UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

November 8, 2012

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

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT 3 – NRC INTEGRATED INSPECTION REPORT 05000286/2012004

Dear Mr. Ventosa:

On September 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Indian Point Nuclear Generating Unit 3. The enclosed integrated inspection report documents the inspection results, which were discussed on October 25, 2012, 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 were identified.

In accordance with 10 CFR 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 of from the Publicly Available Records component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Mel Gray, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket No. 50-286
License No. DPR-26

Enclosure: Inspection Report 05000286/2012004
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.:	50-286
License No.:	DPR-26
Report No.:	05000286/2012004
Licensee:	Entergy Nuclear Northeast (Entergy)
Facility:	Indian Point Nuclear Generating Unit 3
Location:	450 Broadway, GSB Buchanan, NY 10511-0249
Dates:	July 1, 2012, through September 30, 2012
Inspectors:	P. Cataldo, Senior Resident Inspector N. Lafferty, Acting Resident Inspector C. Crisden, Emergency Preparedness Specialist J. Furia, Senior Health Physicist E. H. Gray, Senior Reactor Inspector T. O'Hara, Reactor Engineer L. Scholl, Senior Reactor Inspector
Approved By:	Mel Gray, Chief Reactor Projects Branch 2 Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000286/2012004; 7/1/12 – 9/30/12; Indian Point Nuclear Generating (Indian Point) Unit 3;

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by region inspectors. No findings of significance were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

REPORT DETAILS

Summary of Plant Status

Indian Point Unit 3 operated at or near 100 percent power during the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

Impending Solar Flare Activity Review

a. Inspection Scope

The inspectors performed a detailed review of Entergy procedures and actions to address solar activity that occurred between July 9 – July 15, 2012. This review evaluated Entergy's preparation and readiness for the impending geomagnetic disturbances (GMD), including applicable compensatory measures, as well as inspector-conducted walkdowns of plant equipment and general plant areas of affected components, such as main transformers. In addition, the inspectors reviewed the status of deficiencies identified during the current hot weather seasonal preparations and verified that adverse conditions were being adequately addressed to ensure the impending GMD would not have significant impact on plant operation and safety in the aggregate. The inspectors verified that the station's implementation of OAP-008, "Severe Weather Preparations," appropriately maintained systems required for normal operation and safe shutdown conditions. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial System Walkdowns (71111.04Q – 3 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- 31 containment spray system (CSP) during a 32 CSP surveillance test on July 12, 2012
- 32 auxiliary boiler feed pump (ABFP) during 33 ABFP maintenance on July 25, 2012
- 31/33 emergency diesel generator (EDG) during 32 EDG maintenance on July 30, 2012

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed

applicable operating procedures, system diagrams, the UFSAR, technical specifications, work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Entergy staff had properly identified equipment issues and entered them into the corrective action program for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire Protection

Resident Inspector Quarterly Walkdowns (71111.05Q – 5 samples)

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that Entergy staff controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that Entergy personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Pre-fire plan (PFP)-306, [fire zones (FZs) 1, 1A, 2, 2A, 58A]: General Floor Plan – Primary Auxiliary Building, on August 28, 2012
- PFP-307A (FZs 17A, 19A, 20A, 21A, 63A): MCC/Dress-Out/LSA Baling Areas – Primary Auxiliary Building, on August 29, 2012
- PFP-307B (FZs 5, 6, 7, 17A, 18A, 19A): Charging Pumps – Primary Auxiliary Building, on August 30, 2012
- PFP-308 (FZs 22A, 23A, 24A, 25A, 26A, 27A, 28A, 29A, 30A, 31A, 32A, 89A): General Floor Plan, on August 30, 2012
- PFP-385 (FZ 22): Circulating and Service Water Pump Building, on August 31, 2012

a. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07)

.1 Quarterly Inspection (71111.07A – 1 sample)

a. Inspection Scope

The inspectors reviewed the 31 EDG jacket water and lube oil heat exchangers to determine their readiness and availability to perform safety functions. The inspectors reviewed the design basis for the components and verified Entergy's commitments to NRC Generic Letter 89-13. The inspectors reviewed the results of previous inspections of the 31 EDG jacket water, lube oil, and similar heat exchangers. The inspectors discussed the results of the most recent inspection with engineering staff and reviewed pictures of the as-found and as-left conditions. The inspectors verified that Entergy staff initiated appropriate corrective actions for identified deficiencies. The inspectors also verified that the number of tubes plugged within the heat exchanger did not exceed the maximum amount allowed for continued operability, and consistent with its applicable design and licensing basis documents.

b. Findings

No findings were identified.

.2 Triennial Heat Sink Performance (71111.07T – 3 samples)

a. Inspection Scope

Heat Sink and Heat Exchanger Sample Selection [02.02(a)]

Based on Entergy's risk-ranking of safety-related heat exchangers, a review of previously completed triennial heat sink inspections, recent operational experience, and resident inspector input, the inspectors selected one heat sink sample and two heat exchanger samples for inspection. This inspection represents a site-wide inspection (Units 2 and 3 combined) consistent with the information contained in the Indian Point Annual Assessment Letter dated March 5, 2012, ML12061A159.

Service Water Cooled Heat Exchangers

The inspectors completed an ultimate heat sink inspection of the Unit 3 service water (SW) system, in accordance with applicable steps of Inspection Procedure 71111.07, Sections 02.02(b.), 02.02(d)(4) and 02.02(d)(6). The importance of the SW system is that it removes heat from the component cooling water (CCW) system, which in turn, removes heat from additional safety-related plant systems.

The inspectors reviewed recent design changes to the Unit 3 SW system and verified that the original design of the system had not been adversely affected by these changes. Specifically, the inspectors reviewed changes to the mechanical seals on the 24-inch buried SW pipe and the installation of maintenance access ports on SW header No. 409. The inspectors also reviewed the installation of SW bay water level transmitters to provide operators with indication of available pump head, and the replacement of valve SWT-235-2 to improve operation.

The inspectors reviewed current operating and emergency operating procedures for the Unit 3 SW system, including procedures for the loss of the SW system or the ultimate heat sink. The inspectors also verified that instrumentation was available for operational decision-making and that the instrumentation was properly maintained.

The inspectors verified that Entergy personnel established adequate controls and maintenance procedures to detect and prevent system degradation due to macro-fouling of the SW system. The inspectors reviewed Entergy's biocide treatment and control procedures. Biocide treatments of the SW system were verified to be controlled in accordance with industry standards to maintain low biocide levels, and to eliminate system fouling from biotic species. System biocide treatments were verified to be monitored, trended and evaluated to ensure biotic control.

The inspectors reviewed Entergy's evaluation of the Unit 3 SW pump configuration to ensure the system arrangement is not subject to the strong-pump/weak-pump interaction phenomenon.

The inspectors conducted a walk down of accessible portions of the Unit 3 SW system. In addition, because the SW system contains a significant amount of buried piping, the inspectors reviewed documentation for several, recent Unit 3 buried piping inspections. The inspector noted that these inspections were performed consistent with Entergy's Buried Piping and Tanks Program.

The inspectors reviewed non-destructive examination results from several, ultrasonic testing (UT) examinations of leaking piping, several visual inspection reports, as well as eddy current testing results from heat exchanger inspections. The inspector reviewed these. These results were reviewed to verify that the existing SW piping and components have structural integrity. The inspectors also reviewed temporary modification TMOD-27859, which was installed to mitigate a through-wall leak in a 10-inch SW pipe. This review included a structural integrity calculation which demonstrated the acceptability of the structural integrity of the pipe.

The inspectors reviewed a three-year summary of corrective action records documenting leaks in SW systems for both Units 2 and 3, and that Entergy had identified an adverse trend in the number of through-wall leaks in the SW systems for both Units. The increasing trend was documented in both the corrective action process and in the Engineering Department's System Health Monitoring Program. The inspector noted that Entergy has implemented actions to identify leaks, repair leaks and to replace SW piping with piping material which is more resistant to pitting corrosion, and were intended to reverse the adverse trend of SW piping leaks.

Additionally, the inspectors verified that system engineers conducted frequent, system walk-downs of the SW system, documented these results, and monitored the system for adverse trends. The inspectors also verified that operators conducted system observations and monitor the SW system piping for leaks and excessive pump seal leak-off flow, during operator shift rounds.

The inspectors verified that Entergy had an active, structural monitoring program that included the Unit 3 SW Intake Structure. The condition of the intake structure was being monitored using this program.

The inspector noted that Entergy does not perform SW system performance testing to verify SW system heat removal heat capability. Therefore, as an acceptable alternative, the inspector verified that Entergy conducts periodic, visual inspections and eddy current testing of the CCW heat exchangers and verifies that SW system flow capability meets original design values.

The inspectors reviewed six recent, Unit 3 SW system in-service surveillance tests (ISTs), which measured system flow and pump vibration. This review also verified that the results of these tests confirmed the flow capability of the Unit 3 SW system to transfer design basis heat loads to the ultimate heat sink. In addition, the inspectors noted that Entergy's system engineers monitored the inservice test (IST) results for adverse trends.

The inspectors verified that Entergy had an active heat exchanger monitoring program, which included applicable maintenance and inspections to monitor piping and components for protective coating failures, and for corrosion and erosion. Additionally, the inspector noted that similar conditions are monitored through walkdowns and inspections under the Buried Piping and Tanks Program.

Closed Loop Cooled Heat Exchanger (Unit 2)

The inspectors completed an inspection of the Unit 2, No. 21 residual heat removal (RHR) heat exchanger, in accordance with applicable steps of Inspection Procedure 71111.07, Section 02.02(c).

While the inspector noted that the RHR heat exchanger had not been disassembled and inspected due to its inaccessibility and has not had a performance test, Entergy recently completed a calculation using flow and temperature values from a plant cool-down which demonstrated that this RHR heat exchanger had sufficient heat transfer capacity to perform its design function.

The inspector verified that Entergy had completed calculation CALC-04-01353, which verified that the RHR piping can withstand water hammer stress loads. This calculation also was noted to have established minimum and maximum heat exchanger flow values to provide adequate heat removal and avoid the potential of water hammer.

The review also verified that Entergy's operating procedures contained appropriate administrative controls on RHR system allowable heat exchanger flow (maximum and minimum) values to ensure that system piping would not be susceptible to excessive flow-induced vibration damage during plant operation.

The inspector verified that both primary and secondary side systems of the 21 RHR heat exchanger, were controlled, tested and evaluated to maintain a corrosion-resistant environment. The inspector noted that the primary side was maintained consistent with the reactor coolant system (RCS) chemistry environment, and secondary CCW cooling system was maintained in accordance with industry standards, and chemically treated for corrosion inhibitance.

The inspectors also verified that the 21 RHR heat exchanger had zero plugged tubes, and thus, there has been no effect on the design heat exchanger performance. The inspectors noted that Entergy has committed, in license renewal commitment #10, to open and inspect the Unit 2, 21 and 22 RHR heat exchangers during scheduled outages

within the next three years. After these committed inspections, Entergy plans on conducting periodic visual and eddy current inspections of both heat exchangers.

Closed Loop Cooled Heat Exchanger (Unit 3)

The inspectors completed a heat exchanger inspection of the Unit 3 seal water heat exchanger, in accordance with applicable steps of Inspection Procedure 71111.07, Section 02.02(b).

The inspector noted that the seal water heat exchanger had not been performance tested and was not routinely disassembled for visual and eddy current inspection due to its inaccessibility. However, the inspectors noted that Entergy has committed, in license renewal commitment #10, to open and inspect the seal water heat exchanger during scheduled outages within the next three years. Following this inspection, Entergy plans on periodically conducting visual and eddy current inspections on this heat exchanger.

While the Unit 3 seal water heat exchanger had not been performance tested, the inspector verified that there are no records which indicate the existence of significant deficiencies, leaks, or plugged tubes for this heat exchanger.

The inspector verified that both primary and secondary side systems of the seal water heat exchanger were controlled, tested and evaluated to maintain a low corrosive environment. The inspector noted that the primary side was maintained consistent with the RCS chemistry environment, and the secondary CCW cooling system was maintained in accordance with industry standards, and chemically treated for corrosion inhibitance.

Review of Corrective Action Reports

The inspectors reviewed a sample of corrective action program reports related to the SW system, the Unit 2 RHR heat exchangers, the Unit 3 seal water heat exchanger, and leaks in above-ground and buried piping systems. The review verified that Entergy is appropriately identifying, characterizing, and correcting problems related to these systems and components, and that the planned or completed corrective actions for the reported issues were appropriate. The reports reviewed are listed in Attachment 1.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11Q – 2 samples)

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on July 24, 2012, which included an annual evaluated simulator scenario that included various equipment malfunctions and a steam generator tube rupture. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures.

The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the technical specification action statements assessed by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew and individual performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

The inspectors observed and reviewed licensed-operator performance during various activities in the central control room. This review included: Operator response to a potential steam generator (SG) tube leak, including actions in accordance with 3-AOP-SG-1, following radiation monitor RM-15 alarm conditions indicating the presence of radioactive effluent from the steam jet air ejector exhaust on July 16, 2012, and subsequently was determined to be a malfunction versus an actual tube leak. In addition, the inspectors observed safety injection (SI) system valve testing on September 5, 2012, and operator shift turnover and briefing on September 15, 2012. The inspectors verified appropriate procedural usage, crew communications, and coordination of activities between work groups, consistent with established expectations and standards.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 3 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, and component (SSC) performance and reliability. The inspectors reviewed system health reports, corrective action program documents, maintenance work orders, and maintenance rule basis documents to ensure that Entergy staff was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by Entergy staff was reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that Entergy staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- 31 pressurizer backup heater blown fuses on August 5 and 9, 2012
- 32 steam generator steam flow module FM-429A failure on August 8, 2012

- 34 SW pump packing failure on August 11, 2012

a. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that Entergy performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that Entergy personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When Entergy performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- During 33 charging pump maintenance and SI logic testing on July 16, 2012
- With 33332 L&M and 32 EDG out-of-service on July 30, 2012
- During 32 EDG and 33 safety injection pump maintenance on August 2, 2012
- During 32 CCW heat exchanger maintenance and SI logic testing on September 10, 2012
- During 32 ABFP maintenance and 138 kV feeder outage on September 18, 2012

a. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 5 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

- EDG reserve fuel oil storage tank high out-of-specification particulate on June 21, 2012
- SW leak upstream of the 31 CCW heat exchanger SW sample valve, on July 18, 2012
- 32 ABFP governor oiler flow rate setting, CR-2400, on August 6, 2012
- 32 EDG ventilation system fan 316 controller on August 2, 2012
- 33 service water pump (SWP) failure-to-start, on September 23, 2012

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and UFSAR to Entergy's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by Entergy. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

a. Findings

Introduction. The inspectors identified a performance deficiency, in that Entergy personnel did not promptly identify and correct a condition adverse to quality, regarding the 32 ABFP governor oiler. Specifically, this performance deficiency involved Entergy staff not ensuring the ABFP governor oiler was supplying oil at the vendor-recommended drip rate to the governor bearing assembly. However, the inspectors determined this issue to be an unresolved item (URI), pending the receipt of past-operability information from Entergy.

Description. On July 17, 2012, at Unit 2, the inspectors identified that there was no visible oil level in the 22 ABFP governor oiler reservoir, which called into question the adequate lubrication of the governor bearing. Entergy subsequently evaluated the IP3 No. 32 ABFP governor oiler, during an extent-of-condition review, which was documented in CR-IP3-2012-02400. Entergy personnel determined that the governor oiler drip-rate was less than the vendor-recommendation of 2 to 5 drops per hour. Entergy personnel took immediate corrective actions to adjust the oiler to the appropriate drip-rate, as specified in maintenance procedure 0-TUR-403-AFP, "Worthington Auxiliary Boiler Feed Pump Turbine Preventive Maintenance," Revision 7. In addition, Entergy staff initiated CR-IP2-2012-05711, to consolidate the assessment of the 22 and 32 ABFP governor oiler issues, and revised recurrent PM activities from a periodicity of 6 months to 3 months.

While the IP2 governor oiler utilizes a wick-style device, the IP3 governor oiler utilizes a gravity feed style oiler with an integral needle valve to control the oil flow to the governor bearing assembly. The vendor-recommended adjustment for the needle valve results in a flow of 2 to 5 drops per hour, which correlates to approximately 6 to 15 ounces per month. Once the oil passes through the governor bearing, it accumulates in the governor sump, where through periodic preventive maintenance (PM), it is drained, measured, and recorded to prevent excessive oil accumulation in the sump, which could adversely affect the governor or turbine operation. In addition, every two years the governor valve is inspected through implementation of applicable maintenance procedures, which include a verification of adequate oil and flow rate settings on the governor oiler.

The inspectors noted that in 2005, the 32 ABFP governor oiler level was found low and the feed rate was higher than recommended (CR-IP3-2005-02041 & 02285). Entergy's corrective actions, at the time, included a revision to the applicable maintenance

procedure to provide additional guidance regarding the governor oiler setting and, more importantly, a verification of the oiler feed-rate of 2 to 5 drops-per-hour. However, in 2007, the inspectors identified that the guidance on needle valve adjustments to achieve the desired drip-rate was not added to the procedure, and was documented in CR-IP3-2007-03639. The 32 ABFP governor oiler was subsequently determined to be set correctly (and operable), and the maintenance procedure was revised to include the required details regarding the setting of the oiler needle valve, and verification of the required drip-rate of 2 – 5 drops-per-hour have been established.

The inspectors also noted that Entergy had established a periodic (every 6 months), PM activity to drain oil in the governor sump, which included a requirement by staff to record the amount oil collected, and to forward the amount to engineering personnel. The inspectors reviewed several, completed PM work orders, and identified the following results:

May 12, 2010	2.0 oz.
October 29, 2010	0.5 oz.
April 14, 2011	1.0 oz.
September 29, 2011	1.0 mL
April 5, 2012	1.0 mL
September 18, 2012	2.5 oz.

Based on a drip rate of 2 to 5 drops per hour, it is estimated that about 36 to 90 ounces (1 – 2.6 L) of oil would accumulate in the governor sump over a six month period, much more than what was actually collected and recorded.

As a result, the inspectors identified a performance deficiency, in that Entergy personnel did not (1) identify that the 32 ABFP governor oiler was not delivering the required 2 – 5 drops-per-hour of oil from the reservoir, to the governor bearing assembly, as evidenced by recent PM activities that collected oil from the governor sump in volumes much less than what would have been expected, and (2) effectively implement corrective actions to ensure that the oiler setting was appropriate for the circumstances, in accordance with maintenance procedure 0-TUR-403-AFP, when this procedure was exercised in March 2011. The inspectors considered these issues to be inconsistent with the standards and guidelines of prompt identification and resolution of EN-LI-102, Corrective Action Program, and as demonstrated above, were reasonably within Entergy's ability to foresee and correct.

This issue will be tracked as an URI, because additional information is needed from Entergy regarding 32 ABFP past-operability. Specifically, whether inadequate lubrication of the 32 ABFP governor bearing assembly would impact its safety function for its specified mission time of 29 hours, and in turn, whether the identified performance deficiency is more-than-minor. The action to address past operability is documented in Entergy's corrective action program under CR-IP3-2012-2400. **(URI 05000286/ 2012004-01, Incorrect Setting Identified on the 32 Auxiliary Boiler Feed Pump Governor Oiler)**

1R18 Plant Modifications (71111.18 – 2 samples)

Permanent Modifications

a. Inspection Scope

The inspectors evaluated a modification to the turbine-driven auxiliary feedwater (AFW) steam supply valve air supply regulator setpoint changes, performed under "EC-28646" and a 480-Volt breaker motor cutoff switch gap adjustment, performed under "EC-14261," associated with the 33 motor-driven AFW pump. The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modification. In addition, the inspectors reviewed modification documents associated with the design changes, including calculations and maintenance procedures. The inspectors evaluated the subsequent testing to verify the modifications resulted in acceptable performance in accordance with applicable acceptance criteria.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 6 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- 31 EDG lube oil filter troubleshooting on July 3, 2012
- 33 steam generator steam flow module replacement (FC-439A) on July 11, 2012
- 33 charging pump motor cut-off switch replacement on July 16, 2012
- 31 CCW heat exchanger sample valve weld repair on July 18, 2012
- 32 ABFP maintenance on July 25, 2012
- 32 EDG maintenance outage on July 31, 2012

a. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 6 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied technical specifications, the UFSAR, and Entergy procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- 3-PT-M13B1, Reactor protection logic channel functional test, on July 9, 2012
- 32 CSP functional IST on July 12, 2012
- 3-PT-OL3B13, 34 containment recirculation fan load sequencer calibration, on July 24, 2012
- EDG/Vapor Containment (VC) service water valve testing on August 7, 2012
- SI system containment isolation valve testing on September 5, 2012
- 3-PT-W019, Electrical verification of offsite power sources and AC distribution, on September 15, 2012

a. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 – 1 sample))

a. Inspection Scope

The Office of Nuclear Security and Incident Response headquarters staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures (EPIPs) and the Emergency Plan located under ADAMS accession numbers ML12173A177 and ML12184A041 as listed in the Attachment.

Entergy determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval Entergy-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 – 2 samples)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine Entergy emergency drill on September 12, 2012, to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator and emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critique to compare inspector observations with those identified by Entergy staff in order to evaluate Entergy's critique and to verify whether the Entergy staff was properly identifying weaknesses and entering them into the corrective action program.

b. Findings

No findings were identified.

.2 Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for Unit 3 licensed operators on July 24, 2012, which required emergency plan implementation by an operations crew. Entergy planned for this evolution to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that Entergy evaluators noted the same issues and entered them into the corrective action program.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational/Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

The inspectors used the requirements in 10 CFR Part 20 and guidance in Regulatory Guide 8.38 Control of Access to High and Very High Radiation Areas for Nuclear Plants,

the Technical Specifications, and Entergy's procedures required by technical specifications as criteria for determining compliance.

The inspectors determined if there have been changes to plant operations since the last inspection, that may result in a significant new radiological hazard for onsite workers or members of the public. The inspectors verified that Entergy has assessed the potential impact of these changes and has implemented periodic monitoring, as appropriate, to detect and quantify the radiological hazard.

The inspectors reviewed the last two radiological surveys from selected plant areas. The inspectors verified that the thoroughness and frequency of the surveys are appropriate for the given radiological hazard.

The inspectors conducted walkdowns of the facility, including radioactive waste processing, storage, and handling areas to evaluate material conditions and potential radiological conditions.

The inspectors selected air sample survey records and verified that samples were collected and counted in accordance with Entergy's procedures. The inspectors observed work in potential airborne areas and verified that air samples were representative of the breathing air zone. The inspectors verified that Entergy has a program for monitoring levels of loose surface contamination in areas of the plant with the potential for the contamination to become airborne.

The inspectors selected containers holding nonexempt licensed radioactive materials that may cause unplanned or inadvertent exposure of workers and verified that they were labeled and controlled.

The inspectors observed several locations where Entergy monitors potentially contaminated material leaving the radiologically controlled area and inspected the methods used for control, survey, and release from these areas. The inspectors verified that the radiation monitoring instrumentation had appropriate sensitivity for the type(s) of radiation present.

The inspectors reviewed Entergy's criteria for the survey and release of potentially contaminated material. The inspectors verified that there was guidance on how to respond to an alarm that indicated the presence of licensed radioactive material. The inspectors verified that any transactions involving nationally tracked sources were reported in accordance with 10 CFR 20.2207.

For high-radiation work areas with significant dose rate gradients (a factor of 5 or more), the inspectors reviewed the application of dosimetry to effectively monitor exposure to personnel. The inspectors verified that Entergy's controls were adequate.

The inspectors reviewed radiation work permits for work within airborne radioactivity areas with the potential for individual worker internal exposures. The inspectors evaluated airborne radioactive controls and monitoring, including potentials for significant airborne contamination. For these selected airborne radioactive material areas, the inspectors verified barrier integrity and temporary high-efficiency particulate air ventilation system operation.

The inspectors examined Entergy's physical and programmatic controls for highly activated or contaminated materials stored within spent fuel and other storage pools. The inspectors verified that appropriate controls were in place to preclude inadvertent removal of these materials from the pool.

The inspectors conducted selective inspection of posting and physical controls for HRAs and very high radiation areas (VHRAs), to the extent necessary to verify conformance with the Occupational PI.

The inspectors discussed with the Radiation Protection Manager the controls and procedures for high-risk high and very high radiation areas (VHRAs). The inspectors verified that any changes to Entergy's procedures did not substantially reduce the effectiveness and level of worker protection.

The inspectors discussed with first-line health physics supervisors the controls in place for special areas that have the potential to become VHRAs during certain plant operations. The inspectors verified that Entergy's controls for all VHRAs, and areas with the potential to become a very high radiation area (VHRA), ensured that an individual is not able to gain unauthorized access to the VHRA.

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

The inspectors used the requirements in 10 CFR Part 20, Regulatory Guide 8.8 – Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Plants will be As Low As Reasonably Achievable, Regulatory Guide 8.10 – Operating Philosophy for Maintaining Occupational Radiation Exposure As Low as Reasonably Achievable, the Technical Specifications, and Entergy's procedures required by technical specifications as criteria for determining compliance.

The inspectors determined the site-specific trends in collective exposures and source term measurements.

The inspectors reviewed site-specific procedures associated with maintaining occupational exposures ALARA, which included a review of processes used to estimate and track exposures from specific work activities. During the spring 2012 Unit 2 refueling outage (2R20), collective exposure was a record low of 94 person-rem.

The inspectors determined that post-job reviews were conducted and that identified problems were entered into Entergy's corrective action program.

The inspectors selected ALARA work packages and reviewed the assumptions and basis for the current annual collective exposure estimate for reasonable accuracy. The inspectors reviewed the applicable procedures to determine the methodology for estimating exposures from specific work activities and the intended dose outcome.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

a. Inspection Scope

The inspectors used the requirements in 10 CFR Part 20, the guidance in Regulatory Guide 8.13 – Instructions Concerning Prenatal Radiation Exposures, Regulatory Guide 8.36 – Radiation Dose to Embryo Fetus, Regulatory Guide 8.40 – Methods for Measuring Effective Dose Equivalent from External Exposure, Technical Specifications, and Entergy's procedures required by technical specifications as criteria for determining compliance.

The inspectors reviewed the results of radiation protection program audits related to internal and external dosimetry.

The inspectors reviewed the most recent National Voluntary Laboratory Accreditation Program (NVLAP) accreditation report on Entergy.

The inspectors reviewed Entergy's procedures associated with dosimetry operations, including issuance/use of external dosimetry, assessment of internal dose, and evaluation of and dose assessment for radiological incidents.

The inspectors verified that Entergy had established procedural requirements for determining when external and internal dosimetry was required. The inspectors verified Entergy's personnel dosimeters that require processing were NVLAP accredited. The inspectors verified the vendor's NVLAP accreditation. The inspectors ensured that the approved irradiation test categories for each type of personnel dosimeter used were consistent with the types and energies of the radiation present, and the way that the dosimeter was being used.

The inspectors evaluated the onsite storage of dosimeters before their issuance, during use, and before processing/reading, and the guidance provided to radiation workers with respect to care and storage of dosimeters.

The inspectors determined that Entergy uses a "correction factor" to address the response of the electronic dosimeter (ED), as compared to thermoluminescent dosimeter/optically stimulated light dosimeter for situations when the ED must be used to assign dose. The inspectors verified that the correction factor was based on sound technical principles.

The inspectors selected dosimetry occurrence reports or corrective action program documents for adverse trends related to electronic dosimeters, such as interference from electromagnetic frequency, dropping or bumping, failure to hear alarms, etc. The inspectors determined that Entergy had not identified any trends and implemented appropriate corrective actions.

The inspectors reviewed Entergy's methodology for monitoring external dose in situations in which non-uniform fields are expected or large dose gradients exist. The

inspectors verified that Entergy had established criteria for determining when alternate monitoring techniques were to be implemented.

The inspectors reviewed dose assessments performed using multibadging during the current assessment period. The inspectors verified that the assessment was performed consistently with Entergy's procedures and dosimetric standards.

The inspectors reviewed shallow dose equivalent (SDE) dose assessments for adequacy. The inspectors evaluated Entergy's method for calculating SDE from distributed skin contamination or discrete radioactive particles.

The inspectors evaluated Entergy's neutron dosimetry program, including dosimeter type(s) and/or survey instrumentation.

The inspectors selected neutron exposure situations and verified that (a) dosimetry and/or instrumentation was appropriate for the expected neutron spectra, (b) there was sufficient sensitivity for low dose and/or dose rate measurement, and (c) neutron dosimetry was properly calibrated. The inspectors verified that interference by gamma radiation had been accounted for in the calibration. The inspectors verified that time and motion evaluations were representative of actual neutron exposure events, as applicable.

For the special dosimetric situations reviewed in this section, the inspectors determined how Entergy assigned dose of record for total effective dose equivalent, SDE, and lens dose equivalent. The inspectors also reviewed Entergy's use of effective dose equivalent external monitoring during the 2R20 refueling outage. The inspectors verified that Entergy's methodology was in compliance with the multiple dosimeter method set forth in ANSI HPS N13.41-1997. During the outage, 24 individuals were monitored in this fashion.

The inspectors verified that Entergy informed workers, as appropriate, of the risks of radiation exposure to the embryo/fetus, the regulatory aspects of declaring a pregnancy, and the specific process to be used for (voluntarily) declaring a pregnancy.

The inspectors selected individuals who had declared their pregnancy during the current assessment period, and verified that Entergy's radiological monitoring program for declared pregnant workers was technically adequate to assess the dose to the embryo/fetus. The inspectors reviewed the exposure results and monitoring controls employed by Entergy and with respect to the requirements of 10 CFR Part 20. A total of four workers had declared pregnancies during the period from January 2011 – June 2012.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 – 5 samples)

a. Inspection Scope

The inspectors sampled Entergy's submittals for the below listed performance indicators (PIs) for Unit 3 for the period of July 1, 2011, through June 30, 2012. To determine the accuracy of the PI data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73." As applicable, the inspectors reviewed Entergy's operator narrative logs, issue reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

- MSPI – Emergency AC Power System (MS06)
- MSPI – High Pressure Injection System (MS07)
- MSPI – Heat Removal System (MS08)
- MSPI – Residual Heat Removal System (MS09)
- MSPI – Cooling Water Systems (MS10)

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 1 sample)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that Entergy entered issues into the corrective action program at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the corrective action program and periodically attended condition report screening meetings.

b. Findings

No findings were identified.

.2 Annual Sample: Instrumentation Bistable Failures

a. Inspection Scope

The inspectors performed an in-depth review of Entergy's failure analysis and corrective actions associated with condition reports CR-IP3-2009-04167, CR-IP3-2010-01428, and

CR-IP2-2012-05478 that documented multiple failures of instrumentation bistables manufactured by Foxboro and NUS corporations. Specifically, these condition reports identified instances where as found data obtained during quarterly surveillance tests were outside of the allowable band specified in the surveillance procedure. A number of condition reports also identified in-service failures of bistable modules.

The inspectors assessed Entergy's problem identification threshold, causal analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of Entergy's corrective actions to determine whether Entergy was appropriately identifying, characterizing, and correcting problems associated with this issue. The inspectors compared the actions taken to the requirements of Entergy's corrective action program and Title 10 of the *Code of Federal Regulations (*10 CFR) Part 50, Appendix B, Criterion XVI, Corrective Action. In addition, the inspectors reviewed documentation associated with this issue, including condition and failure analysis reports, and interviewed engineering personnel to assess the effectiveness of the implemented corrective actions and the actions planned to complete full resolution of the issue.

b. Findings and Observations

No findings were identified.

The inspectors found that Entergy was appropriately entering issues associated with the instrumentation bistables into the corrective action program. Issues were being reviewed for the impact on current and past operability and potential reportability. Causal evaluations and extent of condition assessments were also found to be appropriate. In the cases where setpoint data was found to be out of tolerance the engineering reviews included an assessment of potential adverse trends as indicated by repeated surveillance issues with a particular module. Modules identified with having an adverse trend were subsequently replaced.

The inspectors found that immediate corrective actions for bistable issues were appropriate. Modules determined to be inoperable were placed in the trip condition and promptly repaired or replaced. The inspectors also reviewed the status of longer term correctives actions that are being taken to address the broader issue of age related failures. The long term actions involve a multi-year plan for replacement of existing modules with new or refurbished modules that do not utilize electrolytic capacitors. Units that do not utilize electrolytic capacitors are designed to have a 40 year service life.

The inspectors also noted that the plant equipment reliability coordinator recently identified an apparent increase in the failure rate of the instrumentation modules and recommended a reassessment of the long term corrective action plan. The plant unit reliability team subsequently directed the component engineer responsible for these units to re-evaluate the issue and present an accelerated action plan to the team in October of 2012. Additionally, the Unit 3 steam generator level control system is currently in a maintenance rule (a)(1) status and as a result control module replacements are being expedited as part of the action plan to restore the system to an (a)(2) status.

The inspectors determined Entergy's overall response to the issue was commensurate with the safety significance. Immediate corrective actions were timely and long term

actions, although previously adequate, are being re-evaluated to address an apparent increased failure rate.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 2 samples)

.1 (Closed) Licensee Event Report (LER) 05000286/2009-006-01: Automatic Reactor Trip Due to a Turbine-Generator Trip Caused by Actuation of the Generator Protection System Lockout Relay During a Severe Storm with Heavy Lightning

On August 10, 2009, Unit 3 experienced a unit trip during a severe thunderstorm, which was previously evaluated and documented following the review and assessment of LER 50-286/2009-006-00, in NRC inspection report 50-286/2009-05. Subsequently, Entergy evaluated a potential contributing cause associated with switchyard grounding, which was conducted in October 2011, and submitted this supplemental LER to include information acquired through their evaluation, and captured in the corrective action program in condition report CR-IP3-2009-03375. The inspectors did not identify any findings or violations during the review of this LER. This LER is closed.

.2 (Closed) LER 05000286/2011-005-01: Automatic Actuation of Emergency Diesel Generators and Auxiliary Feedwater Pumps Due to Undervoltage on 480 VAC Vital Buses Due to a Loss of Offsite Power During a Severe Storm

On August 19, 2011, Unit 3 experienced a loss of 138kV offsite power feeder 95331, during a severe thunderstorm, which included the automatic start of the 32 and 33 emergency diesel generators, and degraded vacuum conditions from the loss of three circulating water pumps and a subsequent reduction in power to 74% power. This event was previously evaluated and documented following the review and assessment of LER 50-286/2011-005-00, in NRC inspection report 50-286/2012-03. Subsequently, Entergy evaluated a potential contributing cause associated with switchyard grounding, which was conducted in October 2011, and submitted this supplemental LER to include information acquired through their evaluation, and described in the corrective action program in condition report CR-IP3-2011-04045. The inspectors did not identify any findings or violations during the review of this LER. This LER is closed.

4OA5 Other Activities

Buried Piping, TI-2515/812, Phase 1 (1 sample)

a. Inspection Scope

Entergy's buried piping and underground piping and tanks program was inspected in accordance with paragraphs 03.01.a through 03.01.c of the Temporary Instruction (TI) 2515/182 and was found to meet all applicable aspects of the NEI document 09-14, Revision 1, as set forth Table 1 of the TI 2515/182.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On July 12, 2012, the inspectors presented the inspection results to Mr. Patrick Conroy, Director Nuclear Safety and Assurance, and other members of the Entergy staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

On July 26, 2012, the inspectors presented the inspection results to Mr. Richard Burroni, Entergy Acting Engineering Director, and other members of the Entergy staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

On October 25, 2012, the inspectors presented the inspection results to Mr. John Ventosa, Site Vice President, and other members of the Entergy staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Entergy Personnel

J. Ventosa, Site Vice President
R. Allen, Technical Specialist IV, Code Programs
V. Andreozzi, Systems Engineering Supervisor
N. Azevedo, Engineering Manager
T. Beasely, Engineering
G. Boudreau, Equipment Reliability Coordinator
R. Burroni, Systems Engineering Manager
T. Chan, Engineering Supervisor
P. Conroy, Nuclear Safety and Assurance Director
G. Dahl, Nuclear Safety/License IV Specialist
M. Dechristopher, System Engineer
J. Dinelli, Operations Manager
B. Dolansky, ISI Program Manager
R. Drake, Engineering Supervisor
M. Dreis, System Engineer
A. Galati, Design Engineer
C. Ingrassia, System Engineer
R. Lee, Buried Pipe and Tank Program Lead Engineer
K. Lo, Structural Engineer
R. Machado, System Engineer
S. Manzione, Supervisor – Programs & Components Engineering
V. Meyers, Design Engineering Supervisor
D. Pennino, Technical Lead, Program & Components Engineering
M. Rose, Engineering
R. Tagliamonte, Radiation Protection Manager
M. Tesoriero, Programs and Components Manager
J. Timone, Components Engineer
B. Walpole, Licensing Manager

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened

05000286-2012-004-01	URI	Incorrect Setting Identified on the 32 Auxiliary Boiler Feed Pump Governor Oiler (Section 1R15)

Closed

05000286/2009-006-01	LER	Automatic Reactor Trip Due to a Turbine-Generator Trip Caused by Actuation of the Generator Protection System Lockout Relay During a Severe Storm with Heavy Lightning (Section 4OA3)
05000286/2011-005-01	LER	Automatic Actuation of Emergency Diesel Generators and Auxiliary Feedwater Pumps Due to Undervoltage on 480 VAC Vital Buses Due to a Loss of Offsite Power During a Severe Storm (Section 4OA3

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
OAP-008, Severe Weather Preparations, Revision 12

Condition Reports (CR-IP2-)
2012-04606

Section 1R04: Equipment Alignment

Procedures
3-COL-CS-001, Containment Spray System, Revision 15
3-COL-EL-005, Diesel Generator, Revision 36
3-COL-FW-2, Auxiliary Feedwater System, Revision 30
3-COL-RW-002, Service Water System, Revision 44

Condition Reports (CR-IP3-)
2012-02336

Drawings
9321-F-27223, Flow Diagram Service Water System, Nuclear Steam Supply Plant, Revision 46
9321-F-27503, Flow Diagram Safety Injection System Sheet No. 2, Revision 53
9321-F-20333, Flow Diagram Service Water System, Sheet No. 1, Revision 50
9321-F-20333, Flow Diagram Service Water System, Sheet No. 2, Revision 29
9321-F-20173, Flow Diagram Main Steam, Revision 71
9321-F-20303, Flow Diagram Fuel Oil to Diesel Generators, Revision 29
9321-H-20293, Flow Diagram Starting Air to Diesel Generators, Revision 34
9321-H-20283, Flow Diagram Jacket Water to Diesel Generators, Revision 24

Section 1R05: Fire Protection

Procedures
EN-DC-330, Fire Protection Program, Revision 1
IP3-ANAL-FP-02143, IP3 Fire Hazards Analysis, Revision 5
PFP-306, General Floor Plan – Primary Auxiliary Building, Revision 5
PFP-307A, MCC/Dress-out/LSA Baling Areas – Primary Auxiliary Building, Revision 12
PFP-307B, Charging Pumps – Primary Auxiliary Building, Revision 12
PFP-308, General Floor Plan – Primary Auxiliary Building, Revision 5
PFP-385, Circulating & Service Water Pump Bldg, Revision 11

Section 1R07: Heat Sink Performance

Procedures
0-HTX-400-GEN, Eddy Current Inspection of Heat Exchanger Tubes, Revision 2
0-HTX-405-EDG, EDG Lube Oil and Jacket Water Heat Exchanger Maintenance, Revision 3
2-POP-3.3, Plant Cooldown – Hot To Cold Shutdown, 2/27/12, Revision 77
2-SOP-4.2.1, Residual Heat Removal System Operation, 5/16/12, Revision 64
O-CY-2510, Closed Cooling Water Chemistry Specifications and Frequencies, 11/29/11, Revision 13
Procedure 3-AOP-SW-1, Service Water Malfunction, Revision 02
Procedure 3-AOP-SWL-1, Low Service Water Bay Level, Revision 0
Procedure 3-APR-012, Alarm Response, Intake Structure Alarm Panel, Revision 48
Procedure 3-APR-049, Intake Structure, Revision 6
Procedure 3-SOP-RW-007, Circulating and Service Water Sodium Hypochlorite Injection System, 6/26/12, Revision 39
Procedure O-CY-3115, Bacteria By ATP Analysis, 2/15/11, Revision 4

Condition Reports (CR- IP2)

2007-03822	2009-02982	2009-03081	2009-03115	2009-03871	2009-04491
2011-01414	2011-01719	2011-02304	2011-04798	2011-06031	2012-00050
2012-02222	2012-02692				

Condition Reports (CR- IP3)

2010-00937	2011-00053	2011-00622	2011-00697	2011-00680	2011-01045
2011-01158	2011-01440	2011-02902	2011-04249	2011-04938	2011-04953
2011-05293	2012-00905	2012-01437	2012-01904	2012-02071	2012-02295*

* Written as a result of this NRC inspection

Maintenance Orders/Work Orders

52308893	52308894	52354357	52354183	311137

System Health Reports
IPEC SW System Component Leaks – Unit 2 Only (60), 7/24/12
IPEC SW System Component Leaks – Unit 3 Only (116), 7/24/12
IPEC Unit 2, CCW, System Health Report, Q2-2012, 93.97 (White)
IPEC Unit 2, Service Water (SW) System Health Report, Q1-2012, 88.72 (White)
IPEC Unit 3, CCW, System Health Report, Q2-2012, 94.03 (White)
IPEC Unit 3, SW System Health Report, Q1-2012, 81.27 (Yellow)

Drawings

Entergy dwg. 9321-F-20333, Sheet 1, Indian Point Unit 3 Flow Diagram Service Water System, Revision 50
Entergy dwg. 9321-F-20333, Sheet 2, Indian Point Unit 3 Flow Diagram Service Water System, Revision 29
Entergy dwg. 9321-F-27223, Indian Point Unit 3 Flow Diagram Service Water System Nuclear Steam Supply Plant, Revision 46
Entergy dwg. 9321-F-2722-126Z, Sheet 1of 2, Indian Point Unit 2 Flow Diagram Service Water System Nuclear Steam Supply Plant, Revision 126
Entergy dwg. A209762-71, Indian Point Unit 2 Flow Diagram Service Water System Nuclear Steam Supply Plant, Sheet 2 of 2, Revision 71
Entergy dwg. 9321-F-2033-81, Indian Point Unit 2 Flow Diagram Service & Cooling, River Water & Fresh Water, Revision 81
Entergy dwg. A234191-46, Indian Point Unit 2 Flow Diagram Closed Cooling Water System

Service Water System Design Changes
EC No. 19340, IP3 Install access ports in 409 SW header, Revision 0
EC No. 24032, IP3 24 inch buried pipe mechanical seals, Revision 0
EC No. 24608, IP3, 3R16 Replacement of Valve SWT-235-2, Revision 0
EC No. 2976, IP3 Install SW Bay Level Transmitters, Revision 0

Temporary Modifications
TMOD 27859; Temporary seismic class I piping clamp on non-code piping leak repair

Licensing and Design Basis Documents
Indian Point Unit 2, UFSAR Section 9.3 CCW & RHR
Indian Point Unit 2, UFSAR Section 9.6.1 Service Water Section #1
Indian Point Unit 2, UFSAR Section 9.6.1 Service Water Section #2
Indian Point Unit 2, UFSAR Section 9.6.1 Service Water Section #3
Indian Point Unit 3, Design Basis Document (DBD)-311, Chemical and Volume Control System (CVCS), Revision 2
Indian Point Unit 3, UFSAR Section 9.3 CCW & RHR
Indian Point Unit 3, UFSAR Section 9.6.1 Service Water Section #1
Indian Point Unit 3, UFSAR Section 9.6.1 Service Water Section #2

Engineering Calculations, Analyses, Specifications, and Design Changes
Calculation CN-SEE-03-5, Indian Point Unit 2 RHR Cooldown Analysis for the 5 percent Power Uprate (Westinghouse Proprietary Class 2), 3/10/05, Revision 0
IP-CALC-04-01353; Structural Evaluation of the Residual Heat Removal Piping Subjected to Water Hammer Loading; Altran Calculation No. 95146-TR-02, Volume 1 of 2, June 1995, Revision 0
Westinghouse Plant Manual, Volume I, Part 2

Completed Tests, Surveillances, and Inspections
Buried Piping and Tanks General Visual Inspection Report, 11/23/11, IP2 Service Water 24 inch Line 409 (W.O. #279576-02)
Elite Pipeline Services, Report of Internal Inspection of 24 inch Service Water Line #409, 5/16/11
Elite Pipeline Services, Report of Visual Inspection of Unit 3, 24 inch Service Water Line #408, 4/2/09
Elite Pipeline Services, Report of 5/20/12; Visual Inspection of IP2, 24 inch SW Line #40, from 2R20

Entergy Nuclear Engineering Report: Maintenance Rule Structural Monitoring Inspection Report (4th Cycle) for Intake Structure, 4/26/11
General Electric (GE) Inspection Technologies Report, 4/13/09; Remote Visual Inspection of SW Line #1009 on 3/31/11
General Electric (GE) Inspection Technologies Report, 5/24/11; Remote Visual Inspection of SW Line #1093 on 3/22/11
IP2 Heat Exchanger Tube Plugging Summary, 7/26/12
IP2 Service Water 24 inch Line 408 (W.O. #279576-02), Buried Piping and Tanks General Visual Inspection, 11/5/11
IP2 Service Water 24 inch Line 409 (W.O.# 279576-02) Buried Piping and Tanks General Visual Inspection, for CR-IP2-2011-06248
IP3 Heat Exchanger Tube Plugging Summary, 7/26/12
IP3 Service Water 3 inch Lines 1196, 1197 and 1200; Buried Piping and Tanks General Visual Inspection, 6/11/12
MISTRAS Preliminary Report of Eddy Current Inspection, #32 CCW Heat Exchanger, PR No.:32-244, 2/25/10
UT/Corrosion Data Sheet, IP2-UT-12-002, 1/20/12 (3 pages)
UT Erosion/Corrosion Examination Data Sheet, IP2-UT-11-048, 24 inch Service Water Header, 12/28/11
UT Erosion/Corrosion Examination Data Sheet IP2-UT-11-050, 11/28/11 (4 pages)
UT Erosion/Corrosion Examination Data Sheet IP2-UT-11-050, 12/23/11 (4 pages)
UT Erosion/Corrosion Examination Data Sheet, IP2-UT-12-002 (3 pages), 24 inch, SW Line 409, 1/20/12
21 Component Cooling Water Heat Exchanger Inspection Report, 9/27/11 (Visual Inspection Report and Mistras Eddy Current Testing Report 21-186, 9/27/11)
22 Component Cooling Water Heat Exchanger Inspection Report, 11/16/11 (Visual Inspection Report and Mistras Eddy Current Testing Report 21-188, 11/15/11)
31 SWP Component Cooling Water HTX; Visual Inspection, Cleaning and Eddy Current Testing, 5/15/12
32 CCW HX Inspection Report, 5/24/10, SWP Component Cooling Water HTX; Visual Inspection, Cleaning and Eddy Current Testing, 5/15/12

Specifications, Vendor Documentation
PMX Heat Exchanger Documentation for Indian Point Unit No. 3, Report PMX-9002, May 24, 1990 (Seal Water Heat Exchanger)

Program Documents
Entergy Nuclear Engineering Report EN-DC-147, Indian Point Units 2 & 3, Eddy Current Program, 9/7/06, Revision 2
Entergy Program Section No. SEP-SW-001, NRC Generic Letter 89-13 Service Water Programs, 2/14/12

Miscellaneous
31 EDG JW Cooler 07-02-12 Eddy Current Results, PR# 32-280
31 EDG LO Cooler 07-02-12 Eddy Current Results, PR# 32-281
ASME, Section XI, Subsection IWA 5244 Testing of buried components
Entergy Letter NL-12-089 dated June 14, 2012, Subject: Reply to Request for Additional Information Regarding the License Renewal Application, Indian Point Generating Unit Nos. 2 & 3, Docket Nos. 50-247 and 50-286, License Nos. DPR-26 and DPR-64 (includes Attachments 1 and 2)
NRC Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment, 7/18/89

Section 1R11: Licensed Operator Requalification Program

Procedures
TQF-210-DD03, LOR Simulator Crew Performance Evaluation Report, Revision 3
3-AOP-SG-1, Steam Generator Tube Leak, Revision 10

Miscellaneous
NYS Radiological Emergency Data Form, Parts 1 and 2
IPEC Simulator Evaluated Scenario, I3SX-LOR-SES066, Revision 00

Section 1R12: Maintenance Effectiveness

Procedures
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2007-03639	2010-00576	2012-02193	2012-02263
2012-02309	2012-02400	2012-02554	2012-02644
2012-04829	2012-02829	2012-02939	2012-02941

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52308699

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* Written as a result of this NRC inspection

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LIST OF ACRONYMS

ABFP	auxiliary boiler feed pump
ADAMS	Agencywide Document Management System
AFW	auxiliary feedwater
ALARA	as low as is reasonably achievable
ASME	American Society of Mechanical Engineers
CCW	component cooling water
CR	condition report
CSP	containment spray system
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EC	engineering change
ED	electronic dosimeter
EDG	emergency diesel generator
ENTERGY	Entergy Nuclear Northeast
FZ	fire zone
GMD	geomagnetic disturbance
HX	heat exchanger
IP	inspection procedure
IR	inspection report
IST	inservice testing
LER	licensee event report
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
OEDO	Office of the Executive Director for Operations
PFP	pre-fire plan
PI	performance indicator
PM	preventive maintenance
RCS	reactor coolant system
RHR	residual heat removal
RI	resident inspector
R1	Region 1
RPS	Reactor Program System
SDE	shallow dose equivalent
SG	steam generator
SI	safety injection
SRI	senior resident inspector
SSC	structure, system, and component
SW	service water
SWP	service water pump
TI	temporary instruction
UFSAR	Updated Final Safety Evaluation Report
URI	unresolved item
UT	ultrasonic testing
VC	vapor containment
VHRA	very high radiation area