May 13, 2003

Mr. Fred R. Dacimo
Site Vice President
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 3 NUCLEAR POWER PLANT - NRC INTEGRATED INSPECTION REPORT NO. 50-286/03-02

Dear Mr. Dacimo

On March 29, 2003, the US Nuclear Regulatory Commission (NRC) completed an inspection at the Indian Point 3 Nuclear Power Plant. The enclosed report presents the results of that inspection. The results were discussed on May 9, 2003, with Mr. Chris Schwarz and other members of your staff.

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. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of the inspection, two findings of very low safety significance (Green) were identified. In addition, one self-revealing finding of very low safety significance (Green) was identified. None of these findings represented an immediate safety concern. Two of the findings were determined to involve violations of NRC requirements. However, because of their very low safety significance, and because they are entered into your corrective action program, the NRC is treating these two findings as Non-cited Violations (NCVs) consistent with Section VI.A. of the NRC Enforcement Policy. If you contest any NCV in this report, 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; and the NRC Resident Inspector at Indian Point 3.

Since the terrorist attacks on September 11, 2001, the NRC has issued five Orders (dated February 25, 2002, January 7, 2003 and April 29, 2003) and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance access authorization. The NRC also issued Temporary Instruction 2515/148 on August 28, 2002, that provided guidance to inspectors to audit and inspect licensee implementation of the interim compensatory measures (ICMs) required by the February 25th Order. Phase 1 of TI 2515/148 was completed at all commercial nuclear power plants during calendar year (CY) '02, and the remaining inspections are scheduled for completion in CY '03. Additionally, table-top security drills were conducted at several licensees to evaluate the impact of expanded adversary characteristics and the ICMs on licensee

protection and mitigative strategies. Information gained and discrepancies identified during the audits and drills were reviewed and dispositioned by the Office of Nuclear Security and Incident Response. For CY '03, the NRC will continue to monitor overall safeguards and security controls, conduct inspections, and resume force-on-force exercises at selected power plants. Should threat conditions change, the USNRC may issue additional Orders, advisories, and temporary instructions to ensure adequate safety is being maintained at all commercial power reactors.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) 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 Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Peter W. Eselgroth, Chief
Projects Branch 2
Division of Reactor Projects

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

Enclosure: Inspection Report No. 50-286/03-02

Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No. 50-286

License No. DPR-64

Report No. 50-286/03-02

Licensee: Entergy Nuclear Northeast

Facility: Indian Point 3 Nuclear Power Plant

Location: 295 Broadway, Suite 3
Buchanan, NY 10511-0308

Dates: December 29 - March 29, 2003

Inspectors: P. Drysdale, Senior Resident Inspector
M. Cox, Resident Inspector
W. Cook, Senior Project Engineer
T. Jackson, Project Engineer
J. Jang, Senior Health Physicist
J. McFadden, Radiation Specialist
D. Silk, Senior Emergency Preparedness Inspector

Approved by: Peter W. Eselgroth, Chief
Projects Branch 2
Division of Reactor Projects

TABLE OF CONTENTS

SUMMARY OF FINDINGS

IR 05000286/03-02, on 12/29/2002 - 03/29/2003, Entergy Nuclear Northeast, Indian Point 3 Nuclear Power Plant. Integrated resident inspection report.

The report covered a 3-month period of inspection by resident inspectors and an announced inspection by regional senior health physics inspectors. Two Green Non-cited Violations (NCVs), and one Green finding were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," (SDP). 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

Cornerstone: Initiating Events

- Green. A self-revealing finding was identified due to inadequate work controls and procedures that did not properly restore circulating water pump motor electric cables following a previous repair. This resulted in a manual reactor trip after the cables failed when the plant was at full power.

  This finding is greater than minor because it affected the objective of the Initiating Events Cornerstone in that work controls and procedure inadequacies resulted in a perturbation in plant stability that caused a reactor trip. The finding is of very low safety significance because, although it caused a reactor trip, it did not increase the likelihood of a primary or secondary system loss of coolant accident (LOCA) initiator, did not contribute to a combination of a reactor trip and loss of mitigation equipment functions, and did not increase the likelihood of a fire or internal/external flood (Section 4OA3).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green Non-cited Violation (NCV) of 10 CFR 50, Appendix B, Criterion III. This violation is related to an inadequate dedication of commercially procured equipment for a safety-related application in that a non-Appendix B certified vendor was inappropriately used to confirm a "like-for-like" replacement of a valve actuator in the emergency diesel generator fuel supply system. Also, the licensee's technical evaluation and dedication package did not specify all of the appropriate critical characteristics to certify the replacement was like-for-like. This resulted in additional engineering analysis for the adequacy of commercially procured material to safety-related service.

  This finding is greater than minor because the technical evaluation and dedication package lacked sufficient detail to ensure the reliability and availability of mitigating equipment, and affected the availability objective of the Mitigating Systems Cornerstone. The finding is of very low safety significance because the actuator was eventually shown to be acceptable for service in its intended application (Section 1R12).

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, in that a temporary alteration of the fuel storage building ventilation system was implemented without consideration of the effect on air flow within the

ventilation system. The effect of removing the system's charcoal bed dampers resulted in use of the charcoal beds that was not accounted for, and required additional system testing to analyze the air flow. Also, the system operating procedure and work order used to install and remove the dampers lacked sufficient detail for a temporary alteration and had to be revised.

This finding is more than minor because changes to the plant without a complete analysis of the effects upon a safety system affected the Mitigating Systems Cornerstone objective of equipment reliability. The alteration of the dampers reduced the reliability of the ventilation system, resulted in the unaccounted use of the charcoal beds, and caused a lapse in the required tests for iodine removal efficiency. These tests were not performed as required by the Technical Specifications (TS) every 720 hours for approximately one year between January 2002 and January 2003. The finding is of very low safety significance because subsequent laboratory tests performed in January 2003 confirmed that the iodine removal efficiency did not fall below the TS required minimum of 90% (Section 1R23).

B. Licensee Identified Violations

None

Report Details

SUMMARY OF PLANT STATUS

At the beginning of the inspection period, the Indian Point 3 (IP3) reactor was at full power.

On January 13, 2003, operators manually tripped the reactor after a high differential pressure developed between two sections of the plant's main condenser. Each of the three condenser sections are supplied by two circulating water pumps (CWPs). The loss of the 35 CWP in one section while the companion 36 CWP was out of service for maintenance caused a loss of vacuum and a high differential pressure between two sections. The plant remained in hot standby (mode 3) during corrective maintenance to restore both the 35 and 36 circulating water pumps and other equipment to service. The plant was restarted and returned to full power on January 14.

On March 28, 2003, plant power was reduced to 84% to conduct setpoint surveillance tests on 16 main steam safety valves (MSSVs). After completion of the tests, power was further reduced to approximately 18%. Just after midnight on March 29, 2003, the reactor was manually tripped and the plant was taken off line to begin the plant's twelfth refueling outage (3R12). Cold shutdown was achieved later in the afternoon of March 29.

1. REACTOR SAFETY
(Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness)

1R01 Adverse Weather Protection

a. Inspection Scope (71111.01)

The inspectors reviewed procedure OD-37, "Seasonal Weather Preparation," and the attached cold weather preparations checklists, to perform plant walkdowns and to verify that the completed checklists were still in effect. The inspectors verified that the actions taken to assure freeze protection of plant equipment were still in effect during particular periods when freezing ambient temperatures and snow storms posed potential problems for equipment operation. During the periods of January 28, and February 17-20, 2003, significant snowfalls occurred in the vicinity of the plant, and the inspectors toured external plant areas to assess the functionality of structures and systems potentially exposed to cold temperatures and snow accumulation.

The inspectors also reviewed condition reports issued by the licensee to determine if potential weather-related problems were being identified and resolved by the licensee.

CR-IP3-2003-00255; January 19; Installed heating not adequate to maintain ambient temperature above freezing in the Main Feed Reg. Valve area.
CR-IP3-2003-00398; January 28; The 13.8 KV South Gate Substation Battery test failed operability and overall acceptance criteria due to cold weather conditions.
CR-IP3-2003-00828; February 19; Excessive snow accumulation prohibited log taking in several areas (e.g., Fire Water Storage Tank, GT Substation, nitrogen trailers).
CR-IP3-2003-00853; February 20; Snow in Appendix R transit paths

b. Findings

No findings of Significance were identified

1R04 Equipment Alignment (Quarterly)

a. Inspection Scope (71111.04Q)

The inspectors performed system walkdowns during periods of system train unavailability in order to verify that the available train alignment was proper to support the availability of safety functions, and to assure that the licensee had properly identified equipment discrepancies that could impair the functional capability of mitigating systems.

- On February 14, 2003, the inspectors performed a walkdown of the 31 residual heat removal (RHR) flow train during a routine surveillance on the 32 RHR pump.

- On February 20, 2002, the inspectors performed a walkdown of the starting air systems for 31, 32, and 33 emergency diesel generators (EDGs). The east side air start system of the 31 EDG was isolated and tagged out for maintenance. The purpose of this walkdown was to verify equipment alignment and identify any discrepancies which could affect the function of the starting air systems. The inspectors observed the physical condition of the associated piping and valves, and verified appropriate valve configuration in accordance with drawing 9321-H-20293. The inspectors also reviewed the protective tagout on the 31 EDG to verify the adequacy of the isolation for the air motor and verified the west side air start system was unaffected.

- On March 12, 2003, the inspectors performed a walkdown of the auxiliary boiler feedwater system. The inspectors verified the suction and discharge lineup for the 31 and 32 auxiliary boiler feedwater pumps (ABFPs) while the 33 ABFP was isolated for its quarterly surveillance test. The inspectors assessed the physical condition of the associated piping, pumps and valves, and verified the appropriate valve configuration in accordance with drawing 9321-F-20193 and checkoff list COL-FW-2, “Auxiliary Feedwater System.” During the walkdown, inspectors noted a high pressure argon bottle that was staged for maintenance, and which did not have adequate seismic restraints. This was corrected on the spot by the licensee. The inspectors also noted a slight packing leak on valve BFD-78, and discussed this with the cognizant system engineer.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope (71111.05Q)

The inspectors conducted fire protection tours in the fire zones listed below to ensure that the licensee was controlling transient combustibles in accordance with fire protection procedure FP-9 “Control of Combustibles”; to ensure that the licensee had been controlling ignition sources in accordance with FP-8, “Controlling of Ignition

Sources"; to ensure that the licensee had provided the fire protection equipment specified in the Pre-Fire Plans (PFPs) listed below; and to assess the general material condition of the fire protection equipment and fire protection barriers. These areas were selected for inspection based on their relative fire initiation risk and the safe shutdown equipment located in the areas.

- Fire Zone 74A: On February 4, 2003, the inspectors performed an inspection of the lower cable tunnel penetration area using PFP-31, "Lower Electrical Penetration Area."

- Fire Zone 60A: On February 4, 2003, the inspectors performed an inspection of the upper cable tunnel using PFP-32, "Upper Electrical Tunnel."

- Fire Zone 37A: On February 5, 6, & 19, 2003, the inspectors performed walkdowns of the 6.9KV Switchgear areas using PFP-37, "6.9KV Switchgear Area - Turbine Building."

- Fire Zones 23 & 57A: On February 4, 5, & 24, 2003, the inspectors performed an inspection of the main feedwater regulating valves, the main feedwater regulating valve bypass valves, and the atmospheric steam dump valve areas using PFP-47, "AFW Pump Room - Aux Feedwater Building," and PFP-49, "Atmospheric Steam Dumps - Auxiliary Feedwater Building,"

- Fire Zone 21: On February 7 & 24, 2003, the inspectors performed an inspection of the Turbine Building Hydrogen Seal Oil Unit using PFP-38, "H2 Seal Oil Unit - Turbine Building." On February 12, the inspectors accompanied a chemistry technician on a bi-weekly leak survey of plant hydrogen systems.

- Fire Zones 10, 34A, 101A, and 102A: On March 13, 2003, the inspectors performed an inspection of the control building fan room using PFP-29A, "Control Building Exhaust Fan Room and Diesel Generator Air Intake Enclosure."

- Fire Zones 3 and 4: On March 14, 2003, the inspectors performed an inspection of both RHR pump rooms using PFP-5, "General Floor Plan - Primary Auxiliary Building 15 ft Elevation."

- Fire Zones 19, 39A & 40A: On March 17, 2003, the inspectors performed an inspection of the area around the Main Boiler Feed Pumps (MBFPs) using PFP-40, "Main Boiler Feed Pumps - Turbine Building." The inspectors found a discrepancy in the fire plan drawing regarding the location of several flammable storage lockers. This was brought to the attention of fire protection engineering. The inspectors also observed an overflowing oil collection apparatus under 31 MBFP. This observation was discussed with Operations and corrective actions were implemented.

- Zone 23: On March 26, 2003, the inspectors performed an inspection of the auxiliary feedwater pump room using PFP-47, "AFW Pump Room - Auxiliary Feedwater Building."

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope (71111.06)

The inspectors reviewed the licensee's procedure for response to an internal flooding event as described in off-normal operating procedure ONOP-RW-3, "Plant Flooding." During the period of February 3 - 20, 2003, the inspectors toured plant areas that appeared susceptible to water intrusion by runoff from heavy snow melt. On February 22, the inspectors toured plant areas important to safety that appeared susceptible to water intrusion from heavy rains, and to assure that the runoff did not impact plant equipment or spaces.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (Quarterly)

a. Inspection Scope (71111.11Q)

On February 3, 2003, the inspectors observed simulator training for licensed operators of Operations Team "E" (1st quarter 2003 requalification cycle). The inspectors reviewed the simulator scenario, documented in Lesson Plan No. LRQ-SES-008, "Loss of Condenser Vacuum / Faulted SG," to determine if the scenario contained: 1) clear event descriptions with realistic initial conditions; 2) clear start and end points; 3) clear descriptions of visible plant symptoms for the crew to recognize; and 4) clear expectations of operator actions in response to abnormal conditions.

During the simulator exercise, the inspectors evaluated the team's performance for: clarity and formality of communications; correct use and implementation of emergency operating procedures (EOPs) and off-normal operating procedures (ONOPs); operators' ability to properly interpret and verify alarms; and, operators' ability to take timely actions in a safe direction based on transient conditions. In addition, the inspectors evaluated the control room supervisor's ability to exercise effective oversight and control of the crew's actions during the exercise. The inspectors also verified that the feedback from the instructors was thorough, identified specific areas for improvement and reinforced management expectations regarding crew competencies in the areas of procedure use, communications and peer checking.

The inspectors also reviewed classroom training on planned plant modifications in preparation for the 3R12 refueling outage. The inspectors evaluated lesson plan LRQ-MOD-35, "Modifications for Cycle 031" for scope and content, and observed the conduct of the training to verify that an adequate training environment was established to familiarize the operators with the modifications.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope (71111.12)

The inspectors reviewed the following maintenance activities, systems and components, and recent performance issues to assess the effectiveness of the licensee's Maintenance Rule program. Using 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," and Regulatory Guide 1.1.60, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," the inspectors verified that the licensee was implementing their Maintenance Rule program in accordance with NRC regulations and guidelines, properly classifying equipment failures, and using the appropriate performance criteria for Maintenance Rule systems in 10 CFR 50.65 (a)(2) status.

The inspectors also reviewed work orders (WOs), and associated post-maintenance test (PMT) activities, to assess whether 1) the effect of maintenance work in the plant had been adequately addressed by control room personnel; 2) work planning was adequate for the maintenance performed; 3) the acceptance criteria were clear and adequately demonstrated operational readiness consistent with design and licensing documents; and 4) the equipment was effectively returned to service. The following maintenance activities and associated documents were observed and evaluated:

- WO#IP3-02-01659: 31 EDG Fuel Oil Transfer Day Tank Fill Valve Replacement; On December 30-31, 2002; WO#IP3-02-24890: Retest;

  On December 30, 2002, the inspectors observed the licensee replace an electro-mechanical actuator which supplies motive force for 31 EDG day tank level control valve DF-LCV-1207B. This valve automatically cycles open and closed to maintain the day tank fuel oil level for full load engine operation. The actuator was replaced due to unreliable operation (CR-IP3-2002-5153). The new actuator was procured from a commercial vendor (i.e., not certified in accordance with a 10 CFR 50, Appendix B quality assurance program), and subsequently dedicated by the licensee for safety-related application in the EDG fuel system in accordance with Technical Evaluation 95-000107, "Actuator, H31 Hydro Motor, Push Type with Pressure Limit." The licensee considered the actuator to be a like-for-like replacement with the same form, fit, and function, and the same critical performance characteristics as the original actuator.

- WO#IP3-03-10514: 31 EDG Preventive Maintenance (PM) & Air Start System Inspection.

  On February 19-20, 2003, the inspectors observed the licensee perform an inspection for moisture and corrosion products inside the air start system of the 31 EDG. One of the air start motors of the 31 EDG failed on September 4, 2002, due to an excessive buildup of corrosion products inside the air motor (CR-IP3-2003-00165). Following a failure analysis on the motor, the manufacturer recommended a thorough inspection of the air start system.

- WO#I3-02-23909: 32 Fan Cooler Unit Monthly Inspection for Boron.

On February 25, 2003, the inspectors accompanied the licensee inside the vapor containment (VC) during an internal inspection of the 32 containment fan cooler unit (FCU) that was performed as part of the monthly containment inspection for residual boron buildup in accordance with Action Plan IDSE-APL-02-006. The licensee initiated CR-IP3-2003-00926 to address the presence of dirt and debris inside the FCU.

b. Findings

Introduction. The inspectors identified a Green NCV in that the technical evaluation and dedication of commercial grade equipment was not adequate to ensure the availability of an EDG day tank level control valve. The finding was determined to have very low safety significance because the valve could perform the required safety function.

Description. During installation of the actuator on EDG day tank valve DF-LCV-1207B, the inspectors identified a difference in stroke times between the old and new actuators based on label plate data (i.e., 40 vs. 56 seconds for a full stroke of 2.625 inches) and questioned the licensee on the like-for-like replacement. The licensee consulted the vendor and reinstalled the actuator after accepting the vendor's statement that the valve was a like-for-like replacement, but had been improperly labeled. Retest of the valve required a stroke time of 30 seconds to fulfill its safety function, and that time was satisfactorily met. However, with a stroke length of 1 inch, the inspectors noted that the actuator would have met this criteria even if full stroke time was as high as 78 seconds. The inspectors considered that the use of non-Appendix B certified vendor's data was inappropriate to determine if the replacement actuator was like-for-like.

During a subsequent extent-of-condition review the licensee found that an o-ring was missing on one of two removable covers on the actuator. Consequently, the o-ring from the old actuator was removed and installed on the new actuator after an inspection of its surface condition.

The inspectors reviewed the label plates on the day tank fill valve actuators for all three EDGs. Although all were supposed to be identical components, the inspectors found that two label plates stated that the actuator motor current was 2.4 amps, and all others were 2.7 amps. The name plate data was also inconsistent with the vendor data sheet which stated that motor current is 168 volt-amps (VA), which correlates to 1.4 amps. This parameter was not listed as a critical characteristic in the dedication package for the 31 EDG actuator to be inspected or tested for acceptability. The dedication package stated that the replacement actuator would have the same performance characteristics as the original, and would therefore be a like-for-like replacement. However, the dedication package did not specify that motor current or valve stroke time must be confirmed with the manufacturer's name plate data to verify that the performance characteristics were the same. The stroke time test alone was not adequate to verify like-for-like performance characteristics. The technical evaluation for the replacement actuator also did not require a verification of critical characteristics on the new actuator.

Analysis. The inspectors concluded that the failure to maintain proper design control of the new actuator was more than minor since the technical evaluation and dedication of the commercial grade actuators were inaccurate and incomplete, and further analysis had to be documented to address concerns on the availability and reliability of mitigating equipment. The actuator was installed and tested, and the 31 EDG was returned to

service before the licensee confirmed that the actuator satisfied all of the critical performance characteristics. The inspectors determined that the finding was of very low safety significance (Green) since the valve could still perform the required safety function to assure an adequate supply of fuel to the EDG after the new actuator was installed.

Enforcement. 10 CFR 50, Appendix B, Criterion III requires in part that measures shall be established for the selection and review for suitability of materials, parts, and equipment that are essential to safety-related functions. Contrary to the above, the licensee failed to adequately maintain design control measures to provide proper verification of commercial grade equipment procured as a like-for-like replacement of a safety-related component. This is considered to be an NCV in accordance with Section VI.A.1 of the NRC's Enforcement Policy **(NCV 50-286/03-02-01)**. This issue was entered into the licensee's corrective action program as CR-IP3-2003-1350.

1R13 Maintenance Risk Assessment and Emergent Work Control

a. Inspection Scope (71111.13)

The inspectors reviewed the maintenance risk assessments, work request tags (WRTs), and corrective maintenance work order packages for the following emergent and scheduled work, observed the repair activities in the plant, and discussed the degraded conditions with cognizant plant personnel (system engineers, technicians, and maintenance workers).

- WRT#IP3-03-01583: power range nuclear instrument N-44 failure and cable repair on January 15, 2003; CR-IP3-2003-00200
- WO#IP3-03-11204: Investigate why the plant continues to lose water box vacuum during low tide. Extent of condition inspection of 32 CWP discharge pipe trough-wall holes on January 28-29, and February 5-6, 2003
- WO#IP3-03-11924: Replacement of source range nuclear instrument N-32 on March 4, 2003; CR-IP3-2001-02240
- WRT#03-02304: 34 main feedwater regulating valve (MFRV) packing leak, and 31, 33, and 34 MFRV packing adjustments on March 4, 2003
- WO#IP3-02-22919: Replacement of CVCS level control valve switches for LCV-112B and LCV-112C on March 19 and 20, 2003

b. Findings

No findings of significance were identified

1R14 Personnel Performance During Non-routine Plant Evolutions and Events

a. Inspection Scope (71111.14)

On January 13, 2003 the plant was manually tripped at 100% power when the main condenser differential pressure limits were exceeded (CR-IP3-2003-00160). This was

caused by a loss of the 35 circulating water pump (CWP) while the 36 CWP was out of service for scheduled maintenance, which resulted in the loss of both CWPs supplying one condenser section. The inspectors observed control room operator actions immediately following the trip and their subsequent actions to place the plant in a stable condition in hot standby (mode 3). The operators responded to two significant anomalies during the transient, i.e., a trip of the 32 reactor coolant pump (RCP) and failure of the 32 source range nuclear instrument (SRNI). The inspectors also reviewed data records to verify that plant systems responded to the event as expected and within design basis limits. The licensee submitted Event Notification #35506 to report the incident to the NRC. This was reviewed by the inspectors to verify it accurately portrayed the transient.

Shortly after the trip, the licensee formed a Post Transient Review Group (PTRG), which conducted interviews with the operators and analyzed plant system data to assess the plants response. The inspectors reviewed PTRG Report No. 03-01, which indicated that all systems responded within their design limits. The inspectors evaluated the PTRG recommended actions prior to restart to ensure they adequately addressed the initiating cause of the trip and subsequent anomalies. The inspectors also reviewed condition reports initiated by the licensee to document problems associated with the trip (CR-IP3-2003-00153, -00157, -00158, -00159, -00160, and -00166).

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope (71111.15)

The inspectors reviewed one deficiency/event report (DER) and various CRs on degraded or non-conforming conditions that raised questions on equipment operability. The inspectors also reviewed the licensee's operability determinations (ODs) for technical adequacy, whether or not continued operability was warranted, and to what extent other existing degraded systems adversely impacted the affected system or compensatory actions. The following DER, CRs, and ODs were evaluated:

- DER-00-00547: On March 7, 2000, during a preventive maintenance (PM) inspection (WO#I3-000218400) of the power supply breaker (39MCC-3M) to the 31 instrument air compressor (IAC), the licensee issued the DER to document missing support fasteners used to mount the switch assembly inside the breaker cubicle. This breaker is classified as quality assurance (QA) Category I equipment (i.e., safety-related). It is also required to be qualified as Seismic Category I equipment, so that its structural integrity will be maintained during and following a safe-shutdown earthquake (SSE) to mitigate the deleterious effects of system seismic interactions. The DER raised the question of operability on the breaker since the remaining fasteners may not have adequately supported the switch assembly under seismic conditions. Engineering subsequently evaluated the missing fasteners and documented breaker operability in the DER. The breaker was returned to service shortly after the PM; however, Engineering concluded that the breaker should be replaced as soon as possible. The

inspectors reviewed the PM and DER documentation on February 4 - 6, 2003, and inspected the internals of the breaker on March 5, 2003.

- CR-IP3-2003-00165; A potential common mode failure for EDG 31, 32, 33 air start motors due to poor quality of the starting air in all three air start receivers. This was identified after one of the air start motors for the 31 EDG failed on September 4, 2002.

  OD 03-01; On January 13, 2003, the licensee received a failure analysis report from the air motor vendor, which indicated the potential for a common mode failure. The same day, the licensee reviewed all of the EDG surveillance test data since the last refueling outage (April 2001), which documented the EDG start times. The licensee concluded that the engine start times have remained consistent for all engines, and that there was no indication of air start motor degradation, except for the failed 31 EDG motor in September 2002. The inspectors reviewed this data to ensure that the engine start times met the minimum time required by the TS, and that no degradation of motor performance was apparent. The licensee planned to inspect the internals of EDG air start system during the next preventive maintenance activity on each EDG.

- CR-IP3-2003-00901: On February 24, 2003, the licensee documented a potential problem with motor-operated valve (MOV) stem thrust measurements. This was based on a vendor notice that increased the inaccuracies of a specific calibrator used in MOV setup. This affected the thrust calculation of twelve MOV's, ten of which were containment isolation valves. The other two were isolation valves for reactor coolant pump seal water return and recirculation pump sampling respectively. Containment isolation valve operability is a significant concern since their function is to maintain containment integrity during accident conditions.

  OD 03-02: On February 28, 2002, the licensee concluded that all the MOVs affected by the calibration inaccuracies were operable. Eight of the valves were found to still operate within their design margins. The torque switch on one valve was found set at a higher value than allowable at the torque switch trip (CST) point. This was determined to be acceptable since the valve could still perform its design function in the close direction and there was no safety function associated with its subsequent reopening. The three remaining valves were determined to be operable by removing some of the conservatism used in the thrust calculations. This decrease in conservatism was based on evaluating actual valve conditions and operating parameters instead of using upper bound limits. The inspectors reviewed the associated calculations documented in IP3-CALC-MULT-03757, "Evaluation of Increase Stem Calibrator Inaccuracy on Set-Up Margins For GL 89-10 MOVs," for accuracy and technical adequacy. Work to diagnostically test and revise the current thrust settings as required was subsequently scoped into the upcoming refueling outage (3R12).

- CR-IP3-2003-0897; 31 source range nuclear instrument spiking: On February 24, 2003, the 31 source range nuclear instrument (N-31) was declared inoperable due to intermittent spiking of 10 to 20 counts on the instrument, which also caused the start-up rate meter to indicate (spike) beyond its full scale (5 decades per minute). The licensee conducted troubleshooting over a period of

approximately two weeks in an effort to determine the cause of the spiking, but the cause was not found. After cleaning the cable connector from the detector at the pre-amplifier, the noise spikes dropped to around 4 counts and the frequency of the spikes decreased.

OD 03-03: On March 10, 2003, the licensee concluded that N-31 was operable based on a review of the instrument noise and the expectation that the noise would be filtered out by the instrument's pulse-height discriminator after the detector was energized. N-31 was placed in an operable status on March 13. The inspectors subsequently identified a technical error in the licensee's description of the function of the pulse-height discriminator, in that the noise spikes would not be filtered out after the detector was energized. The licensee corrected the error and concluded that the error did not affect operability of the N-31 instrument.

- CR-IP3-2003-1362; On March 20, 2003, the licensee identified an area of a weld located in a service water pipe that was less than the allowable minimum wall thickness. This condition was found while performing nondestructive examinations in advance of the upcoming refueling outage (WO#IP3-02-21094). The information gathered through radiography and ultrasonic testing was submitted to engineering for evaluation

  OD 03-04: On March 20, 2003 the licensee concluded that the total wall degradation was insignificant and would not affect service water system cooling capacity since it is a low pressure / low temperature system, and the extent of the degradation would not affect system integrity. The inspectors reviewed the data in Radiographic Examination Report #03R037 and Ultrasonic Examination Report #03UT032 to verify the flaw was properly quantified. The inspectors reviewed Calculation IP3-CALC-SWS-03640, which was used to determine minimum allowable wall thickness based on the flaw size and stresses at specific locations. The inspectors reviewed the OD 03-04 for accuracy and technical content to determine if operability of the system was justified.

b. Findings

No findings of significance were identified

1R17 Permanent Plant Modifications

Inspection Scope (71111.17)

The inspectors reviewed the permanent plant modification to install a mechanical upgrade on the evaporative cooling tower make-up water supply to the backup spent fuel pool cooling system (BSFPCS). During the last refueling outage (3R11), the primary make-up water supply was lost due to an electrical fault. This eventually led to a temporary loss of cooling to the spent fuel pool (see IP3 Inspection Report 2001-006 for discussion of this occurrence). The modification installed a permanent hard piped backup water supply which would flow automatically if the primary water source was lost. The modification was designed to increase system reliability by suppling an alternate water source with no operator actions. The inspectors reviewed the design change package (DCP 02-3-015) to verify that the change would not degrade system availability, reliability or functional capability. The inspectors also reviewed the installation work order package (WO#I3-970550750) for scope and content. The inspectors walked down the completed system to verify that the installed components and restraints matched with the system drawings in accordance with the design change documents.

On March 23, 2003 the inspectors observed the modification acceptance test (MAT) performed under WO#IP3-03-11251. This test failed due to the primary makeup water system not being able to supply water when required. On March 25, the inspectors observed the follow-up MAT. An adjustment of the back up supply's regulating valve along with a reduction of demineralized water flow to Indian Point 2 corrected the IP3 system flow problems. During the test the inspectors noted the acceptance criteria for the lower limit of back-up water flow was the same as the minimum required by design calculations. This lower limit would leave no margin for flow instrument error, thus actual flow could be less than required by design. The inspectors discussed this concern with the engineering staff, and CR-IP3-2003-1500 was generated to address the problem. After an analysis of the flow instrument calibration data and the as-left system flow, the licensee determined that the actual system flow was greater than the minimum required by design.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope (71111.19)

The inspectors reviewed post-maintenance test (PMT) procedures and associated testing activities to assess whether 1) the effect of testing in the plant had been adequately addressed by control room personnel; 2) testing was adequate for the maintenance performed; 3) acceptance criteria were clear and adequately demonstrated operational readiness consistent with design and licensing documents; 4) test

instrumentation had current calibrations, range, and accuracy for the application; and 5) test equipment was removed following testing. The following PMT activities were observed and evaluated:

- WO#IP3-03-11924: 32 source range nuclear instrument drawer (N-32) replacement; March 20, 2003.
- WO#I3-010337900; WO#I3-010337901: 32 boric acid transfer pump PM and impeller changeout; January 17, 2003
- WO#IP3-03-02001: 31 EDG PM; day tank level switch & transfer pump problem; January 22-23, 2003; CR-IP3-2003-00301
- WO#IP3-02-00791: Steam-driven auxiliary feedwater pump pressure control valve PCV-1139 setpoint adjustment; February 14, 2003

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope (71111.22)

The inspectors observed portions of the following surveillance tests and reviewed the test procedures to assess whether: 1) the test preconditioned any of the components; 2) the scheduling and conduct of the tests were consistent with plant conditions; 3) the acceptance criteria demonstrated system operability consistent with design requirements and the licensing basis; 4) the test equipment range and accuracy were adequate for the application, and the test equipment was properly calibrated; 5) the test was performed in the proper sequence; and 6) the affected system(s) was properly restored the correct configuration following the test.

- 3PT-Q134A, “31 Residual Heat Removal Pump Functional Test”; performed on January 10, 2003
- 3PT-Q132B, “Emergency Boration Flow Path Valve CH-MOV-333"; performed on February 10, 2003
- 3PT-Q101, “Main Steam Valves PCV-1310A, 1310B, and 1139 Stroke Tests”; performed on February 14, 2003
- 3PT-Q134B, “32 Residual Heat Removal Pump Functional Test”; performed on February 14, 2003
- 3PT-Q120B; “32 ABFP (Steam Driven) Functional Test”; performed on February 14, 2003
- 3PT-2Y001B, “32 Diesel Generator Overspeed Trip Test” performed on February 20, 2003.

- 3PT-Q116B, “32 Safety Injection Pump Functional Test”; performed on February 21, 2003.

- 3PT-Q120C, “33 ABFP (Motor Driven) Functional Test”; performed on March 12, 2003.

- 3PT-R006A, “Main Steam Safety Valves Setting Test Using Set Pressure Verification Device”; performed on March 28, 2003

b. Findings

No findings of significance were identified.

1R23 Temporary Modifications

a. Inspection Scope (71111.23)

- During January 21 - February 4, 2003, the inspectors reviewed the engineering documentation for Temporary Modification (TM) 92-02691-00, “31 & 32 MBFP Thrust Bearing Alarm and Trip Signals Defeated.” In August 1992, the licensee installed thrust probes and monitors on the two pumps in refueling outage no. 8, but later discovered that the normal float on the bearings exceeded the alarm setpoints. The TM was subsequently installed to inhibit the alert and danger/trip signals from the pumps’ thrust bearings to avoid a spurious pump trip after engineering determined that a pump trip based on bearing float was unnecessary. Other monitoring on bearing vibration and temperature, and on the pump turbine axial shaft position provided adequate information on unusual thrust bearing wear. The inspectors reviewed WO#I3-920269100 which installed the TM, and discussed the TM with the cognizant system engineering supervisor. The TM was scheduled for removal during the next refueling outage (3R12) to reinstate the alarms and remove the trip function.

- During an NRC inspection of the licensee’s Technical Specification/Offsite Dose Calculation Manual (TS/ODCM) Program in January 2003 (Section 2PS1), the inspectors identified that a differential pressure existed across the fuel storage building (FSB) ventilation system when no fans were in operation. The licensee subsequently tested the system and identified that approximately 1300 cubic feet per minute (CFM) of air flow through the system existed when it was idle.

  On March 5, 2003, the inspectors entered the FSB ventilation system plenum to observe the flow dampers associated with the system’s charcoal filtration beds. These beds were designed to remove iodine from the FSB atmosphere following a postulated fuel handling accident. The beds must be sampled periodically to assure the iodine removal efficiency remains above the Technical Specification required minimum value of 90%. The inspectors observed that the charcoal bed dampers had been unbolted and removed from their design location by a “proceduralized temporary alteration” in January 2002 in order to facilitate access to the charcoal for its periodic test. The dampers had been removed since January 16, 2002.

b. Findings

Introduction. The inspectors identified a Green NCV in that the licensee did not consider the effects of the temporary alteration of the FSB ventilation dampers on the air flow through the system's charcoal beds, or of the consequential effects on their iodine removal efficiency.

Description. The inspectors observed that charcoal bed dampers had been periodically removed as a "proceduralized temporary alteration" since 1997, when system operating procedure SOP-V-002, "Fuel Storage Building Heating and Ventilation," was revised to indicate when plant conditions warranted their installation and removal. However, none of the supporting documentation for the procedure or the engineering evaluations supporting the temporary alteration considered the resulting effects on air flow through the FSB ventilation system that was induced by the primary auxiliary building (PAB) ventilation system. That system shares common ventilation duct work with the FSB ventilation. Since the PAB ventilation remained in continuous operation, it created a differential pressure across the FSB system and induced approximately 1300 CFM when its fans were idle with the charcoal dampers removed. That air flow constituted use of the system's charcoal filter beds that the licensee did not account for.

Analysis. This finding is greater than minor because a change was made to the plant without an analysis of the effects upon a safety system and the Mitigating Systems Cornerstone objective of equipment reliability. Additional engineering evaluation and testing was required to assess an unanalyzed alteration of the FSB ventilation dampers which reduced the reliability of the ventilation system, resulted in the unaccounted use of its charcoal beds, and caused a lapse in the required tests for iodine removal efficiency. Also, the system operating procedure and work order used to install and remove the dampers had to be revised to add details necessary for the temporary alteration. The finding is of very low safety significance (Green) because subsequent laboratory tests performed in January 2003 confirmed that the iodine removal efficiency did not fall below the TS required minimum of 90%

Enforcement. 10 CFR 50, Appendix B, Criterion III, requires in part that plant changes be afforded design control measures commensurate to the original design. Contrary to the above, the licensee did not evaluate all resulting effects from removing the FSB charcoal bed dampers, and did not test the iodine removal efficiency of the charcoal beds every 720 hours, as required by the Section 5.5.10 of the TS, for approximately one year between January 2002 and January 2003. This is considered to be an NCV **(NCV 50-286/03-02-02)** consistent with Section VI.A. of the NRC Enforcement Policy.

Cornerstone: Emergency Preparedness (EP)

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope (71114.04)

During a combined in-office and on site inspection during January 6 - 29, 2003, the inspectors reviewed recent changes in the EP area. Specifically, IP2 and IP3 emergency plans were combined into a common emergency plan. Also, certain implementing procedures for the Emergency Operations Facility (EOF) and the joint news center are now common to both units. A thorough review was conducted of aspects of the plan related to the risk significant planning standards (RSPS), such as classifications, notifications and protective action recommendations. A cursory review was conducted for non-RSPS portions. These changes were reviewed against 10 CFR 50.54(q) to ensure that the changes do not decrease the effectiveness of the plan, and that the changes as made continue to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E. For areas that minor clarifications would enhance the new emergency plan, the licensee generated CRs to evaluate the clarifications. All of the changes made to the emergency plan or implementing procedures are subject to future inspections to ensure that the result of the changes continues to meet NRC regulations.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation

a. Inspection Scope (71114.06)

The inspectors observed an emergency preparedness drill conducted on February 5, 2003. This was the first drill performed since integrating to a site wide emergency plan. The drill consisted of a loss of coolant accident in conjunction with multiple equipment failures that led to an eventual release. The participating facilities were the Unit 3 Simulator, Technical Support Center (TSC), Emergency Operations Facility (EOF) and the Joint News Center. The inspectors conducted reviews at the TSC and the EOF during the course of the exercise. The inspectors attended the licensee exercise critiques at the conclusion of the drill and also evaluated the final exercise critique report. The inspectors focused their effort on identifying weaknesses and deficiencies in the classification, notification and protective action recommendations performed by the licensee over the course of the exercise. The inspectors then compared identified weaknesses and deficiencies against licensee identified findings to determine whether the licensee properly identified problem areas.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS)

2OS1 Access Control To Radiologically Significant Areas

a. Inspection Scope (71121.01)

The inspectors reviewed radiological work activities and practices and procedural implementation during tours and observations of the facilities and inspected procedures, records, and other program documents to evaluate the effectiveness of Entergy/Indian Point 3's access controls to radiologically significant areas.

The inspectors observed activities at the routine radiologically-controlled-area (RCA) access control point on several occasions to verify compliance with requirements for RCA entry and exit, dosimetry placement, and issuance and use of electronic dosimeters.

On February 24, 2003, the inspectors discussed the status of the radiation protection organization and procedures for IP2 and IP3 with the radiation protection manager (RPM). The inspectors also discussed the radiological work activities and dose projections for the upcoming week.

On February 25, 2003, the inspectors observed the pre-job briefing for an IP3 containment entry at power using radiation work permit (RWP) 033028. The pre-job briefing covered radiation safety, confined space, and heat stress considerations associated with the work evolution. The inspectors reviewed the RWP which contained the radiological information and controls for the entry. Also, the inspectors discussed the methods for the segregation of high level and low level dry active radioactive waste in work areas during outages with radioactive waste personnel and radiation protection technicians from both units and with the RPM.

On February 27, 2003, the inspectors performed tours and observations in the RCA. The areas toured included the health-physics (HP) access-control point and various elevations of the primary auxiliary, fuel storage and radioactive material storage (RAMS) buildings. During these tours and observations, the inspectors reviewed the performance of the radiation workers and radiation protection technicians. Also, the inspectors evaluated the adequacy of the posting, labeling, barricading, and level of radiological access control for locked high radiation areas (LHRAs), high radiation areas (HRAs), radiation and contamination areas, and radioactive material areas. In addition, the inspectors observed work activities for compliance with the RWP requirements.

The inspectors performed a selective examination of procedures, records, and other program documents (as listed in the List of Documents Reviewed section) to evaluate the adequacy of radiological controls.

The review in this area was against criteria contained in 10 CFR 19, 10 CFR 20, IP3 Technical Specifications, and site procedures.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Control

a. Inspection Scope (71121.02)

The inspectors reviewed the effectiveness of the licensee's program to maintain occupational radiation exposure as low as is reasonably achievable (ALARA).

On February 24, 2003, the inspectors discussed the cumulative dose results and dose estimates for 2002 and 2003 for Unit 3 with the Indian Point Energy Center (IPEC) Technical Support Manager. The inspectors also discussed the integration of the ALARA planning process into the station's work planning and control process with an ALARA radiological engineer.

On February 25 and 27, 2003, the inspectors met with the radiological engineer coordinating the ALARA planning for the upcoming refueling outage (3R12) at IP 3 to assess the status of the ALARA reviews being performed for the planned radiological outage work activities, including how the lessons learned from the ALARA review of the outage valve work for 2R15 at IP2 would be incorporated into the planning for IP3's upcoming outage.

On February 26, 2003, the inspectors met with several radiological engineers who were working on pre-job ALARA reviews for the primary-side and secondary-side steam generator work, the decontamination of the refueling cavity and fuel transfer canal, and the reactor vessel head inspection and discussed these planned work activities and their radiological controls.

The inspectors performed a selective examination of program documents (as listed in the List of Documents Reviewed section) for regulatory compliance and for adequacy of control of radiation exposure.

The review was against criteria contained in 10 CFR 20.1101 (Radiation protection programs), 10 CFR 20.1701 (Use of process or other engineering controls), and site procedures.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation

a. Inspection Scope (71121.03)

The inspectors reviewed the program for health physics instrumentation to determine the accuracy and operability of the instrumentation.

During plant tours on February 27, 2003, the inspectors reviewed field instrumentation utilized by health physics technicians and plant workers to measure radioactivity and radiation levels including portable field survey instruments; hand-held contamination frisking instruments; continuous air monitors; and installed radiation monitors including

whole body friskers, portal monitors, area monitors, and process monitors. The inspectors conducted a review of the instruments observed in the toured areas, specifically for verification of current calibrations, appropriate source checks, and proper function.

The inspectors performed a selective examination of documents (as listed in the List of Documents Reviewed section) for regulatory compliance and adequacy.

The review was against criteria contained in 10 CFR 20.1501, 10 CFR 20 Subpart H, site Technical Specifications, and site procedures.

b. Findings

No findings of significance were identified.

2PS1 Gaseous and Liquid Effluents

a. Inspection Scope (71122.01)

The inspectors reviewed the following documents to evaluate the effectiveness of the licensee's radioactive gaseous and liquid effluent control programs. The requirements for radioactive effluent controls are specified in the Technical Specifications and the Offsite Dose Calculation Manual (TS/ODCM):

- The 2001 Radiological Annual Effluent Release Report including projected public dose assessments;
- The current ODCM (Revision 15, December 14, 2001), including technical justifications;
- Selected 2002 analytical results for charcoal cartridge, particulate filter, and noble gas samples;
- Implementation of the compensatory sampling and analysis program when the effluent radiation monitoring system (RMS) was out of service;
- Implementation of IE Bulletin 80-10;
- Selected 2002 radioactive liquid and gaseous release permits; associated effluent control procedures, including analytical laboratory procedures;
- Calibration results for chemistry laboratory measurement equipment (gamma and liquid scintillation counters);
- Implementation of the measurement laboratory quality control program, including effluent intra-laboratory and inter-laboratory comparisons and control charts;
- The 2002 NQA Audits (Audit No. A02-141, from October 13, 2002 to December 9, 2002) of implementation of the radioactive liquid and gaseous effluent control program and the ODCM;

- Radiation Monitoring System (RMS) Trending Evaluation for Availability and Reliability;

- Most recent calibration results for the RMS and Flow Measurement Devices, as required under the ODCM:

  Liquid Radwaste Effluent Line (R-18 and R-61);
  Steam Generator Blowdown Effluent Line (R-19);
  Service Water System Effluent Line (R-16A/B and R-23);
  Waste Gas Holdup System Noble Gas Activity Monitor (R-20);
  Condenser Air Ejector Noble Gas Activity Monitor (R-15);
  Environmental Release Points Noble Gas Activity Monitors (R-27, R-46 and R-59);
  Containment Noble Gas Activity Monitor (R-12);
  Liquid Radwaste Effluent Line Flow Rate Measurement Device;
  Steam Generator Blowdown Effluent Line Flow Rate Measurement Device; and
  Plant Vent Flow Rate Measurement Device.

- Ventilation filter testing results required by Section 5.5.10 of Unit 3 Technical Specifications [visual inspection, delta P, in-leakage tests, laboratory test, air capacity tests] for:

  Fuel storage building emergency ventilation system;
  Control room ventilation system;
  Containment fan cooler units (31-35); and
  Containment purge system.

- Review of the Response Letter to the NRC Generic Letter 99-02, “Laboratory Testing of Nuclear-Grade Activated Charcoal.”

The inspectors also toured and observed the following activities to evaluate the effectiveness of the licensee’s radioactive gaseous and liquid effluent control programs.

- Walkdown to determine the availability of radioactive liquid/gaseous effluent RMS and to determine the equipment material condition;

- Observation of sampling and laboratory measurement techniques; and

- Walkdown to determine the operability of air cleaning systems and to determine the equipment material condition.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification

a. Inspection Scope (71151)

The inspectors reviewed the licensee's data submitted to the NRC for the following performance indicators (Pis), and performed an independent verification that the source data was consistent with plant records.

- Unplanned Power Reductions >20% for the third and fourth quarters of 2002
- Safety System Unavailability (%): Emergency AC Power for the fourth quarter of 2002

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

a. Inspection Scope (71152)

The inspectors selected CR-IP3-2001-02518 for evaluation and reviewed the corrective actions associated with this CR to determine whether they addressed the identified causes and were completed in a timely manner. This CR addressed procedural deficiencies involving the back-up spent fuel pool cooling system (BSFPCS) that were identified during an NRC Special Inspection (IR 2001-006) in May 2001. The inspectors reviewed the following procedures:

- SOP-SFP-001, "Spent Fuel Pit Cooling and Purification System Operation." The inspectors verified that the temperature limits were clarified based on plant conditions and that operator response time requirements based on spent fuel pool (SFP) temperature were established. The inspectors also ensured that the procedure provided recovery actions for a loss of SFP cooling if the BUSPFC system was the only one providing pool cooling.
- SOP-SFP-003, "Operation of Backup Spent Fuel Pit Cooling System." The inspectors verified that steps had been incorporated to record outdoor dry and wet bulb temperatures. The inspectors also verified that requirements were established for entering a special evolution based on SFP cooling system availability, and that a discussion of the loss of net positive suction head (NPSH) to the system's primary pumps based on temperature were incorporated into the procedure.
- SOP-V-002, "Fuel Storage Building Heating and Ventilation." The inspectors verified steps were added to maintain Fuel Storage Building ventilation in operation at elevated SFP temperatures.
- ONOP-SFP-1, "Loss of Spent Fuel Pit Cooling": The inspectors verified steps were implemented to restore normal cooling if the BUSFPC system was the only system in service when SFP cooling is lost. The inspectors also ensured entry and exit conditions were specified based on which cooling systems were in service and available at the time of a loss of SFP cooling.

- ARP-13, “Alarm Response - Spent Fuel Pit High Temperature.” The inspectors ensured steps were integrated to establish a special log to track system temperature and provide a new alarm setpoint to flag a potential loss of cooling.

- ISP-3.11, “Fall Protection System and Practices.” The inspectors verified steps were added to provide worker protection when working over the SFP at elevated temperatures.

The inspectors evaluated the corrective actions to ensure that they were appropriately focused to correct the identified problems. The procedures were reviewed to verify that appropriate changes had been made to properly implement the prescribed corrective actions. The inspectors also evaluated the changes for technical adequacy.

The inspectors also reviewed the following Radiation Safety issues identified in the corrective action program (CAP) for the appropriateness and adequacy of event categorization, immediate corrective action, corrective action to prevent recurrence, and timeliness of corrective action: Condition Report Nos. CR-IP3-2002-04776 and 2003-00057, -00096, -00156, -000201, and -00710.

The inspectors reviewed the selected following documents to evaluate the effectiveness of the licensee’s problem identification and resolution processes in the areas of radioactive liquid and gaseous effluent control programs: CR-IP3-2002-00031, -00396, -02182; -04452; and IP3-2003-00084, -00412]

b. Findings and Observations

No findings of significance were identified.

4OA3 Event Follow-up

a. Inspection Scope (71153)

On January 13, 2003, the reactor was manually tripped at 100% power following failure of the 35 circulating water pump. Inspection Procedure 71153 guidance was used by the inspectors to assess Entergy’s response to this event, and their efforts to determine the root cause.

b. Findings

Introduction. On January 13, 2003, a self-revealing finding was identified in that a poor maintenance procedure and insufficient work control practices used during electrical cable restoration on the 35 CWP motor led to a reactor trip after the cables failed.

Description. Insufficient detail in maintenance procedures and poor work control practices during restoration of the 35 CWP motor from prior maintenance led to the subsequent trip of the pump, and the failure of its backup power supply to power the motor. With the twin pump (36) feeding the same condenser section inoperable for planned maintenance, loss of the 35 CW pump resulted in a manual reactor trip and turbine trip when the differential pressure (psid) between condenser sections exceeded the design limit of 3 psid. During prior maintenance on the 35 CW pump motor, a cable between the motor and exciter rotors was routed in a higher location than normal, which allowed the cable to rub on the motor's dust hood. Vibration of the cable during pump operation eventually caused the cable and motor to fail.

Analysis. Loss of the 35 CW pump resulted from procedure and work control deficiencies that failed to properly restore the pump motor cables. This was more than minor since it affected the objective of the Initiating Events Cornerstone in that procedure inadequacies resulted in a perturbation in plant stability by causing a reactor trip. The finding is of very low safety significance (Green) because, although it caused a reactor trip, it did not increase the likelihood of a primary or secondary system loss of coolant accident initiator, did not contribute to a combination of a reactor trip and loss of mitigation equipment functions, and did not increase the likelihood of a fire or internal/external flood **(FIN 50-286/03-02-03)**. This also would not have caused the unplanned scrams Performance Indicator to cross a threshold.

4OA4 Licensee Event Report Reviews

(Closed) LER 2002-003-00; Submitted on January 14, 2002
On January 14, 2003, the licensee reported LER 2002-003-00 to the NRC to report an automatic reactor trip on November 15, 2002, which was caused by a main turbine trip. The trip was the result of a trip of the 345KV main output breakers following a fault and trip of the No. 3 breaker in the Buchanan switchyard. The details of this LER were reviewed by the inspectors and reported in NRC inspection report 50-286/02-08. Based on a review of the LER, and inspector observations immediately following the trip, this LER is closed.

(Closed) LER 2003-001-00; Submitted on March 11, 2003

On March 11, 2003, the licensee reported LER 2003-001-00 to the NRC to report a manual reactor trip on January 13, 2003, due to a high differential pressure between main condenser sections. The details of this LER were reviewed by the inspectors and reported in Section 4OA3 of this report. Based on a review of the LER, and inspector observations immediately following the trip, this LER is closed.

4OA6 Meetings

Exit Meeting Summary

On May 9, 2003, the inspectors presented the inspection results to Mr. Chris Schwarz and Entergy staff members who acknowledged the inspection results presented. The inspectors verified with Entergy personnel that no materials evaluated during the inspection were considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

W. Axelson	Support Supervisor
J. Boccio	I&C Supervisor
R. Cavalieri	Site Planning and Outage Services Manager
R. Christman	Assistant Operations Manager, Operations Staff
J. Comiotes	Director, Nuclear Safety Assurance
F. Dacimo	Site Vice President
J. DeRoy	Director of Engineering
R. Deschamps	Radiation Protection Superintendent
M. Devlin	Work Control Superintendent
R. Discensi	Technical Support Manager
J. Donnelly	Corrective Actions and Assessment Manager
J. Kelly	Director, Nuclear Safety Assurance
J. McCann	Licensing Manager
R. Milici	Senior Electrical Engineer
E. O'Donnell	IP3 Operations Manager
J. Perrotta	Quality Assurance Manager
S. Petrosi	Design Engineering, Manager
P. Rubin	IPEC Operations Manager
C. Schwarz	General Manager, Plant Operations
M. Smith	Director, Engineering Projects
D. Thompson	Security Manager
A. Vitale	Maintenance Manager
J. Wheeler	Training Manager
R. Decensi	Technical Support Manager

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

LER 2002-003-00	Automatic turbine/reactor trip on November 15, 2002, as a result of a fault and trip of the 345KV breaker No. 3.
LER 2003-001-00	Manual reactor trip on January 13, 2003, due to loss of two circulating water pumps and a high differential pressure between main condenser sections.

Opened and Closed

NCV 50-286/03-02-01	Inadequate dedication of commercially procured equipment for the replacement of a valve actuator in the emergency diesel generator fuel supply system, which is a safety-related application.
NCV 50-286/03-02-02	A temporary alteration of the fuel storage building ventilation system was implemented without consideration of the effect on air flow within the ventilation system.

FIN 50-286/03-02-03	Self-revealing green finding involving reactor trip due to poor maintenance.

LIST OF DOCUMENTS REVIEWED

Section 2OS1, Access Control to Radiologically Significant Areas:

- RE-CON-3-4, Rev. 10, Release of material from the radiologically controlled area
- RE-REA-4-1, Rev. 20, Radiation work permit (RWP)
- RE-RMC-11-2, Rev. 7, Labeling and storage of radioactive material
- RE-SUR-6-1, Rev. 12, Radiation surveys, postings, and assessment
- RE-SUR-6-4, Rev. 6, Radiation, contamination, and airborne survey records
- RE-UOE-14-4, Rev. 16, Radiological event reporting and investigation
- RWP 033009, Rev. 00, Assessments in the radiologically controlled area (RCA)
- RWP 033028, Rev. 08, Containment entry - reactor critical - outside crane wall
- RP performance goals for 2003
- Continuing training - 2003, Session 1, Radiation Protection Alignment Session
- IP3-LO-2002-126, Self-review of the IP3 self-assessment program, December 2002
- IP3-LO-2002-128, Self-assessment of IP3 RWPs, December 2002
- IP3 Quarterly self-assessment/trend report by Quality Assurance Group, Fourth quarter 2002, dated January 29, 2003

Section 2OS2, ALARA Planning and Controls:

- IP3 Daily ALARA information for week of February 16, 2003
- IP3 Weekly exposure trend for 2003
- Refueling outage (3R12) dose estimate by RWP
- Indian Point Energy Center/Radiation protection/Strategic plan for exposure reduction, 2003 - 2008
- IPEC ALARA committee meeting presentation handout for January 28, 2003

Section 2OS3, Radiation Monitoring Instrumentation and Protective Equipment:

- IP3-LO-2002-119, Self-assessment/random instrumentation calibration check for second half of 2002 (Gamma-60 portal monitors), December 31, 2002
- IP3-LO-2002-125, Self-assessment of the health physics counting program (Tennelec 2, 3, and 4 using Eclipse vs. chemistry germanium detector), December 31, 2002

LIST OF ACRONYMS

AC	alternating current
A/C	air conditioning
ABFP	auxiliary boiler feedwater pump
ALARA	as low as reasonably achievable
BSFPCS	back-up spent fuel pool cooling system
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	condition report
CWP	circulating water pump
CY	Calender Year
DER	Deficiency / Event Report
DC	direct current
EDG	emergency diesel generator
EOF	Emergency Operations Facility
EOP	Emergency Operating Procedure
FCU	fan cooler unit
FP	fire protection
HP	Health Physics
HRA	High Radiation Area
IAC	instrument air compressor
I&C	Instrument and Control
ICMs	Interim Compensatory Measures
IP2	Indian Point 2
IP3	Indian Point 3
IPEC	Indian Point Energy Center
KV	kilo volts
LOCA	Loss of Coolant Accident
MBFP	main boiler feedwater pump
MOV	motor-operated valve
MFRV	main feedwater regulating valve
MSSVs	main steam safety valves
NCV	Non-cited Violation
NI	nuclear instrument
NRC	Nuclear Regulatory Commission
OD	operability determination
ODCM	Offsite Dose Calculation Manual
ONOP	off-normal operating procedure
OS	Occupational Radiation Safety
PAB	primary auxiliary building
PFP	Pre-Fire Plan
PI	performance indicator
PM	preventive maintenance
PMT	post-maintenance test
PTRG	Post Transient Review Group
QA	Quality Assurance
RAMS	Radioactive Material Storage
RCA	Radiologically Controlled Area
RCP	reactor coolant pump
RHR	residual heat removal

RMS	radiation monitoring system
RPM	Radiation Protection Manager
RSPS	Risk Significant Planning Standards
RWP	Radiation Work Permit
SFP	spent fuel pool
SI	safety injection
SOP	system operating procedure
SRNI	source range nuclear instrument
SSC	structures, systems, and components
SW	service water
TM	temporary modification
TS	Technical Specifications
TS/ODCM	Technical Specification / Offsite Dose Calculation Manual
TSC	Technical Support Center
VA	volt - amps
VC	vapor containment
WO	work order
WRT	work request tag