



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

February 3, 2009

Mr. Joseph E. Pollock  
Site Vice President  
Entergy Nuclear Operations, Inc.  
Indian Point Energy Center  
450 Broadway, GSB  
Buchanan, NY 10511-0249

**SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT 2 – NRC INTEGRATED  
INSPECTION REPORT 05000247/2008005**

Dear Mr. Pollock:

On December 31, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Indian Point Nuclear Generating Unit 2. The enclosed integrated inspection report documents the inspection results, which were discussed on January 9, 2009, 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, no findings of significance were identified. However, a licensee-identified violation which was determined to be of very low safety significance is listed in this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy because of the very low safety significance of the violation and because it is entered into your corrective action program. If you contest this non-cited violation, 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 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 Nuclear Generating Station, Unit 2.

In accordance with Title 10 of the Code of Federal Regulations Part 2.390 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/

Mel Gray, Chief  
Projects Branch 2  
Division of Reactor Projects

Docket No. 50-247  
License No. DPR-26

Enclosure: Inspection Report No. 05000247/2008005  
w/ Attachment: Supplemental Information

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Sincerely,  
**/RA/**

Mel Gray, Chief  
Projects Branch 2  
Division of Reactor Projects

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w/ Attachment: Supplemental Information

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OFFICAL AGENCY RECORD

U.S. Nuclear Regulatory Commission

Region I

Docket No.: 50-247

License No.: DPR-26

Report No.: 05000247/2008005

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Unit 2

Location: 450 Broadway, GSB  
Buchanan, NY 10511-0249

Dates: October 1, 2008 through December 31, 2008

Inspectors: G. Malone, Senior Resident Inspector, Indian Point 2  
C. Hott, Resident Inspector, Indian Point 2  
P. Cataldo, Senior Resident Inspector, Indian Point 3  
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Approved By: Mel Gray, Chief  
Projects Branch 2  
Division of Reactor Projects

Enclosure

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## SUMMARY OF FINDINGS

IR 05000247/2008005; 10/01/2008 – 12/31/2008; Indian Point Nuclear Generating Unit 2;  
Resident Inspector Quarterly Integrated Inspection Report.

This report covered a three-month period of inspection by resident and region based inspectors. The NRC's program for overseeing safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

A violation of very low safety significance that was identified by Entergy was reviewed by the inspectors. Corrective actions taken or planned by Entergy were entered into Entergy's corrective action program. The violation and its corrective action tracking numbers are listed in Section 4OA7.

## REPORT DETAILS

### Summary of Plant Status

Indian Point Nuclear Generating Unit 2 began the inspection period operating at 100 percent reactor power. Operators reduced plant power to 85 percent on October 22 to repair an expansion joint on the suction piping of the 22 condensate pump. The plant was returned to full power operation on October 23. Unit 2 operated at or near full power for the remainder of the inspection period.

### 1. REACTOR SAFETY

#### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

1R01 Adverse Weather Protection (71111.01 - 2 samples)

.1 Cold Weather Preparations

a. Inspection Scope

The inspectors reviewed the readiness of risk-significant systems for extreme cold-weather conditions. The inspectors reviewed Entergy's adverse weather procedures, operating experience, corrective action program, Updated Final Safety Analysis Report (UFSAR), Technical Specifications (TS), operating procedures, staffing, and applicable plant documents to determine the types of adverse weather challenges to which the site is susceptible. The following risk-significant systems that were required to be protected from adverse weather conditions were selected and collectively represent one inspection sample:

- Primary, refueling, and primary water storage tanks;
- Service water intake structure and components; and
- Fire water storage tank.

b. Findings

No findings of significance were identified.

.2 External Flooding

a. Inspection Scope

The inspectors reviewed the readiness of barriers to external flooding for the service water intake structure and related equipment. The inspectors reviewed Entergy's adverse weather procedures, abnormal operating procedures, operating experience, Updated Final Safety Analysis Report (UFSAR), and Internal Plant Examination of External Events (IPEEE) to determine susceptibilities to external floods and review the site's methods to mitigate the effects of external flooding. The inspectors walked down the service water pump vault and the strainer vaults to verify the integrity of the structures and components contained within to the effects of flooding. The inspectors



also verified that barriers and systems used to mitigate flooding were available and in adequate material condition.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q - 4 samples)

Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns to verify the operability of redundant or diverse trains and components during periods of system train unavailability, or following periods of maintenance. The inspectors referenced the system procedures, the UFSAR, and system drawings to verify that the alignment of the available train supported its required safety functions. The inspectors also reviewed applicable condition reports (CR) and work orders to ensure that Entergy had identified and properly addressed equipment discrepancies that could potentially impair the capability of the available train, as required by Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action." Documents reviewed during this inspection are listed in the Attachment.

The inspectors performed a partial walkdown on the following systems, which represented four inspection samples:

- 21 residual heat removal (RHR) pump train during 22 RHR pump maintenance;
- Appendix R diesel following restoration from planned maintenance;
- 23 safety injection (SI) pump train during 21 SI pump breaker maintenance; and
- 22 and 23 emergency diesel generators and 22 auxiliary feed pump during maintenance on 21 emergency diesel generator.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q - 6 samples)

a. Inspection Scope

The inspectors conducted tours of fire areas to assess the material condition and operational status of fire protection features. The inspectors verified, consistent with the applicable administrative procedures, that: combustibles and ignition sources were adequately controlled; passive fire barriers, manual fire-fighting equipment, and suppression and detection equipment were appropriately maintained; and compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with Entergy's fire protection program. The inspectors evaluated the fire protection program against the requirements of License Condition 2.K. The documents reviewed during this inspection are listed in the Attachment. This

inspection represented six inspection samples for fire protection tours, and was conducted in the following areas:

- Zone 8, Boric acid transfer pump (BATP) and tank area;
- Zone 74A, Electrical penetration area;
- Zone 2, Containment spray pump room;
- Zone 1, Component cooling water pump room;
- Zones 12,13, and 14, 125-Vdc vital battery rooms (batteries 21, 22, and 24); and
- Zones 3 and 4, Residual heat removal pump rooms (pumps 21 and 22).

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

.1 Quarterly Review (71111.11Q – 1 sample)

a. Inspection Scope

On August 18, 2008, the inspectors observed licensed operator simulator training to verify that operator performance was adequate, and that evaluators were identifying and documenting crew performance problems. The inspectors evaluated the performance of risk-significant operator actions, including the use of emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, the implementation of appropriate actions in response to alarms, the performance of timely control board operation and manipulation, and the oversight and direction provided by the control room supervisor. The inspectors also reviewed simulator fidelity with respect to the actual plant. The inspectors evaluated licensed operator training against the requirements of 10 CFR Part 55, "Operator Licenses." The documents reviewed during this inspection are listed in the Attachment. This observation of operator simulator training represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Biennial Review (71111.11B – 1 sample)

a. Inspection Scope

The following inspection activities were performed using NUREG 1021, Rev. 9, "Operator Licensing Examination Standards for Power Reactors;" and NRC Inspection Procedure 71111.11, "Licensed Operator Requalification Program," Appendix A "Checklist for Evaluating Facility Testing Material" and Appendix B "Suggested Interview Topics."

The inspectors reviewed recent operating history documentation found in inspection reports, licensee event reports, the licensee's corrective action program, and the most recent NRC plant issues matrix (PIM). The inspectors also reviewed specific events

from Entergy's corrective action program which indicated possible training deficiencies, to verify they had been appropriately addressed. The senior resident inspector was also consulted for insights regarding licensed operators' performance.

The remediation plans for a crew or individual's performance weaknesses or enhancements were reviewed by the inspectors to assess the effectiveness of the remedial training. The inspectors interviewed operators, instructors and training/operation's management for feedback on their training program and the quality of training received.

The inspectors reviewed simulator performance and fidelity for conformance to the reference plant control room.

A sample of records for requalification training attendance, program feedback, reporting, and medical examinations were reviewed by the inspectors for compliance with license conditions, including NRC regulations.

The inspectors reviewed the operating tests for the weeks of September 29 and October 6, 2008, for content, quality and overlap. Likewise, the 2007 written exam was reviewed for content, quality, and overlap.

The inspectors observed dynamic simulator exams and job performance measures administered during the week of October 6, 2008. These observations included facility evaluations of crew and individual performance during the dynamic simulator exams and individual performance of five JPMs.

On October 20, 2008, the inspectors reviewed the results of the annual operating tests for year 2008 and the written exam for 2007 to determine if pass/fail rates were consistent with the guidance of NUREG-1021, Revision 9, "Operator Licensing Examination Standards for Power Reactors" and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)." The review verified the following:

- Crew failure rate on the dynamic simulator was less than 20%. (Failure rate was 0.0%)
- Individual failure rate on the dynamic simulator test was less than or equal to 20%. (Failure rate was 0.0%)
- Individual failure rate on the walkthrough test (job performance measures) was less than or equal to 20%. (Failure rate was 0.0%)
- Individual failure rate on the 2007 comprehensive written exam was less than or equal to 20%. (Failure rate was 0.0%)
- More than 75% of the individuals passed all portions of the exam (100% of the individuals passed all portions of the exam).

b. Findings and Observations

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - 2 samples)

a. Inspection Scope

The inspectors reviewed performance-based problems that involved structures, systems, and components (SSCs) to assess the effectiveness of maintenance activities. When applicable, the reviews focused on:

- Proper Maintenance Rule scoping in accordance with 10 CFR 50.65;
- Characterization of reliability issues;
- Changing system and component unavailability;
- 10 CFR 50.65(a)(1) and (a)(2) classifications;
- Identifying and addressing common cause failures;
- Trending of system flow and temperature values;
- Appropriateness of performance criteria for SSCs classified (a)(2); and
- Adequacy of goals and corrective actions for SSCs classified (a)(1).

The inspectors also reviewed system health reports, maintenance backlogs, and Maintenance Rule basis documents. The inspectors evaluated maintenance effectiveness and monitoring activities against the requirements of 10 CFR 50.65. The documents reviewed during this inspection are listed in the Attachment. The following Maintenance Rule samples were reviewed and represented two inspection samples:

- Service water pumps; and
- Buried piping inspections of the condensate storage tank supply piping to the auxiliary feedwater system.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 4 samples)

a. Inspection Scope

The inspectors reviewed scheduled and emergent maintenance activities to verify that the appropriate risk assessments were performed prior to removing equipment from service for maintenance or repair. The inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4), and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. Documents reviewed during this inspection are listed in the Attachment. The following activities represented four inspection samples:

- Planned elevated-risk maintenance condition for 23 charging pump motor replacement;

- Planned elevated-risk maintenance condition for an endurance run on the 23 emergency diesel generator performed once every 18-months;
- Planned elevated-risk maintenance condition during 21 auxiliary boiler feedwater pump breaker outage; and
- Planned elevated-risk maintenance condition during 138kv [kilovolt] feeder outage and safety injection system testing.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 2 samples)

a. Inspection Scope

The inspectors reviewed operability evaluations to assess the acceptability of the evaluations, the use and control of compensatory measures when applicable, and compliance with Technical Specifications. The inspectors' reviews included verification that operability determinations were performed in accordance with procedure ENN-OP-104, "Operability Determinations." The inspectors assessed the technical adequacy of the evaluations to ensure consistency with the Technical Specifications, UFSAR, and associated design basis documents (DBDs). The documents reviewed are listed in the Attachment. The following operability evaluations were reviewed and represented two inspection samples:

- Impact of incorrect component materials on component cooling pump constant level oilers; and
- Accumulator leak on nitrogen system supply for power-operated relief valve PCV-455C.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18 - 1 sample)

a. Inspection Scope

The inspectors reviewed a temporary plant modification package associated with an additional nitrogen supply connected to the air supply system for the 138kV 52/BT4-5 air-operated breaker. The breaker's function is to provide an alternate path for 138kV offsite power to be cross-connected between Indian Point Units 2 and 3. The temporary modification was installed to address a degrading air compressor on the breaker until corrective maintenance is performed. The inspectors verified that the design bases, licensing bases, and performance capability of the system was not negatively impacted by the temporary modification. In addition, the inspectors interviewed plant staff, and reviewed issues that were entered into the corrective action program to determine whether Entergy had been effective in identifying and resolving problems associated with the temporary modification. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 7 samples)

a. Inspection Scope

The inspectors reviewed post-maintenance test procedures and associated testing activities for selected risk-significant mitigating systems, and assessed whether the effect of maintenance on plant systems was adequately addressed by control room and engineering personnel. The inspectors verified that: test acceptance criteria were clear, demonstrated operational readiness and were consistent with design basis documentation; test instrumentation had current calibrations, and appropriate range and accuracy for the application; and the tests were performed as written, with applicable prerequisites satisfied. Upon completion of the tests, the inspectors verified that equipment was returned to the proper alignment necessary to perform its safety function. Post-maintenance testing was evaluated against the requirements of 10 CFR 50, Appendix B, Criterion XI, "Test Control." The documents reviewed are listed in the Attachment. The following post-maintenance activities were reviewed and represented seven inspection samples:

- 25 service water pump following bearing repair;
- 23 charging pump following motor replacement;
- 21 auxiliary boiler feed pump (ABFP) alternate safe shutdown breaker test;
- 21 service water pump 480V breaker replacement;
- 22 ABFP following maintenance on steam supply valve PCV-1139;
- 21 emergency diesel generator following semi-annual jacket water and lube oil heat exchanger inspections; and
- 22 containment fan cooler unit following bearing lubrication.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 6 samples)

a. Inspection Scope

The inspectors observed performance of portions of surveillance tests and/or reviewed test data for selected risk-significant SSCs to assess whether they satisfied Technical Specifications, UFSAR, Technical Requirements Manual, and Entergy procedure requirements. The inspectors verified that: test acceptance criteria were clear, demonstrated operational readiness, and were consistent with design basis documentation; test instrumentation had accurate calibration, and appropriate range and accuracy for the application; and tests were performed as written, with applicable prerequisites satisfied. Following the tests, the inspectors verified that the equipment was capable of performing the required safety functions. The inspectors evaluated the surveillance tests against the requirements in Technical Specifications. The documents reviewed during this inspection are listed in the Attachment. The following surveillance tests were reviewed and represented six inspection samples:

- 2-PC-4Y74C, nuclear instruments power range N-43 channel calibration;
- 2-PT-V59, reactor trip breaker "A" changeout and functional test;
- 2-PT-Q035B, 22 containment spray in-service test;
- 2-PC-2Y55, channel calibration of containment sump level indicator LT-941;
- 2-NF-309, reactor coolant system loop delta-T, T-average, and flow measurement; and
- PT-Q13, valve stroke 869B (containment isolation valve).

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness (EP)**

1EP2 Alert and Notification System (ANS) Evaluation

a. Inspection Scope

The inspectors observed a full-volume siren test on October 22, 2008 to verify Entergy's newly installed siren system functioned properly. The inspectors verified that the minimum required number of sirens functioned when actuated. This inspection was conducted in accordance with the baseline inspection program deviation authorized by the NRC Executive Director of Operations (EDO) in a memorandum dated October 31, 2005, and renewed by the EDO in a memorandum dated December 19, 2007.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety (OS)**

**2OS3 Radiation Monitoring Instrumentation and Protective Equipment**

a. Inspection Scope (71121.03 - 9 samples)

During December 15-19, 2008, the inspectors conducted the following activities to evaluate the operability and accuracy of radiation monitoring instrumentation, and the adequacy of the respiratory protection program for issuing self-contained breathing apparatus (SCBA) to emergency response personnel. Implementation of these programs was reviewed by the inspectors against the criteria contained in 10 CFR 20, applicable industry standards, and Entergy's procedures.

- 1) The inspectors reviewed the UFSAR to identify area radiation monitors that are installed at Indian Point Units 2 and 3 for the protection of workers, and reviewed the calibration procedure and current calibration records for selected instrumentation, including Unit 2 plant radiation monitors; main steam line

radiation monitors (R-28, R-29, R-30, R-31), refuel floor area radiation monitor (R-5), containment high-range radiation and noble gas monitors (R-25, R-26), gaseous and particulate containment radiation monitors (R-42, R-41), in-core area radiation monitor (R-7), steam generator blow down radiation monitor (R-49); Unit 3 plant radiation monitors; main steam line radiation monitors (R-62A, R-62B, R-62C, R-62D), refuel floor area radiation monitor (R-5), containment high-range radiation and noble gas monitors (R-25, R-26), gaseous and particulate containment radiation monitors (R-12, R-11), in-core area radiation monitor (R-7), and steam generator blow down radiation monitor (R-19). The inspectors discussed the monitoring system health reports and instrument reliability trends with the system engineer.

- 2) The inspectors identified various radiation detection instruments used at Indian Point used for job coverage for work in radiologically significant areas, including continuous air monitors and whole body counters. Instruments evaluated were 49 electronic dosimeters, 13 radiation survey instruments, 12 extendable probe survey instruments, 6 neutron radiation survey instrument, 6 continuous air monitors, 4 portal monitors, 7 beta/alpha counters and 2 whole body counters.
- 3) Current calibration records, applicable calibration procedures, operability, and alarm set points were reviewed by the inspectors for the instruments identified above. In addition, the inspectors reviewed the applicable calibrators utilized for appropriate instrument calibration geometries and National Institute for Science and Technology standard traceability. They included: Shepherd 81-12B beam source calibrators, Shepherd 142-10 panoramic calibrator, Shepherd 149 neutron source calibrator and Shepherd 1000B box source calibrator. The plant source term was reviewed by the inspectors to determine whether calibration sources being used were representative.
- 4) Radiological incidents involving internal exposures identified by condition reports for 2008 were reviewed by the inspectors. In addition, dosimetry electronic records were queried for any internal exposures >50 mrem committed effective dose equivalent (CEDE). None were identified for further review.
- 5) The inspectors reviewed condition reports with respect to radiation protection program deficiencies to determine if the deficiencies were appropriately characterized and corrected commensurate with their safety significance.
- 6) Based on the condition reports reviewed, no repetitive deficiencies were identified for further follow-up.
- 7) With respect to the RP portable instruments listed in 3) above, the instrument's calibration expiration and response check stickers were reviewed by the inspectors. The applicable response check beta-source and instrument sign-out procedures were also reviewed. The inspectors queried radiation protection technicians regarding appropriate instrument selection and observed self verification of instrument operability prior to use.
- 8) The inspectors sampled emergency plan-specified self contained breathing apparatus (SCBA) equipment and qualified users based on Indian Point Energy Center Emergency Plan documents and included inspection of selected SCBAs



and air bottle cascade systems located inside or adjacent to both the Unit 2 and Unit 3 main control rooms. The inspectors verified SCBA qualification records for select on-shift reactor operators were current. The inspectors also verified that air used to fill the SCBAs met the Grade D quality criteria of the Compressed Gas Association. The inspectors queried on shift reactor operators to determine the storage location of required spectacles.

- 9) The inspectors examined selected SCBA units for periodic air cylinder hydrostatic testing and maintenance records. The inspectors also performed a review of approved replacement parts documentation and certification of the repair personnel.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES [OA]**

4OA1 Performance Indicator Verification (71151 - 4 samples)

a. Inspection Scope

The inspectors reviewed performance indicator data for the cornerstones listed below and used Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, to verify individual performance indicator accuracy and completeness. The documents reviewed during this inspection are listed in the Attachment.

Mitigating Systems Cornerstone

- Heat Removal Systems (MSPI)
- Cooling Water Systems (MSPI)

Occupational Radiation Safety Cornerstone

- Occupational Exposure Control Effectiveness

Public Radiation Safety Cornerstone

- RETS/ODCM Radiological Effluent Occurrences

b. Findings

No findings of significance were identified.

#### 4OA2 Identification and Resolution of Problems (71152 - 4 samples)

##### .1 Routine Problem Identification & Resolution Program Review

###### a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and to identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of all items entered into Entergy's corrective action program. The review was accomplished by accessing Entergy's computerized database for condition reports, and attending condition report screening meetings.

In accordance with the baseline inspection modules, the inspectors selected corrective action program items across the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones for further follow-up and review. The inspectors assessed Entergy's threshold for problem identification, adequacy of the causal analysis, extent of condition reviews, and operability determinations, and timeliness of the associated corrective actions.

###### b. Findings

No findings of significance were identified.

##### .2 Semi-Annual Trend Review (71152 - 1 sample)

###### a. Inspection Scope

The inspectors performed a semi-annual review to identify trends that might indicate the existence of a more significant safety issue. The inspectors included in this review, repetitive or closely-related issues that may have been documented by Entergy outside of the corrective action program, such as trend reports, performance indicators, major equipment problem lists, maintenance rule assessments, and maintenance or corrective action program backlogs. The inspectors reviewed Entergy's corrective action program database for the third and fourth quarters of 2008 to assess the total number and significance of condition reports (CRs) written in various subject areas. The inspectors also reviewed Entergy's corrective action, engineering, and maintenance quarterly trend reports for the second and third quarters of 2008 to ensure Entergy was appropriately evaluating and trending adverse conditions.

The inspectors focused on an adverse trend in through-wall leaks identified in service water piping. The inspectors reviewed CRs, causal evaluations, maintenance plans, business plans, and interviewed station personnel to assess whether Entergy identified the adverse trend and developed appropriate corrective actions to address the conditions.

###### b. Assessment and Observations

No findings of significance were identified.

Entergy identified three leaks in service water system blowdown piping on August 19, 2008 and determined the leaks were pinhole size that resulted in wetting of the pipe surface. Entergy entered the issue into the CAP and performed an immediate operability assessment that concluded the piping was operable and did not impact the pipe's structural integrity. Entergy performed extent-of-condition walkdowns in the service water intake area and discovered additional leaks on service water system blowdown piping welds. Entergy personnel performed volumetric non-destructive testing of the pipes in accordance with their procedures and determined that these additional leaks were minor localized defects that did not impact structural integrity and, therefore, the service water systems they supported remained operable. Entergy performed the actions described in ASME Code Case N-513-2 for the ASME Class III service water piping and established monitoring frequencies and flaw acceptance criteria. Entergy's short term corrective actions included: performing engineering walkdowns of all stainless steel piping in the service water system, establishing daily walkdowns of identified flaws, and performing volumetric inspection on the identified flaws as required by ASME Code. Entergy identified long term actions that include replacement of the stainless steel service water blowdown piping with a more corrosion-resistant material as Entergy personnel determined that the 304 stainless steel blowdown piping is susceptible to pitting corrosion due to the brackish water of the Hudson River. The replacement is planned to be completed prior to the next refueling outage in the spring of 2010.

Additionally, as part of Entergy's extent-of-condition walkdowns, Entergy identified several leaks on stainless steel service water piping servicing radiation monitors for the containment fan coil units. Similar to the service water blowdown piping, Entergy determined the pinhole leaks were on weld material. However, because the leaks appeared on socket welds and the flaws could not be accurately characterized, ASME Code Case N-513-2 was not applicable and Entergy declared the radiation monitors inoperable and repaired the flaws. Entergy determined that the leaks were caused by pitting corrosion in the 300 series stainless steel pipe welds and the brackish water of the Hudson River. Entergy implemented corrective actions that included immediate repair of all leaking welds and development of an Engineering Change Request package that will replace the radiation monitor piping with a highly corrosion resistant material (AL6XN).

On September 16, 2008, the inspectors identified a small through-wall leak on service water piping supplying cooling water to the containment fan-coil units (FCUs). Specifically, the inspectors identified a pinhole leak that resulted in a wetted pipe surface on a weld neck flange for a 2-inch carbon-steel drain line connected to a 10-inch supply header to the 22 FCU. Entergy performed an operability assessment for the containment penetration and supported the evaluation with confirmatory ultrasonic tests and structural calculations. Entergy determined the cause of this failure was the result of improperly coated weld surfaces internal to the pipe that occurred in 2002. Entergy determined the maintenance procedures, at that time, used to prepare the piping prior to welding did not contain adequate instructions for properly preparing a pipe or weld surface prior to the application of the corrosion resistant coating. Entergy developed procedure 0-SYS-409-GEN, "Belzona and Enecon Metal Repair Applications," in 2005 to improve surface preparation and application techniques. Entergy implemented short term actions to monitor the leakage daily, perform 90-day follow-up ultrasonic testing on the leak location, and perform extent-of-condition walkdowns and UT measurements on the corresponding welds of the 21, 23, 24, and 25 FCUs. Entergy's long term corrective actions includes procedure revisions, repair of the weld during the next refueling outage,

and plans to visually inspect the welds on the other FCUs during the next refueling outage.

The inspectors determined that there was reasonable opportunity for Entergy to identify and correct the 22 FCU leak prior to NRC identification as required per 10 CFR 50, Appendix B, criterion XVI, "Corrective Action;" however, the inspectors determined, based on subsequent testing of the 22 FCU performed by Entergy, that the operability of the 22 FCU and the corresponding containment penetration was not impacted. Therefore, this violation of 10 CFR 50, Appendix B is considered to be of minor significance and not subject to NRC enforcement.

In general and notwithstanding the NRC inspector-identified minor leak, the inspectors determined that Entergy appropriately identified the adverse trend in service water piping corrosion issues in the corrective action program and documented operability assessments for the service water leaks that were supported by a sufficient technical basis. The inspectors determined that Entergy performed appropriate causal evaluations and implemented extent-of-condition reviews to understand the corrosion mechanisms that existed in service water piping and the extent of the issues. The inspectors also determined that Entergy identified and implemented or planned corrective actions commensurate with the requirements of their corrective action program and the ASME Code. Additionally, the inspectors observed that corrective actions included consideration for the safety significance of the issues.

.3 Aggregate Impact of Operator Workarounds (71152 - 1 sample)

a. Inspection Scope

The inspectors conducted a review of the aggregate impact of operator burdens and workarounds. The inspectors reviewed Entergy's implementation of procedures OAP-45, "Operator Burden Program," Revision 1. The inspectors conducted control room walkdowns and interviewed plant operators to determine the impact of deficiencies on operator response to plant events.

b. Findings and Observations

No findings of significance were identified. The inspectors verified that operator workarounds and burdens were entered into the corrective action program at an appropriate threshold and that corrective actions were planned or taken commensurate with their safety significance.

.4 Substantive Cross-Cutting Issue Review: Human Performance - Procedure Adequacy (71152 - 1 sample)

a. Inspection Scope

The inspectors reviewed Entergy's actions to address the Substantive Cross-Cutting Issue (SCCI) in Human Performance related to procedure adequacy. The inspectors' review focused on Entergy's progress in addressing the SCCI since their implementation of a revised action plan in May 2008. The inspectors evaluated Entergy's performance improvement plans and actions using inspection guidance in Inspection Procedure 71152, "Identification and Resolution of Problems." Specifically, the inspectors

assessed Entergy's progress in resolving the cross-cutting issue by evaluating whether Entergy's internal milestones were being monitored and consistently met and whether adjustments in approach were made when necessary. This inspection focused on the progress made since the PI&R sample inspection conducted in October 2008 (NRC Inspection Report 05000247/2008013 and 05000286/2008011).

The inspectors conducted a review of the applicable condition reports (CRs), corrective action assignments (CAs), focused self-assessments, Quality Assurance group assessments, and causal evaluations for the substantive cross-cutting issue. The inspectors also reviewed Entergy's performance indicators related to their performance improvement plan; reviewed a sample of revised procedures; conducted a series of interviews with station management, procedure writers and reviewers, maintenance technicians, and operators in order to assess the adequacy of the performance plan and effectiveness of corrective actions.

b. Findings and Observations

No findings of significance were identified.

The inspectors determined that Entergy continued to make progress in effectively implementing their corrective action plans that address the substantive cross-cutting issue in Human Performance related to procedure adequacy.

The inspectors concluded that Entergy's corrective action plans were reasonable in scope because they addressed procedures that contributed to the substantive cross-cutting issue. Entergy's corrective action plans included Operations, Electrical and Mechanical Maintenance, and I&C Maintenance procedures. The procedure upgrade project portion of Entergy's corrective action plans focused on risk significant components and actions in operating procedures. The inspectors determined the procedure upgrade project scope appropriately included operating procedures related to initiating events, single point vulnerabilities, and integrated plant operating procedures. The inspectors observed that station training was developed and provided for the individuals involved in the procedure upgrade project and their management. The inspectors also observed that procedure reviews were being conducted for Security, Chemistry, Radiation Protection, and Engineering procedures to improve the quality of procedures in those areas.

The inspectors confirmed previous NRC observations, through interviews with Entergy staff, that the station has shifted the ownership of this project from the support organizations to the line organization. Entergy personnel indicated this organizational alignment has been a significant factor in the increased acceptance and participation from plant workers, and produced a noticeable improvement in revised procedure quality. The inspectors observed that several personnel interviewed commented that the human performance training simulator is an effective tool, and assisted procedure writers with the identification of human performance error traps in existing procedures. The inspectors concluded that the realignment of the procedure upgrade project resulted in enhanced project accountability and quality output.

With respect to the progress of the procedure upgrade project, Entergy completed Phase I of the project ahead of their internal schedule and started Phase II. Phase I consisted of operations procedures associated with the top three risk significant systems

for Units 2 and 3. Phase II of the procedure upgrade project included the remaining top 10 plant risk significant systems, integrated plant operating procedures, procedures which involved single point vulnerabilities and initiating events. Current Entergy plans and progress indicate that the Phase II portion of the procedure upgrade project will be completed by June 2009, several months ahead of the corrective action plan schedule. The inspectors reviewed a sample of the revised Phase I and Phase II procedures and determined that significant revisions were made and the results met the quality and procedure standards described in Entergy's action plan.

The inspectors also observed that the Electrical and Mechanical Maintenance procedure upgrade project and the I&C Maintenance procedure development project made progress that was consistent with internal action plan schedules and milestones. The inspectors determined that the projects continue to receive the appropriate level of resources and management review and support to ensure completion of these projects.

The inspectors determined that human error awareness and prevention actions were being implemented by Entergy to address the human performance aspects that contributed to the substantive cross-cutting issue in procedure adequacy. The inspectors determined that implementation of training, specifically the human performance training simulator, was appropriate to reinforce human error prevention techniques being applied in the plant.

The inspectors concluded Entergy developed appropriate monitoring measures and performance indicators to assess corrective action effectiveness. The inspectors observed that Entergy utilized these tools to provide initial feedback on corrective action implementation. For example, the inspectors determined that the performance indicators, related to procedure completion status and procedure feedback process backlog, were an effective tool for monitoring station progress in these areas. Additionally, the inspectors concluded that self-assessments were an effective tool for corrective action adjustments and for evaluation of internal and external stakeholder recommendations. Entergy has adjusted the corrective action plan and procedure upgrade project scope to adequately incorporate stakeholder recommendations.

5. Substantive Cross-Cutting Issue Review: Problem Identification and Resolution – Implementation of Corrective Actions (71152 - 1 sample)

a. Inspection Scope

The inspectors reviewed Entergy's action plan to address the Substantive Cross Cutting Issue (SCCI) identified for Unit 2 in the area of Problem Identification and Resolution related to implementation of effective corrective actions. This SCCI was identified in the NRC's 2008 Annual Assessment letter [ADAMS Ref. No. ML080610015] and was continued in the NRC 2008 Mid Cycle Performance Review [ADAMS Ref. No. ML082470316].

The inspectors conducted a review of the applicable condition reports (CRs), corrective action assignments (CAs), focused self-assessments, Quality Assurance group assessments, root cause analyses, common cause analyses, and apparent cause determinations for the substantive cross-cutting issue. The inspectors also reviewed the CRs and corrective actions associated with the four NCVs which contributed to this cross-cutting issue and reviewed a sample of corrective actions for NRC findings in 2007

and 2008 to determine if a trend existed. The inspectors reviewed Entergy's performance in order to assess the adequacy of the performance plan and effectiveness of corrective actions.

b. Findings and Observations

There were no findings of significance.

The inspectors determined that Entergy continued to make progress in effectively implementing their corrective action plans, specific to the substantive cross-cutting issue in Problem Identification and Resolution related to implementation of corrective actions at Unit 2.

The inspectors observed progress made in developing and implementing a site-wide action plan to address the issue. The inspectors concluded that the performance improvement plan developed by Entergy was appropriately focused and sufficiently broad to address the cross-cutting aspect of implementation of corrective actions. Additionally, Entergy is approaching their corrective actions from a site-wide perspective (Units 2 and 3) and implemented changes in the processes and level of management review to ensure the issue was appropriately addressed for both units. Specific corrective actions identified by Entergy included the following: administrative procedure revisions to change corrective action tracking; revised procedure requirements for corrective action review board (CARB) review of level 2 and higher tier causal evaluations; revised corrective action requirements for post-closure CARB review of cause evaluations completed over the past year to include verification that that effectiveness reviews were scheduled, completed, and reviewed by CARB for all significant conditions adverse to quality and violations of regulatory requirements. The inspectors observed that these changes were implemented and further observed management review and challenge of several causal evaluations and effectiveness reviews.

Entergy developed performance indicators to track and trend the implementation of the corrective actions. The inspectors reviewed the data from the performance indicators and concluded that the performance indicators were effective and an indication that corrective actions were identifying areas for improvement. The inspectors also determined that Entergy conducted focused self assessments and benchmarking surveys as additional measures to verify planned actions were sufficiently effective.

4OA3 Event Followup (71153 - 1 sample)

.1 (Closed) Licensee Event Report (LER) 05000247/2008-002-00, Technical Specification Prohibited Condition Due to Exceeding the Allowed Completion Time for an Inoperable Engineered Safety Feature Actuation System Automatic Actuation Logic and Actuation Relay Caused by Improper Relay Wiring

a. Inspection Scope

On March 28, 2008, Entergy identified an improperly wired safety injection (SI) logic relay during troubleshooting of a high resistance contact in the relay. Specifically, Entergy determined that 23 Containment Fan Cooler Unit (FCU) breaker was not wired to receive a closing signal from the SI relay associated with the electric bus that supplies

its power. The 23 FCU is powered from bus 2A, and is designed to receive a sequenced start relay during an SI from the 2A bus SI relay. However, in this case, Entergy identified that 23 FCU would have received its start signal from the 5A bus SI relay. Therefore, if bus 5A was de-energized during an SI, 23 FCU would not receive an automatic sequenced start signal as designed. In this scenario, 23 FCU would still be available for manual start by the operators. Entergy determined the incorrect wiring configuration was a result of an improperly implemented design change by the original plant installer in 1973. The incorrect wiring was never detected during subsequent testing because all four safety bus SI relays are tested simultaneously during biannual SI blackout testing.

Entergy entered this issue into their corrective action program, corrected the relay wiring configuration, and performed an extent-of-condition review of other SI relays. No additional instances of incorrect wiring were identified. The inspectors reviewed the LER and verified the corrective actions were adequate. The enforcement aspects of this finding are discussed in section 4OA7. This LER is closed.

#### 4OA5 Other Activities

##### .1 Implementation of Temporary Instruction (TI) 2515/176 – Emergency Diesel Generator Technical Specification Surveillance Requirements Regarding Endurance and Margin Testing

###### a. Inspection Scope

The objective of TI 2515/176, “Emergency Diesel Generator Technical Specification Surveillance Requirements Regarding Endurance and Margin Testing,” is to gather information to assess the adequacy of nuclear power plant emergency diesel generator endurance and margin testing as prescribed in plant-specific technical specifications (TS). The inspectors reviewed emergency diesel generator ratings, design basis event load calculations, surveillance testing requirements, and emergency diesel generator vendor’s specifications and gathered information in accordance with TI 2515/176.

The inspector assessment and information gathered while completing this TI was discussed with licensee personnel. This information was forwarded on to the Office of Nuclear Reactor Regulation for further review and evaluation.

###### b. Findings

No findings of significance were identified.

##### .2 TI 2515/173, Review of the Implementation of the Industry Ground Water Protection Voluntary Initiative

###### a. Inspection Scope

An NRC assessment was performed the week of August 11, 2008 of Entergy’s implementation of the Nuclear Energy Institute – Voluntary Ground Water Protection Initiative (dated August 2007, ADAMS Ref. No. ML072610036). Entergy evaluated work practices that could lead to leaks and spills, and performed an evaluation of systems,



structures, and components that contain licensed radioactive material to determine potential leak or spill mechanisms.

Entergy completed a site characterization of geology and hydrology to determine the predominant ground water gradients and potential pathways for ground water migration from on-site locations to off-site locations. An on-site ground water monitoring program was implemented to monitor for potential licensed radioactive leakage into groundwater. The ground water monitoring results are being reported in the annual effluent and/or environmental monitoring report.

(<http://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html>)

Entergy prepared procedures for the decision making process for potential remediation of leaks and spills, including consideration of the long term decommissioning impacts. Records of leaks and spills are being recorded in Entergy's decommissioning files in accordance with 10 CFR 50.75(g).

Entergy identified appropriate local and state officials and conducted briefings on Entergy's ground water protection initiative. Protocols have been established for notification to these local and state officials regarding detection of leaks and spills.

b. Findings and Observations

No findings of significance were identified.

.3 Ground-Water Contamination Review

a. Inspection Scope

The inspectors reviewed plans, procedures, and remediation activities affecting the contaminated ground water condition at Indian Point, relative to NRC regulatory requirements, as authorized by the NRC Executive Director of Operations in a Reactor Oversight Process deviation memorandum dated December 19, 2007 (ADAMS Accession number ML073480290). The inspectors also reviewed Entergy's performance relative to remediation of the principal source of groundwater contamination including observation of the draining and sludge removal of the Unit 1 spent fuel pools, the radioactive waste processing of the fuel pool water and residual sludge materials, and reviewed the radioactive liquid effluent release accounting and dose calculations resulting from these activities. The inspection included onsite inspections on September 18, 2008; October 10, 2008; October 14-15, 2008; and November 17-18, 2008.

b. Findings and Observations

No findings of significance were identified.

Following the removal of Unit 1 spent fuel to dry cask storage, Entergy established special radioactive liquid processing and sampling equipment for conducting the drain down of the Unit 1 spent fuel pools. Between September 15, 2008 and November 7, 2008, approximately 500,000 gallons of water were drained and processed which included pool surface rinse water used during sludge removal activities. The liquid processing equipment was designed to clarify the pool water prior to discharge into the

Hudson River. The liquid processing system consisted of a series of sequential processing modules which included a filter cartridge, a 25 ft<sup>3</sup> mixed (cation and anion) demineralizer resin vessel followed by five 12.5 ft<sup>3</sup> supplemental water polishing units consisting of an activated charcoal vessel, a cation demineralizer resin vessel, a mixed demineralizer resin vessel, a cesium-specific filter media vessel, and finally another activated charcoal vessel. The filtered and demineralized water was sampled by an automatic composite sampler for monitoring and analysis prior to the effluent stream release into the discharge canal. Residual sludge from the bottom of the spent fuel pools was mixed with water and sluiced into a 120 ft<sup>3</sup> polyethylene disposal container. Liquids were removed from this solid waste container by periodically pumping down the container through the self-contained dewatering system contained in the disposal container. These liquid wastes were subsequently processed through the same liquid processing system as described above, however, due to the potentially higher radioactive contaminants, the final processed water was redirected to a Unit 1 waste collection tank to allow for additional waste water treatment prior to discharge. The 120 ft<sup>3</sup> disposal container of solid waste was classified as Class B waste and will be stored onsite until an offsite disposal facility becomes available.

The inspectors determined that treated and discharged water was sampled and properly accounted by Entergy to result in less than 1 Curie of radioactivity discharged consisting mostly of tritium, and small amounts of Kr-85 and Cs-137. The resulting public dose associated from this liquid discharge activity was 0.00007 mrem to the whole body and 0.00012 mrem to the highest organ (teen/liver). The inspectors confirmed these values represented small fractions of the liquid discharge limits of 3 mrem/yr whole body and 10 mrem/yr maximum organ dose limits specified in 10 CFR 50, Appendix I.

#### 40A6 Meetings

##### Exit Meeting Summary

On January 9, 2008, the inspectors presented the inspection results to Mr. Joseph Pollock and other Entergy staff members, who acknowledged the inspection results presented. Entergy did not identify any material as proprietary.

#### 40A7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by Entergy and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a NCV.

Technical Specification (TS) 3.6.6 requires, in part, a minimum of three trains of containment fan cooler units (FCU) to be operable in mode 1. Contrary to this requirement, the required number of FCUs was not operable in mode 1, assuming a single failure of one emergency diesel generator (EDG) to supply power to the 5A bus during a design basis accident, coincident with a loss of offsite power. Specifically, on March 28, 2008, Entergy identified an incorrect wiring configuration that would have prevented the automatic start of the 23 FCU. This condition, coincident with a single failure of an EDG during a design basis accident, coincident with a loss of offsite power, would have prevented the automatic start of at least three FCUs.

This issue was corrected on March 28, 2008 and entered into Entergy's corrective action

program as IP2-2008-01482. The finding was more than minor because it was associated with the mitigating systems cornerstone and impacted the objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined that this finding was of very low safety significance (Green) based on IMC 0609, Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," because the finding did not represent an actual loss of safety function of the FCUs for greater than their allowed outage time.

ATTACHMENT: SUPPLEMENTAL INFORMATION

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Entergy Personnel

J. Pollock, Site Vice President  
A. Vitale, General Manager, Plant Operations  
P. Conroy, Director, Nuclear Safety Assurance  
A. Williams, Manager, Operations  
J.R. Beckman, Manager, Maintenance  
T. Orlando, Manager, Engineering  
B. Sullivan, Manager, Emergency Planning  
S. Verrochi, Manager, System Engineering  
R. Walpole, Manager, Licensing  
D. Loope, Manager, Radiation Protection  
F. Inzirillo, Manager, Quality Assurance  
C. English, Superintendent, Unit 1  
S. Sandike, Chemistry and Environmental Specialist  
T. Stephens, Energy Solutions  
R. Turner, Energy Solutions  
R. Christman, Training Manager  
J. Whitney, Emergency Diesel Generator System Engineer

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened and Closed

None.

Closed

05000247/2008-002-00	LER	Technical Specification Prohibited Condition Due to Exceeding the Allowed Completion Time for an Inoperable Engineered Safety Feature Actuation System Automatic Actuation Logic and Actuation Relay Caused by Improper Relay Wiring (Section 4OA3)
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## LIST OF DOCUMENTS REVIEWED

### **Indian Point Unit 2 Common Documents**

Indian Point Unit 2 Control Room Narrative Logs  
Control Room Standing Orders  
Indian Point Unit 2 Updated Final Safety Analysis Report (UFSAR)

### **Section 1R01: Adverse Weather Protection**

#### Procedures

OAP-048, Seasonal Weather Preparation  
OAP-008, Severe Weather Preparations  
2-COL-11.5, Space Heating and Winterization  
2-COL-30.1, Electric Heat Tracing  
2-AOP-FLOOD-1, Flooding

#### Condition Reports

IP2-2007-05291	IP2-2008-04096	IP2-2007-00884	IP2-2007-04853
IP2-2006-02133	IP2-2006-03406	IP2-2006-06311	IP2-2007-04332

#### Miscellaneous

Individual Plant Examination of External Events for Indian Point Unit No. 2

### **Section 1R04: Equipment Alignment**

#### Procedure

2-COL-27.3.1, Diesel Generators  
2-PT-Q028A, "21 Residual Heat Removal Pump," Rev. 18  
2-SOP-4.2.1, "Residual Heat Removal System," Rev. 61  
2-COL-4.2.1, "Residual Heat Removal System," Rev. 26  
2-COL-10.1.1, "Safety Injection System," Rev. 32  
2-COL-27.6, "Unit 2 Appendix R Diesel Generator," Rev. 0

#### Drawings

9321-2735  
235296  
251783

#### Miscellaneous

ARDG-003-APP-R, Restoration tagout dated 10/21/08

### **Section 1R05: Fire Protection**

#### Procedures

2PT-2Y017, Penetration Fire Barrier Seal Inspections  
2-PT-EM19, Cable Spreading Room Halon Testing  
PT-EM28, Fire Dampers Operability  
SAO-703, Fire Protection Impairment Criteria and Surveillance  
EN-DC-161, Control of Combustibles

Condition Reports

IP2-2008-04245      IP2-2008-04657      IP2-2008-04888      IP2-2008-04962  
IP2-2008-05090      IP2-2008-05551

Drawings

400401-04, Fire Area/Zone Arrangement at EL 15'  
400404-02, Fire Area/Zone Arrangement at EL 80'

Orders

IP2-03-31785      IP2-05-21166      51645811

Miscellaneous

Indian Point Nuclear Generating Station, Unit 2, Fire Protection Program Plan, Rev. 9  
Indian Point Pre-Fire Plans Unit 2 – Nuclear  
IP2-RPT-03-00015, "IP2 Fire Hazards Analysis," Rev. 3

**Section 1R11: Licensed Operator Regualification Program**

Procedures

EN-TQ-201, Systematic Approach to Training Process, Rev 4  
IP-SMM TQ-114, Continuing Training & Regualification Examinations for Licensed Personnel, Rev 7  
OAP-032, Operations Training Program, Rev 9  
OAP-033, Conduct of Operations Simulator Training, Evaluations, and Debriefs, Rev 4  
2-AOP-FW-1, "Loss of Main Feedwater," Rev. 11  
2-AOP-SG-1, "Steam Generator Tube Leak," Rev. 10

Miscellaneous

LRQ Sample Plan for 2007 Comprehensive Written Exam  
12SG-LOR-AOP014, Instrument/Controller Failures Lesson Plan, Rev 2  
12LP-LOR-AOP009, Containment Integrity, RCS Activity, & Air System Malfunction Lesson  
Plan, Rev 0

**Section 1R12: Maintenance Effectiveness**

Procedures

EN-DC-203, Maintenance Rule Program  
EN-DC-205, Maintenance Rule Monitoring  
EN-DC-324, Preventive Maintenance Process  
0-SYS-401-Gen, "Application of Protective Coatings," Rev. 1

Condition Reports

IP2-2008-04472      IP2-2008-04709      IP2-2008-04342      IP2-2008-04228  
IP2-2008-04112

Work Orders

00164495

Miscellaneous

NUMARC 93-01, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear  
Power Plants  
Service Water System Health Report, 3Q 2008

Maintenance Rule Basis Document – Service Water  
IP2-UT-08-085, UT erosion/corrosion examination line #1505  
IP2-UT-08-086, UT erosion/corrosion examination line #1505  
IP2-UT-08-087, UT erosion/corrosion examination line #1509  
IP2-UT-08-088, UT erosion/corrosion examination line #1509  
IP2-UT-08-089, UT erosion/corrosion examination line #1509

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

Procedures

2-PT-R084C, 23 EDG 8 Hour Load Test  
IP-SMM-WM-101, On-Line Risk Assessment

Condition Reports

IP2-2008-04812

Work Orders

51570202      00156016      51570202      00156016

Miscellaneous

TS 3.8.1.10 Note 2 Assessment for U2 EDG 8 Hour Runs in Mode 1  
Indian Point Daily Status Reports for October 1, 2, and 3, 2008  
EOOS Risk Model Operator's Risk Report for Unit 2 on 10/2 and 10/3, 2008  
Week 0840 Unit 2 Operator's Risk Report.

**Section 1R15: Operability Evaluations**

Procedures

3-PMP-003-CCW, Inspection/Repair of the Component Cooling Pump

Drawings

242688  
235306  
9321-2723

Condition Reports

IP2-2008-04921      IP2-2008-03041      IP2-2008-04495      IP2-2008-04351  
IP2-2008-04951

Work Orders

51668324  
00149226

Miscellaneous

Vendor manual – Ingersoll Rand “S” Line General Service Pumps

**Section 1R18: Plant Modifications**

Procedures

EN-DC-136, Temporary Modifications

Condition Reports

IP2-2008-04898

Work Orders

00174868

Drawings

Sketch "A" TM-12305

Miscellaneous

Indian Point Unit 2 Maintenance Rule Document – 138 kVAC Electrical System  
 Vendor manual – 1380-SF-10000 series electrical breaker  
 TMOD No: EC 12305, Install Nitrogen connection at BT4-5 air compressor tank.

**Section 1R19: Post-Maintenance Testing**Procedures

2-BRK-021-CUB, Westinghouse 480V DB Series Breaker Cubicle Inspection and Cleaning  
 0-HTX-405-EDG, EDG Lube Oil and Jacket Water Heat Exchanger Maintenance  
 2-IC-PC-I-P-1139, "Auxiliary Boiler Feed Pump No.22 Steam Supply Controller," Rev. 0  
 OAP-24, "Operations Testing," Rev. 3  
 PFM-44, "Generic Inservice Pressure Test Program," Rev. 3  
 2-BRK-001-ELC, "ITE Type KC, Model G-Air Circuit Breaker," Rev. 0

Condition Reports

IP2-2008-05089

Work Orders

51270253	51670696	51606970	00137722	00173188	51644972
51655457	51315478	51672218			

Drawings

226033	251231	251232	9321-2017	9321-2125	208088
244016					

Miscellaneous

Conoflow Regulators and Controls Instruction and Maintenance Manual, GP50 series

**Section 1R22: Surveillance Testing**Procedures

2-PT-Q035B, 22 Containment Spray Pump Test  
 2-PC-2Y55, Containment Sump Discrete Level Instrumentation  
 2-ES-1.3, Transfer to Cold Leg Recirculation  
 2-E-1, Loss of Reactor or Secondary Coolant  
 2-NF-309, RCS Delta-T, T-Avg and Flow Measurement  
 2-PT-V59, "Reactor Trip Breaker "A" Changeout and Functional Test," Rev. 4  
 2-PC-4Y74C, "Nuclear Instruments Power Range N-43," Rev. 1  
 PT-Q13, "Inservice Valve Tests", Data Sheet 38 - valve 869B, Rev. 21



Condition Reports

IP2-2008-04852      IP2-2008-04380      IP2-2008-04450

Orders

51570801      00164350      51298850

Miscellaneous

EC 3714, Replacement of LT-3300 and LT-3301 and Addition of PICS input from LT-939 and LT-941

IP2-RHR/SIS DBD, Residual Heat Removal and Safety Injection Design Basis Document

**Section 1EP2: Alert and Notification System (ANS) Evaluation**

Procedures

Command and Control Alert Notification Testing, October 22, 2008

**Section 2OS3: Access Control to Radiologically Significant Areas**

Procedures

EN-CY-108, Rev. 2, Monitoring of Non-Radioactive Systems  
EN-RP-113, Rev. 2, Response to Contaminated Spills / Leaks  
EN-RP-303, Rev. 2, Source Check Radiation Protection Instrumentation  
EN-RP-306, Rev. 2, Calibration and Operation of the Eberline PM-7  
EN-RP-309, Rev. 1, Operation and Calibration of the Eberline AMS-3 / 3A Continuous Air Monitor  
EN-RP-501, Rev. 3, Respiratory Protection Program  
EN-RP-502, Rev. 4, Inspection and Maintenance of Respiratory Protection Equipment  
IP-EP-AD6-20, Rev. 2, Respiratory Protection Monthly Equipment Inventory  
IP-EP-AD6-21, Rev. 3, Respiratory Protection Quarterly Equipment Inventory  
IP-RP-IC-301, Rev. 1, Calibration of the Eberline AMS-4 Air Monitoring System Using Windows  
IP-SMM-CY-001, Rev. 6, Radioactive Effluents Control Program  
RE-ADM-1-22, Rev. 0, Site Soil Characterization  
RE-INS-7CC-1, Rev. 12, Calibration of the Eberline AMS-2 Beta-Gamma Air Monitor  
RE-INS-7CC-7/8, Eberline PING-1A Calibration Record  
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**LIST OF ACRONYMS**

ABFP	auxiliary boiler feed pump
ADAMS	Agency-wide Document and Management System
ANS	alert and notification system
ASME	American Society of Mechanical Engineers
CA	corrective actions
CARB	corrective action review board
CEDE	committed effective does equivalent
CFR	Code of Federal Regulations
CR	condition report
EDO	Executive Director of Operations
ENTERGY	Entergy Nuclear Northeast
EP	Emergency Preparedness
FCU	containment fan cooler unit
IMC	Inspection Manual Chapter
IPEC	Indian Point Energy Center
IPEEE	Internal Plant Examination of External Events
JPM	job performance measures
LER	licensee event report
MSPI	Mitigating System Performance Indicator
NCV	non-cited violation
NDE	non-destructive examination
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
PARS	Publicly Available Records System
PI	performance indicator
PIM	plant issues matrix
RHR	residual heat removal
SCBA	self-contained breathing apparatus
SCCI	substantive cross-cutting issue
SDP	significance determination process
SG	steam generator
SI	safety injection
SSC	structures, systems, and components
TI	temporary instruction
TS	Technical Specification
UFSAR	Updated Final Safety Evaluation Report
URI	unresolved item
WO	work order