

March 21, 2001

Mr. Robert J. Barrett  
Vice President Operations  
Entergy Nuclear Northeast  
Indian Point 3 Nuclear Generating Unit 3  
P. O. Box 308  
Buchanan, NY 10511

**SUBJECT: INDIAN POINT 3 - NRC INSPECTION REPORT NO. 05000286/2000-009**

Dear Mr. Barrett:

On February 10, 2001, the NRC completed an inspection at the Indian Point 3 nuclear power plant. The enclosed report documents the inspection findings which were discussed on February 23, 2001, with you 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. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, the inspectors identified one issue of very low safety significance (Green) regarding the mis-positioning of a main steam trap inlet isolation valve on the turbine-driven auxiliary boiler feedwater pump. This finding was determined to be a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your corrective action program, the NRC is treating this issue as a Non-cited violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny this Non-cited violation, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Indian Point 3 Nuclear Power Plant.

Robert J. Barrett

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Sincerely,

/RA/

Robert J. Summers, Acting Chief  
Projects Branch 6  
Division of Reactor Projects

Docket No.05000286  
License No. DPR-64

Enclosure: Inspection Report No. 05000286/2000-009

Attachment: NRC Revised Reactor Oversight Process

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REGION I

Docket No. 05000286  
License No. DPR-64

Report No. 05000286/2000-009

Licensee: Entergy Nuclear Northeast

Facility: Indian Point 3 Nuclear Power Plant

Location: P.O. Box 308  
Buchanan, New York 10511

Dates: December 31, 2000 - February 10, 2001

Inspectors: Peter Drysdale, Senior Resident Inspector  
Lois James, Resident Inspector  
John McFadden, Health Physicist

Approved by: Robert J. Summers, Acting Chief  
Projects Branch 6  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000286/2000-009; on 12/31/00 - 02/10/01; Entergy Nuclear Northeast; Indian Point 3 Nuclear Power Plant. Equipment alignment.

The report covered a six-week period of inspection conducted by the resident staff and a regional radiation specialist. The inspection identified one Green finding which was a non-cited violation. The significance of the finding is indicated by its color (Green) using IMC 0609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "no color" or by the severity level of the applicable violation.

### A. Inspector Identified Findings

#### Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation for failure to identify and correct the mis-positioning of valve MS-112-2, the turbine driven auxiliary feedwater system main steam trap inlet isolation valve in accordance with 10 CFR Appendix B Criterion XVI.

The finding was of very low safety significance because, although the licensee did not identify and correct the mis-positioning of valve MS-112-2, the turbine-driven auxiliary feedwater pump remained operable. This finding resulted from human error and is related to the cross-cutting area of human performance. (Section 1R04)

### B. Licensee Identified Violations

There were no violations identified by the licensee during this inspection.

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### ATTACHMENT

Attachment 1 - NRC's REVISED REACTOR OVERSIGHT PROCESS

## Report Details

### **SUMMARY OF PLANT STATUS**

The Indian Point 3 Plant remained at full period for the entire inspection period from December 31, 2000 through February 10, 2001

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

##### 1R01 Adverse Weather Protection

###### a. Inspection Scope (71111.01)

The inspectors reviewed the licensee's adverse weather procedures OD-8, "Guidelines for Severe Weather," and OD-37, "Seasonal Weather Preparation," with an emphasis upon procedure requirements related to extreme cold weather to verify that operator actions defined by the procedures maintain the readiness of essential systems. The inspectors also reviewed various plant documents and deficiency/event reports (DERs) that were initiated due to adverse weather conditions and that could affect mitigating systems, or their support systems. The inspectors discussed the resolution of these DERs with plant personnel.

On several occasions during January and February 2001, the inspectors observed river ice floating near the plant's cooling water intake structure. Visual inspection of the traveling water screens, the suctions to the service water and circulating water pump revealed no signs of ice entering the plant. On January 10, 2001, the licensee noted in DER 01-00102 that the river inlet temperature had been logged below 32 degrees F for more than 24 hours. The inspectors investigated the design basis minimum temperature for service water at the station and noted that the plant had been re-analyzed in January 1997 for full power operation with service water temperature at 28 degrees F. This conclusion was supported in Safety Evaluation NSE 96-03-033-SWS, "Power Operation with Service Water Temperature <35 degrees F." The safety evaluation was performed to support plant operations at very low river temperatures. The DER response indicated that the licensee intended to evaluate reducing the low side of the temperature band (32 degrees F) in the operator's logs to make it more consistent with the design basis minimum.

The inspectors discussed cold weather protection measures planned by auxiliary operators in preparation for the heavy snow falls that were anticipated for the region around the plant during the weekend of January 19 - 21, 2001, and on February 6. The inspectors conducted plant tours to observe plant equipment and areas potentially vulnerable to low temperatures, and snow and ice accumulation. The inspectors reviewed problem identification PID 43907 (January 25, 1998): "Need to insulate the Purge Valve Enclosure Area to Eliminate Cold Weather Conditions," and DER 00-03304; "Continuing Cold Weather Concerns - No Permanent Fix;" December 27, 2000. The DER documented long standing weather concerns in the purge valve area of the Primary Auxiliary Building (PAB) identified on January 6, 1998 under Engineering Work Request 98-00092. The inspectors toured the plant purge valve area and observed new



insulation installed on the exterior walls and temporary heaters in place to maintain a higher air temperature. The inspectors also observed the locations of radiation monitors and discussed with Health Physics (HP) supervisors the vulnerability of various radiation monitors in the plant to low temperatures, snow, ice, etc. The inspectors reviewed DER 01-00448 (February 5, 2001) that discussed water intrusion effecting the heat tracing for radiation monitor R-27. The licensee's extent of condition review for DER 01-00448 revealed that no other radiation monitors had heat trace installed on their sensing lines.

The inspectors reviewed several recent DERs related to weather induced problems and evaluated the licensee's responses to the noted conditions, as follows:

- DER 01-00240 (January 21, 2001); "Primary Auxiliary Building Supply Fan Heating Coil Leaks, Cold Weather Concern." This was the second of the three coils that was leaking. The Heating coils were subsequently replaced.
- DER 01-00213 (January 18, 2001); "The Appendix R Diesel Tripped During Test." Smoke accumulation from the engine exhaust entered the engine enclosure and caused the motor to trip. The inspectors considered that their was a potential design problem with orientation of the exhauster, since the wind direction probably caused the smoke to drift into the ventilation inlet. The diesel was restarted and the surveillance completed Satisfactorily. The licensee was continuing to investigate the DER at the end of the report period.
- DER 01-00016 (January 11, 2001); "Failure of the 32 Monitor Tank Level Transmitter (LIA-181)." The strip heater in the level transmitter box (nuclear tank farm) was found cold with the heat trace circuit energized. The Fix-It-Now (FIN) team investigated and repaired the transmitter. The licensee subsequently re-evaluated the PM frequency on the strip heaters to avoid failures during cold weather.
- DER 01-00073 (January 7, 2001); "Snow and Ice Removal was Inadequate." Operators reported that they needed to remove snow and ice in order to accomplish their rounds. An Action Commitment Tracking System (ACTS) item was assigned to maintenance (due January 25, 2001) to identify issues related to snow/ice removal.
- DER 00-03342 (December 31, 2000); Rapid Response Team Ineffective Due to Weather." The rapid response team was unable to respond to a training building transformer short due to a snowstorm.
- DER 00-03152 (December 12, 2000); "Unexpected Battery Alarms." Frequent control room alarms for battery room ventilation and battery charger trouble alarms were associated with the 36 battery charger. Both were attributed to high winds. The licensee issued PID #48136 on January 21, 2000 and labeled it a control room nuisance. The DER indicated that this was not timely corrective action; however, the DER was closed to a Design Change Package (DCP) that was awaiting installation. The DCP was intended to install a time delay in the alarm circuit.

- DER 01-00055 (December 10, 2000); "Scheduling of Annual Test 3PT-A015" (cycling various fire protection valves, many outside). Heavy snow cover on the ground made it difficult to find curb boxes. Recommended installing markers to identify curb box locations or rescheduling the test for fair weather months. The outage planning organization was tasked with rescheduling the test during better weather.

During plant tours, the inspectors also noted two caution tagouts (CTOs) installed on the primary water storage tank (PWST) and the refueling water storage tank (RWST) regarding degraded conditions in the steam traps on the auxiliary steam return lines. Several DERs had also noted problems with maintaining the PWST within its required temperature band.

- CTO 00-1795, "PWST Aux Steam Trap, AST-19, Bypass, Steam Trap May Be Frozen, Throttle Bypass to Avoid Water Hammer;" PID#00667 was issued to engineering to resolve the problem with ongoing water hammer in both the PWST and RWST when the steam trap does not permit normal steam flow to the tanks.
- CTO 96-34847, RWST aux steam trap, AST-18, bypassed, throttle wide open to avoid water hammer.
- DER 01-00249 (January 22, 2001); "PWST Temperature Found Low Out of Band." The PWST temperature controller had been sticking and was reported as an on-going problem. No PID had been written either on the temperature control valve or the controller even though I&C had been asked to investigate the problem. The licensee identified this problem was a non-transient operator workaround; Problem Identification PID Tag 01-00493 was written on January 22, 2001
- DER 99-00156 (January 26, 1999), "PWST Temperature Has Been Out-of-Spec Low for 24 Hours." The DER stated that the steam trap at the PWST may not have been functioning properly and may have impeded steam flow to the PWST heating coils. The DER was closed January 27, 1999.
- DER 97-00357 (February 18, 1997); "The PWST Temperature Indicator TI-1194 was Not Representative of the Actual PWST Temperature." TI-1195 read 105 degrees F, and the tank outlet temperature monitored by TC-1115S was 85 degrees F. The temperature of the water at the suction of the primary water transfer pumps was also at 85 degrees F. During reactor coolant system dilution, the temperature at the volume control tank outlet dropped from 107 degrees F to about 90 degrees F causing a negative impact on reactor coolant pump seal return flow (significantly decreased).
- DER 97-00003 (January 1, 1997), "The PWST temperature Taken at 0000 Hours was the Third Consecutive Reading Below 90 degrees F."

- DER 96-01498 (June 23, 1998); "PWST temperature Has Been Out-of-Spec for Greater Than 24 hours." The temperature was above the required 90-110 degrees F band during preparation for cation bed resin removal.
- DER 96-00287 (February 3, 1996): Heat Trace Failure on Circuit #4 Caused PWST Level Transmitter LT-1131 to Freeze," The failure required an LCO entry and had to be replaced.
- 
- DER 95-02511 (October 29, 1995); "PWST Temperature Out-of-Range >24 hours." No immediate corrective actions were noted in the DER.

The inspectors discussed the repetitive nature of temperature problems on the PWST during cold weather periods over recent years with the licensee. The licensee made efforts to restore the PWST to the expected temperature band; however, no significant efforts had been undertaken to resolve the apparent design issues with the steam traps and the auxiliary steam system at the tanks. At the end of the inspection period, system engineering had initiated an effort to review the historic problem with the PWST temperature and water hammer, and to develop a resolution. The inspectors noted that when PID#00667 was issued to engineering for resolution, the corrective maintenance actions on the steam traps were effectively suspended since they were no longer considered a maintenance item. The licensee indicated that an alternate planning category may be developed to assure that the degraded conditions were monitored and addressed by maintenance as necessary until an engineering resolution was implemented.

b. Findings

There were no significant findings identified during this inspection.

1R04 Equipment Alignment

a. Inspection Scope (71111.04)

On January 10, 2001, inspectors performed a partial walkdown of the 31 Emergency Diesel Generator (EDG) using Check-off List, COL-EL-5, "Diesel Generators" and System Operating Procedure, SOP-EL-1, "Diesel Generator Operation." During this inspection, the 33 EDG was out of service for planned preventive maintenance. The inspectors verified the valve lineup for the jacket water, starting air, fuel oil, and lube oil support systems.

On February 8-9, 2001, the inspectors completed a full walkdown of accessible portions of the auxiliary feedwater (AFW) system to verify the correct equipment alignment for system operability at full power operations. The inspectors reviewed the following documents:

- Check-off list, COL-FW-2, "Auxiliary Feedwater System"
- System operating procedure, SOP-FW-004, "Auxiliary Feedwater System Operation"
- Off-Normal Operating Procedure, ONOP-FW-1, "Loss of Feedwater"

- Emergency Operating Procedure, FR-H.1, "Response to Loss of Secondary Heat Sink"
- Surveillance Test Procedure, 3PT-Q120B, "32 Auxiliary Boiler Feedwater Pump (ABFP) (Turbine-Driven) Surveillance and In Service Test (IST)"
- Surveillance Test Procedure 3PT-Q120A, "31 ABFP (Motor-Driven) Surveillance and IST"
- Design Basis Document IP3-DBD-303, "Auxiliary Feedwater System (AFWS)"

The following drawings were also reviewed:

- 9321-F-20413, Flow Diagram, Main Steam Traps
- 9321-F-20173, Flow Diagram, Main Steam
- 9321-F-20183, Flow Diagram, Condensate & Boiler Feed Pump Suction
- 9321-F-20193, Flow Diagram, Boiler Feedwater
- 9321-F-70533, Auxiliary Boiler Feed Pump Room Instrument Piping

The inspectors also reviewed several sections of the Technical Specifications (TS) and the Updated Final Safety Analysis Report (UFSAR) including: TS Section 4.8, Auxiliary Feedwater System; UFSAR Section 10.2.6, Condensate and Feedwater Systems - Auxiliary Feedwater System; UFSAR Section 10.3, System Evaluation; UFSAR Section 14.1.8, Loss of External Electrical Load; UFSAR Section 14.1.9, Loss of Normal Feedwater; and UFSAR Section 14.1.12, Loss of All AC Power to Station Auxiliaries.

The inspectors also reviewed outstanding maintenance activities, open work requests, outstanding corrective action program deficiencies, temporary modifications, and operator work-arounds associated with the AFW system.

b. Findings

The inspectors identified a mis-positioned valve in the AFW system. The finding was determined to be of very low safety significance (Green) and is being treated as a non-cited violation consistent with the NRC Enforcement Policy.

During the February 8-9, 2001 walkdown and review of COL-FW-2, "Auxiliary Feedwater System," the inspectors identified that MS-112-2, the 32 auxiliary boiler feedwater pump (ABFP) main steam trap inlet isolation valve, was in the incorrect position. According to COL-FW-2, MS-112-2 should have been in the open position. The inspectors found, and the licensee confirmed, that MS-112-2 was in the closed position. The licensee took appropriate actions to return MS-112-2 to its correct position and initiated DER 00-00496 to investigate the circumstances that led to the valve being mis-positioned.

This finding is considered more than minor because the valve was classified as a Category 1 safety-related component, and was part of a high risk significant system (AFW) according to the licensee's Individual Plant Evaluation. System configuration has a credible impact on safety and on the operation of mitigating systems. The configuration of the MS-112-2 valve was controlled under a plant process that was within the scope of 10 CFR 50, Appendix B, however the licensee's existing quality processes failed to identify that valve MS-112-2 was not in its required position. The inspectors used the Phase 1 worksheets of the Significance Determination Process

(SDP) to determine that this finding was of very low safety significance (Green) since the mis-positioning of MS-112-2 did not render the turbine-driven auxiliary feedwater pump inoperable.

10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," in part, requires that conditions adverse to quality, such as deviations and nonconformances, be promptly identified and corrected. The licensee failed to promptly identify and correct mis-positioned valve MS-112-2 until February 8, 2001, when the condition was identified by the NRC. The failure to promptly identify and correct this deficiency is a violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Actions." This violation is being treated as a non-cited violation (NCV) consistent with the NRC Enforcement Policy (**NCV 05000286/2000-009-01**).

#### Cross-Cutting Issues - Human Performance

The mis-positioning of MS-112-2 was attributed to a human performance error by the inspectors, since the SOP and surveillance tests associated with the turbine-driven train of the AFW system did not contain any instructions to manipulate the position of valve MS-112-2. In addition, the licensee's initial investigation into this mis-positioning event did not identify a Protective Tag Out (PTO) for maintenance during the previous year that manipulated valve MS-112-2.

The inspectors noted that the mis-positioning of MS-112-2 was one of five configuration control events involving human performance errors. The other events were identified by the licensee during this inspection period and were described in the following DERs:

- DER 01-00136, CH-281 on No. 33 Charging Pump was not open in accordance with SOP-CVCS-002.
- DER 01-00395, No. 33 Charging Pump oil gage glass was isolated.
- DER 01-00429, the waste transfer pump suction valve was not in its required COL position.
- DER 01-00555, Incore switches for the flux map drives were in the incorrect position.

## 1R07 Heat Sink Performance

### a. Inspection Scope (71111.07)

The inspectors reviewed work packages 00-03240-00 and 00-01547-00, which provided the instructions and acceptance criteria for preventive maintenance, inspection, cleaning, and eddy current (EC) testing of the No. 33 emergency diesel generator (EDG) lube oil (LO) and Jacket Water (JW) coolers, respectively. The inspectors also observed the internal condition of both coolers after they were opened and before they were cleaned and inspected. Minor siltation levels existed at the bottom of the LO cooler and inside 4 to 5 tubes. Overall, both coolers appeared relatively clean, and no evidence of mollusk shells existed. Both coolers had been replaced approximately 14 months ago, during refueling outage RO-10. The inspectors reviewed the contractor report Preliminary Report PR No. 32-34 (January 11, 2001) that assessed both coolers to be in excellent condition. According to the report, no tubes were notably thinned and none were blocked. Nine tubes in each cooler had observable "dents," which were not considered significant to impair the function of the coolers.

On January 23, 2001, the inspectors reviewed work request packages 99-0245-00 and 99-02044-00 for preventive maintenance, inspection, cleaning and eddy current testing of the No. 31 EDG LO and JW coolers, respectively. The inspectors observed the physical condition of the coolers after they were opened, and noted that both coolers appeared relatively clean, and contained relatively small levels of siltation, with no evidence of mollusk shells. The inspectors reviewed the contractor's preliminary eddy current report, PR 32-35, that revealed that one tube was plugged and had prevented the EC probe from passing clear through the tube. The licensee initiated DER 01-00263 to document this condition; however, the tube was inspected by passing the probe through from both directions. Individuals performing the EC tests stated light was visible through the entire tube, but the tube was subsequently plugged at both ends. The licensee indicated that the plugging was probably caused from concrete debris in the service water system that may have resulted from service water piping repairs that degraded some of the pipe liner. There had been previous instances where similar problems with debris in the SW system had impacted cooler tubes.

### b. Findings

There were no significant findings identified during this inspection.

## 1R11 Licensed Operator Requalification

### a. Inspection Scope (71111.11)

On January 29, 2001, the inspectors observed a dynamic simulator requalification operating test and shift manager's assessment for licensed operators of Crew "C." The dynamic simulator test included the loss of one main boiler feed pump and loss of all alternating current (AC) power. The shift managers assessment included the central control room (CCR) addressing a Tave indication failure and contending with a security threat. The evaluators identified several deficiencies which were appropriately addressed through remedial training and through additional simulator evaluations.

b. Findings

There were no significant findings identified during this inspection.

1R12 Maintenance Rule Implementation

a. Inspection Scope (71111.12)

The inspectors reviewed problems involving selected in-scope structures, systems, and components (SSCs) to assess the effectiveness of the maintenance program. The review included a sample of operating logs, system engineer data, system reports, deficiency reports, availability data, selected surveillance performance data, and selected maintenance-related data. The reviews focused on proper maintenance rule scoping, proper classification of SSC equipment failures, safety significance classifications, 10 CFR 50.65 (a)(1) and (a)(2) classifications, and performance criteria for SSCs classified as (a)(2). The inspectors reviewed the licensee's scoping documents, deficiency/event reports (DERs), and completed work orders.

During the week of January 22, 2001, the 138 KV offsite power source (line 95332) was placed into Maintenance Rule status (a)(1) at Indian Point 2 due to unavailability time that exceeded 350 hours in 2000. The inspectors evaluated the potential impact on the Maintenance Rule status for the portions of line 95332 that feed Indian Point 3. Although the unavailability of an individual feeder line at Unit 2 was tracked separately for the Maintenance Rule, the 138 KV offsite power sources at Unit 3 which included both feeders (lines 95331 and 95332) were treated as a single system for Maintenance Rule tracking since they both tied into the 138 KV source to the Unit Auxiliary Transformer (UAT) upstream of a single breaker/switch in the Unit 3 138 KV yard. Since both of the 138 KV lines were not out of service at the same time during 2000, no unavailability time was counted for the offsite source at Unit 3.

During routine periodic sampling on January 11, 2001, the license discovered approximately 2 inches of water at the bottom of the 31 emergency diesel generator (EDG) underground fuel oil storage tank (FOST). On January 18, a small amount of water was also discovered at the bottom of the 32 FOST. The licensee removed all water from both tanks and sampled the fuel oil for contamination. No loss of fuel oil had occurred in either tank. However, the licensee did not declare either tank inoperable following the current intrusion events since the quantity of water was not high enough to be picked up by the FOST transfer pumps, and consequently would not have impaired EDG operation.

The licensee increased the sampling frequency for water in both FOSTs to prevent an excess intrusion, and investigated the above ground piping at each tank, but was not able to determine the in leakage path. No subsequent intrusion events occurred during the remainder of the current inspection period; however, the licensee developed an action plan to remove each tank from service so that intrusive inspections and repairs to each FOST could be completed with the plant at power. The plan included a temporary modification using temporary tanks that would supply fuel oil to an EDG while its FOST was out of service for repair. At the end of the inspection period, the design of the temporary system was not complete; however, the licensee's plan provided for a

temporary supply system that would be fully qualified for the seismic, tornado, and missile protection criteria specified for the FOST design. The inspectors reviewed the licensee's action plan and evaluated the proposed temporary modification for continued operability of the EDGs during FOST repairs, and noted that the Maintenance Rule tracking of the EDG fuel supply system would not count unavailability time while the temporary modification was in place.

b. Findings

There were no significant findings identified during this inspection.

1R13 Maintenance Risk Assessment and Emergent Work Evaluations

a. Inspection Scope (71111.13)

The inspectors reviewed the maintenance risk assessments and corrective maintenance work packages for the following planned and emergent work, evaluated the effectiveness of the risk assessments performed before maintenance activities were conducted, and verified how the licensee managed risk during the maintenance activities.

Planned Work:

- Work Request (WR) 99-00742-00, "Perform 6 year PM [Preventive Maintenance] Inspection on 33 EDG"
- WR 99-03030-00, "Perform Quarterly PM Inspection on 33 EDG."

Emergent Work:

- WR 00-05337-09, "Appears that Either TC-1105S or TC-1107S is Defective, which Resulted in Tripping of 32 Instrument Air Compressor"
- DER 01-00386, "33 Charging Pump Speed"
- DER 01-00396, "32 Boric Acid Transfer Pump Failed Re-Test 3PT-Q038B"
- WR 00-01575-01, "PWT [Post Work Test] for 32 BATP [Boric Acid Transfer Pump] PM/Element Change Out"

b. Findings

There were no significant findings identified during this inspection.



## 1R15 Operability Evaluations

### a. Inspection Scope (71111.15)

The inspectors reviewed various DERs on degraded or non-conforming conditions that raised questions on equipment operability. The inspectors reviewed the resulting 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 operability evaluation and DER were evaluated:

- OD 01-01, 480V breakers with noise in the Amptector ground transformer can cause a spurious trip. On January 15, 2001, the licensee received notice of an event at the R. E. Ginna Nuclear Plant where a safety-related 480 volt circuit breaker experienced a spurious trip that was attributed to a ground fault in the breaker's Amptector over current protection device. The licensee initiated DER 01-00167 and reviewed this problem for applicability at Indian Point 3 plant. It was determined that 19 circuit breakers with Amptector models LSG & LIG were affected at IP3 on safeguards buses 2A, 3A, 5A, and 6A. The licensee consulted the breaker manufacturer (Westinghouse) and concluded that none of these breakers were inoperable since the condition had never occurred at Indian Point 3, and all other occurrences of the fault in the nuclear industry had been random spurious failures. However, the licensee determined that an alteration to the Amptector module could eliminate the potential for the fault condition by installation of an internal jumper between a neutral and a ground terminal.

### b. Findings

There were no significant findings identified during this inspection.

## 1R16 Operator Work-Arounds

### a. Inspection Scope (71111.16)

The inspectors performed a review of operator work-arounds to determine the cumulative effect upon the reliability, availability, and potential for mis-operation of a system, upon initiating event frequencies, and upon the operator's ability to respond in a correct and timely manner to plant transients and accidents. This review included the operator work-arounds list, non-transient operator work-arounds list, control room deficiencies list, the "Quarterly Review of Cumulative Effects of Operator Workarounds and Central Control Room Deficiencies at IP3 3<sup>rd</sup> Quarter 2000," Control Room Turnover Sheets, and System Operating Procedure SOP-SD-01, "Work Control Process."

### b. Findings

There were no significant findings identified during this inspection.

## 1R19 Post-Maintenance Testing

a. Inspection Scope (71111.19)

The inspectors reviewed post-maintenance test 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 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 post-maintenance activities were evaluated:

- WR 01-000145-01; Post Work Test (PWT) on January 17, 2001, following a failure of the 34 fan cooler unit (FCU) supply breaker to open after surveillance testing was completed. The licensee's subsequent troubleshooting could not reproduce the conditions related to the failure. However, the licensee replaced the breaker with a spare and conducted successful testing to restore the FCU to service. The precise cause of the failure could not be determined.
- WR 99-03030-02; PWT for the 33 emergency diesel generator (EDG) quarterly and 6-year preventive maintenance (PM). The 33 EDG was tested in accordance with 3PT-W1, "Emergency Diesel Support Systems Inspection," and 3PT-M79C, "33 EDG Functional Test." Additional PMs were performed on the EDG's intake and exhaust louvers and fire protection ventilation louvers. The PWTs associated with these louvers were completed as an integral part of the procedures used for the PM. The 33 EDG, its support systems, and ventilation louvers tested met the acceptance criteria specified in the procedure.
- WR 01-00066-02; Following corrective maintenance (cracked block replacement) and during the post-maintenance test/break-in run of the 33 charging pump on January 12, 2001, a human performance error occurred when the pump recirculation valve (CH-281) was not open as required by system operating procedure SOP-CVCS-002. The CH-281 bonnet leaked approximately 4 gallons onto the floor during approximately 10 seconds that the pump ran before it was shut down. The licensee initiated DER 01-00136 following this incident. The inspectors investigated the licensee's program for evaluating primary water leakage outside containment, and questioned the reportability of this leakage. The current criteria was 0.68 gph maximum for primary system leakage outside containment. The licensee estimated the pressure inside the piping at CH-281, and concluded that the incident was not reportable under 10 CFR 50.73 criteria since the leakage did not persist for an extended period (>1 hour) and since this particular leak path would not have existed following accident conditions. CH-281 had not leaked at the post-incident pressure at the valve (20 psig) prior to the 33 charging pump break-in run.

b. Findings

There were no significant findings identified during this inspection.

1R22 Surveillance Testing

a. Inspection Scope (71111.22)

The inspectors reviewed surveillance test procedures and associated testing activities to assess whether 1) the test preconditioned the component(s) tested, 2) the effect of testing was adequately addressed in the control room, 3) the acceptance criteria demonstrated operational readiness consistent with design calculations and licensing documents, 4) the test equipment range and accuracy was adequate with proper calibration, 5) the test was performed in the proper sequence, and 6) the test equipment was removed following testing.

The inspectors reviewed/observed portions of the following surveillance test and performed a review of related historical data and surveillance performance.

- 3PT-Q117; 31 & 32 Containment Spray Pump Functional Test

b. Findings

There were no significant findings identified during this inspection.

1R23 Temporary Plant Modifications

a. Inspection Scope (71111.23A)

The inspectors reviewed the licensee's administrative procedure AP-13, "Temporary Modifications," and work packages for selected temporary modifications.

The inspectors reviewed the work packages and engineering evaluations for four temporary modifications (TMs) currently installed in the plant. The inspectors also evaluated the licensee's administrative requirements, safety evaluations, applicable FSAR sections, and the post-modification testing associated with each TM.

TM 96-06255-00, "Disabling the Reactor Coolant System (RCS) Subcooling Alarms." This TM physically disabled the control room annunciator alarms for "RCS Approaching Saturation" and "RCS Saturated." The subject alarms were part of the analog subcooling monitoring system, and were not qualified for compliance with Regulatory Guide (RG) 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants To Assess Plant and Environs Conditions During and Following an Accident." The licensee used the digital Qualified Safety Parameter Display System (QSPDS) for compliance with RG 1.97 and maintained the analog system as a redundant backup to provide subcooling trending data. Operators did not rely on the analog system to initiate actions in accordance with plant EOPs since it was not a qualified system. The licensee disabled the alarms associated with the analog system because the errors were greater than the QSPDS, and the analog alarms could lead to operator confusion. The

modification required a revision to FSAR Section 4.3.8, "Saturation Alarm and Recorder (Analog System)," and plant operating procedures ARP-3, "Panel SKF Reactor Coolant System," ARP-13, "Panel SKF - Bearing Monitor," "ONOP-SG-1, "Steam Generator Tube Leak," and EOP RO-1, "BOP Operator Actions During Use of EOPs."

The licensee's evaluation of this TM demonstrated that the alarms are not required for the recovery strategies outlined in the IP3 emergency operating procedures (EOPs), and that the licensing basis safety analyses were not affected. The inspectors noted that this TM was originally presented to the Plant Operations Review Committee (PORC) on October 1, 1996, and was initially due for removal (or replacement as a permanent modification) on December 20, 1996. However the TM was reviewed at numerous subsequent PORC meetings and repeatedly extended at approximately 3 month intervals. It was last reviewed by the PORC on March 17, 1999 and approved for an extension until June 18, 1999. No documented extensions beyond that existed, but the TM was still installed in the plant. The licensee's plan for this TM was uncertain since no permanent modification had been approved at the end of the inspection period.

TM 97-05176-02, "Provide Control Circuit Power and Channel Separation to ABF Pump 33." This TM was installed in October 1997 to alleviate a licensee-identified lack of redundancy in the runout protection for the 31 and 33 motor-driven auxiliary boiler feedwater pumps (DER 97-02377).

TM 99-03020-01, "Temporary Power Feed to Unit Auxiliary Transformer Auxiliaries." This TM was installed in June 1999 to provide temporary power cables to the auxiliary cooling fans on the unit auxiliary transformer. The auxiliary fan motors had experienced several trips due to blown fuses in the normal power supplies that were attributed to undersized power cables and fuses.

TM 00-04601-01, "Temporary Leak Repair to Threaded Connection on PI-1188 Sensing Line." This TM was installed in September 2000 to accomplish an online repair of a leak in a closed cooling system heat exchanger inlet pressure indicator.

The inspectors noted in Section 4.1.6.1 of administrative procedure AP-13, "Temporary Modifications," that TMs were expected to be cleared within three months or the next forced maintenance or refueling outage. Since many of the current TMs in the plant were installed prior to the last refueling outage, the inspectors discussed this expectation with the operations and system engineering managers, and the TM coordinator. Although many TMs had extended beyond the expected date for resolution, each TM was assigned to a responsible engineer who conducted a quarterly inspection to confirm that the existing plant configuration did not invalidate the technical justification for the TM. The licensee planned to remove most existing TMs prior to the end of 2001, and to facilitate that goal, the TM Coordinator planned to create controlled Action Commitment Tracking System (ACTS) items for each TM to assure more timely resolution.

b. Findings

There were no significant findings identified during this inspection.

**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 during tours of the facilities and inspected procedures, procedural implementation, records, and other program documents to evaluate the effectiveness of the licensee's access controls to radiologically significant areas. This review was conducted to ensure compliance with 10 CFR 20.1301 (Dose limits for individual members of the public), Subpart F (Surveys and monitoring), Sections 20.1601 (Control of access to high radiation areas), 20.1902 (Posting requirements); Technical Specification 6.12 (High Radiation Area); and plant procedures.

The inspectors observed routine activities at the radiologically-controlled-area (RCA) control point on the fourth floor of the Administration Building on a daily basis to verify compliance with requirements for RCA entry and exit, wearing of record dosimetry, and issuance and use of electronic dosimeters. On three separate days, the inspectors toured in the RCA, including the health physics (HP) count room, the primary auxiliary building (PAB), the fan house, the fuel storage building, the radioactive machine shop building (RAMS), and the 95-foot elevation of the containment building at 100% power. During these tours, the inspectors reviewed the posting, labeling, barricading, and level of access control for locked high radiation areas (LHRAs), high radiation areas (HRAs), radiation and contamination areas, and radioactive material areas. Also, the inspectors observed the activities of radiological control technicians in support of the active radiation work permit (RWP) activities including a pre-job briefing conducted on January 9, 2001 for RWP 0001-028 and the containment entry and the HP coverage implemented on the 95-foot elevation in containment on this RWP.

The inspectors selectively examined the following procedures, procedural implementation (including the RWP packages for 0001-028 and 0001-030), records, and other program documents, including assessments.

- RE-ACC-5-1, Radiologically Controlled Area (RCA) Access Control
- RE-ACC-5-2, Instructions to Control Point Personnel
- RE-DOS-8-11, Administrative Radiation Exposure Guidelines and extensions
- RE-INS-7UF-16, Health Physics Counting Room Process Control Program
- RE-REA-4-1, Radiation Work Permit (RWP)
- RE-SUR-6-6, Health Physics Periodic Task Scheduling
- RE-TRA-15-1, Limited Self-monitoring Program
- RWP 0001-009, Assessments in RCA
- RWP 0001-025, Replace Flux Drive While Reactor Critical

- RWP 0001-028, Containment Entry While Reactor Critical, 95-foot Elevation of Vapor Containment, Preventive Maintenance on the Polar Crane
- RWP 0001-030, Maintenance on Charging Pumps, 55-foot Elevation of Primary Auxiliary Building
- RWP 0001-038, Operations, Resin Sluicing
- Radiological surveys for RWPs 0001-028 and 0001-030
- Exposure Control Self-Assessment (Action Commitment Tracking System (ACTS) Item 00-48875), December 1, 2000
- Radiological Protection Program Improvement Plan 2000 (DER 00-2623), October 2000
- Calculation No. IP3-CALC-RAD-00029, Sensitivity of IPM 7 and Gamma 40 Personnel Contamination Monitors to Internal Contamination, October 11, 1996
- American Nuclear Insurers Nuclear Liability Insurance Inspection Report, October 11, 2000

The inspectors reviewed the following five DERs and their associated Action Commitment Tracking System (ACTS) items for appropriateness of categorization, immediate correction actions, and corrective actions to prevent recurrence, and for the timeliness and effectiveness of corrective actions: DERs 00-02560, 00-02623, 00-03022, 00-03176, and 00-03213. These DERs were generated during the period of October 2000 to January 2001.

The inspectors discussed the licensee's plans to install and implement a new computerized HP and access control system, and to move the centralized HP video surveillance and communication station from the containment access facility inside the RCA to the main health physics control point outside the RCA. Both of these activities were planned to occur before the next refueling outage starting in April 2001.

b. Findings

There were no significant findings identified during this inspection.

2OS2 ALARA Planning and Controls

a. Inspection Scope (71121.02)

The inspectors reviewed radiological work activities and practices during tours of the facilities and inspected procedures, procedural implementation, records, and other program documents to determine the effectiveness of ALARA (As Low As Reasonably Achievable) planning and control. This review was conducted to ensure compliance with 10 CFR 20.1101 (Radiation Protection Programs), 10 CFR 20.1701(Use of Process or Other Engineering Controls), and procedures.

During the tours of the facilities described in the previous section, the inspectors observed the use of signs to identify low dose waiting areas and to identify higher dose areas where access time should be minimized.

The inspectors selectively examined the following procedures, procedural implementation, and other program documents, including assessments.

- RE-REA-4-1, "Radiation Work Permit" (RWP)
- Site ALARA Committee Meeting Agenda for January 11, 2000
- Quarterly Review of Station ALARA Program November 17, 2000
- Quarterly review of station ALARA program January 11, 2001
- Station collective dose for the year 2000
- Goals for Station Collective Dose for the Year 2000 Including that for Routine Operations and for Refueling Outage RO-11
- Dose estimates for outage RWPs for RO-11
- Detailed dose estimate for reactor coolant pump work for RO-11
- HP personnel assignments for Work Area of Responsibility and Work Shift for RO-11, October 2000
- Hot Spot Tracking List
- Memorandum from T. Chan to B. Sullivan, et.al., dated March 12, 1999, titled "Reduction of Hot Spots in the Ion Exchange Valve Gallery"

The inspectors discussed with the licensee their planning and preparations for the upcoming refueling outage, person-rem incentive and stretch goals for the year 2001 (i.e., stretch goals of 60 for the outage and 5 person-rem for routine operations), the actual person-rem for the year 2000 (i.e., 8.7 versus the stretch goal of 10 person-rem), their three-year rolling average which placed them in an upper tier of good performance in comparison to other pressurized water reactors, their current efforts at source term reduction and ALARA improvement plans, and their initiation of a five-year plan for ALARA improvement.

b. Findings

There were no significant findings identified during this inspection.

**4. OTHER ACTIVITIES (OA)**

4OA1 Performance Indicator Verification

a. Inspection Scope (71151)

Emergency AC Power and Residual Heat Removal Systems  
Safety System Unavailability

The inspectors reviewed the licensee's data supporting the performance indicators (PIs) for the emergency AC Power (emergency diesel generators) and the residual heat removal systems unavailability for the 4<sup>th</sup> quarter of year 2000. The inspectors also reviewed deviation/event reports (DERs), work requests, and Limited Condition for Operation (LCO) databases to identify equipment problems and system outages. The inspectors interviewed the performance engineer responsible for the data collection for these PIs.

Transients per 7000 Critical Hours

The inspectors reviewed the data the licensee submitted for unplanned power changes >20% over 7000 critical hours during the 4<sup>th</sup> quarter of year 2000, and noted that no item was charged to this PI for the plant shutdown from December 18 - 21, 2000. The licensee shut down the plant to repair leaking hydrogen coolers in the main turbine generator after the existing leakage significantly increased from approximately 800 to 1600 standard cubic feet per minute (scfm) over the weekend of December 16 & 17. The licensee evaluated the condition on December 18 and determined that continued plant operation was not warranted with the additional risk of higher leakage, and the potential unavailability of maintenance personnel to repair the condition if it worsened over the upcoming holidays. The licensee had been monitoring the hydrogen cooler leakage for several months and had established an administrative limit of 2000 scfm as the threshold for a detailed review to evaluate if continued plant operation was warranted. The licensee had prepared work packages in advance to minimize the preparation time necessary for a potential outage.

The leakage that occurred over several months prior to December was not constant and did not increase at a constant rate. When it approximately doubled, the factors the licensee considered for determining the need for a shutdown to repair the condition had not be planned in advance (i.e., >72 hours before the increased leakage occurred). At the end of the inspection period, the licensee agreed that the situation should be reevaluated to determine if the PI was reported correctly. The licensee planned to consult with the Nuclear Energy Institute (NEI) on this matter to clarify the PI reporting criteria, and to make any necessary adjustments to the data for the 4<sup>th</sup> quarter of 2000.

b. Findings

There were no significant findings identified during this inspection.

4OA6 Meetings

Exit Meeting Summary

On February 23, 2001, the inspectors presented the inspection results to Mr. R. Barrett and other Entergy staff members who acknowledged the inspection results presented. The inspectors asked Entergy personnel whether any materials evaluated during the inspection were considered proprietary. No proprietary information was identified.

The inspectors also noted two minor errors in Inspection Report 2000-008. The report stated that the startup from the last outage was December 20, 2000. The startup actually occurred on December 21. The report also stated that main feedwater regulating valve testing was witnessed by the NRC on December 21, and it was actually witnessed on December 15, 2000.



**PARTIAL LIST OF PERSONS CONTACTED**

R. Barrett	Vice President, Operations
J. Barry	Sr. Radiological Engineer
R. Burrioni	I&C Superintendent
F. Dacimo	General Manager, Plant Operations
E. Danko	Licensing Engineer
R. Deschamps	Radiation Protection Manager/RES Dept. Manager
J. Comiotes	Director, Safety Assurance
J. DeRoy	Director, IP-3 Engineering
R. Deschamps	Radiological and Environmental Services Manager
A. Grosjean	Senior Emergency Preparedness Engineer.
R. LaVera	Sr. Radiological Engineer
J. LePere	General Supervisor, Waste Management
R. Martin	Emergency Preparedness Engineer
D. Mayer	Manager, Health Physics/Chemistry
F. Mitchell	Health Physics General Supervisor
J. Perrotta	Quality Assurance Manager
K. Peters	Licensing Manager
A. Picciano	QA Engineer
P. Rubin	Operations Manager
J. Russell	Project Manager
R. Solano	HP Supervisor
J. Stewart	HP Supervisor
A. Vitali	Maintenance Manager
J. Wheeler	Training Manager
M. Wilson	Emergency Preparedness Coordinator

**ITEMS OPENED, CLOSED, AND DISCUSSED**Opened/Closed

NCV 2000-009-01, Failure to promptly identify and correct a mis-positioned valve on the turbine-driven auxiliary feedwater pump.

**LIST OF ACRONYMS USED**

ABFP	auxiliary boiler feedwater pump
ADAMS	Agencywide Documents Access and Management System
AC	alternating current
ACTS	Action Commitment Tracking System
AFWS	auxiliary feedwater system
ALARA	As Low As Reasonably Achievable
CCR	central control room
CFR	Code of Federal Regulations
COL	check-off list
CTO	caution tagout
DCP	design change package
DER	Deviation/Event Report
EC	eddy current
EDG	emergency diesel generator
ENN	Entergy Nuclear Northeast
EOP	emergency operating procedure
FOST	fuel oil storage tank
HP	Health Physics
HRA	High Radiation Area
IMC	Inspection Manual Chapter
JW	jacket water
KV	kilovolts
LCO	limiting condition for operation
LHRA	Locked High Radiation Area
LO	lube oil
NEI	Nuclear Energy Institute
NSE	nuclear safety evaluation
OD	operability determination
PAB	Primary Auxiliary Building
PARS	Publicly Available Records
PIs	Performance Indicators
PID	Problem Identification
PM	preventive maintenance
PORC	Plant Operations Review Committee
PWST	primary water storage tank
PWT	post-work test
QSPDS	Qualified Safety Parameter Display System
RAMS	Radioactive Machine Shop Building
RCA	Radiologically Controlled Area
RCS	reactor coolant system
RG	Regulatory Guide
RO	Refueling Outage
RWP	Radiation Work Permit
RWST	refueling water storage tank
SCFM	Standard Cubic Feet Per Minute
SDP	Significance Determination Process

SOP	system operating procedure
SSCs	structures, systems and components
SW	service water
Tave	reactor coolant system average temperature
TM	temporary modification
TS	Technical Specifications
UAT	unit auxiliary transformer
UFSAR	Updated Final Safety Analysis Report
VCT	volume control tank
WR	work request

## ATTACHMENT 1

# NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

<b>Reactor Safety</b>	<b>Radiation Safety</b>	<b>Safeguards</b>
<ul style="list-style-type: none"><li>● Initiating Events</li><li>● Mitigating Systems</li><li>● Barrier Integrity</li><li>● Emergency Preparedness</li></ul>	<ul style="list-style-type: none"><li>● Occupational</li><li>● Public</li></ul>	<ul style="list-style-type: none"><li>● Physical Protection</li></ul>

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margins and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margins but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.