems and Sub-systems-IP3

IP-3 Deviation/Event Reports (DERs)

98-00726	00-00742	01-01871	01-02365	01-04241	01-04481*
99-00130	00-01944	01-01896	01-02590	01-04406*	01-04485*
00-00682	01-00210	01-02001	01-02813	01-04423*	01-04490*
00-00720	01-00211	01-02008	01-02872	01-04446*	01-04491*
00-00723	01-00225	01-02014	01-03135	01-04447*	01-04492*
00-00724	01-00496	01-02128	01-03460	01-04448*	01-04500*

00-00725 01-01116 01-02242 01-03683 01-04460 01-04539
 00-00726 01-01652 01-02293

Note: * denotes DER was Initiated as a result of the -011 inspection

Action/Commitment Tracking (ACT) Forms

98-32435, 98-32436, 98-32437, 98-32440, 01-57065, 99-42327, 00-48858, 01-54715, and 98-34507.

Engineering Design Changes and Design Change Requests

MMP 97-3-320, Rev. 0, PCV-1139 Valve and Controller Replacement
 TM 97-05176-02 Temporary Mod-"Provide Control Circuit Power and Channel Separation to 33ABFP
 DCP 00-076VC, Rev. 0, Design Change Package - Elimination of the Pressurizer Missile Shield

Updated FSAR (UFSAR):

Section 10.2, System Design and Operation
 Section 8.2, Electrical System Design
 Section 14.3.6.3, Main Steam Line Break Analysis
 Section 14.1.8, Loss of External Electrical Load
 Section 14.1.12, Loss of all AC Power to the Station Auxiliaries
 Section 14.2.4, Steam Generator Tube Rupture
 Section 2.5, Rupture of a Steam Pipe

Licensee Event Reports (LER)

50-286/97-001	LER	Inadvertent Actuation of the 32 AFW Pump After Closing the 31 EDG Manual Output Breaker Switch During Testing
50-286/97-019	LER	Steam Driven AFW Pump Full Flow Testing Inadequate Due to Improper Procedure Change
50-286/97-031	LER	Plant Outside Design Basis Involving Single Failure Criteria for the AFW System, Due to Error in Original Design

IP-3 Station Procedures

COL-LV-1, Rev. 33, Locked Valve Checkoff List
 OPT-16, Rev. 45, Conventional Plant Operations Routine Logs
 3PT-D0016, Rev. 0, Midnight Readings-24 hour Surveillances Outside the Control Room
 OD-4, Rev. 8, Plant Labeling Program
 OD-09, Rev. 18, System Status Control
 OD-10, Rev. 12, Attachment 2, Technical Review Checklist for OD-35, Rev. 12
 OD-10, Rev. 12, Operation's Supplemental Procedure Writers Guide and Controls, Att. 2
 OD-35, Rev.12, Component Verification and System Status Control
 OD-35, Rev.11, Component Verification
 AP-3, Rev.42, IP-3 Procedure Preparation, Review and Approval, Attachment 3

AP-66, Rev. 2, Process Applicability Screening
 AP-66, Rev. 2, Process Applicability Screening, Attachment 1 for OD-35, Rev.12
 AP-3, Rev. 42, Attachment 3, Procedure Change Form for OD-35, Rev. 12
 AP-10.1, Rev. 26, Protective Tagging
 AP-62, Rev. 3, Maintenance Rule
 AP-8.8, Feedback of Operating Experience
 TSP-057, Rev. 2, Maintenance Rule, Instruction for Maintenance Preventable Functional Failure Determination
 ONOP-CB-1, Rev. 9, Loss of Containment Integrity
 ONOP-EL-4, Rev. 12, Loss of Offsite Power
 ONOP-FW-1, Rev. 10, Loss of Feedwater
 SOP-SD-01, Rev.10, Work Control Process
 SOP-CB-001, Rev. 28, Establishing Containment Operability
 SOP-CB-11, Rev. 8, Non-Auto Containment Isolation
 SOP-EL-001, Rev.31, Diesel Generator Operation
 SOP-FW-004, Rev.22, Auxiliary Feedwater System
 Procedure MCM-4.1, Rev 1, 10CFR50.59 Screen
 Procedure MCM-4.2, Rev 1, 10CFR50.59 Evaluation.
 3PT-Q120B, Rev. 6, 32 AFW (Turbine Driven) Surveillance Test and IST
 3PT-R135, Rev. 3, MSIV Instrument Air Check Valves and MSIV Local Operation
 3PT-R198, Rev. 1, 32 AFW Turbine Overspeed Test
 OD-37, Rev. 9, Seasonal Weather Preparation
 ONOP-IA-1, Rev. 14, Loss of Instrument Air
 SOP-FP-001, Rev. 18, Fire Protection System Operation
 TK-4, Rev. 4, Condensate Storage Tank Curve
 3PT-V32P, Rev. 0, Inservice Pressure Test of Condensate System
 3PT-V32I, Rev 0, Inservice Pressure Test of Auxiliary Feedwater System
 SOP-ESP-001, Rev 7 Local Operation of Safe Shutdown Equipment
 BKR-17-ELC, Rev. 5, Current Sensor and/or Trip Replacement Setting and Testing
 GRN-020-ELC, Rev. 3, Emergency Diesel Generator Two Year Inspection
 GRN-020-ELC, Rev. 4, Emergency Diesel Generator Two Year Inspection
 IC-PC-I-P-33DLO, Rev. 7, DG No.33 Lube Oil Pressure
 IC-PC-I-T-33EDG, Rev. 8, DG No.33 Temperature Instruments
 IC-PC-I-P-33DSA, Rev. 10, DG No.33 Start Air Pressure
 IC-PC-I-P-33DJW, Rev. 6, DG No.33 Jacket Water Pressure
 IC-PC-I-P-33DF, Rev. 11, DG No.33 Fuel Oil Pressure
 3PT-M062, Rev. 22, 480 Volt Undervoltage/Degraded Grid Protection System Functional
 3PT-M079C, Rev. 24, 33 EDG Functional Test
 3PT-OL3B2, Rev. 0, ABFW Pump 33 Load Sequencer Calibration
 ES-1.3, Rev. 21, Transfer to Cold Leg Recirculation
 MOD-80-03-008VENT, Rev. 0, Purge & Relief Valve Manual Stops
 OPT-14, Rev. 29, Nuclear Plant Operations Routine Logs
 3PT-C01, Rev. 14, Total Leakage Rate Monitoring Tabulation
 3PT-D001C, Rev. 0, Midnight Readings (0000) - 24 Hour Surveillance Requirements Outside the Control Room (surveillance performed 12/7/01)
 3PT-M099, Rev. 2 appendix R Instrument Channel Checks and Miscellaneous Equipment Surveillances (test performed 11/17/01)
 3PT-R003D, Rev. 20, Safety Injection Test
 3PT-R003E, Rev. 17, Safety Injection Test Containment Isolation (test on 5/17/01)

3PT-R9, Rev. 11, Containment Penetration and Weld Channel Pressurization System (test performed 9/28-10/16/99)
 3PT-R035A, Rev. 8, Service Water Penetrations Leakage Test (test on 5/19/01)
 3PT-R035P, Rev. 1, Leakage Test for R-11 and R-12 Sample Containment Isolation Valves (test performed 9/14 and 9/24/99)
 3PT-R035Q, Rev. 2, Leakage Test for Containment Purge and Exhaust Containment Isolation Valves (test performed 5/6/01)
 3PT-R035R, Rev. 4, Leakage Test for Containment Pressure Relief Containment Isolation Valves (test performed 4/24-25/01)
 3PT-R134, Rev. 8, Containment Isolation Valves PCV-1190, 1191 and 1192 Pressure Relief System Volume Tank Testing (tests performed 5/1, 2/01, 5/18/01)
 VLV-060-AOV, Rev. 2, Fisher 10" Valve Maintenance for VS-PCV-1190, 1191, and 1192

Safety Evaluations

NSE 99-3-009, Rev.0; Turbine Driven Aux Boiler Feed Pump Design Basis
 NSE 96-3-224-AFW, Rev. 4, AFW System Purge Volume and CST Temperature Effects
 NSE-80-03-008VENT, Rev. 2 - Purge and Relief Valve Manual Stops
 93-3-403, Rev 0, TSC Fuel Oil Storage Tank Capacity
 86-03-152, Rev. 0, Improvement of steam Generator Level Operating Margin
 79-03-093, Rev.0, Reroute Boiler feed Pump Suction Piping
 94-03-059, Rev.0, Seismic Design Criteria for (HPCI)
 89-03-202, Rev 1, Evaluation of the use of Hilti-Kwic Bolt II
 94-03-151, Rev.0, Nonconformance of Small Bore Pipe Support
 97-3-377, Rev.0, Evaluation of Single Failure Analysis of the WCCPRS
 94-3-228 CL, Rev.0, Chlorination System Piping Replacement
 99-3-056 Rev.0, Seismic Mounting of EBR-3-EGG; EBR-7-EDG, EB-14-FH
 00-3-076, Rev.0, Elimination of Pressurizer Missile Shield
 99-03-004, EDG Short-Term Capacity Rating Clarification
 99-03-071, Clarification of EDG Fuel Oil Storage Tank Required Volumes
 93-3-044VC, Containment Electrical Penetration Protection

Preliminary Evaluations (50.59 Screens)

SOP-SW-004m RWO; Aux Feedwater System Operation
 3PT-RO82, Rev.11; Functional Test of CO₂ System for Hazard areas 1A, 1B, 1C, E7
 3PT-Cs-014, Rev.3; RHR System Valve Test
 3PT-MO35, Rev.27; Control Room Ventilation System Functional
 3PT-A002, Rev.8; Containment Structural Inspection
 COL-RW-2A, Rev.9; Service Water Header Realignment
 COL-FW-2, Rev.26; Auxiliary Feedwater System
 DC-98-3-OGGCCW, Rev.0; AC-FCV-G25 and AC-MOV-789 Valve Stem Replacement and Limitorque Type Change to SB Operator
 DCP-00-009, Rev 36; FW Heater Vent Piping and Header Replacement
 ONOP-EL-5, Rev. 06
 SOP-EL-004, Rev. 14
 SOP-EL-004A, Rev. 05

RO/RSO Lesson Plans:

LIC-SIM-98, Secondary Side Breaks
 LRQ-EOP-11, FR-H Series, E-2 and ECA-2.1
 LIC-EOP-34, Secondary Side Breaks and E-2 Series EOPs
 LIC-SIG-31, EOP FR-H Series
 LIC-SMP-54, Steam Line Break Inside Containment during Turbine Roll
 LRQ-ONP-05, Selected ONOPs and ARPs
 NIC-EOP-06, ECA-0.0, Loss of All AC Power
 LRQ-SES-10, SBLOCA w/loss of Offsite Power
 LRQ-SES-14, ATWS with SBLOCA
 NIC-SIR-1, SPC Problems
 LIC-EDS-11, Emergency Diesel Generators
 LIC-ESS-04, Containment Air Recirculation Cooling and Filtration System
 LIC-SPC-09, Auxiliary Feedwater
 NRQ-JPM-24, In Plant Instruction
 NRQ-JPM-19, In Plant Instruction
 JPM-006, Isolate Steam to 32 AFWP

Improved Technical Specifications (ITS)

3.7.5 and B3.7.5, Auxiliary Feedwater
 3.3.2, Engineered Safety Feature Actuation System (ESFAS) Instrumentation
 3.8.1, AC Sources-Operating

NRC Items

NRC Regulatory Issue Summary 2001-22, "Attributes of a Proposed No Significant Hazards Consideration Determination"
 NRC Report for IP-3, The 3RD Quarter Performance Summary
 NRC Inspection Reports for docket 50-286, 1996-080; 1999-05, -07, -08, -09, -10, -11; 2000-01, -02, -04, -05, -06.
 NRC Information Notices: IN 94-62, 95-14, 95-18, 95-30, 96-08, 96-15, 96-49, 98-22, 98-43, 01-09, 01-16.
 NRC Generic Letters: GL 91-18, GL 95-07, GL 96-06
 NRC to Entergy, Amendment 208, One-time Replacement of Station Batteries While at Power

Miscellaneous

System Engineers 3RD Quarter 2001 Reports, for Risk Significant SSCs and (a)(1) items
 F39-0075, Rev. 1, Maintenance Rule Basis Document
 IP-3 Maintenance Rule Program-Summary of System (a)(1) History
 2001 Crew tie wrap Schedule
 Policy Request 01-003, to implement the valve tie wrapping program
 IP-3 System Description 21.2, Rev.1, Auxiliary Feedwater (AFW)
 IP-3 System Description 27.3, Rev. 2, Emergency Diesels (EDG)
 Task Listing for RO/SRO tasks associated with AFW, EDGs, and Containment
 RO/SRO Task to Lesson Matrix for AFW, EDGs, and Containment
 JPM Index - Inside Control Room
 Mechanical Maintenance Qualification Matrix-Mechanics
 Mechanical Maintenance Qualification Guide, 811 Diesel Generators, Rev. 4
 Mechanical Maintenance Qualification Guide, 807F Multi-Stage Centrifugal Pumps, R 0

Industry Operating Experience Notebook
 Quality Assurance Surveillance Report, SR 01-08, Doct Control, Engineering, and Ops.
 Quality Assurance Audit Report, A00-02-I, Design Control Audit
 Worksheet for Reactor and Plant System Degraded Conditions, Rev n/a
 99-002299 Rev 01 Technical evaluation -Packing change for AFW Pumps
 American Society of Mechanical Engineers - Boiler and Pressure Vessel Code, 1983
 Reliance Electric AC Induction Motor Test Record for FNA 7704
 Briefing Notes From E Rodriguez - CST Notes
 IP-DSE-99-117. Memorandum dated 10/5/99 - 3PT-R35E: Allowable Leakage Criteria where a Valve or Piping Interspace is Drained/Devoid of Water
 IP#-RPT-SWS-03052, Rev. 0, New York Power Authority Indian Point 3 Nuclear Plant Design Bases for Local Leak Rate Testing of Containment Isolation Valves in the Service Water System
 IP-TCS-93-555. CAR 847 Response of, 9/17/93 (Valves VS-PCV-1190, 1192, and 1192)
 PFM-109, Rev. 5, Containment Leakage Rate Testing Program
 OD-01-035, 9/13/01 Operability Determination - valve WD-AOV-1610
 97140-TR-02, Rev. 0, Technical Report - Summary of Evaluations Performed to Determine Assurance of Equipment Operability & Containment Integrity during Design Basis Accident Conditions in response to US NRC GL96-06
 96253.11, Rev. 0. Document - Evaluate Item No. 4 of Altran Report 96253-TR-01 for Thermally Induced Pressurization in response to US NRC GL96-06
 96253.12, Rev. 0, Document - Thermally Induced Pressure Loading of Isolated Piping Sections B16.5/B16.34 Comparisons - IP3
 Letter dated 1/26/80- Fisher Controls Company to PASNY, Subject: Indian Point #3 Nuclear Power Plant 10" Type 9200 Butterfly Valves S/N: 270608, 270609, 260610 (VS-PCV-1190, 1191, and 1192)

Temporary Modification

TM# 99-00644-09, dated 10/18/99, System D17, Sub-System 0212 - Installation of isolation valve on exhaust port of PS-SOV-1280

Work Request

WR 94-00630-00, dated 5/26/97, PM Inspection needs to be performed on VS-PCV-1192 air operator

Action Plans

IDSE -APL-96-026, Action Plan to Restore the EDGs to A(2) Status, Rev. 1, April 1997

LIST OF ACRONYMS USED

AC or ac	Alternating Current
AFW	Auxiliary Feedwater System
CFR	Code of Federal Regulation
cfm	Cubic feet per minute
CST	Condensate Storage Tank
DBD	Design Basis Document
DC or dc	Direct Current
DER	Deviation/Event Report
EDG	Emergency Diesel Generator

FW	Feed Water
MCC	Motor Control Center
MDAFW	Motor Driven Auxiliary Feedwater System
MOV	Motor Operated Valve
MSIV	Main Steam Isolation Valve
NCV	non-cited violation
NRC	Nuclear Regulatory Commission
RHR	Residual Heat Removal
SDP	Significancy Determination Process
SE	Safety Evaluation
TDAFW	Turbine Driven Auxiliary Feedwater System
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report