UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

February 5, 2015

EA-14-180

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

SUBJECT: INDIAN POINT NUCLEAR GENERATING – NRC INTEGRATED INSPECTION REPORT 05000247/2014005 AND 05000286/2014005

Dear Mr. Coyle:

On December 31, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Indian Point Nuclear Generating (Indian Point), Units 2 and 3. The enclosed inspection report documents the inspection results, which were discussed on January 30, 2015, 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 two licensee-identified apparent violations (AVs) and one NRC-identified finding of very low safety significance (Green). The finding did not involve a violation of NRC requirements. Additionally, five licensee-identified violations, which were determined to be of very low safety significance, are listed in this report. However, because of the very low safety significance, and because they have been entered into your corrective action program, the NRC is treating the licensee-identified violations as non-cited violations, consistent with Section 2.3.2.a of the NRC Enforcement Policy. If you contest the finding not associated with a regulatory requirement or non-cited violations in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, 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 Senior Resident Inspector at Indian Point. In addition, if you disagree with the cross-cutting aspect assigned to the finding not associated with a regulatory requirement 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 Senior Resident Inspector at Indian Point.

The two AVs of NRC requirements are being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html.

The AVs, which are related to Entergy providing information to the NRC pertaining to renewing an operator's license that was not complete and accurate in all material respects, and for Entergy not notifying the NRC within 30 days of a change in the operator's medical condition, are described in detail in the enclosed report. The NRC notes that, upon identifying the issue, Entergy took the appropriate immediate corrective actions of informing the NRC and requesting amended operator licenses, such that the AVs do not represent an immediate safety concern.

The circumstances surrounding the AVs, the significance of the issue, and the need for lasting and effective corrective action were discussed with members of your staff at an inspection exit meeting on December 17, 2014. As a result, the NRC does not require a pre-decisional enforcement conference (PEC) in order to make an enforcement decision. In addition, since Entergy identified the AVs and based on our understanding of your corrective actions, a civil penalty may not be warranted in this case, in accordance with Section 2.3.4 of the Enforcement Policy.

Before the NRC makes its enforcement decision, we are providing you an opportunity to provide your perspective on this matter, including the significance, cause, and corrective actions, as well as any other information that you believe the NRC should take into consideration by: (1) requesting a PEC to meet with the NRC and provide your views in person; (2) responding to the AVs in writing; or, (3) accepting the violations as characterized in this letter and the inspection report (in which case the NRC will proceed with its enforcement decision). Please contact Arthur Burritt, Chief, Reactors Project Branch 2, Division of Reactor Projects, Region I, NRC at (610)337-5069 within 10 days of the date of this letter, to inform him whether you are interested in attending a PEC, providing a written response, or accepting the violations.

If you choose to request a PEC, the meeting should be held in our office in King of Prussia, PA, within 30 days of the date of this letter. The PEC will afford you the opportunity to provide your perspective on the AVs and any other information that you believe the NRC should take into consideration before making an enforcement decision. The topics discussed during the conference may include the following: information to determine whether any violations occurred, information to determine the significance of any violations, information related to the identification of any violations, and information related to any corrective actions taken or planned to be taken. If a PEC is held, it will be open for public observation and the NRC will issue a press release to announce the conference time and date.

If you choose to provide a written response, it should be sent to the NRC within 30 days of the date of this letter. Your response may reference or include previously docketed correspondence. It should be clearly marked as a "Response to Apparent Violations in Inspection Report No. 05000247&286/2014005; EA-14-180," and sent to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional Administrator, Region I, 2100 Renaissance Boulevard, King of Prussia, PA 19406.

Please be advised that the number and characterization of AVs described in the enclosed inspection report may change as a result of further NRC review. You will be advised by separate correspondence of the results of our deliberations on this matter.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of the NRCs "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Ho K. Nieh
Director
Division of Reactor Projects

Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and DPR-64

Enclosure: Inspection Report 05000247/2014005 and 05000286/2014005
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

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In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of the NRCs "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.	50-247 and 50-286
License Nos.	DPR-26 and DPR-64
Report Nos.	05000247/2014005 and 05000286/2014005
Licensee:	Entergy Nuclear Northeast (Entergy)
Facility:	Indian Point Nuclear Generating Units 2 and 3
Location:	450 Broadway, GSB Buchanan, NY 10511-0249
Dates:	October 1, 2014, through December 31, 2014
Inspectors:	J. Stewart, Senior Resident Inspector A. Patel, Resident Inspector G. Newman, Resident Inspector J. Brand, Reactor Inspector C. Lally, Operations Engineer J. Furia, Senior Health Physicist E. Knutson, Senior Resident Inspector – Fitzpatrick J. Petch, Project Engineer D. Silk, Senior Operations Engineer D. Simpkins, Inspector
Approved By:	Arthur L. Burritt, Chief Reactor Projects Branch 2 Division of Reactor Projects

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SUMMARY

Inspection Report 05000247/2014005, 05000286/2014005; 10/01/2014 – 12/31/2014; Indian Point Nuclear Generating (Indian Point), Units 2 and 3; Licensed Operator Requalification Program.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Two licensee-identified apparent violations (AVs) were identified. Additionally, the inspectors identified one finding of very low safety significance (Green), which was not a violation of NRC requirements. 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," dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

Cornerstone: Mitigating Systems

- To-Be-Determined (TBD). Entergy identified two AVs of NRC requirements related to Entergy not notifying the NRC within 30 days of a change in a licensed reactor operator's (RO's) medical condition and to providing information to the NRC pertaining to renewing a RO license that was not complete and accurate in all material respects. Specifically, Entergy identified an AV of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.74, "Notification of Change in Operator or Senior Operator Status," for Entergy's failure to notify the NRC within 30 days after learning, on October 25, 2012, that a Unit 3 RO had a permanent disability or illness (sleep apnea). Entergy also did not request an amended license with a condition to account for the medical issue, resulting in the RO performing licensed duties without a properly restricted license. Additionally, Entergy identified an AV of 10 CFR 50.9, "Completeness and Accuracy of Information," pertaining to Entergy's failure to provide information to the NRC in the RO's license renewal application in that it did not specify that the RO had a medical condition (sleep apnea) that required a restriction [for use of a continuous positive airway pressure (CPAP)]. The NRC, in turn, issued a license renewal that did not contain the necessary restriction. Compliance was restored on July 7, 2014, when Entergy submitted a letter to the NRC with a Form 396 indicating the new restriction for the use of a CPAP machine. On August 14, 2014, the NRC issued a license amendment with the new restriction. These issues were entered into Entergy's corrective action program (CAP) as condition report (CR)-IP3-2014-1416 and CR-IP2-2014-4202.

  The inspectors determined that Entergy's failure to report a change in a licensed operator's permanent medical condition to the NRC and subsequently provide complete and accurate information to the NRC was a performance deficiency that was within their ability to foresee and correct and should have been prevented. The inspectors determined that traditional enforcement applies, as the issue impacted the NRC's ability to perform its regulatory function. The inspectors screened the issue using Section 6.4.c.4(b) of the NRC Enforcement Policy and preliminarily determined that these AVs meet the definition of a Severity Level III violation because Entergy failed to report a condition that would have required the addition of a license restriction within the required timeframe and, again, for the RO's license renewal. No associated Reactor Oversight Process finding was identified and

no cross-cutting aspect was assigned. These issues constitute AVs in accordance with the NRC's Enforcement Policy, and the final significance will be dispositioned in future correspondence. Because the significance determination of this issue is not complete, it is identified as TBD (Section 1R11)

- Green. The inspectors identified a Green finding (FIN) because Entergy did not adhere to their procedural standards for generating remedial written exams. Entergy failed to follow the guidance as stated in their procedure EN-TQ-201-03, "Systematic Approach to Training," Section 5.4, regarding remedial exam construction when an operator was retested on April 25, 2013.

  The inspectors determined that Entergy's failure to adhere to their remedial examination standards in EN-TQ-201-03 was a performance deficiency. The inspectors determined that the finding was more than minor because it was associated with the human performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the finding affected the quality and level of difficulty of the remedial quiz which potentially impacted Entergy's ability to appropriately evaluate the licensed operator. The inspectors determined that this issue had a cross-cutting aspect in Human Performance, Procedure Adherence, because Entergy did not follow their procedural standards for generating remedial written exams. [H8] (Section 1R11)

Other Findings

Violations of very low safety significance that were identified by Entergy were reviewed by the inspectors. Corrective actions taken or planned by Entergy were entered into Entergy's CAP. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 2 operated at 100 percent power during the inspection period. NRC Inspection Report 05000247/2014-004, Erratum: Unit 2 reduced power to 68 percent on September 18, 2014, pursuant to Technical Specification (TS) 3.1.4 and returned to full power the same day (EN 50467).

Unit 3 operated at 100 percent power during the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – 2 samples)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of Entergy's readiness for the onset of seasonal low temperatures. The inspectors reviewed procedure OAP-048, "Seasonal Weather Preparation (Units 2 and 3)." The inspection focus areas were auxiliary boiler feedwater pump (ABFP) building ventilation systems (2-SOP-11.1, 3-SOP-V-011), emergency diesel generator (EDG) buildings, and service water pump areas. The inspectors reviewed the updated final safety analysis report (UFSAR), TSs, control room logs, and the CAP to determine what temperatures or other seasonal weather could challenge these systems, and to ensure Entergy personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including Entergy's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during cold weather conditions. Documents reviewed for each section of the inspection report are listed in the Attachment.

b. Findings

No findings were identified.

.2 External Flooding

a. Inspection Scope

During the week of December 15, 2014, the inspectors performed an inspection of the external flood protection measures for Indian Point. The inspectors reviewed TSs, procedures, design documents, and UFSAR, Chapter 2.4.2.4, which describes the design flood levels and protection areas containing safety-related equipment, to identify areas that may be affected by internal flooding. The inspectors conducted a walkdown of specific external areas of the plant, including the Unit 3 EDG building and turbine building, to ensure that Entergy maintained flood protection measures in accordance

with design specifications. The inspectors also reviewed operating procedures for mitigating external flooding during severe weather to determine if Entergy planned or established adequate measures to protect against external flooding events.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial System Walkdowns (71111.04Q – 5 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

Unit 2

- 21 containment spray when 22 containment spray system was out of service for discharge valve preventive maintenance on October 28, 2014
- 21 ABFP and valve alignment when 22 auxiliary feedwater (AFW) train was removed from service for valve maintenance and testing on November 5, 2014
- 22 EDG and 23 EDG alignment when 21 EDG was removed from service for jacket water/lube oil heat exchanger, fuel oil transfer pump, and associated breaker preventive maintenance on November 12, 2014
- Control room ventilation system train A during emergent maintenance on the control room ventilation system train B with elevated temperatures in the control room on November 24, 2014

Unit 3

- 31 and 33 AFW when 32 AFW was removed from service for planned maintenance. This walkdown was completed using Entergy procedure 3-COL-FW-2, “Auxiliary Feedwater System,” on December 22, 2014

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable operating procedures, system diagrams, the UFSAR, TSs, work orders, CRs, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of redundant trains of equipment. 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 obvious deficiencies. The inspectors also reviewed whether Entergy staff had properly identified equipment issues and entered them into the CAP for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05Q – 7 samples)

Resident Inspector Quarterly Walkdowns

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 their administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan (PFP), and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for degraded or inoperable fire protection equipment, as applicable, in accordance with procedures.

Unit 2

- Electrical tunnel when Appendix R diesel generator was out of service for planned maintenance (PFP-213 was reviewed) on October 21, 2014
- AFW room when high energy line break door was impaired (PFP-259 was reviewed) on November 3, 2014
- AFW room while transient combustibles were staged for planned maintenance (PFP-259 was reviewed) on November 14, 2014

Unit 3

- Primary auxiliary building 15', residual heat removal pump rooms (PFP-304 was reviewed), on October 9, 2014
- Fire pump house 80' (PFP-390 was reviewed) on December 2, 2014
- Fuel storage building 95' and 55' (PFP-315 and PFP-316 were reviewed) on December 3, 2014
- Control building – cable spreading room 33' (PFP-352 was reviewed) on December 16, 2014

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the 23 EDG lube oil and jacket water heat exchangers to determine readiness and availability to perform their 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 actual performance tests for the heat exchangers and/or reviewed the results of previous inspections of the 23 EDG lube oil and jacket water heat exchangers. The inspectors discussed the results of the most recent inspection with engineering staff and reviewed the as-found and as-left conditions. The inspectors verified that Entergy 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.

1R11 Licensed Operator Requalification Program

Licensed Operator Requalification (71111.11A and 71111.11B – 2 samples)

a. Inspection Scope

The following inspection activities were performed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and Inspection Procedure Attachment 71111.11, “Licensed Operator Requalification Program.”

Examination Results

On October 6, 2014, the results of the annual operating tests were reviewed for both Units 2 and 3 to determine if pass/fail rates were consistent with the guidance of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and NRC Manual Chapter 0609, Appendix I, “Operator Requalification Human Performance Significance Determination Process (SDP).” (There was no written requalification examinations administered in 2014.) The review verified that the failure rate (individual or crew) did not exceed 20 percent.

Unit 2

- 0 out of 51 licensed operators failed at least one section of the Annual Exam. The overall individual failure rate was 0.0 percent.

- 0 out of 6 crews failed the simulator test. The crew failure rate was 0.0 percent.

Unit 3

- 0 out of 50 licensed operators failed at least one section of the Annual Exam. The overall individual failure rate was 0.0 percent.

- 0 out of 6 crews failed the simulator test. The crew failure rate was 0.0 percent.

Written Examination Quality

The inspectors reviewed two written examinations administered during the 2013 examination cycle for qualitative and quantitative attributes as specified in Appendix B of Attachment 71111.11, Licensed Operator Requalification.

Operating Test Quality

Twelve job performance measures (JPMs) and eight scenarios from the exam weeks of September 15 and 22, 2014, were reviewed for qualitative and quantitative attributes as specified in Appendix C of 71111.11, "Licensed Operator Requalification Program."

Licensee Administration of Operating Tests

Observations were made of the dynamic simulator exams and JPMs administered during the week of September 15, 2014. These observations included Entergy's evaluations of crew and individual performance during the dynamic simulator scenarios and individual performance of JPMs.

Examination Security

The inspectors assessed whether Entergy properly safeguarded exam material. JPMs, scenarios, and written examinations were checked for excessive overlap of test items.

Remedial Training and Re-Evaluations

The remediation plan and retake quiz for one reactor operator written quiz failure was reviewed to assess the effectiveness of the remedial training. The remediation activities for this individual were reviewed against site procedures.

Conformance with Operator License Conditions

Medical records for seven licensed operators were reviewed to assess conformance with license conditions. Proficiency watch standing records were reviewed for all operators for 2014. The reactivation plans for one senior reactor operator (who was reactivated twice since the last inspection) was reviewed to assess the effectiveness of the reactivation process. Records for the participation of all licensed operators in the requalification program were reviewed for the present cycle as well as the operators from the 2E shift for the first week of the 2012 cycle.

Simulator Performance

Simulator performance and fidelity were reviewed for conformance to the reference plant control room. A sample of simulator deficiency reports was also reviewed to ensure Entergy addressed identified modeling problems. Simulator test documentation was also reviewed.

Problem Identification and Resolution

A review was conducted of recent operating history documentation found in inspection reports, Entergy's CAP, and the most recent NRC plant issues matrix. The inspectors

also reviewed specific events from Entergy's CAP pertaining to operator performance or training to verify that they had been appropriately addressed. The senior resident inspector was also consulted for insights regarding licensed operators' performance.

b. Findings

1. Introduction: The inspectors identified a Green finding (FIN) because Entergy did not adhere to their procedural standards for generating remedial written exams. Entergy did not follow the guidance as stated in their procedure EN-TQ-201-03, "Systematic Approach to Training," Section 5.4, regarding remedial exam construction when an operator was retested on April 25, 2013.

Description: The inspectors reviewed one individual cycle quiz failure during this two-year requalification period (there were no biennial requalification written exam failures during this period). On April 18, 2013, during a Unit 2 licensed operator requalification cycle, a licensed RO failed the end-of-week quiz. The operator missed 6 questions on a 20 question quiz, resulting in a 70 percent score. The training department completed remediation activities based on the operator's identified weaknesses and retested him the following week on April 25, 2013. The RO successfully passed the remediation exam with a score of 100 percent. The inspectors reviewed a copy of the failed quiz and the remedial quiz to determine that the individual was satisfactorily remediated and could be returned to active licensed duties in accordance with Entergy's administrative procedures. During the review of these two quizzes, it was determined that Entergy did not adhere to their procedural guidance regarding remedial exam construction. Entergy generated CR-IP2-2014-4892 to evaluate the condition.

Entergy administrative procedure, EN-TQ-201-03, "Systematic Approach to Training," Section 5.4, states the following: (1) "Remedial exams should target the knowledge weakness area(s) identified by the exam analysis by including questions that are tied to objectives that were missed on the original exam. However, the same question that was missed on the original exam should not be used." (2) "Test items on a remedial examination must be 70 percent different from the items on the failed examination."

An inadequate remedial examination could result in not ascertaining whether the operator knowledge weakness was corrected prior to returning the operator to active licensed duties. Licensed operator knowledge weaknesses can result in increased human errors that can result in an increase in risk which can: (1) cause initiating events, and (2) impact taking timely and correct mitigating actions after an event. Licensed operator errors can also impact barrier integrity and emergency preparedness.

Contrary to the procedural guidance, the remedial quiz did not target a knowledge weakness identified by a missed question on pressurizer level indication. Additionally, the remedial quiz repeated a missed question from the original quiz and included seven identical questions from the original quiz. The seven identical questions included one question that was used twice on the remedial quiz — Questions 2 and 9 of the remedial quiz were the exact same question. Both the original quiz and the remedial quiz were 20 question exams, therefore, only 65 percent of the exam was different.

Analysis: The inspectors determined that Entergy's failure to adhere to their remedial examination standards in EN-TQ-201-03 was a performance deficiency. The inspectors

determined that the finding was more than minor because it was associated with the human performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the finding affected the quality and level of difficulty of the remedial quiz which potentially impacted Entergy's ability to appropriately evaluate the licensed operator.

The inspectors screened the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The finding was determined to be of very low safety significance because it did not result in the loss of operability or functionality of a mitigating structure, system, or component (SSC). There were no actual initiating events or mitigating system issues as a result of the finding.

The inspectors determined that this issue had a cross-cutting aspect in Human Performance, Procedure Adherence, because Entergy did not follow their procedural standards for generating remedial written exams [H8].

Enforcement: This finding does not involve enforcement action because no regulatory requirement violation was identified. Entergy entered the issue into the CAP as CR-IP2-2014-4892. Because this finding does not involve a violation and has very low safety significance, it is identified as a FIN. **(FIN 05000247 and 05000286/2014005-01, Licensed Operator Requalification Remedial Exam Standard Adherence)**

2. Introduction: Entergy identified an AV of 10 CFR 50.74, "Notification of Change in Operator or Senior Operator Status," associated with Entergy's failure to notify the NRC within 30 days of a change in a licensed RO's medical condition and an AV of 10 CFR 50.9, "Completeness and Accuracy of Information," for Entergy's failure to submit complete and accurate information regarding the operator's medical condition in a license renewal application.

   Description: In 2007, a Unit 3 RO was prescribed to use a CPAP machine to address a sleep apnea condition by his personal physician. On October 25, 2012, during his annual physical, the RO disclosed to Entergy's physician that he had been using a CPAP for the past five years. Entergy's physician did not recognize sleep apnea as a permanent disability or illness requiring NRC notification or the prescribed use of a CPAP as requiring a license restriction. On March 4, 2013, Entergy submitted a Form 396 to the NRC as part of the RO's license renewal; but it did not indicate the need for a license restriction to address his sleep apnea. On April 19, 2013, the NRC issued a license renewal to the RO that only contained restrictions for taking medication and using corrective lenses. On June 1, 2013, Entergy changed their medical form to include the use of a therapeutic device as a condition requiring a license restriction. On September 3, 2013, the operator again disclosed his use of a CPAP machine during his annual physical but Entergy's physician again did not recognize this condition as reportable nor requiring a license restriction. On June 20, 2014, an internal audit conducted by Entergy identified that the sleep apnea condition and the use of a CPAP machine by the RO was reportable to the NRC. On July 7, 2014, Entergy submitted a letter to the NRC with a Form 396 indicating a new restriction for the use of the CPAP. On August 14, 2014, the NRC issued a license amendment with the new restriction.

As stated on Form 396, the overriding purpose of licensed operator medical qualification is that the individual "would not be expected to cause operational errors endangering public health and safety." Guidance contained in industry consensus standards, specifically versions of American National Standards Institute (ANSI)/American Nuclear Society (ANS)-3.4, forms the basis in reaching this determination. Entergy is committed to ANSI/ANS-3.4-1983, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants." ANSI/ANS-3.4-1983 does not specifically address sleep apnea. However, it does require that operators demonstrate stability and capacity regarding mental alertness and stamina. Without proper rest, these requirements are challenged. The inspectors noted that during the entire time line mentioned above, at no time did the RO in question stand a watch without compensatory action for his medical condition or was involved with any operational errors that challenged plant safety.

Analysis: The inspectors determined the failure to notify the NRC within 30 days of a change in the RO's medical condition and to submit complete and accurate information in a license renewal application regarding the RO's medical condition was a performance deficiency. The performance deficiency impacted the regulatory process because the NRC did not include the necessary restriction on the RO's license to use a therapeutic device to mitigate the effects of his medical condition. Because the regulatory process was impacted, traditional enforcement is applicable. Specifically, the incomplete and inaccurate Form 396 impacted the regulatory process in that the NRC was not permitted an opportunity to review this medical condition and thus issued a license renewal that did not contain all of the necessary restrictions.

The inspectors screened the issue using Section 6.4.c.4(b) of the NRC Enforcement Policy. The Enforcement Policy describes an example of a Severity Level III violation that involves:

> "A nonwillful compromise (see 10 CFR 55.49, "Integrity of Examinations and Tests") of an application, test, or examination required by 10 CFR Part 55, or inaccurate or incomplete information inadvertently provided to the NRC, subsequently contributes to the NRC making an incorrect regulatory decision, such as the following … in the case of operator requalification, contributes to an individual being permitted to continue to perform the functions of an operator or senior operator."

Therefore, the inspectors preliminarily determined that these AVs meet the definition of a Severity Level III violation because Entergy did not report a condition that would have required the addition of a license restriction within the required timeframe and, again, for the RO's license renewal. In this case, the RO required a license restriction to use the prescribed device to mitigate sleep apnea. During the period between receiving the prescription from his personal physician and the amending of his license to include this restriction, this individual used the prescribed device to address his disqualifying medical condition. Furthermore, the RO did not require additional monitoring for the medical condition. No operational issues resulted from this individual's performance. Cross-cutting aspects are not assigned to traditional enforcement violations.

Enforcement:

1. 10 CFR 55.3 requires, in part, that a person must be authorized by a license issued by the Commission to perform the function of a licensed operator or a licensed senior operator as defined in Part 55.

   10 CFR 50.74(c) requires, in part, that each facility licensee notify the appropriate NRC Regional Administrator within 30 days of a permanent disability or illness as described in 10 CFR 55.25 involving a licensed operator or senior operator.

   10 CFR 55.25 requires, in part, that if a licensed operator or licensed senior operator develops a permanent physical condition that causes the licensee to fail to meet the requirements of 10 CFR 55.21, the facility must notify the NRC within 30 days of learning of the diagnosis. For conditions where a license condition is required, the facility licensee must provide medical certification on NRC Form 396, “Certification of Medical Examination by Facility Licensee.”

   10 CFR 55.21 requires, in part, that individual licensed operators and senior operators shall have a medical examination by a physician every two years, and that the physician shall determine that the operator meets requirements of Section 55.33(a)(1). 10 CFR 55.33(a)(1) requires, in part, that an applicant’s medical condition and general health will not adversely affect the performance of assigned operator job duties or cause operational errors endangering public health and safety. 10 CFR 55.33(b) states, in part, that if the general medical condition of an applicant does not meet the minimum standards under 10 CFR 55.33(a)(1), the NRC may approve the application and include conditions in the license to accommodate the medical defect.

   Contrary to the above, on October 25, 2012, Entergy learned that an Indian Point Unit 3 reactor operator had a permanent disability or illness (sleep apnea); however, Entergy did not report this change in permanent medical condition to the NRC within 30 days nor did Entergy request an amended license with a condition to account for the medical issue until July 7, 2014

2. 10 CFR 50.9 requires, in part, that information provided to the Commission by a licensee shall be complete and accurate in all material respects.

   10 CFR 55.21 requires, in part, that individual licensed operators and licensed senior operators shall have a medical examination by a physician every two years, and that the physician shall determine that the licensee meets requirements of Section 55.33(a)(1). 10 CFR 55.33(a)(1) requires, in part, that an applicant’s medical condition and general health will not adversely affect the performance of assigned operator job duties or cause operational errors endangering public health and safety. 10 CFR 55.33(b) states, in part, that if the applicant’s general medical condition does not meet the minimum standards under 10 CFR 55.33(a)(1), the NRC may approve the application and include conditions in the license to accommodate the medical defect.

   10 CFR 55.23 requires, in part, that an authorized representative of the facility licensee shall certify the medical fitness of an applicant by completing and signing an NRC Form 396, "Certification of Medical Examination by Facility Licensee." The NRC Form 396, when signed by an authorized representative of the facility licensee, certifies that, based on the results of the physical examination, including information furnished by the

applicant, the physician has determined that the applicant's physical condition and general health are such that the applicant would not be expected to cause operational errors endangering public health and safety, and documents whether the applicant's license should be conditioned with restrictions.

Contrary to the above, on December 3, 2012, Entergy provided information to the NRC that was not complete and accurate in all material respects. Specifically, Entergy submitted an NRC licensed operator renewal application with an NRC Form 396 that certified the medical fitness of the applicant and that the only necessary restricting license conditions were for corrective lenses and medication. This information was inaccurate in that the applicant also had sleep apnea; another medical condition that did not meet the minimum standards of 10 CFR 55.33(a)(1) and that required a restricting license condition to use a therapeutic device. There was no actual or potential safety consequences associated with this violation. Compliance was restored on July 7, 2014, when Entergy submitted a letter to the NRC with a Form 396 indicating the new restriction for the use of the CPAP. On August 14, 2014, the NRC issued a license amendment with the new restriction. The issues were entered into Entergy's CAP via CR-IP3-2014-1416 and CR-IP2-2014-4202.

These two issues represent AVs **(AV 05000247 and 05000286/2014005-02; Incomplete and Inaccurate Medical Information Provided by the Licensee Which Impacted an Operator's License Renewal)**

Licensed Operator Requalification (71111.11Q – 5 samples)

Unit 2

.1 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on November 4, 2014, which included a steam generator (SG) tube rupture without pressure control coincident with a loss of bus 5A and the failure of select components to automatically start as required. 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 TS 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.

.2 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training (Scenario 12SX-INPO-CPE06) on November 18, 2014, which included a seismic event, loss of 480V bus 3A, and fire in the turbine building with injured personnel. 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 TS 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.

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

a. Inspection Scope

The inspectors observed and reviewed response to a refueling water storage tank Hi level alarm, 22 ABFP surveillance testing, tag-out clearance and starting of control rod drive mechanism fan, and response to condenser outlet water box low level alarm conducted on November 18, 2014. The inspectors observed infrequently performed test or evolution briefings, pre-shift briefings, and reactivity control briefings to verify that the briefings met the criteria specified in Entergy's Operations Section Expectations Handbook and Entergy Administrative Procedure OP-AA-329, "Conduct of Infrequently Performed Tests and Evolutions." Additionally, the inspectors observed test performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met Entergy expectations and standards.

b. Findings

No findings were identified.

Unit 3

.4 Quarterly Review of Licensed Operator Requalification Testing and Training

a. Inspection Scope

The inspectors observed licensed operator simulator training on November 4, 2014, which included adverse weather leading to degraded condenser and service water conditions followed by a worsening SG tube leak and eventual rupture with a loss of reactor coolant system (RCS) pressure control. 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 TS 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.

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

a. Inspection Scope

The inspectors observed and reviewed anticipated transient without scram mitigation system actuation circuitry system control power fuse replacement, reactor coolant temperature wide range instrumentation component replacement, and pressurizer pressure channel testing while Channel II was kept energized due to a previous reactor trip on over temperature delta temperature protection on November 14, 2014. The inspectors observed infrequently performed test or evolution briefings, pre-shift briefings, and reactivity control briefings to verify that the briefings met the criteria specified in Entergy's Operations Section Expectations Handbook and Entergy Administrative Procedure OP-AA-329, "Conduct of Infrequently Performed Tests and Evolutions." Additionally, the inspectors observed test performance to verify 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 – 3 samples)

a. Inspection Scope

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

Unit 2

- CR-IP2-2014-3708, AFW system near a(1) for functional failure of condensate storage tank level transmitters LT-1128 and LT-1128A. Associated CR-IP2-2014-3388, CR-IP2-2014-00321, CR-IP2-2012-3114, and CR-IP2-2012-03448 were also reviewed.

Unit 3

- CR-IP3-2014-0700, a(1) action plan for connector pin failures in reactor protection system – SG water level control system. Associated CR-IP3-2014-0544 and CR-IP3-2011-5686 were also reviewed.
- CR-IP3-2014-4826, functional failure determination and performance monitoring for R-63A/B – gross failed fuel detector. Associated CR-IP3-2012-1177 and CR-IP3-2012-1086 were also reviewed.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 7 samples)

a. Inspection Scope

The inspectors reviewed Entergy's evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that personnel performed the appropriate risk assessments when removing equipment for work and took action when appropriate to minimize risk. 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 TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

Unit 2

- Elevated (Yellow) risk for planned maintenance on 23 EDG and offside feeder 13W93 removed from service for planned inspection on October 14, 2014
- Yellow risk when the Appendix R diesel output breaker (alternate safe shutdown) failed to rack in following planned maintenance on November 3, 2014 (CR-IP2-2014-5678)
- Yellow risk for planned maintenance on 21 EDG, 21 fuel oil transfer pump out of service with PC-R18, steam line pressure instrumentation channel 1 surveillance testing on November 12, 2014

Unit 3

- Yellow risk for planned testing of 2A/3A 480V buses and emergent maintenance on 32 component cooling water pump on October 23, 2014
- Yellow risk for planned maintenance on 33 ABFP recirculation valve (pump removed from service) and diesel driven station air compressor out of service for preventive maintenance on October 27, 2014
- Yellow risk for planned maintenance on 31 EDG on November 3, 2014
- Elevated (Orange) risk for 3-PT-M62C, 480V Undervoltage/Degraded Grid Protection System Bus 6A Test, when 31 primary access building exhaust fan was removed from service due to motor failure on December 17, 2014. Entergy implemented compensatory measures during the test to maintain risk at the Yellow level.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 9 samples)

a. Inspection Scope

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

Unit 2

- On October 7, 2014, during the performance of 2-PT-Q01D, 24 Station Battery Test, cell #11 was measured at 2.07 volts direct current (Vdc) which is the TS 3.8.6 limit (CR-IP2-2014-05257). The inspectors determined that the 24 battery remained operable and it was placed on the equalizing charge to maintain the voltage in the required range.
- On October 15, 2014, while pumping down of the containment recirculation sump, operations found a 3' by 5' radwaste bag on top of a filter canister in the sump (CR-IP2-2014-5386). The inspectors determined that the surface area of the strainers that could be restricted from the radwaste bag was negligible and would not impact net positive suction head (NPSH) and the containment recirculation sump remained operable.
- On October 23, 2014, RCS leakrate was elevated due to seat leakage of the charging pump drain valve (CR-IP2-2014-5529). The inspectors determined that the failure of the drain valves would not impact RCS integrity. Entergy personnel told the inspectors that the valves are scheduled to be replaced.
- On November 13, 2014, during the performance of 2-PC-R18, Steam Line Pressure Test, (PM 429C) 22 SG pressure channel was found out of tolerance (CR-IP2-2014-05893). The as left tolerance was within the operability range. The pressure channel remained operable.
- On November 24, 2014, the control room received rod bottom indication when individual rod position indication for control rod H-4 (control bank B group 2) failed low (CR-IP2-2014-6074). The inspectors observed operator response to the indication and observed that operators declared the H-4 rod position indication inoperable in accordance with T.S 3.1.7. The inspectors verified actual rod position

full out by observing Tave and all power range detectors normal and stable. It was determined that a loose connection was the cause of the failure. The inspectors verified the operability of control rod H-4 rod position indication repair.

- On December 2, 2014, the 22 ABFP steam supply isolation valve PV-1189 developed a small amount of leakage in the fully closed position. The inspectors reviewed the operator operability determination and independently inspected 22 ABFP steam supply and pump drains. The inspectors determined that the pump maintained its operability because the steam that was leaking by valve PV-1189 was either passing through the pump and out the steam exhaust or condensing in the pump casing and draining through the steam exhaust low-point drain. It was determined that this leakage would not cause the pump to fail or miss-start.

Unit 3

- On September 25, 2014, operators discovered that the backup nitrogen supply pressure regulator for 32 ABFP steam isolation pneumatically-operated valves 1310A and 1310B had drifted low. The inspectors determined that the available pressure would have closed the valves sufficiently to isolate steam to a downstream break and protect the 31 and 33 ABFPs in the room.
- On November 4, 2014, the inspectors reviewed portions of Entergy Maintenance and Test Equipment Audit report corrective action plan (CR-IP2-2014-03809). The plan contained operability determinations for safety-related SSCs that could have been affected by maintenance performed with out of calibration equipment. The inspectors reviewed a risk-significant operability determination for a bolted flange between the refueling water storage tank and containment spray pump suction that was torqued with an out of calibration torque wrench (CR-IP3-2014-01330). The inspectors determined that the potential increased bolt stresses (approximately 3 - 4 percent above yield) would not cause bolt failure during a design-basis event and that the spiral-wound gasket had not been compromised by the increased compression. There were no leaks found at the flange joint and the joint remained operable.
- On November 23, 2014, 32 component cooling water pump exhibited increased leakage from its mechanical seal requiring periodic filling to maintain the surge tank within its operational band. The inspectors determined that the surge tanks had adequate inventory for the as-found leakage rate to maintain NPSH for the pumps and remained operable.

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 TS 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 TSs 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 – 1 sample)

Permanent Modification

a. Inspection Scope

The inspectors evaluated the installation of new flex spent fuel pool (SFP) level instrumentation (EC 45666) onto the safety-related 31 and 32 instrument buses on November 18, 2014. 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 replacement of breakers, termination of wires, and updating of electrical calculations. The inspectors also reviewed revisions to affected procedures including 3-AOP-IB-1, "Loss of Power to an Instrument Bus."

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 9 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

- Functional test of 21 EDG using 2-PT-M021A following 8-year preventive maintenance on the diesel engine and electrical systems on October 3, 2014
- Functional test of SOV-3504, isolation valve seal water to MOV-869B, containment spray isolation valve using 2-PT-Q013 following 8-year preventive maintenance on November 3, 2014
- Functional test of Appendix R diesel generator 13.8kV- output breaker 2-CB-52/ASS following repair using work order 397222-01 on November 3, 2014
- Functional test of the diesel fire pump using 2-PT-W005 and 2-PT-M040 following replacement of the diesel fire pump battery unit on November 8, 2014
- Functional test of 23 service water pump using 2-PT-Q026C following pump packing replacement and blowdown isolation valve replacement on December 2, 2014

- Functional test of FCV-406C and 23 ABFP using 2-PT-Q013-DS092A following air actuator replacement for FCV-406C on December 4, 2014

Unit 3

- Channel functional test of reactor coolant temperature channel 421 using 3-PT-Q87B after planned replacement of Nuclear Utility Services (NUS) Corporation module TM-422D on October 16, 2014
- Function test of 31 service water pump using 3-PT-Q092A following 1-year inspection of 31 Zurn strainer on November 21, 2014
- Functional test and inspections of 31 safety injection pump after planned preventative maintenance on lube oil system on December 4, 2014

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 6 samples)

a. Inspection Scope

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

Unit 2

- 2-PT-R076A, 21 Station Battery Load Test reviewed on October 9, 2014
- 2-PT-Q027, 21 Auxiliary Feed Pump, on October 22, 2014
- 2-PT-Q017C, Alternate Safe Shutdown Supply Verification to 23 Component Cooling Water Pump, after breaker preventive maintenance, and 2-PT-Q030C, 23 Component Cooling Water Pump Test, on October 27, 2014 (in-service test)
- RCS leak rate surveillance per 0-SOP-LEAKRATE-001 on November 15, 2014

Unit 3

- Channel functional test of reactor coolant temperature channel 411 using 3-PT-Q87A and temporary procedure change to maintain affected over temperature delta temperature trip relay energized on October 15, 2014
- Pressurizer level functional test on Channel III using 3-PT-Q94A on November 12, 2014

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 – 1 sample)

Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for Unit 2 licensed operators on November 18, 2014, which required emergency plan implementation by an operations crew. Entergy planned for this evolution to be evaluated and included in performance indicator (PI) data regarding drill and exercise performance. The inspectors observed event classification and notification activities including timeliness as demonstrated by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that Entergy evaluators noted the same issues and entered them into the 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 – 1 sample)

a. Inspection Scope

During November 3 – 7, 2014, the inspectors reviewed and assessed Entergy performance in assessing the radiological hazards and exposure control in the workplace. The inspectors used the requirements in 10 CFR Part 20, TSs, applicable industry standards, and procedures required by TSs as criteria for determining compliance.

The inspectors reviewed Entergy's PIs for the occupational exposure cornerstone for follow-up.

Instructions to Workers

The inspectors selected containers of radioactive material and reviewed the labeling and associated exposure controls and reviewed selected electronic personal dosimeter (EPD) alarm occurrences for resolution.

Risk-Significant High Radiation Area and Very High Radiation Area Controls

The inspectors reviewed the controls and procedures for high radiation areas, very high radiation areas, and for areas that have the potential to become very high radiation areas.

Problem Identification and Resolution

The inspectors reviewed problems in Entergy's CAP associated with radiation monitoring and exposure control for appropriate identification, cause and resolution.

b. Findings and Observations

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

During November 3 – 7, 2014, the inspectors assessed performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA). The inspectors used the requirements in 10 CFR 20, TSs, applicable industry standards, and procedures required by TSs as criteria for determining compliance.

The inspectors reviewed plant collective exposure history data, current exposure trends, planned radiological work activities, and source term measurements.

b. Findings and Observations

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04 – 1 sample)

a. Inspection Scope

During November 3 – 7, 2014, the inspectors reviewed the monitoring, assessment, and reporting of occupational dose by Entergy. The inspectors used the requirements in 10 CFR 20, TSs, applicable industry standards, and procedures required by TSs as criteria for determining compliance.

The inspectors reviewed results of radiation protection program audits related to internal and external dosimetry, applicable National Voluntary Laboratory Accreditation Program (NVLAP) dosimetry testing reports, and procedures associated with dosimetry operations.

External Dosimetry

The inspectors reviewed the following:

- dosimetry vendor's NVLAP accreditation
- onsite storage of dosimeters
- the use of "correction factors" for EPD use
- dosimetry occurrence reports and CAP documents for adverse trends related to EPDs

Internal Dosimetry

The inspectors reviewed the following:

- internal dosimetry procedures
- whole body counter measurement sensitivity and use
- adequacy of Entergy's program for in-vitro monitoring of radionuclides
- radioactivity counting laboratory's quality assurance program
- adequacy of Entergy's program for dose assessments based on air sample monitoring and the use of respiratory protection
- internal dose assessments for any actual internal exposure greater than 10 millirem

Special Dosimetric Situations

The inspectors reviewed the following:

- worker notification of the risks of radiation exposure to the embryo/fetus
- Entergy's radiological monitoring program for declared pregnant workers
- monitoring of external dose in large dose rate gradient environments
- dose assessments performed using multi-badging, skin dose assessments or neutron dose since the last inspection

Problem Identification and Resolution

The inspectors verified that problems associated with occupational dose assessment were being identified by Entergy at an appropriate threshold and were properly addressed for resolution in Entergy's CAP.

b. Findings and Observations

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151 – 2 samples)

.1 Occupational Radiation Safety Cornerstone

a. Inspection Scope

During November 3 – 7, 2014, the inspectors sampled Entergy's submittals for the occupational exposure control effectiveness PI for the period October 1, 2013, through the September 30, 2014. The inspectors used PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, Revision 7, to determine the accuracy of the reported PI data. The inspectors reviewed a listing of corrective action reports related to the occupational radiation safety PI to verify the PI reports.

b. Findings

No findings were identified.

.2 Public Radiation Safety Cornerstone

a. Inspection Scope

During November 3 – 7, 2014, the inspectors sampled Entergy's submittals for the radiological effluent TS/Offsite Dose Calculation Manual radiological effluent occurrences PI for the period October 1, 2013, through the September 30, 2014. The inspectors used PI definitions and guidance contained in NEI 99-02, Revision 7, to determine if the PI data was reported properly during this period. The inspectors reviewed a listing of corrective action reports for issues related to radiological effluent releases to verify the PI reports.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 4 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that Entergy entered issues into the 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 the CAP and periodically attended CR screening meetings.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely-related issues that may have been documented by Entergy outside of the CAP, such as in trend reports, PIs, equipment reliability data bases, and system health reports. The inspectors also reviewed the Indian Point CR database for the six month period from July 1 to December 31, 2014, to assess CRs written in various subject areas, such as equipment problems and human performance issues, as well as individual issues identified during the inspector's daily CR reviews (Section 4OA2.1). Included in the inspector's review were the Entergy Site Business Scorecard Performance Indicators, dated January through November 2014; Corrective Action Program Performance Summary, dated November 2014; and the Indian Point Energy Center Aggregate Performance Review Meeting Data for Third Quarter 2014. These documents were used to evaluate Entergy's self-assessments of performance and trends.

b. Findings and Observations

No findings were identified.

The inspectors determined that Entergy was identifying adverse trends and tracking the implementation of corrective actions that were developed as a result of the trends. The inspectors noted that CRs were written when Entergy identified adverse trends and new CRs were written when trends did not show significant improvement within the times assigned. The inspectors did not identify any adverse trends that had not been identified by Entergy.

.3 Annual Sample: 21 EDG Maintenance

a. Inspection Scope

The inspectors performed an in-depth review of Entergy's evaluation and effectiveness of corrective actions associated with CR-IP2-2013-2903, written when a number of problems with the 21 EDG were identified during a monthly surveillance test on July 16, 2013. Specifically, during a surveillance test, the local frequency meter was fluctuating between 60 and 61 hertz when the generator was connected to the grid, the fuel oil transfer pump would not secure and remained running when the test ended, and the jacket water pressure light remained lit when the engine was stopped leading to a loss of 120V EDG control power.

The inspectors assessed Entergy's problem identification threshold, cause analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness

of corrective actions to determine whether Entergy was appropriately identifying, characterizing, and correcting problems associated with the 21 EDG and whether the planned or completed corrective actions were appropriate and in accordance with Entergy's procedural requirements. The inspectors compared the actions taken to the requirements of Entergy's CAP and 10 CFR 50, Appendix B. In addition, the inspectors reviewed subsequent testing, performed field walkdowns, and interviewed engineering personnel to assess the effectiveness of the implemented corrective actions.

b. Findings and Observations

No findings were identified.

At the time of occurrence, Entergy documented the problems in the CAP and initiated an investigation. Entergy determined the most probable cause of the frequency fluctuations was a faulty meter on the diesel local control panel because diesel frequency could not fluctuate with the generator tied to the electrical grid. The frequency meter was replaced. Entergy evaluated the failure of the fuel oil transfer pump to auto-stop as non-consequential because continued flow from the pump recirculates back to the diesel fuel oil storage tank and can be re-used. The failure to stop was associated with the control switch in the auto-start circuit for the pump which was tapped at the time by an operator and the switch opened. Engineering personnel told the inspectors that a work order to further investigate the problem remained open and the problem did not recur. Entergy conducted a formal evaluation of the jacket water pressure alarm light and found that one pressure switch in the circuit had excessive drift. Entergy conducted a technical review of the switch failure and the switch was sent to a vendor testing laboratory for detailed evaluation. The vendor identified excessive drift likely due to loose internal components. Entergy evaluated the vendor report and reliability of this identical component in similar diesel applications and determined that the switch failure was a random event because similar problems had not been observed. The switch was replaced at the time of occurrence. The inspectors reviewed selected performance records and did not identify any additional issues. The inspectors determined Entergy's overall response to the problems were commensurate with their safety significance, was timely, and included appropriate compensatory actions. The inspectors determined that the actions taken were reasonable to resolve the identified problems.

.4 Annual Sample: Station Battery Cell Crack

a. Inspection Scope

The inspectors performed an in-depth review of Entergy's cause analysis and corrective actions associated with CR-IP3-2013-04216 concerning a cracked battery cell jar in the Unit 3 safety-related 125 Vdc 33 station battery. Specifically, during a routine weekly battery inspection on October 9, 2013, Entergy personnel identified that cell 14 had a hairline crack on the side of the jar, which extended from the top of the jar to below the high level fill mark. Since the cracked jar created the potential for failure during a seismic event, the 33 battery was declared inoperable. An emergency temporary modification was made using duct tape and an industrial strength tie wrap around the cell to prevent the crack from expanding. On October 17, 2013, the affected cell was replaced.

The inspectors assessed Entergy's problem identification threshold, cause analyses, extent-of-condition reviews, compensatory actions, and the prioritization and timeliness of Entergy's corrective actions to determine whether Entergy staff was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of Entergy's CAP and 10 CFR 50, Appendix B. The inspectors reviewed documents including vendor test reports and operability evaluations, and interviewed engineering personnel to assess the adequacy of the planned and completed actions for potential battery cell degradation.

b. Findings and Observations

No findings were identified.

Unit 3 has four safety-related 125 Vdc station batteries, numbered 31 through 34. The 33 station battery consists of 60 lead-acid cells connected in series and mounted in a seismically qualified rack. The battery cell casings are constructed of a clear polycarbonate jar with a polyvinyl chloride (PVC) lid that is glued to the top. Positive and negative posts penetrate the lid to provide electrical connection to the cell. Cracks occasionally occur in the lids and are usually due to swelling of the post (usually the positive post) caused by a buildup of corrosion products between the post and the post seal. Such cracks are not an operability concern because the lid does not provide structural support for the cell and because they will not result in electrolyte (acid) leakage. A crack in the jar is of concern because it could allow electrolyte to leak out of the cell. In the case described above, a crack in the lid had propagated into the jar and terminated above the level of the electrolyte, and therefore had not resulted in any leakage. However, if the crack were to propagate further due to cell acceleration during a seismic event, it could result in electrolyte leakage that could degrade battery performance, and, in the worst case, could make the battery inoperable.

Subsequent to the cell replacement, Entergy staff performed an apparent cause evaluation of the event. A failure analysis of the failed cell was performed by the battery vendor and two independent engineering firms. Entergy staff concluded that the direct cause of the crack in cell 14 was due to a buildup of corrosion products between the positive post and the post seal which caused the PVC jar lid to crack. The apparent cause of the crack propagation from the lid into the jar was concluded to have been chemically induced degradation of the jar which weakened the jar wall.

Entergy staff generated licensee event report (LER) 05000286/2013-006-00, "Technical Specification Prohibited Condition Due to an Inoperable 33 Station Battery Caused by a Cell Crack," which was submitted to the NRC on December 5, 2013. In addition, Entergy contracted an engineering firm to evaluate the past operability of the subject battery cell with the as-found cracks under the plant design basis seismic loading. This analysis concluded that the cell could have sustained safe shutdown earthquake accelerations with no crack growth. On this basis, Entergy staff withdrew LER 2013-006 on May 19, 2014. At that time, the LER had not yet been dispositioned by the NRC resident inspector staff.

The inspectors reviewed CR-IP3-2013-04216, including the apparent cause evaluation of this event. The inspectors concluded that Entergy staff had appropriately characterized the battery cell jar cracking issue and that their corrective actions had

been appropriate and timely. The inspectors concluded that on-going corrective action to monitor all safety-related battery cell jars for cracks on a weekly basis was appropriate. Based on no past or subsequent occurrences of cell jar cracking, along with satisfactory battery capacity demonstrated by the most recent discharge test, the inspectors concluded that Entergy staff's position that 33 station battery did not require replacement at the earliest opportunity was reasonable.

The inspectors reviewed LER 05000286/2013-006-00 and determined that it identified no Entergy performance deficiencies. After the cracked cell jar was identified, corrective action to install the emergency temporary modification and restore battery operability was completed within the two hour allowed completion time. Replacement of the cracked cell eight days later was timely and commensurate with the safety significance of the issue. Had this LER not been withdrawn, the inspectors concluded that it would have been closed with no findings.

However, the inspectors considered that the independent engineering firm's evaluation of cell operability during a seismic event was not consistent with the apparent cause determination. Specifically, the operability evaluation used a value for the fracture toughness of polycarbonate that was based on available literature. The apparent cause determination that the crack was due to chemically induced degradation which weakened the jar wall indicates that use of a generic value for polycarbonate fracture toughness may not have been appropriate, and that the actual fracture toughness may be indeterminate. Therefore, the inspectors concluded that use of the independent operability evaluation as the basis for withdrawal of the LER may not have been appropriate. The inspectors considered that a revision to the LER, noting that a subsequent independent operability evaluation concluded that the subject cell would have remained operable during a seismic event, although uncertainty concerning the actual fracture toughness of the jar added a degree of uncertainty to this conclusion, would have been more appropriate than withdrawal. Based on the earlier conclusion that NRC review of the LER would have resulted in closure with no findings, the inspectors concluded that withdrawal, rather than amendment, of LER 05000286/2013-006-00 constituted a minor issue that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.

.5 Annual Sample: Safety Injection Check Valve Reverse Flow Testing

a. Inspection Scope

During December 8 – 11, 2014, the inspectors reviewed and assessed Entergy's evaluation and resolution of safety injection check valve reverse flow testing. This issue was the subject of an NRC component design bases inspection (CDBI) team and a non-cited violation (NCV) documented in NRC Inspection Report 2012007 (NCV 05000247 and 286/2012007-03, Inadequate Verification of Design Analyses for Recirculation Pump NPSH). Specifically, the CDBI team identified inconsistencies between the Westinghouse analysis of the safety injection system and the surveillance testing method for the recirculation pumps discharge check valves 886A and 886B in that the hydraulic model did not consider potential back leakage past these check valves, and the surveillance testing did not verify leak tightness nor did it quantify leakage. The Indian Point recirculation pumps are designed to supply water in the containment to the RCS (core) and to the containment spray headers via the residual heat removal system during the recirculation phase of a loss-of-coolant accident.

The inspectors reviewed associated CR-IP2-2012-06646 and CR-IP3-2012-03575 and applicable corrective actions; interviewed engineering and management personnel; and assessed the identification of the contributing causes, extent-of-condition reviews, and the adequacy of corrective actions. In addition, the inspectors reviewed applicable drawings and completed surveillance testing procedures to ensure the testing was performed in accordance with revised procedures to consider and quantify potential safety injection check valve back leakage.

b. Findings and Observations

No findings were identified.

The inspectors determined that Entergy appropriately identified, characterized, and implemented corrective actions and extent-of-condition reviews associated with safety injection check valves 886A and 886B reverse flow testing and potential back leakage. Specifically, the inspectors verified that applicable testing procedures have been revised, and that applicable surveillance testing was performed to consider potential back leakage past these check valves and to quantify the amount of leakage. In addition, the inspectors verified that, at the time of the inspection, there was no leakage past the check valves and that adequate leakage acceptance criteria had been developed to ensure operability of the recirculating pumps was maintained. The inspectors found these corrective actions adequate and reasonable.

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

.1 (Closed) LER 05000247/2013-003-00: Manual Reactor Trip Due to Decreasing Steam Generator Water Levels Due to Loss of Main Feedwater (FW) Flow Caused by a Loss of Instrument Air to the FW Regulating Valves

On July 3, 2013, Unit 2 operators inserted a manual reactor trip as a result of lowering SG water levels caused by a loss of feedwater. NRC resident inspectors were in the control room at the time of the event and observed Entergy's actions. The reactor was stabilized in Mode 3 in accordance with emergency operating procedures and there were no complications of significance. The event was documented in the CAP and a cause determination was started. Entergy's investigation found that the lowering SG levels resulted from a loss of feedwater due to a loss of instrument air pressure to feedwater systems. The instrument air pressure was lost when a two inch copper instrument air header that had been unearthed during unrelated maintenance separated at a soldered coupling. The apparent cause was poor workmanship in assembling the coupling during original plant construction. The inspectors reviewed Entergy's evaluation of the event and corrective actions documented in CR-IP2-2013-02717. The inspectors did not identify any performance deficiencies during review of the LER. This LER is closed.

.2 (Closed) LER 05000247/2014-002-00: Technical Specification (TS) Prohibited Condition Due to an Inoperable 23 Steam Generator (SG) Caused by a Through Wall Defect in 23 SG Drain Line Valve MS-68

On February 24, 2014, during initial containment entry and walkdown after shutdown for a refueling outage, operations identified a small steam leak in the body of a one inch SG

drain valve. The valve is shut during plant operation. Leakage had been previously indicated in July of 2013 by increased containment sump pump-down rates and several containment entries had been made by Entergy to identify the source of the leakage but without success due to its small size and location. The cause of the leak was determined to be a pin hole in the body of the valve, which was likely a defect in the original valve casting which over time propagated through the valve wall. The defective valve was removed and replaced with a new valve. The inspectors reviewed Entergy's documentation and corrective actions in CR-IP2-2014-00975. The inspectors did not identify any performance deficiencies during the review of the LER. Enforcement aspects are discussed in Section 4OA7 of this report. This LER is closed.

.3 (Closed) LER 05000286/2009-006-02: Automatic Reactor Trip Due to a Turbine-Generator Trip Caused by Actuation of the Generator Protection System Lockout Relay During a Severe Storm with Heavy Lightning

On August 10, 2009, Unit 3 experienced a unit trip during a severe thunderstorm, which was previously evaluated and documented in NRC Inspection Report 50-286/2012-004. Entergy's continued evaluation identified a potential contributing cause associated with switchyard grounding and this supplemental LER was written to include updated information. Entergy determined that the direct cause of the trip was faulty operation of a pilot wire protective relay due to ground potential rise during the storm. The inspectors did not identify any performance deficiencies during the review of this LER supplement. This LER is closed.

.4 (Closed) LER 05000286/2011-005-02: Automatic Actuation of Emergency Diesel Generators and Auxiliary Feedwater Pumps Due to Undervoltage on 480 VAC Vital Buses Due to a Loss of Offsite Power During a Severe Storm

On August 19, 2011, during a severe thunderstorm, Unit 3 experienced a loss of 138kV offsite power feeder 95331 and automatic start of the 32 and 33 EDGs. Additionally, degraded vacuum conditions from the loss of three circulating water pumps required a reduction in power to 74 percent power. This event was previously evaluated and documented in NRC Inspection Report 50-286/2012-004. Subsequently, Entergy evaluated a contributing cause associated with switchyard grounding and submitted this supplemental LER to include information acquired through their evaluation. Entergy determined that the direct cause of the trip was faulty operation of a pilot wire protective relay due to ground potential rise caused by the storm. The inspectors did not identify any performance deficiencies during the review of this LER. This LER is closed.

.5 (Closed) LER 05000286/2013-001-00: Technical Specification (TS) Prohibited Condition Caused by Two Main Steam Safety Valves Outside Their As-found Lift Setpoint Test Acceptance Criteria

On March 1, 2013, during the surveillance testing of main steam safety valves, Entergy identified two valves of the ten tested that lifted outside of the required band. Both valves were declared inoperable, adjusted, and were lifted using the testing device. Entergy entered the condition into the CAP and removed the valves for detailed evaluation. Foreign material in the form of paint chips that had peeled from the valve bodies along with grit and metal shavings were found along with some evidence of galling of the valve internal surfaces. For the affected valves, some internal components were restored or replaced and the valves were re-tested satisfactorily. The remaining

valves on Unit 3 were inspected by boroscope, external paint was scraped and removed, and the valves were cleaned. Energy installed a bronze wear sleeve on the affected valves and five others to prevent galling. Entergy evaluated the event and determined there was no safety impact largely because of the pressure mitigation capability of the remaining 18 safety valves which had tested satisfactorily. The inspectors reviewed Entergy cause evaluation, including the report of an independent vendor, and corrective actions. No performance deficiency was identified and the TS prohibited condition was determined to be of minor significance. This LER is closed.

4OA5 Other Activities

Groundwater Contamination

a. Inspection Scope

The inspectors reviewed Entergy's current groundwater investigation as documented in CR-IP2-2014-02564, initiated on April 9, 2014. This CR documents a significant increase in tritium activity in three groundwater monitoring wells located adjacent to the Unit 2 SFP which occurred during the spring 2014 Unit 2 refueling outage. NRC on-site specialist inspections of activities involving the identification and resolution of this event were conducted this quarter on October 23 – 24 and November 3 – 7, 2014. In addition, bi-weekly in-office teleconference inspections have been held with Entergy since April 2014.

b. Findings and Observations

No findings were identified.

Entergy's most recent activities have focused on the Unit 2 piping penetration room as the most probable location of the leak to groundwater. During the refueling outage, water from the reactor was discharged to a floor drain in this room, and flooded the floor when the drain overflowed. Entergy's investigation has shown that evidence of a water leak is visible below the floor, and that the floor to wall joint in some locations of the room leaks to below the floor.

Two additional areas for investigation, the Unit 2 SFP cask loading pit and the Unit 2 fuel transfer canal, also remain potential sources, are considered unlikely by Entergy, and, to date, have not been fully investigated. High resolution video of the Unit 2 SFP pool cask loading pit showed some indications of possible leakage in the cask loading area. A SFP leak would likely be characterized by a steady or increasing chronic leakage than from a single outage-related spill event that would likely spike in tritium concentration followed by a decreasing trend in concentration. Due to the close proximity of the Unit 2 piping penetration room to the Unit 2 SFP, the monitoring wells cannot discriminate between these two potential sources. Recent vendor review of the SFP video concluded that no leaks can be positively identified. The transfer canal cannot be readily inspected for possible leaks, and is considered by Entergy to be an unlikely source as the Conceptual Site Model for Indian Point indicates this structure is located down gradient from the monitoring wells showing elevated tritium levels.

Although Entergy believes the source of tritium contamination is from leakage to groundwater from a single event associated with the Unit 2 refueling outage, continued

significantly elevated tritium levels above 2013 levels (400,000–600,000 pCi/L) at monitoring wells MW-30 and MW-32 persist, eight months after the Unit 2 spring 2014 refueling outage. Entergy believes that the continued high tritium concentrations represent a plateau which will begin to decrease by the end of 2014, otherwise additional investigation work of other potential sources may be required.

The NRC has independently determined that although the increase in tritium activity in the monitoring wells is significant, calculations of off-site dose as the result of this increase in groundwater tritium concentration is at least a fraction of one-million times below the licensed liquid effluent release limit and does not represent a public health concern. The NRC has not reviewed any confirming evidence of the Unit 2 pipe penetration room as the source of the leak unless monitoring well tritium concentrations decrease over the next several months, otherwise, this event may be indicative of an on-going leak from another source rather than from the Unit 2 pipe penetration room single outage-related floor drain overflow event. The NRC is continuing periodic inspection teleconferences with Entergy and has scheduled a problem identification and resolution inspection of this event during the 1st quarter of 2015.

4OA6 Meetings, Including Exit

On January 30, 2015, the inspectors presented the inspection results to Mr. Larry Coyle, 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 violations of very low safety significance (Green) or Severity Level IV were identified by Entergy and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as NCVs.

- 10 CFR 50, Appendix B, Criterion XII, “Control of Measuring and Test Equipment,” requires “measures shall be established to assure that tools, gages, instruments, and other measuring and testing devices used in activities affecting quality are properly controlled, calibrated, and adjusted at specified periods to maintain accuracy within necessary limits.” Contrary to 10 CFR 50, Appendix B, Criterion XII, Indian Point did not properly implement their measuring and test equipment (M&TE) program resulting in the use of uncalibrated M&TE to perform maintenance, tests, and meet surveillance requirements on safety-related SSCs. Entergy identified deficiencies in their M&TE program during an Entergy Nuclear Oversight Quality Assurance audit of the Entergy Maintenance department. As a result of the Quality Assurance finding, a root cause analysis was conducted and corrective action plan developed. The corrective action plan CR-IP2-2014-03809 was reviewed by NRC inspectors as well as operability assessments conducted by Entergy operations personnel on safety-related SSCs worked on with out-of-tolerance M&TE. The issue screened to be of very low safety significance (Green) using IMC 0609, Appendix A, because the affected safety-related SSCs maintained their operability. No additional findings resulted from the NRC inspector review.

- According to 10 CFR 55.21 and 33, licensed operators are required to have a physical examination every two years to ensure that their medical condition and general health will not adversely affect the performance of assigned operator job

duties or cause operational errors endangering public health and safety. As a part of licensed operator medical evaluations, olfactory testing is required as specified in ANSI/ANS-3.4-1983, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants." Olfactory testing in the standard states "Nose. Ability to detect odor of products of combustion and of tracer and marker gases." License procedure, EN-NS-112, "Medical Program," has the same wording. Contrary to this requirement, in CR-IP2-2014-04622, Entergy identified that they had not been testing operators for two tracer/marker gases used on site – wintergreen in the carbon dioxide systems and mercaptan used in natural gas. This violation is subject to traditional enforcement because of the potential impact upon the regulatory process because the operators' medical conditions are reviewed by the NRC when issuing or renewing operator licenses. This issue meets the criteria for a Severity Level IV violation because, upon subsequent olfactory testing, all operators were found to meet the health requirements for licensing.

- According to 10 CFR 55.25, if an operator develops a permanent physical or mental condition that causes the operator to fail to meet the requirements of 10 CFR 55.21, the facility licensee shall notify the NRC within 30 days of learning of the diagnosis, in accordance with 10 CFR 50.74(c) which states that the regional administrator shall be notified if a licensed operator develops a permanent disability or illness. Contrary to these requirements, during the time frame of July through September 2014, the facility licensee identified four operators (in addition to the one mentioned above) that required medical restrictions and that the NRC needed to be notified. These four cases have been documented in CR-IP2-2014-04202, CR-IP3-2014-1961, and CR-IP3-2014-2156. In all four cases, the individual operators were untimely in notifying the facility licensee of the changes in their medical conditions or the licensee physician failed to recognize the need to report the condition to the NRC. This violation is subject to traditional enforcement because of the potential impact upon the regulatory process for issuing restrictions to operators' licenses. This issue meets the criteria for a Severity Level IV violation because all of the operators met the criteria of ANSI/ANS-3.4-1983 but failed to report conditions requiring a license restriction.

- On February 24, 2014, Entergy personnel determined that a condition prohibited by Unit 2 TSs existed when a pinhole leak from a drain valve body was identified which resulted in an inoperable 23 SG. TS 3.4.4 requires during Mode 1 and 2 that four RCS loops be operable or be in Mode 3 within 6 hours. Contrary to the above, prior to February 24, Indian Point Unit 2 operated in Modes 1 and 2 with an inoperable SG when a pinhole leak from a valve body on the 23 SG existed in excess of 6 hours without entering Mode 3. Although attempts had been made to identify the source of a small secondary leak in containment during plant operation, the drain valve was not accessible with the reactor in operation and plant shutdown was required to complete the inspection on February 24, 2014. No performance deficiency was identified because it was not reasonable for Entergy to foresee and prevent the pinhole leak. The leak when found was documented in CR-IP2-2014-0975, and the valve was replaced. The violation was more than minor because it impacted the Equipment Performance attribute of the Initiating Events cornerstone. The issue screened to be of very low safety significance (Green) using IMC 0609, Appendix A when loss of coolant analysis assumptions and equipment performance were not affected by the degradation.

- On March 1, 2013, Entergy personnel tested Unit 3 main steam safety valves and determined main steam safety valve MS-46-3 had a lift setpoint outside of the +/-3 percent lift setting required by TS 3.7.1. Subsequently, MS-46-3 was declared inoperable and further testing found valve MS-48-3 also lifted out of the TS band. TS 3.7.1 requires the main steam safety valves be operable or reduce neutron flux trip setpoint to less than that listed in TS Table 3.7.1-1. Contrary to the above, as of March 1, 2013, main steam safety valves MS-46-3 and MS-48-3 had lift setpoints outside of the TS required band and flux trip setpoints were not reduced to those listed in TS Table 3.7.1-1. The affected valves were adjusted at the time of testing to within the required band, the condition was documented in the CAP as CR-IP3-2013-0869 and CR-IP3-2013-0892, and an evaluation was initiated. Other valves similarly tested were satisfactory. No performance deficiency was identified because it was not reasonable for Entergy to foresee and prevent the change in main steam safety valve setpoint during plant operation. Corrective actions to prevent recurrence were documented in LER 05000286/2013-001-00. The violation was more than minor because it impacted the Equipment Performance attribute of the Mitigating Systems cornerstone. The issue screened to be of very low safety significance (Green) using IMC 0609, Appendix A because the overall pressure mitigating function was not affected by the degradation of the two valves of the twenty total.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Entergy Personnel

N. Azevedo, Code Programs Supervisor
S. Bianco, Operations Fire Marshall
D. Bode, Instrumentation Supervisor
R. Burroni, Engineering Director
T. Chan, Mechanical Systems Supervisor
L. Coyle, Site Vice President
D. Dewey, Assistant Operations Manager
J. Dinelli, General Manager Plant Operations
R. Dolanksy, ISI Program Manager
R. Drake, Civil Design Engineering Supervisor
J. Ferrick, Production Manager
D. Gagnon, Security Manager
W. Griffin, AAFFD/Medical Supervisor
F. Inzirillo, Training Manager
F. Kich, Performance Improvement Manager
J. Kirkpatrick, Regulatory and Performance Improvement Director
D. Mayer, Unit 1 Director
B. McCarthy, Operations Manager
L. Glander, Emergency Planning Manager
F. Mitchell, Radiation Protection Manager
J. Spagnulo, Maintenance Manager
B. Sullivan, Continuing Operator Training Superintendent
R. Tambori, ALARA Supervisor
M. Tesoriero, System Engineering Manager
M. Troy, Quality Assurance Manager
R. Walpole, Regulatory Assurance Manager

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened/Closed

05000247, 05000286/ 2014005-01	FIN	Licensed Operator Requalification Remedial Exam Standard Adherence (Section 1R11.1)

Opened

05000247, 05000286/ 2014005-02	AV	Incomplete and Inaccurate Medical Information Provided by the Licensee Which Impacted an Operator's License Renewal (Section 1R11.2)

Closed

05000247/2013-003-00	LER	Manual Reactor Trip Due to Decreasing Steam Generator Water Levels Due to Loss of Main Feedwater (FW) Flow Caused by a Loss of Instrument Air to the FW Regulating Valves (Section 4OA3)
05000247/2014-002-00	LER	Technical Specification (TS) Prohibited Condition Due to an Inoperable 23 Steam Generator (SG) Caused by a Through Wall Defect in 23 SG Drain Line Valve MS-68 (Section 4OA3)
05000286/2013-001-00	LER	Technical Specification Prohibited Condition Caused by Two Main Steam Safety Valves Outside Their As-Found Lift Setpoint Test Acceptance Criteria (Section 4OA3)
05000286/2009-006-02	LER	Automatic Reactor Trip Due to a Turbine-Generator Trip Caused by Actuation of the Generator Protection System Lockout Relay During a Severe Storm with Heavy Lightning (Section 4OA3)
05000286/2011-005-02	LER	Automatic Actuation of Emergency Diesel Generators and Auxiliary Feedwater Pumps Due to Undervoltage on 480 VAC Vital Buses Due to a Loss of Offsite Power During a Severe Storm (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Common Documents Used
Indian Point Unit 2, Updated Final Safety Analysis Report
Indian Point Unit 2, Individual Plant Examination
Indian Point Unit 2, Individual Plant Examination of External Events
Indian Point Unit 2, Technical Specifications and Bases
Indian Point Unit 2, Technical Requirements Manual
Indian Point Unit 2, Control Room Narrative Logs
Indian Point Unit 2, Plan of the Day

Section 1R01: Adverse Weather Protection

Procedures
0-MET-402-GEN
3-AOP-FLOOD

Section 1R04: Equipment Alignment

Procedures
2-COL-10.2.1, Containment Spray System, Revision 21
2-COL-11.2, Component Cooling Water Heating Ventilation and Air Conditioning System, Revision 18
2-COL-21.3, Steam Generator Water Level, Revision 33
2-COL-27.3.1, Diesel Generators, Revision 26

Drawings
9321-F-2017, Flow Diagram, Main Steam
9321-F-2018, Flow Diagram, Condensate and Feedwater
9321-F-2735, Flow Diagram, Safety Injection System

Section 1R05: Fire Protection

Procedures
PT-SA12A, Ionization Type Smoke Detector, Revision 8

Condition Reports (CR-IP2-)
2014-5674

Section 1R07: Heat Sink Performance

Procedures
0-HTX-405-EDG, EDG Lube Oil and Jacket Water Heat Exchanger Maintenance, Revision 4
2-PT-M021C, Emergency Diesel Generator 23 Load Test, Revision 21

Maintenance Orders/Work Orders
52554106-01 52551105-01 52522164-02

Section 1R11: Licensed Operator Requalification Program

Procedures
EN-TQ-114, Licensed Operator Requalification Training Program Description, Revision 9
2-AOP-RSD-1, Rapid Shutdown, Revision 5
2-AOP-Seismic-1, Seismic Event, Revision 6
2-AOP-VAC-1, Loss of Condenser Vacuum, Revision 3
2-AOP-480V-1, Loss of Normal Power to Any Safeguards 480v Bus, Revision 8
2-ECA-3.3, SGTR Response without Pressurizer Pressure Control, Revision 2
2-E-O, Reactor Trip or Safety Injection, Revision 6
2-E-3, Steam Generator Tube Rupture, Revision 4
2-ONOP-FP-1, Plant Fires, Revision 13
3-PC-OL01A, RCS Wide Range Hot and Cold Leg Temperature Calibration, Revision 5
3-PC-OL04B, Pressurizer Pressure Loop P-456 Channel Calibration, Revision 7
3-PT-OL146, AMSAC System Automatic Software Reload Logic and Functional Test, Revision 6

Condition Reports (CR-IP2-)
2013-00323 2013-00678 2013-00721 2013-01632 2013-03760 2013-03961
2014-02334 2014-03756 2014-04202 2014-04622 2014-04623

Condition Reports (CR-IP3-)
2014-01416 2014-01961 2014-02156

Job Performance Measures

0000391601-3	0450101601-1	0610060301	0070011601
0840011601	0840061601-2	0840281624-1	0840341601
08440211601	3001611601	JPM2-030EP-03	JPM2-030EP-06

Simulator Scenarios

LRQ-SES-02	LRQ-SES-04	LRQ-SES-16	LRQ-SES-22
LRQ-SES-35	LRQ-SES-38	LRQ-SES-58	LRQ-SES-60
LRQ-SES-ECA00A			

Written Examinations
2013 Team 2A-LOR Requalification Biennial Written Examination
2013 Team 2E-LOR Requalification Biennial Written Examination

Simulator Training Work Request
201300058 201300074 201300073 201300184

Simulator Performance Tests
Manual Rx Trip, July 1, 2014
Simultaneous Closure of All Main Steam Isolation Valves, July 1, 2014
Simultaneous Trip of All RCPs, July 1, 2014
LOCA with Blackout, July 1, 2014
Maximum Design Load Rejection, July 1, 2014
Steady State Operability Test, July 1, 2014
Simulator Analysis of Unit 2 Trip Resulting From Loss of Both HDPs, April 1, 2013
Simulator Analysis of Unit 2

Miscellaneous
2013 Unit 2 LOR Comprehensive Written Exam Sample Plan
Unit 2 2014 AOE Sample Plan
Apparent Cause Evaluation: Failure to Notify the NRC Within 30 Days for a New License Restriction for Four Licensed Operators

Section 1R12: Maintenance Effectiveness

Procedures
EN-DC-150, Condition Monitoring of Maintenance Rule Structures, Revision 6

Condition Reports (CR-IP2-)
2014-0405

Miscellaneous
ACI 349.3R-02, Evaluation of Existing Nuclear Safety-Related Concrete Structures

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures
EN-OP-119, Protected Equipment Postings, Revision 6
IP-SMM-OP-104, Offsite Power Continuous Monitoring and Notification, Revision 13
IP-SMM-WM-101, Fire Protection and Maintenance Rule (a)(4) Risk Assessment, Revision 5
2-AOP-13.8KV-1, Loss of Power to Any 13.8kV Bus, Revision 4
2-SOP-ESP-001, Local Equipment Operation and Contingency Actions

Condition Reports (CR-IP2-)
2014-5394 2014-5490

Miscellaneous
EC 84582, Probablistic Assessment of Risk with Neither 31 nor 32 Primary Access Building Exhaust Fans Available

Section 1R15: Operability Determinations and Functionality Assessments

Procedures
EN-DC-153, Preventive Maintenance Component Classification, Revision 11
2-PT-Q013-DS249, Valve PCV-1135 IST Data Sheet, Revision 27

Miscellaneous
IP-RPT-07-00129, Indian Point 2 & 3 Sump Strainer Fibrous Debris Bypass Summary Evaluation, Revision 0

Section 1R19: Post-Maintenance Testing

Procedures
EN-MA-125, Troubleshooting Control of Maintenance Activities
2-PT-M021A, Emergency Diesel Generator 21 Load Test, Revision 24
2-PT-M040, Diesel Fire Pump, Revision 30

2-PT-Q013, Inservice Valve Test, Revision 50
2-PT-Q013-DS082, Valve FCV-1123 IST Data Sheet, Revision 22
2-PT-Q013-DS092A, Valve FCV-406C IST Data Sheet, Revision 24
2-PT-Q027B, 23 Auxiliary Feed Pump, Revision 19
2-PT-W005, Diesel Fire Pump, Revision 22
3-PT-Q092A, 31 Service Water Pump, Revision 15

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2014-5673 2014-6219

Condition Reports (CR-IP3-)
2014-2943

Maintenance Orders/Work Orders
WO 367775, Replace NUS Corporation Module in 2014 as Part of Action Plan
WO 52021534-07, 12Y Actuator Overhaul/Replacement Accessories on FCV-406C (23 ABFP)
WO 52294982-06, 21 EDG 8-Year Inspection In Accordance With 0-GNR-410-ELC, Revision 12

Section 1R22: Surveillance Testing

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2014-01884

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Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Snapshot, Assessment/Benchmark Reports
IP3LO-2014-00062, RP Program Annual Review per 10 CFR 20.1101(c)
IP3LO-2014-00074, LHRA Barrier Control
IP3LO-2014-00100, Outage CRE Goal Creation in Accordance with EN-RP-110-06

Focused Self-Assessments
IP3LO-2013-00154, Pre-NRC Inspection Assessment of 2014 RP Inspection Areas
IP3LO-2014-00025, RP Operations
IP3LO-2014-00026, RP Support (Respiratory Protection, Dosimetry, Instrumentation Control)

Miscellaneous
Quality Assurance Audit Report QA-14/15-2013-IP-01, Radiation Protection/Radwaste

Section 2RS4: Occupational Dose Assessment

Procedures
Calibration of the Canberra FastScan Whole body Counter System for Unit 2, October 1, 2013
Calibration of the Canberra FastScan Whole body Counter System for Unit 3, October 2, 2013
EN-RP-201, Dosimetry Administration, Revision 4
EN-RP-202, Personnel Monitoring, Revision 9
EN-RP-203, Dose Assessment, Revision 6
EN-RP-204, Specific Monitoring Requirements, Revision 6

EN-RP-205, Prenatal Monitoring, Revision 3
EN-RP-208, Whole Body Counting / In-Vitro Bioassay, Revision 6

Miscellaneous
NVLAP Certificate of Accreditation for Landauer, Inc. 2014

Section 4OA2: Problem Identification and Resolution

Condition Reports (CR-IP2-)
2012-06646

Condition Reports (CR-IP3-)
2007-04296 2012-03575 2013-04216 2013-04220 2013-04222 2013-04267

Drawings
9321-F-2720-89, IP2 Flow Diagram, Auxiliary Coolant System, Revision 89
9321-F-2735-141, IP2 Flow Diagram, Reactor Coolant System, Revision 141
9321-F-2738-122, IP2 Flow Diagram, Reactor Coolant System, Revision 122
ISI-235296, IP2 In-Service Inspection Program Safety Injection System, Revision 3
ISI-251783, IP2 In-Service Inspection Program Auxiliary Coolant System, RHR Pumps, Revision 3

Work Orders
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Entergy Procedures:
2-ES-1.3, Transfer to Cold Leg Recirculation, Revision 8

Miscellaneous
2-PT-R016 Recirculation Pumps In-Service Test, Revision 23, performed March 9, 2014
2-PT-V077, Reverse Flow Check at 886A and 886B, Revision 3, performed March 9, 2014
3-PT-R013, Recirculation Pumps In-Service Test, Revision 24, performed March 21, 2013
Check Valve 886A, IP2 In-service Testing Program Basis Data Sheets, dated March 8, 2007, Revision 0
Check Valve 886B, IP2 In-service Testing Program Basis Data Sheets, dated March 3, 2013, Revision 0
IP2-RHR/SIS DBD, Design Basis Document for Residual Heat Removal/Safety Injection System, Revision 2
O-VLV-432-VCK, Generic Procedure for Testing Check Valves Using the MOVATS Diagnostic Test System, performed March 21, 2013, Revision 1
NL-88-092, Response to NRC Bulletin 88-04, Potential Safety Related Pump Loss, dated August 19, 1988
NL-89-0160, Supplemental Response to NRC Bulletin 88-04, Potential Safety Related Pump Loss, dated September 21, 1989
280-RLCA02848-01A, IP3 Recirculation Pump 0804-001 Curve, Revision 4
280-RLCA02848-02A, IP3 Recirculation Pump 0804-002 Curve, Revision 4
050-33168.01, Safety Injection Recirculation Pump 0799008 Certified Performance, dated January 11, 2000
C&D Technologies, Inc., Report, Cover Crack Project - Summary Report, dated May 15, 2013

LER 05000286/2013-006-00, Technical Specification Prohibited Condition Due to an Inoperable 33 Station Battery Caused by a Cell Crack
Letter NL-14-066, Withdrawal of Licensee Event Report #2013-006-00, Technical Specification Prohibited Condition Due to an Inoperable 33 Station Battery Caused by a Cell Crack, dated May 19, 2014
LPI, Inc., Calculation No. F13518-C-001, Past Structural Operability Evaluation of Jar of Battery Cell 14 in Battery 33, dated March 2014, Revision 0

LIST OF ACRONYMS

10 CFR	Title 10 of the *Code of Federal Regulations*
ABFP	auxiliary boiler feedwater pump
ALARA	as low as is reasonably achievable
AFW	auxiliary boiler feedwater
ANS	American Nuclear Society
ANSI	American National Standards Institute
AV	apparent violation
CAP	corrective action program
CDBI	component design bases inspection
CPAP	continuous positive airway pressure
CR	condition report
EDG	emergency diesel generator
Entergy	Entergy Nuclear Northeast
EPD	electronic personal dosimeter
FIN	finding
IMC	Inspection Manual Chapter
Indian Point	Indian Point Nuclear Generating
JPM	job performance measure
LER	licensee event report
M&TE	measuring and test equipment
NCV	non-cited violation
NEI	Nuclear Energy Institute
NPSH	net positive suction head
NRC	Nuclear Regulatory Commission
NUS	Nuclear Utility Services
NVLAP	National Voluntary Laboratory Accreditation Program
PFP	pre-fire plan
PI	performance indicator
PVC	polyvinyl chloride
RO	reactor operator
RCS	reactor coolant system
SFP	spent fuel pool
SG	steam generator
SSC	structure, system, and component
TBD	To-Be-Determined
TS	technical specification
UFSAR	updated final safety evaluation report
Vdc	volts direct current