



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

May 3, 2013

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 UNITS 2 AND 3 – NRC
INTEGRATED INSPECTION REPORT 05000247/2013002 AND
05000286/2013002**

Dear Mr. Ventosa:

On March 31, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Indian Point Nuclear Generating Units 2 and 3. The enclosed inspection report documents the inspection results, which were discussed on April 12, 2013, 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.

This report documents one self-revealing finding of very low safety significance (Green). Additionally, 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 2.3.2 of the NRC Enforcement Policy. If you contest the violation or significance of the NCV, 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 Indian Point Energy Center. In addition, if you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region I, and the NRC Resident Inspector at Indian Point.

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

In the Matter of:	
Energy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3)	
ASLBP #: 07-858-03-1R-BD01	Identified: 1/15/2015
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Sincerely,

/RA/

Arthur L. Burritt, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos. 50-247, 50-286
License No. DPR-26, DPR-64

Enclosure: Inspection Report 05000247/2013002 and 05000286/2013002
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-247, 50-286

License Nos.: DPR-26, DPR-64

Report Nos.: 05000247/2013002 and 05000286/2013002

Licensee: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Nuclear Generating Units 2 and 3

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

Dates: January 1, 2013, through March 31, 2013

Inspectors: J. Stewart, Senior Resident Inspector, Indian Point 2
K. Dunham, Resident Inspector, Indian Point 2
P. Cataldo, Senior Resident Inspector, Indian Point 3
A. Patel, Resident Inspector, Indian Point 3
N. Laferty, Resident Inspector, Indian Point 3
E. Burket, Emergency Preparedness Specialist
J. Furia, Senior Health Physicist
E. H. Gray, Senior Reactor Inspector

Approved By: Arthur L. Burritt, Chief
Reactor Projects Branch 2
Division of Reactor Projects

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SUMMARY

IR 05000247/2013002; 05000286/2013002; 01/01/2013 – 03/31/2013; Indian Point Nuclear Generating Units 2 and 3; Maintenance Effectiveness.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Inspectors identified one finding of very low safety significance (Green). The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP), dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within Cross-Cutting Areas," dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated January 28, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4.

Cornerstone: Initiating Events

- Green. A self-revealing finding of very low safety significance was identified when Entergy personnel did not use a procedure appropriate to the task for testing of a secondary plant valve, resulting in a transient that led to a manual reactor trip. On February 13, 2013, with Unit 2 at full power, Entergy personnel started testing of a heater drain tank dump valve without electrical isolation and other risk management precautions. When energized control power leads were lifted as specified in the work instruction, two electrically inter-connected valves opened causing loss of heater drain flow to the main feedwater pumps. The transient affected steam generator level and operators initiated a rapid down power followed by a manual reactor trip when steam generator level control limits were challenged. The transient was documented in their corrective action program (CAP) as CR-IP2-2013-721.

The finding was more than minor because the testing activity resulted in a reactor trip. The inspectors performed a Phase 1 screening in accordance with IMC 0609, "Significance Determination Process" and determined the finding to be of very low safety significance (Green) because all mitigating equipment remained available. The finding had a cross-cutting aspect in the area of Human Performance, Resources, because the licensee did not assure that procedures and other resources were available and adequate to assure nuclear safety, including accurate design documentation and procedures to support the work activity. Specifically, the work instruction used for the testing had not been appropriately planned or implemented when the electrical control power ties to valves outside the work scope was neither planned into the work nor recognized by the workers. [H.2(c)] (Section 1R12)

Other Findings

A violation of very low safety significance identified by Entergy personnel was reviewed by the inspectors. Corrective actions taken or planned by Entergy have been entered into Entergy's CAP. This violation and corrective action tracking number are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 2 began the inspection period at 100 percent power. On February 13, operators manually tripped the unit and stabilized the unit in Mode 3 as result of a secondary plant transient. Unit 2 was restarted on February 15 and restored to full power on February 16. The unit remained at full power for the remainder of the inspection period.

Unit 3 began the inspection period at 100 percent power and operated at full power until March 03, 2013, when operators commenced a down power for a planned refueling and maintenance outage (3R17). The unit was shutdown on March 04, 2013. Following the completion of refueling and maintenance activities, operators commenced a reactor startup on March 30, 2013. Reactor power was increased to 35 percent power when the inspection period ended.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 1 sample)

Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

The inspectors reviewed preparations for the onset of cold weather on January 25, 2013. The inspectors reviewed the implementation of adverse weather preparation procedures before the onset of and during this adverse weather condition. The inspectors walked down various plant areas to ensure system availability, and verified that operator actions defined in Entergy's adverse weather procedure maintained the readiness of essential systems. The inspectors discussed readiness and staff availability for adverse weather response with operations and work control personnel, including the assessment of a fire system header rupture that occurred as a result of the cold weather and Entergy's protection of several exposed piping sections throughout the site. The inspectors verified that the ruptured piping was appropriately isolated and repaired. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04Q – 5 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

Unit 2

- 22 Auxiliary feedwater pump and associated injection flow path valves on January 9, 2013 when 138 KV feeder 33332L/M was removed from service for repairs. The walkdown was done using licensee procedure 2-COL-21.3, Steam Generator Water Level. Condition report, CR-IP2-2012-7140, was reviewed to verify that the licensee was documenting alignment issues at the proper threshold on January 9, 2013
- 21 emergency diesel generator (EDG) post run on March 28, 2013

Unit 3

- 31 and 33 auxiliary boiler feed pump (ABFP) during 32 ABFP maintenance on January 1, 2013
- 32 and 33 EDG during 31 EDG maintenance on January 8, 2013
- 33 and 35 service water (SW) pumps during 34 SW pump outage on January 25, 2013

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 Updated Final Safety Evaluation Report (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 their CAP for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

.2 Full System Walkdown (71111.04S – 1 sample)

a. Inspection Scope

On March 26, 2013, the inspectors performed a complete system walk down of accessible portions of the Unit 3 high head safety injection system to verify the existing

equipment lineup was correct. The inspectors reviewed operating procedures, surveillance tests, drawings, equipment line-up check-off lists, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors also reviewed electrical power availability, component lubrication and equipment cooling, hangar and support functionality, and operability of support systems. The inspectors performed field walk downs of accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. Additionally, the inspectors reviewed a sample of related condition reports and work orders to ensure Entergy personnel appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Resident Inspector Quarterly Walkdowns (71111.05Q – 8 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 station personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

Unit 2

- Pre-Fire Plan (PFP)-252 [Fire Zone (FZ)-11, 12, 13, 24]: Cable Spreading Room – Control Building on January 24, 2013
- PFP-254 (FZ-25): Battery Room 23 – Superheater Building on February 21, 2013
- PFP-258 (FZ 10): EDG #21, #22, #23 – Diesel Generator Building/Electrical Tunnel Exhaust Fans on February 22, 2013
- PFP-259 (FZ 23, 62A): Auxiliary Feedwater Pump Room – Auxiliary Feedwater Building on February 22, 2013

Unit 3

- PFP-354 (FZ 10): 31 EDG cubicle on January 15, 2013
- Unit 3 containment on March 26, 2013
- PFP-354 (FZ-101A): 32 EDG cubicle on March 29, 2013
- PFP-354 (FZ 102A): 33 EDG cubicle on March 29, 2013

b. Findings

No findings were identified.

.2 Fire Protection – Drill Observation (71111.05A – 1 sample)

a. Inspection Scope

The inspectors observed a fire brigade drill scenario conducted on January 30, 2013, which involved a fire in the Unit 3 turbine building associated with a damaged No. 9 main turbine bearing. The inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that Entergy personnel identified deficiencies, openly discussed them in a self-critical manner during the post-drill critique, and took appropriate corrective actions as required. The inspectors evaluated specific attributes as follows:

- Proper donning and wearing of turnout gear and self-contained breathing apparatus
- Proper use and layout of fire hoses
- Employment of appropriate fire-fighting techniques
- Sufficient fire-fighting equipment brought to the scene
- Effectiveness of command and control
- Search for victims and propagation of the fire into other plant areas
- Smoke removal operations
- Utilization of pre-planned strategies
- Adherence to the pre-planned drill scenario
- Drill objectives met

The inspectors also evaluated the fire brigade's actions to determine whether these actions were in accordance with Entergy's fire-fighting strategies (pre-fire plans).

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample)

Annual Review of Cables Located in Underground Bunkers/Manholes

a. Inspection Scope

The inspectors conducted an inspection of underground bunkers/manholes subject to flooding that contain cables whose failure could disable risk-significant equipment. The inspectors performed walkdowns of risk-significant areas, including Unit 3 manholes 31, 31A, 31B, and 33, to verify that the cables were not submerged in water, that cables and/or splices appeared intact, and to observe the condition of cable support structures. The inspectors also ensured that drainage was provided and functioning properly in areas where dewatering devices were not installed. For those cables found submerged in water, the inspectors verified that Entergy personnel had conducted an operability evaluation for the cables and were implementing appropriate corrective actions.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07A – 1 sample)

a. Inspection Scope

The inspectors reviewed the 34 fan coil unit (FCU) heat exchanger to determine its readiness and availability to perform its safety functions. The inspectors reviewed the design basis for the component and verified Entergy's commitments to NRC Generic Letter 89-13. The inspectors observed the inspection of the heat exchangers and reviewed the results of previous inspections of the 34 FCU 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 personnel 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.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08P – 1 sample)

a. Inspection Scope

From March 11–21, 2013, the inspectors conducted an inspection and review of Entergy's implementation of inservice inspection (ISI) program activities for monitoring degradation of the reactor coolant system boundary, risk significant piping and components, steam generator tube integrity, and containment systems during the Indian Point Nuclear Generating Unit 3 refueling outage. The sample selection was based on the inspection procedure objectives and risk priority of those pressure retaining components in systems where degradation would result in a significant increase in risk. The inspectors observed in-process non-destructive examinations (NDE), reviewed documentation, and interviewed licensee personnel to verify that the NDE activities performed as part of the fourth interval, first period, Indian Point Unit 3 ISI program, were conducted in accordance with the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI, 2001 Edition, 2003 Addenda.

Nondestructive Examination and Welding Activities (IMC Section 02.01)

The inspectors performed direct observations of NDE activities in process, and reviewed work instruction packages and records, both documentation and video of nondestructive examinations listed below:

Observation and review scope of ASME Code Required Examinations

- Observed a bare metal visual examination (VT) of the reactor vessel lower head penetrations.
- Observed a bare metal VT of the reactor vessel upper head and control rod drive mechanism (CRDM) nozzle penetrations.
- Observed the automatic computer based volumetric ultrasonic testing (UT) inspection of the reactor vessel upper head penetration nozzles in the vicinity of the CRDM to head welds.
- Observed the visual examination and record review of the primary containment liner examination report(s) of accessible portions on the 46, 68 and 95-foot elevations. The inspectors reviewed Condition Report 2009-01024, which identified corrosion on a weld channel at one location. The inspectors noted that this condition had been previously evaluated by UT and VT and found to be acceptable.
- Observed the liquid penetrant surface examinations of the 14-inch pressurizer surge line and safety injection line integral supports 361 and 214.
- Reviewed the preparations for and implementation of the boric acid injection tank upper head to shell weld.
- Observed the preparation and results of feedwater piping UT, welds 9 and 10, loop 33.
- Completed a record review of a manual volumetric UT of the, ASME Class 1, inner radius pressurizer safety nozzle (Work Package 335232-01).
- Reviewed the computer based UT and eddy current testing (ECT) examinations of the four reactor coolant hot leg nozzle to safe end dissimilar metal welds that were conducted underwater from the internal root surfaces.
- Remotely observed the steam generator ECT examinations, reviewed the data acquisition, data evaluation, control practices and quality assurance aspects of the eddy current examination process.

The inspectors sampled qualification certificates of the NDE examiners performing the nondestructive testing. The inspectors verified that examinations were performed in accordance with ASME Section XI procedures and the results were reviewed and evaluated by certified ASME Level III personnel.

Other Augmented or Industry Initiative Examinations

The inspectors observed Entergy's inspections in response to recommended actions in Westinghouse Nuclear Safety Advisory Letter NSAL-12-1, "Steam Generator Channel Head Degradation," which discussed industry experience on cladding defects. Specifically, the inspectors reviewed remote video coverage of the steam generator channel heads and divider plate-to-channel weld in steam generators 31, 33, 34.

Review of Previous Indications

The inspectors reviewed the UT examination and results of a previously identified ASME, Section XI, NDE indication on the upper reactor head to flange weld located near reactor head stud hole 23.

Repair/Replacement Consisting of Welding Activities

The inspectors reviewed selected activities associated with the replacement of the number 32 reactor coolant pump including the welding of seal cooler lines.

PWR Vessel Upper Head Penetration Inspection Activities (IMC Section 02.02)

The inspectors verified that the reactor vessel upper head penetration J-groove weld examinations were performed in accordance with requirements of 10 CFR 50.55a and ASME Code Case N-729-1, "Alternative Examination Requirements for PWR Reactor Vessel Upper Heads," to ensure the structural integrity of the reactor vessel head pressure boundary. The inspectors also observed portions of the remote bare metal visual examination of the exterior surface of the reactor vessel upper head to verify that no boric acid leakage or wastage had been observed.

Boric Acid Corrosion Control (BACC) Inspection Activities (IMC Section 02.03)

During the plant shutdown process the NRC resident inspectors observed the boric acid leakage identification process. The ISI inspectors reviewed the BACC program, which is performed in accordance with Entergy procedures and discussed the program requirements with the boric acid program owner. The inspectors reviewed photographic inspection records of each identified boric acid leakage location and discussed the mitigation and evaluation plans. The inspectors reviewed a sample of condition reports for evaluation and disposition within their CAP. Samples selected were based on component function, significance of leakage, and location where direct leakage or impingement on adjacent locations could cause degradation of safety system function.

Steam Generator (SG) Tube Inspection Activities (IMC Section 02.04)

The inspectors directly observed a sample of the steam generator eddy current tube examinations, which consisted of full length bobbin inspection of 50% of all active tubes in each of the four SGs, rotating pancake coil probe of 50% in rows 1 and 2 U-bends and 60% in the area of hot leg top-of-tubesheet (50% pattern), X-probe of 22% in the area of cold leg top-of-tubesheet (peripheral only). No new indications and no growth of previously identified indications were identified in the steam generator tubes. The inspectors compared the scope of the ECT activities with the potential degradation mechanisms documented in the Steam Generator Degradation Assessment Report.

The inspectors verified that the SG eddy current tube examinations were performed in accordance with Unit 3 Technical Specification, Section 5.5.8.d and the Steam Generator Program. The inspectors reviewed the SG tube eddy current test results to verify that no in-situ pressure testing was required, no tubes required stabilization, and no primary-to-secondary leakage occurred over the operating cycle. The inspectors verified that the SG tube examination screening criteria was in accordance with the Electric Power Research Institute (EPRI) Steam Generator Guidelines and flaw sizing was in accordance with the EPRI examination technique specification sheet.

In addition, the inspectors reviewed the sludge lancing and foreign object search and retrieval results on the secondary side of the SGs and reviewed corrective actions to remove the foreign objects, when possible. The inspectors verified that objects not retrieved were appropriately documented and evaluated to be acceptable.

Identification and Resolution of Problems (IMC Section 02.05)

The inspectors verified that selected ISI related problems and nonconforming conditions were properly identified, characterized and evaluated for disposition within their CAP.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11Q – 4 samples)

Unit 2

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed a licensed operating crew evaluated simulator session on January 15, 2013. The unannounced scenario (LRQ-SES-16) included a component cooling water pump failure and leak followed by steam line break outside of containment coincident with a failure of the reactor to automatically trip. 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, including 2-E-0, Reactor Trip or Safety Injection; 2-FR-S.1, Response to Nuclear Generation / Anticipated Transient Without a Scram; and 2-AOP-UC-1, Uncontrolled Cooldown. 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 timeliness of the emergency classification made by the shift manager was in accordance with licensee procedure IP-ED-AD13, IPEC Emergency Plan Administrative Procedure. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems. The inspectors verified that the licensee evaluated the performance of the operating crew against pre-established criteria, such as completion of critical tasks. Simulator fidelity was evaluated using routine control room observations.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors observed Unit 2 restart and power escalation on February 15, 2013. The inspectors observed crew performance during selected portions of 2-POP-12, Reactor Startup; and 2-POP-1.3, Plant Startup from Zero to 45 Percent. The observations included briefings, reactivity changes, and equipment operation to verify that the activities were conducted safely. The inspectors observed the reactor approach to criticality, power escalation, transfer from auxiliary feedwater to main feedwater, and initial turbine roll to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards. The inspectors noted use of abnormal operating procedures 2-AOP-Rod-1, Rod Control and Indication System Malfunctions, in response to a rod control urgent failure alarm; and 2-AOP-Turbine-1, in response to a turbine trip that occurred at low power. In both cases, minor equipment problems were documented in the licensee's CAP and corrected prior to increasing reactor power.

b. Findings

No findings were identified.

Unit 3

.3 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on February 6, 2013, which included simulator training scenarios involving operator's response to various residual heat removal system malfunctions. 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 entered by the shift technical advisor. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors observed and reviewed reactor shutdown and cooldown activities, as well as power-operated relief valve, main steam isolation valve, and residual heat removal valve surveillance testing, conducted on March 4, 2013. The inspectors observed pre-evolution briefings to verify that the briefings met the criteria specified in Entergy's procedures. Additionally, the inspectors verified that procedure use, crew communications, and coordination of activities between work groups similarly met established expectations and standards.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – 2 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, and component performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance work orders, and maintenance rule basis documents, as needed, to ensure that Entergy personnel were identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the component 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 were reasonable. As applicable, for structures, systems, and components classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these systems 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.

Unit 2

- Work practices associated with Work Package 52202988-01, Perform Diagnostic Testing on level control valve LCV-1127B on February 13, 2013

Unit 3

- 32 Battery Charger, including corrective and preventive maintenance issues following the high voltage trip in October 2012 and preventive maintenance activities in January 2013

b. Findings

Introduction: A Green, self-revealing finding was identified when secondary system testing initiated a plant transient that resulted in a reactor trip. The procedure used for the testing did not provide adequate instructions and when a lead was lifted in accordance with the procedure, the secondary transient initiated which caused operators to manually trip the reactor.

Description: On February 13, 2013, with Unit 2 at full power, Entergy technicians implemented work package 52202988-01, "Perform Air Operated Valve Diagnostic Testing on LCV-1127B" to perform periodic diagnostic testing of an air operated valve in the heater drain system. The package included a risk evaluation that stated the work presented no trip risk or potential adverse impact to the operating plant. Step 4.2.10 of the procedure instructed the workers to disconnect and insulate control power leads to the LCV-1127B controller. Although the valve was mechanically isolated from the system an electrical tag out had not been implemented and the instructions specified that control power leads be lifted from the controller to LCV-1127B while energized. Electrical schematics were not included in the work package and were not used when disconnecting the live control power leads. The technicians disconnected the leads from LCV-1127B, as instructed and when the leads were lifted, two in-service 10 inch air operated control valves lost control power due to being electrically interconnected with the lifted leads (valve controllers were wired in series with LCV-1127B). The valves opened as designed, dumping the inventory of the heater drain tank to the main condenser. The loss of all heater drain flow to the main feed water pumps caused the pumps to oscillate, destabilizing steam generator feed flow and level. Control room operators noted the loss of heater drain flow and initiated a rapid reactor down power in an attempt to stabilize steam generator level within the operating band using main feed water. When steam generator level approached the automatic low level reactor trip set point of 10 percent narrow range, the operators initiated a manual reactor trip in anticipation of an automatic action.

During the post trip review by plant personnel, it was noted that the work instruction had not been appropriately prepared or implemented when the electrical control power ties to the other valves were not planned into the work nor recognized by the workers. Entergy procedure EN-WM-101, Revision 9, "Online Work Management Process," states as a guiding principle of work management "to identify the impact of work to the station and work groups and to protect the station from unanticipated transients due to the conduct of work." Following the trip, Entergy personnel documented the event in condition report CR-IP2-2013-0721 and established a root cause team for further evaluation. The licensee's evaluation identified a number of performance issues that contributed to the occurrence:

- 1) The air operated valve diagnostic procedure had not been previously performed on LCV-1127B, but the work was not treated as a first time evolution which would trigger added reviews and additional precautions.
- 2) The work scope was changed from Outage to Online and was not recognized as unit trip risk maintenance nor flagged for online risk review.
- 3) The work was improperly designated as frequently performed diagnostic testing overriding the need for pre-job walk downs.

Analysis: Not having an adequate instruction for testing heater drain valve LCV-1127B, did not meet the licensee's self imposed standard established in Entergy work management procedure EN-WM-101, to protect the station from unanticipated transients due to the conduct of work. Specifically, the electrical ties between the valve being worked and redundant valves were not recognized as a potential impact to the station which could cause an unanticipated transient. The performance deficiency was more than minor because it resulted in a reactor trip which adversely affected the initiating events cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding screened as having very low safety significance, Green, using Inspection Manual Chapter 0609, Appendix A, Initiating Events Screening, when no mitigating equipment relied upon to transition the plant to stable shutdown was lost. The cause of the finding was associated with the cross cutting aspect of Human Performance, Resources when the licensee did not assure that procedures and other resources (such as electrical prints) were available and adequate to assure nuclear safety, including accurate design documentation and procedures to support the work activity. (H.2.c)

Enforcement: Entergy staff provided technicians with an inadequate procedure which resulted in a reactor trip during diagnostic testing of a secondary system valve. However, the valve is not a safety-related component and the diagnostic test procedure is not a safety related procedure. As a result, this issue does not involve enforcement action because there was not a violation of a regulatory requirement. Because this finding does not involve a violation of regulatory requirements and has very low safety significance, it is identified as a finding. Entergy personnel documented the event in condition report CR-IP2-2013-0721 and established a root cause team for further evaluation. A licensee event report was planned. **(FIN 05000247 and 286/2013-002-01: Inadequate Maintenance Procedure Results in a Reactor Trip)**

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 8 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 personnel 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.

Unit 2

- Yellow risk for under-voltage relay testing and fan cooler unit valve preventative maintenance on January 16, 2013
- Risk management actions during 21 service water pump replacement and 22 auxiliary feedwater pump run on February 06, 2013
- Increased risk when offsite feeder 96951 was removed from service during planned testing of 23 EDG. The inspectors verified implementation of procedural cautions in licensee procedure IP-SMM-OP-104, Offsite Power Continuous Monitoring, during the assessment which was done on February 28, 2013

Unit 3

- During backwash and reactor coolant system over pressurization system loop instrumentation calibration with 32 ABFP and 36 service water pump (SWP) out-of-service on January 3, 2013
- Yellow risk 35 SWP, 33 ABFP, 31 charging pump on January 31, 2013
- Initial shutdown risk at Mode 4 on March 5, 2013
- Drain down on March 8, 2013
- Orange risk for RCS drain down on March 20, 2013

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 7 samples)a. Inspection Scope

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

Unit 2

- Blackout Diesel Generator after trip and failure to restart on February 6, 2013
- Licensee activities to maintain the spent fuel pool with degrading neutron absorber panels, documented in condition report CR-IP2-2012- 7272. The licensee compensatory measures were reviewed and verified on February 25, 2013

Unit 3

- 31 EDG west side air start motor pressure control valve not maintaining pressure in desired band on January 9, 2013
- Service water leak downstream of the header isolation valve SWN-6, documented in condition report CR-IP3-2013-00507, on February 7, 2013
- Containment recirculation pump operability after high differential pressure output on March 27, 2013

- EDG non-conservative fuel oil inventory relative to technical specifications, CR-IP3-2011-03960, on August 15, 2013
- EDG cell drainage flapper valve, YD-V-10, degradation CR-IP3-2012-03369 and 3412 in October 2013

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.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 2 samples)

Permanent Modifications

a. Inspection Scope

The inspectors evaluated two permanent plant modifications: (1) replacement of degraded service water pump discharge check valves, specifically, SWN-1-5 for the Unit 3, No. 35 service water pump, completed on February 1, 2013 and (2) replacement of degraded air control valves associated with Unit 3, PCV-1191/PCV-1192, containment purge and pressure relief system containment isolation valves, completed on April 5, 2013. 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 upgrade and design change, including design interface documents such as drawing and procedure revisions, engineering change details, installation instructions, structural calculations, welding details, and other pertinent design change information. The inspectors also reviewed applicable post-modification testing requirements to ensure the test results were consistent with the current licensing and design basis information.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 10 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.

Unit 2

- Appendix R Diesel Generator post drain valve replacement and scheduled preventative maintenance on January 22, 2013
- Valve stroke test of service water valve SWN-44-5B following 6 year preventive maintenance done in accordance with work order 52308022-01. The test was conducted using licensee procedure 2-PT-Q013, Inservice Valve Testing and data sheet 2-PT-Q013-DS142, 25 Fan Cooling Unit Service Water Valve Inservice Test (Step 3.13) on February 09, 2013
- Valve stroke test of residual heat removal valve RHR-855B valve after six year preventative maintenance on March 18, 2013

Unit 3

- 32 Auxiliary feedwater pump steam supply controller PIC-1139 functional check on January 3, 2012
- 32 fan cooler unit breaker cubicle inspection and repair on January 7, 2013
- 32 containment spray pump functional test, conducted on January 16, 2013
- 33 Auxiliary feedwater pump DS-416 breaker testing, on January 31, 2013
- 32 Service water pump testing following discharge check valve replacement, on February 15, 2013
- 31 EDG tie breaker interlock testing after replacing CV relay on March 25, 2013
- 32 Auxiliary feedwater pump full flow surveillance test failure, on March 29, 2013

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – 2 samples).1 Unit 3 Refueling Outage No. 17 (3R17)

a. Inspection Scope

The inspectors reviewed the station's work schedule and outage risk plan for the Unit 3 maintenance and refueling outage (3R17), which was conducted on March 4 through 31, 2013. The inspectors reviewed Entergy's development and implementation of outage plans and schedules to verify that risk, industry experience, previous site-specific problems, and defense-in-depth were considered. During the outage, the inspectors observed portions of the shutdown and cooldown processes and monitored controls associated with the following outage activities:

- Configuration management, including maintenance of defense-in-depth, commensurate with the outage plan for the key safety functions and compliance with the applicable technical specifications when taking equipment out of service
- Implementation of clearance activities and confirmation that tags were properly hung and that equipment was appropriately configured to safely support the associated work or testing
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication and instrument error accounting
- Status and configuration of electrical systems and switchyard activities to ensure that technical specifications were met
- Monitoring of decay heat removal operations
- Impact of outage work on the ability of the operators to operate the spent fuel pool cooling system
- Reactor water inventory controls, including flow paths, configurations, alternative means for inventory additions, and controls to prevent inventory loss
- Activities that could affect reactivity
- Maintenance of the vapor containment integrity as required by technical specifications
- Refueling activities, including fuel handling in the reactor cavity (reactor vessel) and the fuel storage building (spent fuel pool), as well as fuel receipt inspections
- Fatigue management for covered workers
- Tracking of startup prerequisites, including a walkdown of the primary containment, to verify that debris had not been left which could block the emergency core cooling system suction strainers
- Startup and ascension to full power operation
- Identification and resolution of problems related to refueling outage activities

b. Findings

No findings were identified.

.2 Unit 2 Short Duration Outage

a. Inspection Scope

The inspectors reviewed Entergy personnel's risk management plan for maintenance activities following the manual reactor trip that occurred on February 13, 2013. The inspectors further observed Entergy's work oversight activities and verified that material controls such as foreign material exclusion were maintained for limited work conducted

in containment prior to plant restart. The inspectors verified that equipment issues were documented in their CAP and corrected as necessary to support plant startup.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 9 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. Inservice tests (IST), containment isolation valve (CIV), and reactor coolant system (RCS) leak surveillance tests are noted. The inspectors reviewed the following surveillance tests:

Unit 2

- 22 containment spray pump quarterly on January 30, 2013 (IST)
- 22 auxiliary feedwater pump using licensee surveillance test procedure 2-PT-Q034, Revision 28, on February 4, 2013
- 22 auxiliary feedwater pump flow control valve FCV-405A,B,C,D stroke timing testing using licensee procedure 2-PT-Q013, Revision 47, on February 4, 2013 (IST)
- 22 EDG using licensee surveillance test 2-PT-M021B, Emergency Diesel Generator 22 Load Test, Revision 20, on February 12, 2013

Unit 3

- 3-PT-M079A, 31 EDG Functional Test on January 9, 2013
- 0-SOP-Leakrate-001, RCS Leak rate Surveillance, Evaluation, and Leak Identification, Revision 2, on January 15, 2013 (RCS)
- 3-PT-V059D, 34 Service Water Pump Reference Test (IST) on January 25, 2013
- 3-PT-OL3B2, 33 ABFW Pump Load Sequencer Calibration on January 31, 2013
- 3-PT-R025C, Leakage test for IVSWS Station 3 (CIV) on March 20, 2013

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 – 1 sample)a. Inspection Scope

NRC staff from the Office of Nuclear Security and Incident Response performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures and the Emergency Plan located under ADAMS accession numbers ML12355A156, ML13046A029 and ML130230023 as listed in the Attachment.

The licensee 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 of licensee-generated changes; therefore, this revision is subject to future inspection.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 – 1 sample).1 Emergency Preparedness Drill Observationa. Inspection Scope

The inspectors evaluated the conduct of a routine Indian Point emergency drill on January 30, 2013, 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, technical support center, 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 their CAP.

b. Findings

No findings were identified.

2. RADIATION SAFETY**Cornerstone: Public Radiation Safety and Occupational Radiation Safety**

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

During the week of March 18–22, 2013, the inspectors reviewed and assessed licensee performance in assessing the radiological hazards in the workplace associated with licensed activities and the implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures. The inspectors verified that the licensee is properly identifying and reporting performance indicators (PIs) for the Occupational Radiation Safety Cornerstone and identifying those performance deficiencies that were reportable as a PI and which may have represented a substantial potential for overexposure of the worker. 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 the licensee's procedures required by technical specifications as criteria for determining compliance.

a. Inspection Scope

Radiological Hazard Assessment

The inspectors selected radiologically risk-significant work activities that involved exposure to radiation during the Unit 3 refueling outage (3R17). The inspectors verified that appropriate pre-work surveys were performed to identify and quantify the radiological hazard and to establish adequate protective measures. The inspectors evaluated the radiological survey program to determine if hazards were properly identified, including the following:

- Identification of hot particles
- The presence of alpha emitters
- The potential for airborne radioactive materials, including the potential
- presence of transuranics and/or other hard-to-detect radioactive materials
- The hazards associated with work activities that could suddenly and severely increase radiological conditions
- Severe radiation field dose gradients that can result in non-uniform exposures of the body

Instructions to Workers

The inspectors reviewed radiation work permits (RWPs) used to access high radiation areas (HRAs) and identify what work control instructions or control barriers had been specified. The inspectors verified that allowable stay times or permissible dose for radiologically significant work under each RWP was clearly identified. The inspectors verified that electronic personal dosimeter (EPD) alarm set points were in conformance with survey indications and plant policy.

Radiological Hazards Control and Work Coverage

During tours of the facility and review of ongoing work the inspectors evaluated ambient radiological conditions. The inspectors verified that existing conditions were consistent with posted surveys, RWPs, and worker briefings, as applicable.

During job performance observations, the inspectors verified the adequacy of radiological controls, such as required surveys, radiation protection job coverage, and contamination controls. The inspectors evaluated the licensee's means of using EPDs in high noise areas as HRA monitoring devices.

The inspectors verified that radiation monitoring devices were placed on the individual's body consistent with the method that the licensee was employing to monitor dose from external radiation sources. The inspectors verified that the dosimeter was placed in the location of highest expected dose or that the licensee was properly employing an NRC-approved method of determining effective dose equivalent.

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 licensee controls were adequate.

The inspectors reviewed RWPs 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 (HEPA) ventilation system operation.

Radiation Worker Performance

During job performance observations, the inspectors observed radiation worker performance with respect to stated radiation protection work requirements. The inspectors determined that workers were aware of the significant radiological conditions in their workplace and the RWP controls/limits in place and that their performance reflected the level of radiological hazards present.

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be human performance errors. The inspectors determined that there was no observable pattern traceable to a similar cause. The inspectors determined that this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. The inspectors discussed with the Radiation Protection Manager any problems with the corrective actions planned or taken.

Radiation Protection Technician Proficiency

During job performance observations, the inspectors observed the performance of the radiation protection technician with respect to radiation protection work requirements. The inspectors determined that technicians were aware of the radiological conditions in their workplace and the RWP controls/limits and that their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be radiation protection technician error. The inspectors

determined that there was no observable pattern traceable to a similar cause. The inspectors determined that this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

b. Findings

No findings were identified.

2RS2 Occupational As Low As Is Reasonably Achievable (ALARA) Planning and Controls (71124.02)

During the week of March 18–22, 2013, the inspectors assessed performance with respect to maintaining individual and collective radiation exposures ALARA. 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 Is Reasonably Achievable, Regulatory Guide 8.10 – Operating Philosophy for Maintaining Occupational Radiation Exposure As Low as Reasonably Achievable, the Technical Specifications, and the licensee’s procedures required by technical specifications as criteria for determining compliance.

a. Inspection Scope

Radiological Work Planning

The inspectors obtained from the licensee a list of work activities ranked by actual or estimated exposure that were in progress or that have been completed during the last outage, and selected work activities of the highest exposure significance.

The inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements. The inspectors determined that the licensee had reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances.

The inspectors verified that the licensee’s planning identified appropriate dose mitigation features; considered, commensurate with the risk of the work activity, alternate mitigation features; and defined reasonable dose goals. The inspectors verified that the licensee’s ALARA assessment had taken into account decreased worker efficiency from use of respiratory protective devices and or heat stress mitigation equipment. The inspectors determined that the licensee’s work planning considered the use of remote technologies as a means to reduce dose and the use of dose reduction insights from industry operating experience and plant-specific lessons learned. The inspectors verified the integration of ALARA requirements into work procedure and RWP documents.

Verification of Dose Estimates and Exposure Tracking Systems

The inspectors verified that for the selected work activities that the licensee had established measures to track, trend, and if necessary to reduce, occupational doses for

ongoing work activities. The inspectors verified that trigger points or criteria were established to prompt additional reviews and/or additional ALARA planning and controls.

The inspectors evaluated the licensee's method of adjusting exposure estimates, or re-planning work, when unexpected changes in scope or emergent work were encountered. The inspectors determined that adjustments to exposure estimates were based on sound radiation protection and ALARA principles or that they were just adjusted to account for failures to control the work. The inspectors determined whether the frequency of these adjustments call into question the adequacy of the original ALARA planning process.

Radiation Worker Performance

The inspectors observed radiation worker and radiation protection technician performance during work activities being performed in radiation areas, airborne radioactivity areas, or high radiation areas. The inspectors concentrated on work activities that present the greatest radiological risk to workers. The inspectors determined that workers demonstrate the ALARA philosophy in practice and that there were no procedure compliance issues. Also, the inspectors observed radiation worker performance to determine whether the training and skill level was sufficient with respect to the radiological hazards and the work involved.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation (71124.05)

During the week of January 14–18, 2013, the inspectors verified that the licensee was ensuring the accuracy and operability of radiation monitoring instruments used to (1) monitor areas, materials, and workers to ensure a radiologically safe work environment and (2) detect and quantify radioactive process streams and effluent releases. The instrumentation subject to this review included equipment used to monitor radiological conditions incident to normal plant operations, including anticipated operational occurrences, and conditions resulting from postulated accidents.

The inspectors used the requirements in 10 CFR Part 20, 10 CFR Part 50 Appendix A - Criterion 60 Control of Release of Radioactivity to the Environment and Criterion 64 Monitoring Radioactive Releases, 10 CFR 50 Appendix I Numerical Guides for Design Objectives and Limiting Conditions for Operation to meet the Criterion "As Low as Is Reasonably Achievable" for Radioactive Material in Light-Water – Cooled Nuclear Power Reactor Effluents, 40 CFR Part 190 Environmental Radiation Protection Standards for Nuclear Power Operations, NUREG-0737 Clarification of Three Mile Island Corrective Action Requirements, Technical Specifications/Offsite Dose Calculation Manual, applicable industry standards, and licensee's procedures required by technical specifications as criteria for determining compliance.

a. Inspection Scope

The inspectors walked down effluent radiation monitoring systems, including liquid and gaseous systems. The inspectors verified that effluent/process monitor configurations align with the descriptions in the Offsite Dose Calculation Manual (ODCM).

The inspectors reviewed the channel calibration and functional tests for selected effluent radiation monitors. This review included an evaluation that: (a) the licensee calibrated its monitors with National Institute of Standards and Technology traceable sources, (b) if a primary calibration, it adequately represents the plant nuclide mix, (c) if a secondary calibration, it verifies the primary calibration, and (d) the channel calibrations encompass the instrument's alarm set points.

The inspectors reviewed selected effluent monitor alarm set points in accordance with the ODCM and station procedures. For changes to effluent monitor set points, the inspectors evaluated the basis for changes to ensure that an adequate justification exists.

The inspectors selected laboratory analytical instruments used for radiological analyses and verified daily performance checks and calibration data indicated that the frequency of the calibrations was adequate and there were no indications of degraded instrument performance.

As part of the problem identification and resolution review, the inspectors reviewed the corrective actions associated with instances of degraded instrument performance.

The inspectors selected the drywell/containment high-range monitor and reviewed the calibration documentation since the last inspection.

The inspectors verified that an electronic calibration was completed for all range decades above 10 rem/hour and that at least one decade at or below 10 rem/hour was calibrated using an appropriate radiation source.

The inspectors evaluated the calibration acceptance criteria, accounting for the large measuring range and the intended purpose of the instruments.

The inspectors reviewed the licensee's capability to collect high-range, post-accident iodine effluent samples.

The inspectors observed electronic and radiation calibration of these instruments to verify conformity with the licensee's calibration and test protocols.

The inspectors reviewed the licensee's 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," source term to determine if the calibration sources used were representative of the types and energies of radiation encountered in the plant.

The inspectors reviewed problems associated with radiation monitoring instrumentation to determine if they were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06 – 1 sample)

During the week of January 14–18, 2013, the inspectors: (1) ensured that the gaseous and liquid effluent processing systems were maintained so that radiological discharges are properly mitigated, monitored, and evaluated with regard to public exposure; (2) ensured that abnormal radioactive gaseous or liquid discharges and conditions, when effluent radiation monitors were out-of-service, were controlled in accordance with applicable regulatory requirements and licensee procedures; (3) verified that the licensees' quality control program ensured that the radioactive effluent sampling and analysis requirements were satisfied so that discharges of radioactive materials were adequately quantified and evaluated; and (4) verified the adequacy of public dose calculations and projections resulting from radioactive effluent discharges.

The inspectors used the requirements in 10 CFR Part 20; 10 CFR 50.35(a) Technical Specifications; 10 CFR Part 50 Appendix A – Criterion 60 Control of Release of Radioactivity to the Environment and Criterion 64 Monitoring Radioactive Releases; 10 CFR 50 Appendix I Numerical Guides for Design Objectives and Limiting Conditions for Operations to Meet the Criterion “As Low as is Reasonably Achievable” for Radioactive Material in Light-Water – Cooled Nuclear Power Reactor Effluents ; 10 CFR 50.75(g) Reporting and Recordkeeping for Decommissioning Planning; 40 CFR Part 141 Maximum Contaminant Levels for Radionuclides; 40 CFR Part 190 Environmental Radiation Protection Standards for Nuclear Power Operations; the guidance in Regulatory Guides 1.109, 1.21, 4.1 and 4.15; NUREG-1301 or 1302 Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Control, as well as applicable Industry standards, and licensee procedures required by Technical Specifications/Offsite Dose Calculation Manual, as criteria for determining compliance.

a. Inspection Scope

The inspectors reviewed the Annual Radiological Effluent Release Reports issued since the last inspection. The inspectors evaluated whether the reports were submitted as required by the ODCM/Technical Specifications. The inspectors identified radioactive effluent monitor operability issues reported by the licensee as provided in effluent release reports, and evaluated selected issues that were entered into their CAP for adequate resolution.

The inspectors reviewed changes to the ODCM made by the licensee since the last inspection. The inspectors determined that the licensee had not identified any non-radioactive systems that had become contaminated as disclosed either through an event report or are documented in the ODCM since the last inspection.

The inspectors reviewed reported groundwater monitoring results, and changes to the licensee's written program for identifying and controlling contaminated spills/leaks to groundwater.

The inspectors reviewed licensee event reports and/or special reports related to the effluent program issued since the previous inspection. The inspectors identified no additional focus areas for the inspection based on the scope/breadth of problems described in these reports. The inspectors reviewed effluent program implementing procedures, particularly those associated with effluent sampling, effluent monitor set point determinations and dose calculations.

The inspectors walked down selected components of the gaseous and liquid discharge systems to verify that equipment configuration and flow paths align with the documents reviewed and assessed the equipment material condition. For equipment or areas associated with the systems selected above that were not readily accessible due to radiological conditions, the inspectors reviewed the licensee's material condition surveillance records. The inspectors walked down those filtered ventilation systems whose test results were reviewed during the inspection. The inspectors reviewed any identified equipment degradation conditions, such as degraded HEPA/charcoal banks, improper alignment, or system installation issues that would impact the performance, or the effluent monitoring capability, of the effluent system.

The inspectors determined that the licensee had not made any significant changes to their effluent release points.

The inspectors observed the routine processing and discharge of effluents (including sample collection and analysis). The inspectors reviewed the appropriate use of effluent treatment equipment and that radioactive liquid waste was being processed and discharged in accordance with procedure requirements and in accordance with the respective radioactive waste discharge permits.

The inspectors selected effluent sampling activities and verified the adequacy of controls to ensure representative samples were obtained. The inspectors reviewed the facility's use of compensatory sampling in lieu of adequate system maintenance, based on the frequency of compensatory sampling since the last inspection.

The inspectors reviewed the results of the inter-laboratory comparison program to verify the quality of the radioactive effluent sample analyses. The inspectors evaluated the inter-laboratory comparison program to include hard-to-detect isotopes as appropriate.

The inspectors reviewed the methodology the licensee uses to determine the effluent stack and vent flow rates. The inspectors reviewed the flow rate determinations were consistent with radiological effluent technical specification/ODCM or Final Safety Analysis Report values, and that differences between assumed and actual stack and vent flow rates do not affect the results of the projected public doses.

The inspectors reviewed surveillance test results since the previous inspection for Technical Specification required ventilation effluent discharge systems (HEPA and charcoal filtration) with respect to Technical Specification acceptance criteria.

The inspectors reviewed radioactive liquid and gaseous waste discharge permits. The inspectors reviewed the accuracy of projected doses to members of the public and that

they were based on representative samples of the discharge path. The inspectors evaluated the methods used to determine the isotopes that are included in the source term to ensure all applicable radionuclides were included, within detectability standards. The inspectors reviewed the current Part 61 analyses to ensure hard-to-detect radionuclides were included in the source term.

The inspectors reviewed changes in the licensee's offsite dose calculations since the last inspection. The inspectors reviewed the changes with respect to the ODCM and Regulatory Guide 1.109. The inspectors reviewed meteorological dispersion and deposition factors used in the ODCM and effluent dose calculations to ensure appropriate factors were being used for public dose calculations. The inspectors reviewed the latest Land Use Census and verified that changes have been factored into the dose calculations.

The inspectors reviewed the licensee's implementation of the voluntary Nuclear Energy Institute (NEI)/Industry Groundwater Protection Initiative since the last inspection. The inspectors reviewed monitoring results of the groundwater protection initiative to determine if the licensee had implemented its program as intended, and to identify any anomalous results. No anomalous results were identified.

The inspectors reviewed identified leakage or spill events and entries made into 10 CFR 50.75 (g) records. The inspectors reviewed evaluations of leaks or spills, and reviewed any remediation actions taken for effectiveness. The inspectors reviewed onsite contamination events involving contamination of groundwater.

The inspectors verified that on-site groundwater sample results and a description of any significant on-site leaks/spills into groundwater for each calendar year were documented in the Annual Radiological Environmental Operating Report or the Annual Radiological Effluent Release Report.

The inspectors reviewed selected problems associated with the effluent monitoring and control program to ensure issues were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 – 6 samples)

Initiating Events Performance Indicators

a. Inspection Scope

The inspectors reviewed Entergy's submittal of the following Initiating Events Performance Indicators for the period January 1, 2012, through December 31, 2012:

Unit 2

- Unplanned Scrams per 7000 Critical Hours (IE01)
- Unplanned Power Changes per 7000 Critical Hours (IE03)
- Unplanned Scrams with Complications (IE04)

Unit 3

- Unplanned Scrams (IE01)
- Unplanned Power Changes (IE03)
- Unplanned Scrams with Complications (IE04)

To determine the accuracy of the performance indicator data reported during those periods, inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors reviewed operator narrative logs, maintenance planning schedules, condition reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 1 sample).1 Routine Review of Problem Identification and Resolution Activitiesa. 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 personnel entered issues into their CAP 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 their CAP and periodically attended condition report review meetings.

b. Findings

No findings were identified.

.2 Annual Sample: Review of corrective actions process associated with 22 boric acid storage valve out of position, CR-IP2-2012-7140 (1 sample)a. Inspection Scope

The inspectors performed an in-depth review of Entergy's evaluation and corrective actions associated with the positioning of chemical and volume control system valve

365. The valve positioning led to a reduction of the boric acid concentration to below technical requirements for boric acid storage tank 22. Boric acid tank 21 and flow path were not affected. To determine whether Entergy personnel were appropriately identifying, characterizing and correcting problems associated with this issue, the inspectors assessed Entergy's problem identification threshold; apparent cause analysis of the event; extent of condition reviews; reportability determination, and the prioritization, timeliness, and adequacy of corrective actions.

The inspectors reviewed Entergy's apparent cause evaluation and associated documentation for the event, interviewed operations personnel, conducted a trend review for related events; conducted a review of previous similar events to ensure appropriate characterization, and reviewed Entergy's corrective action process implementation and close out documentation for the issue.

b. Findings and Observations

No findings were identified.

On December 5, 2012, following comprehensive 22 boric acid transfer pump testing, the tag out was not cleared properly and chemical and volume control valve 365 "Boric Acid Transfer Pump 22 Primary Water Flush Stop" remained in the open position. This valve position caused the "primary water low pressure" alarm to annunciate in the main control room and operators were dispatched to investigate. The operators found the valve position open, closed the valve, and cleared the alarm. In the followup review, operators found that with valve 365 open, a flow path allowed primary water to dilute the 22 boric acid storage tank. 21 boric acid tank and flow path were not affected. The boron concentration in tank 22 dropped to below the required 11.5 percent in the plant technical requirements manual. Operators took action to restore the tank to the required concentration and initiated condition report CR-IP2-2012-7140 which detailed the occurrence, the licensee review, and corrective actions. Entergy's apparent cause of the condition was the inadequate use of human performance tools while manipulating equipment during the valve alignment process.

The inspectors determined that Entergy's evaluation of the events appropriately identified the apparent and contributing causes in accordance with their CAP requirements. Additionally, the inspectors determined that the immediate and long term corrective actions developed as a result of the apparent cause were adequate to address the apparent and contributing causes and reasonably prevent reoccurrence.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 5 samples)

.1 Plant Events (2 samples)

a. Inspection Scope

For the plant events listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant events to appropriate regional personnel, and compared the event details with criteria contained in IMC 0309, "Reactive

Inspection Decision Basis for Reactors,” for consideration of potential reactive inspection activities. As applicable, the inspectors verified that Entergy personnel made appropriate emergency classification assessments and properly reported or planned to report the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed Entergy’s follow-up actions related to the events to assure that Entergy implemented appropriate corrective actions commensurate with their safety significance.

Unit 2

- On February 13, 2013, at approximately 2:00 p.m., Unit 2 control room operators manually tripped the reactor after both heater drain pumps unexpectedly tripped. The manual trip was initiated due to fluctuating levels in the steam generators following the feed water transient that approached automatic reactor trip setpoints. A finding for an inadequate maintenance procedure associated with this event is discussed in Section 1R12.

Unit 3

- On March 27, 2013, at approximately 6:00 a.m., Unit 3 experienced an unexpected safety injection actuation. At the time, the unit was in Mode 3 and testing was being performed on the reactor protection system. The inspectors responded to the control room and observed operators complete portions of emergency operating procedures 3-EOP-E-1 and 3-EOP-ES-1.1. Review of this event continued at the end of the inspection period.

b. Findings

No findings were identified. Review of these events continued when the inspection period closed.

.2 (Closed) Licensee Event Report (LER) 05000247/2010-009-01: Automatic Reactor Trip Due to a Turbine Generator Trip Caused by a Fault of the 21 Main Transformer Phase B High Voltage Bushing (supplement)

On November 7, 2010, an automatic reactor trip occurred at full power as a result of a turbine-generator trip due to a fault from the failure of the 21 main transformer. The failure was as a result of a low impedance fault of the 345 kV phase B busing. The inspectors evaluated the response of control room personnel and plant equipment following the automatic reactor trip as described in NRC Inspection Report 05000247/2010005 and closed the initial Licensee Event Report in NRC Report 05000247/2011-005. Entergy personnel later did more extensive evaluation and identified electrical treeing internal to the trench electric type COTA bushings. This evaluation was the basis for the supplemental event report. As reported in the initial review, Entergy personnel replaced the 22 transformer bushings and initiated corrective actions to replace all transformer bushings with a different bushing design. No findings were identified. This LER is closed.

- .3 (Closed) LER 05000247/2012-002-00 and LER 05000247/2012-002-01: Technical Specification (TS) Prohibited Condition Caused by New Fuel Assemblies Stored in a Configuration Prohibited by the TS (and Supplement)

On February 17, 2012, during an evaluation of fuel characterization for storage, Entergy personnel recognized an error in the transfer form (2-TF-2012-004) that had allowed 11 fresh fuel assemblies to be moved into the Unit 2 spent fuel pool on January 23 and 24, 2012. The 11 fresh fuel assemblies were moved into region 1-1 locations in face-adjacent locations to spent fuel assemblies. This configuration was in conflict with Technical Specification 3.7.13, which requires empty cells in between the Region 1-1 checkerboard locations of fresh fuel. Entergy personnel relocated the 13 spent fuel assemblies to restore compliance by February 17, 2012. Entergy personnel determined the root cause of the error to be ineffective use of human performance tools during preparation and verification of the move sheets (2-TF-2012-004). This allowed both the preparer and the verifier to become too focused on fulfilling the checkerboard pattern portion of the Technical Specification 3.7.13 and allowed the other requirement for empty adjacent fuel cells to be overlooked. Both preparer and verifier did not review Technical Specification 3.7.13 in its entirety, nor was a pre-job briefing held as specified by Entergy procedure EN-HU-104. Entergy personnel performed a criticality analysis of spent fuel storage rack region 1-1 and determined that misplacement of the 11 fresh assemblies did not violate the requirement of 10 CFR 50.68 when Keff remained less than 1.0 without credit for soluble boron and less than 0.95 with credit for soluble boron assuming the spent fuel pool is at the technical specification minimum soluble boron concentration of 2000ppm. Entergy staff entered this issue into their CAP as CR-IP2-2012-1019. The enforcement aspects of this issue are discussed in Section 40A7. The inspectors did not identify any new issues during the review of the LER or the supplement. This LER is closed.

40A5 Other Activities

- .1 (Closed) Unresolved Item (URI) 05000286/2012-004-01: Incorrect setting identified on the 32 auxiliary boiler feed pump governor oiler

a. Inspection Scope

The inspectors reviewed the licensee's evaluation of URI 05000286/2012-004-01 related to an apparent low oil condition associated with the 32 auxiliary boiler feedwater pump governor oiler. The licensee utilized a vendor evaluation that established an extended time period the ball bearing-style assembly in the governor could remain fully functional, with no oil in the oiler. A visual observation of the ball bearing assembly during the Unit 3 outage confirmed that no unusual wear had occurred thereby supporting the vendor's conclusions. The inspectors reviewed the vendor evaluation and used technical expertise from the NRC to confirm that no function degradation had occurred and that the equipment remained fully capable to complete its safety mission. As a result, the inspectors determined this issue was of minor significance and not subject to enforcement action in accordance with the NRC's Enforcement Policy. The URI is closed.

b. Findings

No findings were identified.

.2 (Closed) URI 05000247/2012-004-03: Inadequate procedure guidance to maintain 22 auxiliary boiler feedwater pump governor oiler level

a. Inspection Scope

The inspectors reviewed the licensee's evaluation of URI 05000247/2012-004-03 related to an apparent low oil condition associated with the 22 auxiliary boiler feedwater pump governor oiler. The licensee utilized a vendor evaluation that established an extended time period the ball bearing-style assembly in the governor could remain fully functional, with no oil in the oiler. Because the oiler used a wick design, observation of low oil in the bubbler was not indicative of starved oil on the bearing supporting the vendor's conclusions. The inspectors reviewed the vendor evaluation and used technical expertise from the NRC to confirm that no function degradation had occurred and that the equipment remained fully capable to complete its safety mission. As a result, the inspectors determined this issue was of minor significance and not subject to enforcement action in accordance with the NRC's Enforcement Policy. The URI is closed.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On April 12, 2013, 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.

4OA7 Licensee-Identified Violations

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

- Unit 2 Technical Specification 3.7.13.d2, "Spent Fuel Pit Storage", requires that fuel assemblies that satisfy requirements of Technical specification Figure 3.7.13-4 may be stored in a checkerboard loading configuration (1 out of every two cells with every other cell vacant) in Region 1-1 of the spent fuel pool. Contrary to this requirement, from January 23, 2012 to February 17, 2012, 11 un-irradiated fuel assemblies were loaded in region 1-1 of the unit 2 spent fuel pool in a face-adjacent location to other spent fuel assemblies and not in a checkerboard loading configuration. Entergy personnel identified this issue during a review of spent fuel storage activities, shuffled the fuel to restore compliance, and entered this issue into their CAP as CR-IP2-2012-1019. Entergy personnel reported not meeting this requirement to the NRC in LER 05000247/2012-002-01, (See section 4OA3). The inspectors followed

the guidance of IMC 0609, Appendix A, Exhibit 3d, step 4 which states that if the finding affects the SFP neutron absorber, fuel bundle misplacement (i.e., fuel loading pattern error) or soluble boron concentration then use guidance of IMC 0609, Appendix M, "SDP Using Qualitative Criteria." An NRC Region I Senior Reactor Analyst determined that there were no probabilistic risk assessment tools currently available to adequately assess the risk of a SFP criticality event. The inspectors determined that the finding was of very low safety significant (Green) after review of Entergy's NETCO analysis of October 17, 2012, where the calculated Keff remained less than 1.0 without credit for soluble boron and 0.95 with credit for soluble boron as required by 10 CFR 50.68 and the spent fuel pool was at the technical specification required soluble boron concentration 2000ppm minimum.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Entergy Personnel

J. Ventosa, Site Vice President
N. Azevedo, Code Programs Supervisor
T. Chan, Mechanical Systems Supervisor
T. Cole, NUC Project Manager
P. Conroy, Nuclear Safety Assurance Director
L. Coyle, General Manager Plant Operations
D. Dewey, Assistant Operations Manager
J. Dinelli, Operations Manager
R. Dolanksy, ISI Program Manager
R. Drake, Civil Design Engineering Supervisor
D. Gagnon, Security Manager
D. King, NDE Project Manager URS
J. Kirkpatrick, Assistant General Manager Plant Operations
J. Lijoi, Instrument and Control Maintenance Superintendent
S. Manzione, Components Engineering Supervisor
D. Mayer, Unit 1 Director
T. McCaffrey, Design Engineering Manager
B. McCarthy, Assistant Operations Manager
R. Tagliamonte, Radiation Protection Manager
M. Tesoriero, Programs and Components Manager
M. Troy, Plant Programs Supervisor
R. Walpole, Licensing Manager
W. Wittich, Configuration Management Supervisor
M. Woodby, Engineering Director

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATEDOpened/Closed

05000247&286/2013-002-01	FIN	Inadequate Maintenance Procedure Results in a Reactor Trip (Section 1R12)
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Closed

05000247/2010-009-01	LER	Automatic Reactor Trip Due to a Turbine Generator Trip Caused by a Fault of the 21 Main Transformer Phase B High Voltage Bushing (Section 4OA3)
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05000247/2012-002-00	LER	Technical Specification (TS) Prohibited Condition Caused by New Fuel Assemblies Stored in a Configuration Prohibited by the TS (and Supplement) (Section 4OA3)
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05000247/2012-002-01	LER	Technical Specification (TS) Prohibited Condition Caused by New Fuel Assemblies Stored in a Configuration Prohibited by the TS (and Supplement) (Section 4OA3)
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05000247/2012-004-03	URI	Inadequate Procedure Guidance to Maintain 22 ABFP Governor Oiler Level (Section 4OA5)
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05000286/2012-004-01	URI	Incorrect Setting Identified on the 32 Auxiliary Boiler Feed Pump Governor Oiler (Section 4OA5)
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LIST OF DOCUMENTS REVIEWED**Section 1R01: Adverse Weather Protection**Procedures

OAP-008, Severe Weather Preparation, Revision 13

OAP-48, Severe Weather Preparations, Revision 9

Condition Reports (CR-IP3-)

2013-00529 2013-00685

Maintenance Orders/Work Orders

340120 51467931 51467932 167826

Section 1R04: Equipment AlignmentProcedures

3-COL-EL-005, Diesel Generator, Revision 36

3-COL-FW-2, Auxiliary Feedwater System, Revision 31

3-COL-RW-002, Service Water System, Revision 45

IP-SMM-WM-101, IPEC Site Management Manual, Revision 3

2-COL-27.3.1, Diesel Generators, Revision 26

Condition Reports (CR-IP3-)

2013-00328 2013-02035

Drawings

9321-F-20183, Flow Diagram Condensate & Boiler Feed Pump Suction, Sheet 1, Revision 61

9321-F-20193, Flow Diagram Boiler Feedwater, Revision 60

9321-F-20303, Flow Diagram Fuel Oil to Diesel Generators, Revision 29

9321-F-20333, Flow Diagram Service Water System, Sheet No. 1, Revision 53

9321-F-20333, Flow Diagram Service Water System, Sheet No. 2, Revision 29

9321-F-27223, Flow Diagram Service Water System, Nuclear Steam Supply Plant, Revision 46

9321-H-20283, Flow Diagram Jacket Water to Diesel Generators, Revision 24

9321-H-20293, Flow Diagram Starting Air to Diesel Generators, Revision 34

9321-F-2030, Fuel Oil to Diesel Generators, Revision 40

9321-H-2029, Starting Air to Diesel Generators, Revision 52

9321-F-2028, Jacket Water to Diesel Generator, Revision 37

Section 1R05: Fire Protection

Procedures

EN-DC-161, Control of Combustibles, Revision 6

IP2-RPT-03-00015, IP2 Fire Hazards Analysis, Revision 5

IP3-ANAL-FP-02143, IP3 Fire Hazards Analysis, Revision 1

NFPA 12-1977, Revision 1

Pre Fire Plan – 354, Diesel Generators 31, 32, 33, Revision 0

ENG-10, Operational and Start-up Test Procedure for Low Pressure CO₂ Fire Protection System, Revision 1

IP3-RPT-CO2-00777, Total Flooding Carbon Dioxide System Design Basis for New York Power Authority Indian Point 3, Revision 0

EN-TQ-125, Fire Brigade Drills, Revision 1

PFP-364, General Floor Plan – Turbine Building, Revision 12

3-ONOP-FP-1, Plant Fires, Revision 32

Condition Reports (CR-IP2-)

2013-00457 2013-00459

Condition Reports (CR-IP3-)

2013-00395 2013-00397 2013-00398 2013-00399 2013-00440

Miscellaneous

Fire Protection Program Plan, Unit No. 2, Revision 9

Section 1R06: Flood Protection Measures

Procedures

0-ELC-418-GEN, Manhole Inspections, Revision 4

Condition Reports (CR-IP3-)

2013-00032 2013-00426

Maintenance Orders/Work Orders

52461299 340981

Section 1R07: Heat Sink PerformanceProcedures

0-HTX-400-GEN, Eddy Current Inspection of Heat Exchanger Tubes, Revision 2
 SEP-SW-001, NRC Generic Letter 89-13 Service Water Program, Revision 6
 3-HTX-017-FCU, Containment Fan Cooler Unit Motor Cooler Maintenance, Revision 2
 3-HTX-007-FCU, Containment Fan Cooler Unit Heat Exchanger Maintenance, Revision 2

Condition Reports (CR-IP3-)

2013-01441 2013-01896 2013-01779

Miscellaneous

Inspection Summary containment Recirculating Fan Motor cooler 34, March 2013

Section 1R08: Inservice Inspection ActivitiesProcedures

3-PT-R203, Visual Examination of Reactor Vessel Head Penetrations and Head Surface for Leakage, Revision 4
 CEP-BAC-001, Revision 1
 CEP-NDE-0641, Liquid Penetrant Examination for ASME Section XI, Revision 7
 CEP-NDE-0423, (PDI UT-2), Manual Ultrasonic Examination of Austenitic Piping Welds (ASME XI), Revision 5
 CEP-NDE-0485, Manual Ultrasonic Examination of Vessel Nozzle Inside Radius (Non-App. VIII), Revision 8
 EN-DC-319, Inspection and Evaluation of Boric Acid Leaks, Revision 8
 ENN-EP-S-001, IWE General Visual Containment Inspection, Revision 0
 SEP-BAC-IPC-001, Boric Acid Corrosion Control Program, Revision 0
 PDI UT 10, UT of the Pressurizer Surge Line 14" Pipe to Nozzle DM Weld, Revision E
 UT PDI- ISI-254-SE-NB, Ultrasonic Computer Based Examination of the 4 RCS Hot Leg DM Nozzle to Safe End Welds from the Inside Surface, Revision 2
 ECT WDI-STD-146, Eddy Current Examination of the 4 RCS Hot Leg DM Nozzle to Safe End Welds, Revision 11
 CEP-NDE-0903, ASME IWE, Containment Boundary Visual Examination, Revision 5
 CEP-NDE-0731, Magnetic Particle Examination for ASME Section XI, Revision 3
 CEP-NDE-0404, (PDI UT-1), Manual UT of Austenitic piping (ASME XI), Revision 5
 Examination Technique Specification Sheet (ETSS) 1, Bobbin Probe, Revision 0
 ETSS 2, Rotating Probe 3 coil, Revision 0
 ETSS 3, Rotating Probe MR 1 coil, Revision 0
 ETSS 4, X Probe 2x19, Revision 0
 03-9192385, Secondary Side Visual Inspection Plan and Procedure for Entergy Indian Point Unit 3 R17, Revision 1

Condition Reports (CR-IP3-)

2009-01024	2013-00796	2013-00802	2013-00803	2013-00804	2013-00996
2013-01150	2013-01225	2013-01505	2013-01569	2013-01660	2013-01678
2013-01679	2013-01777	2013-01790	2013-01793	2013-01890	2013-01908

Condition Reports (CR-IP2-)
2013-01923

Maintenance Orders/Work Orders

187740-02
335232-01
00287488-01, PRZ Surge line DM Weld
0021759-01 and 00217578-01, Safety Injection Piping Integral, Attachment PT Inspection
287488-01, Pressurizer 14" Surge Line PT

Miscellaneous

Areva Document 51-9194746-000, IP 3R17 Steam Generator Degradation Assessment,
March 2013

Section 1R12: Maintenance Effectiveness

Procedures

3-PT-W020, Electrical Verification – Inverters and DC Distribution in Modes 1 to 4, Revision 14
3-PT-W013, Station Battery Visual Inspection, Revision 24
3-SOP-EL-003, Battery Charger and 125 Volt DC System Operations, Revision 40
EN-DC-205, Maintenance Rule Monitoring, Revision 4
3-IC-PM-I-E-32BC, 32 Battery Charger Preventative Maintenance, Revision 3

Condition Reports (CR-IP3-)

2011-00271 2012-3242 2012-03335 2013-00128 2013-00098 2013-00099
2013-01726

Maintenance Orders/Work Orders

52445101 52444866 52447622 52446412 52308424-4

Miscellaneous

IP3 Controlled Vendor Manual No. 156-100000190, Operating and Service Instructions,
SCR/SCRF Series Battery Charger, Three Phase Input
Failure Modes Analysis, 32 Battery Charger High Output Ripple
Action Request 116029, preventive maintenance change request to add potentiometers

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

EN-WM-104, On Line Risk Assessment, Revision 7
IP-SMM-WM-101, IPED Site Management Manual, Revision 3
IP-SMM-OU-104, Shutdown Risk Assessment, Revision 10
EN-OU-108, Shutdown Safety Management Program (SSMP), Revision 5

Maintenance Orders/Work Orders

52286217 52399098

Miscellaneous

Daily Plant Information, Work Week 1302
Equipment Out of Service Risk Profile
Operator Narrative Logs, January 18, 2013

Operator Narrative Logs, February 06, 2013
 Operator Narrative Logs, March 22-23, 2013

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

2-SOP 29.20, Emergency Fuel Oil Transfer Using Trailer, Revision 0
 3-PT-OL11B, LOOP T-433B O.P.S. Analog Test, Revision 10
 3-SOP-EL-001, Diesel Generator Operation, Revision 48
 EN-LI-102, Corrective Action Process, Revision 20
 EN-OP-104, Operability Determination Process, Revision 6
 3-PT-R013, Recirculation Pumps, Revision 24
 3-SOP-EL-009, Filling the Diesel Fuel Oil Storage Tanks, Revision 22

Condition Reports (CR-IP3-)

2010-3088	2012-03590	2011-03960	2013-00076	2013-00077	2013-00086
2013-00088	2013-00507	2013-2081			

Maintenance Orders/Work Orders

WO 338396	52360310	329368	341506
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Drawings

302773-7, Fuel Oil System
 302775-6, Fuel Oil System
 304122-7, Fuel Forwarding System
 9321-F-2030-40, Fuel Oil to Diesel Generators
 9321-F-27353, Flow Diagram Safety Injection System
 9321-F-40463, Diesel Generator Building Floor Drain Plan & Sections, Revision 5
 9321-F-40053, Yard Storm Drains Plan, Revision 13
 9321-F-40143, Yard Storm Drains Sections and Details, Revision 10

Miscellaneous

IP-Calc-13-010, Evaluation of Leak at Line 1222 Downstream SWN-6 in the SW Valve Pit, Revision 0
 IP3-UT-13-014, UT Erosion/Corrosion Examination of Leak Downstream SWN-6
 IP-Calc-13-00009, Allowable Flaw Size for 3R17 GL 89-13 Program Inspections, Revision 0
 Design Basis Document, IP3-DBD-324, Emergency Diesel Generators, Revision 1
 Calculation IP3-Calc-ED-207, 480V Bus 2A, 3A, 5A, and 6A and EDGs 31, 32, and 33 Accident Loading, Revision 7
 Indian Point Unit 3 TS Bases, B3.8.3, Diesel Fuel oil and Starting Air, Revision 3
 Calculation IP-Calc-11-00058, IP3 Emergency Diesel Generator Fuel Oil Consumption Licensing Basis Calculation, Revision 0
 NRC Component Design Basis Inspection Report, 50-286/2010-009

Section 1R18: Plant Modifications

Procedures

3-PT-R035R, Leakage Test for Containment Pressure Relief Containment Isolation Valves, Revision 6
 3-PT-Q028, Containment Isolation Valves PCV-1190, PCV-1191, and 1192 Pressure Relief System, Revision 18

A-7

3-PT-R134, Pressure Relief Valves Travel Block and Volume Tank Testing, Revision 12
3-PT-Q49, WRGM Functional Test (R-27), Revision 31
EN-DC-117, Post Modification Testing and Special Instructions, Revision 5
3-PT-Q092E, 35 Service Water Pump, Revision 17
0-RES-400-GEN, Hilti and Drillco Anchor Bolt Installation, Revision 3
CEP-WP-004, Attachment 7.4, Weld Map, Revision 0
TS-MS-19, Miscellaneous QA-Category I Valves, All Sizes, Revision 5
TS-MS-027, Specification for Service Water Piping and Piping Components, Revision 4
3-PT-R003D, Safety Injection Test, Revision 32

Condition Reports (CR-IP3-)

2013-01525 2013-01816 2013-01930 2013-02026 2013-00627 2013-00588

Maintenance Orders/Work Orders

WO 300171 311010-16

Miscellaneous

EC-33393

EC-35234, Child EC for installation of SWN-1-5

EC-34901, Replacement of Service Water Check Valves SWN-1-1 through SWN-1-6 with
EnerTech 14" Nozzle Type Check Valves (Upgraded Materials)

Weld Map Numbers 00311010-01-01, 00311010-08-01

Engineering Change EC-24457, Use of Garlock Multi-Swell 3760 Gasket

Drawing 9321-F-20333, Sheet 1, Flow Diagram Service Water System, Revision 53

Drawing 9321-F-22423, Yard Area Restraint & Support Design, Line 1085

NSE-97-3-028-SWS, Service Water Piping Material Upgrade, Revision 2

Calculation IP-Calc-12-00049, Piping Stress Analysis of SW Line 1085, Revision 0

Calculation IP-CALC-12-00035, Evaluation of Pipe Support Number SWN-H&R-1085-3-R for
Check Valve SWN-1-5

Section 1R19: Post-Maintenance Testing

Procedures

2-PT-M110, Appendix R DG Functional Test, Revision &. Completed 12/27/2012

3-BKR-004-ELC, Inspection, Lubrication, and Testing of Westinghouse 480 Volt DS-416 and
DS-840 Breaker, Revision 54

3-BKR-016-CUB, Westinghouse 480V Switchgear Cubicle Inspection and Cleaning, Revision 12

3-BKR-017-ELC, Current Sensor and/or Trip Unit Replacement, Setting and Testing,
Revision 12

3-IC-PC-I-P-1139, Auxiliary Boiler Feed Pump No. 32 Steam Supply Controller, Revision 2

3-MCC-001-ELC, Westinghouse 480 Volt MCC Maintenance Inspection, Revision 36

3-PT-Q120B, 32 ABFP (Turbine Driven) Surveillance and IST, Revision 22

3-SOP-CB-010, Containment Recirculation Fan Cooler Unit Operations, Revision 29

EN-HU-102, Human Performance Traps and Tools, Revision 12

2-PTQ026A, 21 Service Water Pump, Revision 17

2-PT-2Y045A, 21 Service Water Pump Full Flow Test, Revision 4

3-PT-V057, Valve Stroke Timing Test, Revision 5

3-PT-CS035, Containment Sump RHR Suction Isolation Valve Functional Test, Revision 3

3-PT-R015, SI HI-Head Check Valve Leak Test 857'S, Revision 14

3-PT-R007B, 32 ABFP Full Flow Test, Revision 16

3-PT-117B, 32 Containment Spray Pump Functional Test, Revision 12

0-TUR-403-AFP, Worthington Auxiliary Boiler Feed Pump Turbine Preventive Maintenance, Revision 7

3-PT-Q092B, 32 Service Water Pump, Revision 19

Condition Reports (CR-IP2-)

2013-00277 2013-00288 2013-00342 2013-00350 2011-01745 2013-01119

Condition Reports (CR-IP3-)

2009-01412 2009-01585 2009-04656 2011-01071 2012-03427 2012-03679
 2013-00033 2013-01698 2013-01741 2013-02147 2013-01523 2013-01524
 2013-01239 2013-02147 2013-00412 2013-606

Maintenance Orders/Work Orders

00200465 00269752 00300842 00300844 216432 218742
 52308255 52308691 52416060 52451485 52370693 52356885
 50074182 00344063 00343552 329315 311007

Drawings

400853 501498 9321-F-2722-126 9321-F-27503 9321-F-27353
 CP7-1-56-A

Miscellaneous

TRO 3.8.B, SBO/Appendix R Diesel and Electrical Distribution, Condition A
 ER Response No. 04-2-095, Station Blackout and Appendix R Diesel, Revision 0
 Maintenance Rule Basis Document, Appendix R Diesel Generators, Revision 0
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 3-SOP-RP-020, Draining the RCS/Refueling Cavity, Revision 38
 3-POP-1.2, Reactor Startup, Revision 53
 3-POP-3.2, Plant Recovery From Trip, Hot Standby, Revision 3
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2-PC-EM30, Process Radiation Monitor R41/42 Calibration, Revision 12
2-PC-EM31, Effluent Radiation Monitor R43/44 Calibration, Revision 12
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2-PT-Q23, Waste Distillate Tank Level Instrument Functional Test/Calibration, Revision 12
2-PC-2423, Liquid Radiation Monitor Calibration, Revision 15
3-PC-OL36, Wide Range Gas Monitor R-27 Channel Calibration, Revision 6
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3-PT-R032B3, 33 Fan Cooler Unit Filtration Functional Test, Revision 5
3-PT-R032B4, 34 Fan Cooler Unit Filtration Functional Test, Revision 5
3-PT-R032B5, 35 Fan Cooler Unit Filtration Functional Test, Revision 5
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LIST OF ACRONYMS

ABFP	auxiliary boiler feedwater pump
ADAMS	Agencywide Documents Access Management System
ALARA	as low as is reasonably achievable
ASME	American Society of Mechanical Engineers
BACC	boric acid corrosion control
CAP	corrective action program
CFR	Code of Federal Regulations
CR	condition report
CRDM	control rod drive mechanism
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EC	engineering change
ECT	eddy current examination
EDG	emergency diesel generator
ENTERGY	Entergy Nuclear Northeast
EP	emergency preparedness
EPD	electronic personal dosimeter
EPRI	electric power research institute
FCU	fan cooler unit
FIN	finding
FSAR	final safety analysis report
FZ	fire zone
HEPA	high efficiency particulate air
HRA	high radiation area
IMC	Inspection Manual Chapter
IP	inspection procedure
IPEC	Indian Point Energy Center
IR	inspection report
ISI	inservice inspection
LER	Licensee Event Report
LOCA	loss of coolant accident
LOOP	loss of offsite power
NCV	non-cited violation
NDE	nondestructive examination
ODCM	offsite dose calculation manual
PFP	pre-fire plan
PI	performance indicator
PORV	power-operated relief valve
RCS	reactor coolant system
RHR	residual heat removal
RWP	radiation work permit
SDP	significance determination process
SG	steam generator
SSC	structure, system, and component
SW	service water
UFSAR	Updated Final Safety Evaluation Report
UT	ultrasonic test
VT	visual examination
WO	work order