December 19, 2003

Mr. Fred R. Dacimo
Site Vice President
Entergy Nuclear Northeast
Indian Point Energy Center
295 Broadway, Suite 1
P.O. Box 249
Buchanan, NY 10511-0249

SUBJECT: INDIAN POINT UNIT 3 NUCLEAR POWER STATION - NRC INSPECTION REPORT 05000286/2003011

Dear Mr. Dacimo:

On November 7, 2003, the U.S. Nuclear Regulatory Commission (NRC) completed an engineering team inspection at the Indian Point Unit 3 Nuclear Power Station. The enclosed report presents the results of that inspection, which were discussed with you and other members of your staff on November 7, 2003.

The inspection examined activities conducted under your license as they relate to safety, and compliance with the Commission's rules and regulations and with the conditions of your license. The inspection consisted of system walkdowns; examination of selected procedures, drawings, modifications, calculations, surveillance tests and maintenance records; and interviews with site personnel.

Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000286/2003011
w/Attachment: Supplemental Information

cc w/encl:
G. J. Taylor, Chief Executive Officer, Entergy Operations
M. R. Kansler, President - Entergy Nuclear Operations, Inc.
J. Herron, Senior Vice President and Chief Operations Officer
C. Schwarz, General Manager - Plant Operations
D. Pace, Vice President, Engineering
R. Edington, Vice President, Operations Support
J. McCann, Manager, Nuclear Safety and Licensing
J. Kelly, Director, Nuclear Safety Assurance
J. Comiotes, Director, Nuclear Safety Assurance
C. Faison, Manager, Licensing
H. Salmon, Jr., Director of Oversight
J. Fulton, Assistant General Counsel, Entergy Nuclear Operations, Inc.
P. R. Smith, Acting President, New York State Energy, Research,
and Development Authority
J. Spath, Program Director, New York State Energy Research
and Development Authority
P. Eddy, Electric Division, New York State Department of Public Service
C. Donaldson, Esquire, Assistant Attorney General, New York Department
of Law
T. Walsh, Secretary, NFSC, Entergy Nuclear Operations, Inc.
D. O'Neill, Mayor, Village of Buchanan
J. G. Testa, Mayor, City of Peekskill
R. Albanese, Executive Chair, Four County Nuclear Safety Committee
S. Lousteau, Treasury Department, Entergy Services, Inc.
Chairman, Standing Committee on Energy, NYS Assembly
Chairman, Standing Committee on Environmental Conservation, NYS Assembly
Chairman, Committee on Corporations, Authorities, and Commissions
M. Slobodien, Director, Emergency Planning
B. Brandenburg, Assistant General Counsel
P. Rubin, Manager of Planning, Scheduling & Outage Services
Assemblywoman Sandra Galef, NYS Assembly
C. Terry, Niagara Mohawk Power Corporation
County Clerk, Westchester County Legislature
A. Spano, Westchester County Executive
R. Bondi, Putnam County Executive
C. Vanderhoef, Rockland County Executive
E. A. Diana, Orange County Executive
T. Judson, Central NY Citizens Awareness Network
M. Elie, Citizens Awareness Network
D. Lochbaum, Nuclear Safety Engineer, Union of Concerned Scientists
Public Citizen's Critical Mass Energy Project
M. Mariotte, Nuclear Information & Resources Service
F. Zalcman, Pace Law School, Energy Project
cc w/encl: (cont'd)
L. Puglisi, Supervisor, Town of Cortlandt

Congresswoman Sue W. Kelly
Congresswoman Nita Lowey
Senator Hillary Rodham Clinton
Senator Charles Schumer
J. Riccio, Greenpeace
A. Matthiessen, Executive Director, Riverkeepers, Inc.
M. Kapolwitz, Chairman of County Environment & Health Committee
A. Reynolds, Environmental Advocates
M. Jacobs, Director, Longview School
D. Katz, Executive Director, Citizens Awareness Network
P. Gunter, Nuclear Information & Resource Service
P. Leventhal, The Nuclear Control Institute
K. Coplan, Pace Environmental Litigation Clinic
R. Witherspoon, The Journal News
W. DiProfio, PWR SRC Consultant
D. C. Poole, PWR SRC Consultant
W. T. Russell, PWR SRC Consultant
W. Little, Associate Attorney, NYSDEC

Distribution w/encl:
H. Miller, RA/J. Wiggins, DRA
J. Jolicoeur, RI EDO Coordinator
R. Laufer, NRR
P. Milano, PM, NRR
G. Vissing, Backup PM, NRR
D. Lew, DRP
W. Cook, DRP
T. Jackson, DRP
R. Martin, DRP
P. Habighorst, SRI - Indian Point 2
P. Drysdale, SRI - Indian Point 3
R. Berryman, RI - Indian Point 3
W. Lanning, DRS
R. Crlenjak, DRS
L. Doerflein, DRS
E. Gray, DRS
Region I Docket Room (with concurrences)

DOCUMENT NAME: G:\SYSTEMS\DOERFLEIN\IP3011.WPD
After declaring this document “An Official Agency Record” it **will** be released to the Public.
To receive a copy of this document, indicate in the box: "**C**" = Copy without attachment/enclosure "**E**" = Copy with attachment/enclosure "**N**" = No copy

OFFICE	RI/DRS		RI/DRP		RI/DRS					
NAME	Egray EHG		Dlew DCL		Ldoerflein LTD					
DATE	12/18/03		12/18/03		12/17/03					

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No:	50-286
License No:	DPR-64
Report No:	05000286/2003011
Licensee:	Entergy Nuclear Northeast
Facility:	Indian Point Unit 3 Nuclear Power Station
Location:	P.O. Box 308 Buchanan, New York 10511
Dates:	October 20 - November 7, 2003
Inspectors:	H. Gray, Senior Reactor Inspector, DRS (Team Leader) M. Barillas, Reactor Inspector, DRS L. Cheung, Senior Reactor Engineer, DRS M. Davis, Reactor Inspector (Trainee), DRS O. Hopkins, Mechanical Engineer, NRR J. Talieri, Reactor Engineer, DRS S. Spiegelman, NRC Contractor
Approved by:	Lawrence T. Doerflein, Chief Systems Branch Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000286/2003-011; on 10/20/03 - 11/07/03; Indian Point Unit 3 Nuclear Power Station; Engineering team report.

The inspection was conducted by five region-based inspectors, one mechanical engineer from NRR, and one NRC contractor. No findings of significance were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee Identified Findings

None

Report Details

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

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

a. Inspection Scope

The team reviewed the design and performance capability of the Indian Point 3 (IP3) Service Water System (SWS), and the 125 volt direct current (125V DC) electrical system. Using risk insights, the team focused inspection activities on components and procedures that would minimize the a loss of service water or a loss of 125V DC initiating event, and mitigate the effects of postulated accident sequences. This included a review of the power operated relief valves (PORVs).

The team reviewed the design and performance capability of the SWS to ensure that it would provide an adequate supply of cooling water to the supported essential and non-essential systems. The nuclear systems supported include the emergency diesel generator (EDG) water jacket and lube oil coolers, containment fan coolers, component cooling heat exchangers, the control room HVAC [heating, ventilation and air conditioning] condenser, and the steam generator blowdown heat exchanger. The conventional systems supported include the feedwater pump and turbine lube oil coolers, the turbine oil and seal oil coolers, the iso-phase bus heat exchangers, the steam generator blowdown recovery system closed cooling water system heat exchangers, the turbine hydrogen coolers and the exciter air coolers. The team reviewed the design basis document (DBD), Updated Final Inspection Report (UFSAR), Technical Specification (TS) and Bases, design calculations and other supporting documents to ensure that the SWS could be relied upon to meet its functional requirements. In addition, the team selected the SWS pumps, Zurn strainers and selected service water system valves for detailed component review based on risk significance and condition reports (CR's) from the past year.

The team conducted several walkdowns of the service water system to evaluate the material condition, layout, operation, performance, modifications, and related condition reports. The team also discussed these with the responsible system and design engineers. The team reviewed the quarterly performance reports for the first two quarters of 2003, as well as the trends from inservice testing (IST) of pump flows and valve performance.

An inspection of the service water pumps was performed by a review of the design and regulatory bases, design calculations and other supporting Indian Point and vendor documents. Selected checks of calculation and testing methodology/procedures were made to ensure that the service water system was operating within its design basis. Walkdowns of the system were performed in addition to interviewing the system engineers to evaluate material conditions and identify current or past issues. The service water pump materials had been upgraded to extend the time between routine

maintenance activities. In addition, the flows during the transfer between essential and non-essential headers were reviewed to assure that pump flow capacities were not exceeded during realignment. The system and design engineers were interviewed regarding the supporting documents.

The team reviewed the Indian Point 3 design change to increase the service water temperature delivered to the supported heat exchanges from 85°F to 95°F in 1989. The team also inspected the ability of the SWS to deliver sufficient flow to enable heat exchangers to remove an adequate amount of heat consistent with design requirements. In addition, the revised design basis to provide for higher pump degradation was examined.

The team reviewed applicable design basis documents regarding the SWS Zurn strainers, and interviewed the system engineer to verify that adequate maintenance was being performed on the strainers, verify operation of the strainers was performed consistent with the vendor manual and the design basis document, and that the strainers were tested for operability as required by procedure and the IST Program.

The team reviewed EDG inlet valves SWS-29 and SWS-30 to evaluate the effectiveness of corrective actions regarding the potential for inadvertent mis-positioning of these valves. The team also reviewed EDG discharge valves 1076 and 1076A to evaluate the effectiveness of corrective actions regarding valve opening times and damage to the actuator linkage from prior linkage adjustments. As part of this review, the inspectors interviewed the valve component engineer and system engineers regarding the sequence of events, reviewed the valve drawing, test results and trends, and examined the valve and actuator.

The team reviewed the inservice testing (IST) program to verify ASME Code Section XI requirements were being met. The team also verified that wall thinning was being detected by inspections and adequate corrective action were performed when required by engineering analysis of the program test results. The team interviewed the system engineer and reviewed the NRC GL 89-13 Corrosion Monitoring Program NDE Checklist to determine if the program was being implemented as required by plant procedures. In addition, inservice pressure test procedures were reviewed. For the degraded strainer supports documented in CR-IP3-2003-01600, the team interviewed the system and design engineers, reviewed the associated calculations to verify the supports were operable and verified the corrective action plan adequacy.

The Chemistry Program was reviewed to verify chlorination was maintained within licensed limits and to verify befouling was being adequately monitored and controlled.

The team reviewed the following modifications as part of the SWS inspection: replacement of SWS pump discharge strainers, strainer piping replacement, and installation of a tornado missile barrier in the concrete water pipe chase, access points and internal pipe mechanical seals in SW line 408. As part of the review, the team performed a walkdown of the strainer room to verify that the new strainers were operating as designed, and that the new piping and isolation valves-1319-1 thru 6 were

installed correctly. The tornado missile barrier was inspected to verify it was in a secured position, as required when the plant is operating. The related engineering documents were reviewed, including the 50.59 evaluations completed as part of each modification, and applicable calculations.

The team reviewed the corrective actions to prevent or mitigate a recurrence of the water hammer event that occurred in the SWS piping supply to the EDGs during the August 14, 2003, northeast blackout event. As part of this review, the team interviewed consultants and Indian Point personnel to evaluate the adequacy of the hydraulic analysis performed in response to the event. The team also evaluated the containment fan cooler water hammer (Generic Letter 96-06) response for column separation/closure, and condensation induced water hammer resulting from rapid steam condensation in the tubing. The hydraulic analysis was evaluated for assumptions and analysis methods. In addition, the comparison between the analysis and tests was reviewed.

In the electrical area, the team reviewed the control logic and schematics diagrams for the service water pumps to verify that the pumps selected for essential service water applications would be sequenced to start following a loss of off-site power event.

Regarding the 125V DC system, the team reviewed electrical drawings for the dc power and distribution panels, loading and voltage-drop calculations of the four safety-related batteries and associated components to verify the adequacy of the design. The team also reviewed the design and sizing of the safety-related static inverters to verify that adequate power (voltage and frequency) could be provided to the four safety-related instrument buses up to two hours following a complete loss of offsite and onsite ac power. Also included in the review of the dc systems was a review of the dc short circuit calculations, test data, vendor manuals, operating procedures, and walkdowns. In addition, the team also reviewed the surveillance test procedures to determine their adequacy and the test results to ensure that operability status was demonstrated.

The review of the 125V DC system also involved an assessment of the battery sizing calculation to see if worst case loads had been included, and that the battery rooms were adequately ventilated to prevent hydrogen accumulation. The molded case circuit breakers and fuses were reviewed to ensure that they were properly sized for over-current protection. Additionally, the 125V DC system vendor manuals, administrative procedures and associated station directives were reviewed.

For the service water and 125 V DC systems, the team reviewed operator logs and shift standing orders, and the corrective action database to address the overall health of the systems. The team also reviewed selected work orders and operating experience responses applicable to these systems. The team conducted several control room instrumentation and in-plant system walkdowns, including a detailed walkdown with the respective system engineers, to assess the operational readiness, configuration control, and material condition of these systems. The team reviewed Control Room deficiency tags related to the SW and 125V DC systems to ensure that the issues were captured and tracked in either the work order or corrective action systems. The team also

reviewed how work related to the SWS and 125V DC system was controlled. The team interviewed plant personnel responsible for task planning and risk management to review how daily work control practices address risk management, including how emergent work was addressed.

The team reviewed the procedures used to operate and test the SW system during both normal and accident conditions. The types of procedures reviewed included: system operating procedures, check-off lists, alarm response procedures, off-normal operating procedures, and surveillance tests. The team reviewed similar procedures for the 125V DC system to ensure that procedures for both systems were developed and completed in accordance with the licensee's procedure writing policies. In addition, surveillance test requirements, results, and trends were reviewed for appropriateness, technical validity, acceptability of test results, data analysis and evaluation.

For the dc power operated relief valves (PORV) located on the pressurizer, the team reviewed the control logic and schematic diagrams, and verified that sufficient voltage could be provided to those valves under the worst conditions. For the components located inside the reactor containment, such as cables, cable splices and terminal blocks, the team reviewed their environmental qualification documents to verify their qualification status. During the time of this inspection one of the PORV's (455C) was isolated due to a small amount of leakage. Its associated block valve was closed and will remain closed until the next outage unless a plant condition requires cycling of the that PORV. This condition was compared to the technical specifications. The plant configuration was evaluated by Indian Point 3 PRA staff and validated by the team using significance determination notebook designed for the IP3 station. Testing procedures/results and maintenance records were also reviewed to verify that the PORVs were within their design basis.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (IP 71152)

1. Inspection Scope

The team assessed whether licensee personnel were identifying issues with the SW, 125V DC, and supporting systems at the proper threshold and entering them into the

corrective action program. Specifically, the inspectors reviewed a selection of Condition Reports (CRs) and Corrective Actions (CAs) to verify that problems were identified, documented, and effectively resolved in a timely manner.

b. Findings

No findings of significance were identified

4OA6 Meetings, including Exit

The team presented the inspection results to Mr. Fred Dacimo and other members of the IP3 staff at an exit meeting on November 7, 2003. The team reviewed some proprietary information during the inspection. This material was either returned to IP3 personnel or destroyed. The team verified that this inspection report does not contain proprietary information.

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

E. Anderson	Senior Electrical Engineer
John Bencivenga	Senior Design Engineer
Gerry Bhashyam	Senior Equipment Qualification Engineer
William Blair	Licensing Manager
Rich Burroni	I&C Superintendent
John Cambigianas	SWS Systems Engineer
Patrick Conway	Senior System Engineer
Fred Dacimo	Vice President, Nuclear Operations
Joe DeRoy	General Manager, Engineering
N. Devries	Operations
Bob Dolansky	IST Engineer
Javier Herrera	System Engineer
T R Jones	Licensing Engineer
John Kacaza	Senior Equipment Qualification Engineer
Robert Lee	SWS Design Engineer
John McCann	Corporate Licensing
Tom McCaffrey	System Engineering Supervisor
Richard Milici	Senior Electrical Design Engineer
Tim Moran	Component Engineer
James O'Driscoll	CCW Systems Engineer
Tom Orlando	PCE Manager
Sam Petrosi	Design Engineering Manager
Victor Rizzo	Component Engineer
J. Ryan	Operations
Paul Rubin	Manager, Site Planning and Outage Services
Vincent Sacco	SWS Systems Engineer
Chris Schwarz	General Manager, Plant Operations
Bruce Shepard	I&C Design Engineer
B. Sullivan	Operations
John Ventosa	Site Operations Manager
Dan Wilson	Chemistry Department Supervisor
Fred Weinert	Senior Electrical Design Engineer

NRC Personnel

M Cox	Resident Inspector, IP2
P. Drysdale	Senior Resident Inspector, IP3
R. Berryman	Resident Inspector, IP3

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and/or Closed - None

LIST OF ACRONYMS

125V DC	125 volt direct current (system)
AC or ac	Alternating current
ACE	Apparent Cause Evaluation
AOP	Abnormal operating procedure
ASME	American Society of Mechanical Engineers
CA	Corrective Actions
CDF	Core Damage Frequency
CFR	Code of Federal Regulations
CR	Condition Report
DC or dc	Direct current
DBD	Design Basis Document
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedure
GL	Generic Letter
HVAC	Heating, ventilation, air-conditioning
IP3	Indian Point Unit 3
IPE	Individualized Plant Examination
IST	Inservice Testing
LOCA	Loss of Coolant Accident
LOOP	Loss of Offsite Power
MOV	Motor operated valve
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
NPSH	Net Positive Suction Head
P&IDs	Piping & Instrumentation Drawings
PORV	Power Operated Relief Valve
PRA	Probabilistic Risk Analysis
psig	pounds per square inch as gauge pressure
SI	Safety Injection
SBO	Station Blackout
SDP	Significance Determination Process
SSDI	Safety System Design (and Performance Capability) Inspection
SW	Service Water
SWS	Service Water System
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
VDC	Volts - Direct Current
QA	Quality Assurance

LIST OF DOCUMENTS REVIEWED

Design, Regulatory, and Licensing Basis Documents

IP3 UFSAR, Section 9.6.1 Service Water System, Rev. 7
IP3 UFSAR, Section 8.2, Electrical System Design
IP3-DBD-303, Design Basis Document for the Service Water System, Rev. 2
IP3 Systems Design Description 24.0, Service Water System, Rev. 4
PFM-22E Page 152, IST Program Design Basis: SWN 110-1 and SWN-110-2 CCR A/C Condenser Inlet Relief Valve, Rev. 1
PFM-22E Page 144. IST Program Design Basis: SWN-63-2 and SWN-63-3 Diesel Generator Cooler Inlet Relief Valve, Rev. 1
IP3-DBD-318, Seismic Buildings and Structures IP3-DBD-318, Rev. 1
IP3-DBD-307, 125V DC Electrical Distribution System, Rev. 2
IP3-DBD-315, Control Building Heating and Ventilation System, Rev. 1
Risk Informed Inspection Notebook for Indian Point Nuclear Power Plant Unit 3 (Rev. 1)
Regulatory Guide 1.32, Criteria for Safety-Related Electric Power Systems for Nuclear Power Plants, Rev. 2, dated February 1977.
Regulatory Guide 1.26, Quality Group Classifications and Standards for Water-, Steam, and Radioactive-Waste-Containing Components of Nuclear Power Plants
Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment

IP3 Plans, Policies, and Programs

IP3 In-Service Testing Program Basis Document
IP3 In-Service Testing Database
Quality Assurance Program Manual, Rev. 9
DEE-SD-01, Fuse Control, Rev. 5

Procedures and Surveillance Tests

3-ARP-012, Panel SJF - Cooling Water and Air, Rev. 40
COL-EL-3, Instrument Buses and Distribution Panels, Rev. 13
COL-RW-2A, Service Water Header Realignment, Rev. 10
EOP ECA-0.0, Loss of all AC Power, Rev. 14
IP-SMM-AD-104, IPEC Procedure Writing Manual, Rev. 0
IP-SMM-AD-102, IPEC Implementing Procedure Preparation, Review, and Approval, Rev. 0, ONOP-EL-5, Loss of a DC Bus, Rev. 12
ONOP-FP-1A, Safe Shutdown from outside the control room
ONOP-RW-1, Service Water Malfunction, Rev. 12
SOP-EL-003, Battery Charger and 125 volt DC system operation, Rev. 32
SOP-RW_005, Service Water System Operation, Rev. 29
IC-PM-I-E-32BC, 32 Battery Charger Preventive Maintenance, Rev. 1
IC-PC-I-E-32BC, 32 Battery Charger Output Indicators, Rev. 2
3PT-R035A, Service Water Penetrations Leakage Test, Rev. 9
3PT-V050, Containment Fan Cooler Units Manual Isolation Valves, Rev. 0
3PT-Q079, Service Water Manual Isolation Valves, Rev. 9
3PT-R156A, Station Battery 31 Load Profile Service Test, Rev. 7
3PT-M021, Station Battery Surveillance, Rev. 29
3PT-W013, Station Battery Visual Inspection, Rev. 19
3PT-Q01A, 31 Station Battery Surveillance, Rev. 4
3PT-R172A, Station Battery 31 Modified Performance Test, Rev. 7

3PT-Q01B, 32 Station Battery Surveillance, Rev. 4
3PT-R156B, Station Battery 32 Load Profile Service Test, Rev. 7
3PT-R172B, Station Battery 32 Modified Performance Test, Rev. 7
3PT-M89, 36 Station Battery Surveillance, Rev. 3
3PT-R192, 36 Station Battery Capacity Test, Rev. 0
3PT-R191A, 31 EDS Heat Exchanger SW Relief Valve SWN-63-1 Setpoint, Rev. 0
3PT-Q058A, 37 and 39 Backup Service Water Pumps Test, Rev. 2
3PT-Q092A, 31 Service Water Pump Train Test Operational Test, Rev. 9
3PT-Q092B, 32 Service Water Pump Train Test Operational Test, Rev. 7
3PT-Q092C, 33 Service Water Pump Train Test Operational Test, Rev. 9
3PT-Q092D, 34 Service Water Pump Train Test Operational Test, Rev. 9
3PT-Q092E, 35 Service Water Pump Train Test Operational Test, Rev. 10
3PT-V032C, Inservice Pressure Test of Service Water Inside VC, Rev. 1
3PT-V032S, Inservice Pressure Test of Service Water System Outside VC, Rev. 1
COL-RW-2A, Service Water System Alignment, Rev. 10
SOP-RW-005, Service Water System Operation, Rev. 29
3-SOP-RW-007, Circulating and SW Sodium Hypochlorite Injection System, Rev. 25
IP-PCE-01-013, Online Testing of Thermal Relief Valves, dated January 17, 2001
ENG-259M, 36 Service Water Pump Reference Test, Rev. 6
AP-49, Inservice Inspection Program, Rev. 6
TSP-048, IP-3 SWS Corrosion Monitoring Program Implementation Procedure, Rev. 5
PFM-97, Station Battery Inter-Cell Resistance Check, Rev. 3
PFM-92, Battery Surveillance Charging and Post Charge Data Acquisition, Rev. 9

Work Orders

IP3-99-0339701, IP3-99-0339702, IP3-99-0339703, IP3-02-00833, IP3-03-01572
IP3-03-01970, and IP3-03-03556

Technical Specifications

Section 3.7.9, Service Water System
TS Bases Section B 3.7.9, Service Water System
Section 3.8.4, DC Sources - Operating
Section 3.8.5, DC Sources - Shutdown
Section 3.8.6, Battery Cell Parameters
Section 3.8.7, Inverters - Operating

Correspondence

NYPA-799-PLG-12, Response to Lawrence Livermore Findings on Service Water Valves to Diesel Generators, Dated January 25, 1985
Flow Serve Fax, Final Quarter Turn Actuator Design Inputs, dated January 17, 2001

Manuals

Inst IS-V3117, Crosby Relief Valve Instruction Manual, dated April 1998
WR No. 00-0016-00, Actuator measurements need (to be) taken for Maintenance Engineering, dated November 30, 2000
Catalog No. 902, Crosby Series 800 Adjustable Blowdown and Series 900 Omjni-Trim Pressure Relief Valves, dated June 1995
NYPA #456-100000681, IP3 Vendor Manual, Zurn Industries STRAIN-O-MATIC

System Health Reports

Service Water System - F44-0151 1st Quarter 2003
IP3 - Service Water System 2nd Quarter 2003

Calculations

6604.003-CALC-107, Adequacy of Supports, Fan Cooler Unit, Rev 0A
6004.003-CALC-280, SWN piping lines 1091 thru 1086, Replacement of Butterfly Valve SNW-2,
dated August 10, 1982
6604.266-8-SW-013, Service Water Model Input Calc's and Output Results
6604.266-8-SW-021, SWS Model Input Data Calcs and Output Results IR Pumps, Rev 6
IP3-CALC-SWS-327, GL 89-13 Pilot Program – Hx Performance Service Water System –EDG Run Time Approx with SW Flow Isolated, Rev. 0
IP3-Calc-RW-00323, Analysis for SW Flow elements and branches, Rev. 0
IP3-Calc-SWS-00931, SO 1294 & 1275 Mountings on FCV-1176 and 1176A Valves, Rev. 0
IP3- Calc-SWS-020334, SWS Relief Valves SWT-5 Acceptability, Rev 0
IP3-Calc-SWS-390, Determination of Equations for IST testing of SWP's, Rev. 0
IP3-CALC-SWS-00409, Piping and SWP Discharge Strainers
IP3-CALC-SWS-00423, Restoration of differential pressure indication and alarm service water system (discharge strainer differential pressure), SWS Discharge Strainer differential pressure indication
IP3-CALC-SWS-01596, Minimum Wall Thickness and Maximum Through Wall Flaw Length for Seismic Class I SW piping, Rev. 0
IP3-CALC-SWS-01849, Minimal Wall Thickness and Structural Integrity for 3'' valves in SW Line, Rev 0
IP3-CALC-SWS-02022, Operability Determination and Supports Repair in the Zurn pit
EDA-86-0726-C-1, Freeze Protection for Water Supply Line, Rev. 0
IP3-CALC-EL-00118, 125 VDC Short Circuit Calculations, Battery, Charger, and Power Panel 31 and Distribution Panels 31A and 33
IP3-CALC-EL-00124, 125 VDC Short Circuit Calculations, Distribution Panels 31
IP3-CALC-EL-00184, 31 Battery, Charger, Associated Panels and Cables Component Sizing and Voltage Drop Calculations

IP3-CALC-EL-00185, 32 Battery, Charger, Associated Panels and Cables Component Sizing and Voltage Drop Calculations
IP3-CALC-EL-00186, 33 Battery, Charger, Associated Panels and Cables Component Sizing and Voltage Drop Calculations
IP3-CALC-ED-00257, Seismic Qualification of Battery Chargers and Circuit Breakers
IP3-CALC-EL-01972, Degraded Grid Voltage Study
IP3-CALC-ED-02563, Station Battery Hydrogen Evolution, Rev. 3
Calc 1238020-C-00, ABS Consulting on ESW Transients, dated October 30, 2003

Modification and Technical Equivalency Evaluation

TEE 03-000471, Hydrogen Cooler for Westinghouse Generator, Rev. 0
MMP 95-3-303, SWS, Fan Cooler Unit Motor Service Water Return Piping Replacement, Rev. 0
MOD 80-03-039, SWS, Replacement of SWP Discharge Strainers
MOD 91-03-128, SWS, SW Strainer dP alarm restoration and auto backwash elimination
MOD 96-3-507, SWS, Main SW Pump Zurn Strainer Piping Replacement
Design Change 00-3-008, SWS, Installation of Tornado Missile Barrier in Concrete Service Water Pipe Chase, Access Points and Internal Pipe Mechanical Seals in SW Line 408

Procurement Engineering Technical Evaluations

00-001155 Rev. 00, 00-001203 Rev. 00, 00-001227 Rev. 00, 00-001235 Rev. 00, 99-000819 Rev. 01, and 98-000427 Rev. 01.

Drawings

CFB-1001-407-A, General Arrangement Type CF-BV-BB 125/150 Lb. Drilling with Hammel Dahl Actuator (IP3V-180-006), dated January 17, 1992
1500-11-0122750-3334, Type 1500 Butterfly Valve with Hammel Dail Actuator, dated February 28, 1997
9321-F-20333 Sheets 1 and 2, Flow Diagram, Service Water System, Rev. 48 Sheet 1 and Rev. 24 Sheet 2
9321-F-27223, Flow Diagram, SWS, Nuclear Steam Supply Plant, Rev. 39
9321-F-23913, Flow Diagram Closed Water Cooling System, Rev. 20
9321-F-70243, Pressure Gauge & Switch Details, Instrumentation, Rev. 11
A201836-Sheet 1, Turbine Building & Heater Bay Service and Cooling Water Piping, River Water System, (UE&C Dwg 9321-F-20973-12)
A201902-Sheet 2, Turbine Building & Heater Bay, SW Piping, River Water System – (9321-F-21033-12)
ISI-27-27223, Flow Diagram, SW System, Nuclear Steam Supply Plant, Rev. 18
A201305-Sheet 1, Intake Structure, SW Piping, River Water System (9321-F-21063-22)
9321-F-20016, Traveling Screens Intake Structure Screen Wash System Flow, Rev. 8
9321-F-30083, Single Line Diagram, DC System
9321-F-32073, Wiring Diagram, 125 VDC Distribution Panels 31,32,33 &34
9321-F-32043, Wiring Diagram, 125 VDC Power Panels 31,32,33 &34, 120 VAC Distribution Panels 31 & 32
9321-F-32003, Wiring Diagram, 118 VAC Instrument Buses 33 & 34
9321-F-33853, Electrical Distribution and Transmission System

9321-F-39883, Wiring Diagram, 118 VAC Instrument Bus Panels 31A,32A,33A,34A, 125vdc Distribution Panels 31A & 32A
9321-LL-31383 Sheet 4, Cable Schematic Solenoid Valves, Rev. 13
9321-LD-72543, EDG Service Outlet Header Loop F-1176 Diagram
9321-F-39993, Wiring Diagram, Static Inverters 31 & 32, Battery Chargers 31,32 & 33
9321-F-95073, Control Building, Static Inverter 33 Wiring Diagram
9321-F-33723, Analog Logic Diagram for RCS Overpressurization Protection System
9321-F-3373, Logic Tripping Diagram for RCS Overpressurization Protection System
5651D72,7,7A Sheets 1 and 2, Logic Diagrams, Emergency Generator Starting and 480V Bus Clearing, Sheets 1, Rev. 10, and Sheet 2, Rev. 3
5651D72, 8,8A,8B Sheets 1,2,3, Logic Diagrams, Safeguard Sequence,
500B971 Sheet 106, Elementary Wiring Diagram, Valve Table-Control
500B971 Sheet 124, Elementary Wiring Diagram, Remote Operated Valves
500B971 Sheet 33, Elementary Wiring Diagram, Service Water Pump 31
500B971 Sheet 42, Elementary Wiring Diagram, Service Water Pump 32
500B971 Sheet 44, Elementary Wiring Diagram, Service Water Pump 33
500B971 Sheet 76, Elementary Wiring Diagram, Service Water Pump 34
500B971 Sheet 34, Elementary Wiring Diagram, Service Water Pump 35
500B971 Sheet 89, Elementary Wiring Diagram, Service Water Pump 36
IP3V-171-0056, Instrument Block Diagram, Integrating Reactor Protection & Control Diagram
9321-F-40653, Control Building EL. 15'-0" & EL. 33'-0" Heating and Ventilation Plans, Sections, & Details

Evaluations

IP3-ECCF-901, Replacement of MS-PCV-1133, Pressure Control Valves
IP3-CEEF-845, Evaluate the on-line Replacement of Station Batteries 31 and 32
1238020-C-001, Indian Point Loss if off-site transients, Review of ESW transient
6604.003-8-SW-097, Diesel Generator Cooling, Rev. 1
6604.003-8-SW-140, EDG Jacket Water Tube Plugging, dated June 22, 1992
6604.219-8-SW-016, Hydraulic Survey: Back Up Service Water Tie In
6604.219-8-SW-011, Orifice Sizing in SW Diesel Generator Cooler Discharge Line, Rev.0
6604.219-8-SW-012, Replacement Service Water Pump Requirement
6604.226-8-SW-023, SWS Performance Test Result Evaluation
6604.266-8-SW-025, Service Water System Header Pressure Evaluation
6604.266-S-M-2, Service Water System Evaluation, dated September 23, 1993
WCAP-12313, Safety Evaluation for an Ultimate Heat Sink Temperature Increase to 95^{o}F at Indian Point 3
NRC Letter dated May 7, 1990 for License Amendment No. 98 and Safety Evaluation on the SW system heat sink increase to 95^{o}F
IP3-ECCF-0845, Engineering Evaluation of the On-line Replacement of Station Battery 31 and Station Battery 32, Rev. 0

Condition Reports

2001-03829	2002-04744	2003-02045	2003-03771	2003-04957	2003-05854*
2001-04323	2002-05192	2003-02055	2003-03772	2003-04964	2003-05861*
2001-04511	2003-00039	2003-02069	2003-03861	2003-05006	2003-05863*
2002-00143	2003-00088	2003-02073	2003-04414	2003-05039	2003-05885*
2002-01035	2003-00092	2003-02074	2003-04419	2003-05349	2003-05894*
2002-01922	2003-00259	2003-02392	2003-04550	2003-05386	2003-05908*
2002-02695	2003-00267	2003-02542	2003-04720	2003-05396	2003-05911*
2002-03237	2003-00492	2003-03052	2003-04732	2003-05741*	2003-05920*
2002-03504	2003-00740	2003-03088	2003-04879	2003-05743*	2003-06472*
2002-03548	2003-01056	2003-03452	2003-04895	2003-05745*	
2002-04217	2003-01600	2003-03633	2003-04923	2003-05747*	

Note: * indicates Condition Reports Issued during or related to this inspection.

Completed Surveillance Tests

3PT-W013, Station Battery Visual Inspection, Rev. 19
3PT-Q01A, #31 Station Battery Surveillance, Rev. 4
3PT-Q01B, #32 Station Battery Surveillance, Rev. 4
3PT-R156A, Station Battery #31 Load Profile Service Test, Rev. 7
3PT-R156B, Station Battery #32 Load Profile Service Test, Rev. 7

Miscellaneous Documents

Work Order 00-00016-00, Actuator measurement for valves SWN-FCV1176 and 1176A, dated November 29, 2000
Chemistry Log for Chlorine Residual out of Service Water System
TS-ES-015, Specification for 31 and 32 Batteries
LER 97-003 and related ACTS items: ACT-97-25522 and ACT-97-26492
IPE-APL-03-004 ACT-03-64084, Action Plan for 34 and 36 SWP, Rev. 0