



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
2100 RENAISSANCE BLVD., SUITE 100  
KING OF PRUSSIA, PA 19406-2713

November 19, 2015

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

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT 3 - LICENSE RENEWAL  
INSPECTION REPORT 05000286/2015011

Dear Mr. Coyle:

On October 9, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Indian Point Nuclear Generating Unit 3. The enclosed inspection report documents the results of our review of your completed actions for six license renewal commitments, your commitments management program, and compliance with 10 CFR 54.37(b), 10 CFR 54.21(b), and 10 CFR 71, which were discussed on October 9, 2015, with members of your staff.

The inspector examined activities conducted by your staff to complete commitments Entergy made as part of your application for a renewed facility operating license. The inspector also reviewed selected procedures, records, and interviewed personnel.

No findings were identified during this inspection. The NRC determined that the commitments reviewed associated with the license renewal application had been appropriately implemented.

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

Sincerely,

/RA/

Mel Gray, Chief  
Engineering Branch 1  
Division of Reactor Safety

Docket No. 50-286  
License No. DPR-64

L. Coyle

- 2 -

Enclosure:

Inspection Report 05000286/2015011

w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

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 Site Vice President  
 Entergy Nuclear Operations, Inc.  
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L. Coyle

- 2 -

Letter to Mr. Lawrence Coyle from Mr. Mel Gray dated November 19, 2015

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT 3 - LICENSE RENEWAL  
INSPECTION REPORT 05000286/2015011

Distribution w/encl: (via e-mail)

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**U.S. NUCLEAR REGULATORY COMMISSION  
REGION I**

Docket No.: 50-286

License No.: DPR-64

Report No.: 05000286/2015011

Applicant: Entergy Nuclear Northeast (Entergy)

Facility: Indian Point Energy Center Unit 3

Location: 450 Broadway  
Buchanan, NY 10511-0249

Dates: October 5-9, 2015

Inspector: Michael Modes, Senior Reactor Inspector  
Engineering Branch 1  
Division of Reactor Safety

Approved By: Mel Gray, Chief  
Engineering Branch 1  
Division of Reactor Safety

## SUMMARY

IR 05000286/2015011; 10/05/2013 – 10/9/2013; Indian Point Nuclear Generating Unit 3; License Renewal Inspection.

This report covers an announced one week inspection, using the guidance provided in NRC Inspection Procedure 71013, "Review of License Renewal Activities," of activities conducted by Entergy to complete commitments, made to the NRC as a part of the Indian Point Energy Center, Unit 3 application for a renewed operating license. The commitments reviewed during this inspection are recorded in Supplement 2 to NUREG-1930, "Safety Evaluation Report Related to the License Renewal of Indian Point Generating Units, Numbers 2 and 3," Appendix A, dated July 2015, and in other related correspondence.

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

No findings were identified. The inspector concluded Entergy implemented license renewal commitments, as detailed, in license renewal correspondence with the NRC and NRC Safety Evaluation Reports, and complied with the provisions of the License Renewal Rule regarding application annual update, identification of newly identified structures, systems and components, and revision of the Indian Point Unit 3 Updated Final Safety Analysis Report to reflect their aging management programs.

## REPORT DETAILS

### 4. OTHER ACTIVITIES

#### 4OA5 Review of License Renewal Activities (IP71013)

##### Background

The expiration date of the operating license for Indian Point Unit 3 is midnight on December 12, 2015. Indian Point Unit 3 meets the criteria in Title 10 of the *Code of Federal Regulations* (10 CFR) 2.109(b), "Effect of timely renewal application," and will likely operate beyond the current operating license expiration date. Because of the ongoing Atomic Safety and Licensing Board hearings, the Commission is not expected to issue a renewed license for Indian Point Unit 3 before the expiration date of the original license. Therefore, Indian Point 3 would continue operations under the timely renewal provisions of 10 CFR 2.109(b).

The inspector used NRC Inspection Procedure 71013 to conduct this inspection. The procedure was written specifically for plants like Indian Point Unit 3, where the holders of an operating license meet the criteria of 10 CFR 2.109, for timely renewal, but a final decision by the NRC on the license renewal application is not expected prior to the period of extended operation. The inspection objectives and requirements of the procedure are to report the status of license renewal commitment implementation, the status of aging management program implementation, and to verify the description of programs and activities for managing the effects of aging are consistent with the Updated Final Safety Analysis Report.

#### 1.0 Commitment Reviews

#### 1.1 Commitment 3

Implement the Buried Piping and Tanks Inspection Program for Indian Point 2 and Indian Point 3, as described in License Renewal Application (LRA) Section B.1.6.

"This new program will be implemented consistent with the corresponding program described in NUREG-1801 Section XI.M34, Buried Piping and Tanks Inspection. Include in the Buried Piping and Tanks Inspection Program described in LRA Section B.1.6 a risk assessment of in-scope buried piping and tanks that includes consideration of the impacts of buried piping or tank leakage and of conditions affecting the risk for corrosion. Classify pipe segments and tanks as having a high, medium or low impact of leakage based on the safety class, the hazard posed by fluid contained in the piping and the impact of leakage on reliable plant operation. Determine corrosion risk through consideration of piping or tank material, soil resistivity, drainage, the presence of cathodic protection and the type of coating. Establish inspection priority and frequency for periodic inspections of the in-scope piping and tanks based on the results of the risk assessment. Perform inspections using inspection techniques with demonstrated effectiveness."

a. Inspection Scope

The program implementing this commitment was thoroughly reviewed, as part of an inspection of Indian Point 2, in NRC report 05000247/2013009. This inspection focuses on the program results for Indian Point 3. The inspector reviewed the most recent revisions of EN-DC-343, Underground Piping and Tanks Inspection and Monitoring Program, Revision 8 and SEP-UIP-IPEC, Underground Components Inspection Plan, Revision 3. The inspector noted the unique underground systems for Indian Point 3 were the Containment Spray and Security Propane Generator however, these systems did not rank in the top 50% of the risk ranked Unit 3 piping. The Service Water System is rated as a high and high-medium risk system for the purposes of this program. The inspector reviewed the results of the 47 inspections performed to date by Entergy staff.

b. Findings and Observations

No findings were identified.

1.2 Commitment 19

“Implement the One-Time Inspection Program for Indian Point 2 and Indian Point 3, as described in LRA Section B.1.27. This new program will be implemented consistent with the corresponding program described in NUREG-1801, Section XI.M32, One-Time Inspection.”

a. Inspection Scope

The inspector reviewed IP-RPT-15-LRD02, Revision 0, “Unit 3 License Renewal One-Time Inspection Summary Report”, issued September 1, 2015.

The one-time program is structured to verify the effectiveness of the following programs:

- Water Chemistry Control – Primary and Secondary
- Water Chemistry Control – Closed Cooling Water
- Water Chemistry Control – Auxiliary Systems
- Other One-Time Inspections

The other one-time inspections include plant drains, compressed air systems, emergency diesel generator system, fire protection – reactor coolant pump oil collection system, auxiliary feedwater systems, containment penetrations, as well as non-safety related systems and components, civil structural systems, and the steam generators.

Entergy executed 438 inspections which resulted in a conclusion the programs noted above effectively managed the aging effects. The inspector randomly reviewed inspection reports for work orders: 52213728-01, 286965-02, 00164228-01; 00286582 01; and 52358536-01.



The inspector reviewed the inspection records for completeness, evaluated the adequacy of the inspection, and if the conclusion was appropriate. Entergy implemented one inspection (0036882-01) which resulted in further review and action (CR-IP3-2015-03527). This inspection found galvanic corrosion at the junction between the threaded carbon steel pipe and bottom of the upstream side of containment isolation valve SA-24-1. This resulted in an appropriate expansion of the inspection to all of the Station Air to Vapor Containment valves in both Units 2 and 3. No other corrosion was found.

b. Findings and Observations

No findings were identified.

1.3 Commitment 23

“Implement the Selective Leaching Program for Indian Point 2 and Indian Point 3, as described in LRA Section B.1.33.

This new program will be implemented consistent with the corresponding program described in NUREG-1801, Section XI.M33, Selective Leaching of Materials.”

a. Inspection Scope

The inspector reviewed IP-RPT-15-LRD01, “License Renewal Selective Leaching Inspection Summary Report”, August 27, 2015. The selective leaching program for Indian Point Unit 3 interrogates components made of cast iron exposed to treated water, copper alloy greater than 15% zinc exposed to treated water, and raw water and aluminum bronze with greater than 8% aluminum exposed to raw water. The inspector noted that selective leaching has been identified in the Unit 3 Fire Protection Systems as an active aging mechanism for cast iron components exposed to raw (city) water.

The inspector reviewed the destructive testing report 13-0313-TR-001, “Laboratory Analysis of Several Valves for Selective Leaching”, Revision 1, August 2013, supporting this conclusion. The samples destructively tested were greater than 15% zinc brass in city water and brackish water, and cast iron from 4 city water locations. “Slight” Zinc depletion was noted in all the brass samples. Two of the three cast iron valve bodies suffered “significant graphitization in locations of the inner diameter (ID) wetted surfaces ....” The inspector reviewed CR-1P2-2013-03037 which addresses the selective leaching condition. This corrective action resulted in a plan to replace the five most susceptible valves each year and evaluating the level of leaching each year to determine if the replacement program should be adjusted. The corrective action also resulted in the development of SEP-SLP-IPC-001, Revision 1, dated October 1, 2015, “IPEC Selective Leaching Program.”

b. Findings and Observations

No findings were identified.

#### 1.4 Commitment 32

“As required by 10 CFR 50.61 (b) (4), Indian Point Unit 3 will submit a plant-specific safety analysis for plate B2803-03 to the NRC three years prior to reaching the RTPTS (Pressurized Thermal Shock Reference Temperature) screening criterion. Alternatively, the site may choose to implement the revised Pressurized Thermal Shock (PTS) rule when approved.”

##### a. Inspection Scope

This is the only license renewal commitment unique to Unit 3. As stated in the Entergy response to NRC RAI 4.2.5-2 (Entergy Letter NL-07-140 dated November 28, 2007), “Plate B3803-03 will reach the screening criterion at 37 Effective Full Power Years (EFPY) approximately 9 years after entering the period of extended operation.” After responding to the NRC in 2007, Entergy staff performed additional analysis, utilizing new data that extends the 9 years by a small margin. However, Entergy staff are currently tracking this commitment (LR-LAR-2011-00714) to submit a plant-specific safety analysis for plate B2803-3 no later than August 31, 2019. Based on the additional analysis this is more than 48 months prior to the plate reaching its previously calculated PTS limit.

This commitment was revised since the NRC license renewal team inspection of Unit 2. The change to the commitment was editorial in nature and evaluated appropriately in accordance with the NEI 99-04, “Guidelines for Managing NRC Commitment Changes”, Revision 0, July 1999 and NEI 95-10, “Industry Guidelines for Implementing the Requirements of 10 CFR 54 – The License Renewal Rule”, Revision 6, July 2005.

##### b. Findings and Observations

No findings were identified.

#### 1.5 Commitment 48

“Entergy will visually inspect IPEC underground piping within the scope of license renewal and subject to aging management review prior to the period of extended operation and then on a frequency of at least once every two years during the period of extended operation. This inspection frequency will be maintained unless the piping is subsequently coated in accordance with the preventive actions specified in NUREG-1801 Section XI.M41 as modified by [License Renewal Interim Staff Guidance] LR-ISG-2011-03. Visual inspections will be supplemented with surface or volumetric nondestructive testing if indications of significant loss of material are observed. Consistent with revised NUREG-1801 Section XI.M41, such adverse indications will be entered into the plant corrective action program for evaluation of extent of condition and for determination of appropriate corrective actions (e.g., increased inspection frequency, repair, and replacement).”

a. Inspection Scope

The inspector reviewed 59 underground piping examinations implemented for Unit 3 and noted that corrective actions for coating degradation were implemented in 23 cases (39%). The inspector selected a number of the corrective actions and an ultrasonic test report for review. The inspector noted the ultrasonic thickness test (Report IP3-UT-15-079) of the 24" Service Water line 408 over the discharge canal resulted in thickness readings below nominal of 0.375" but well above the calculated 0.132" minimum wall. Condition Report CR-IP3-2015-04410 recommended the coating be repaired to prevent further corrosion. Condition Reports CR-IP3-2014-02382, -02878, and -03244 were also reviewed.

b. Findings and Observations

No findings were identified.

1.6 Commitment 49

"Recalculate each of the limiting (Cumulative Usage Factors) CUFs provided in Section 4.3 of the LRA for the reactor vessel internals to include the reactor environment effects (Fen) as provided in the IPEC Fatigue Monitoring Program using NUREG/CR-5704 or NUREG/CR-6909. In accordance with the corrective actions specified in the Fatigue Monitoring Program, corrective actions include further CUF re-analysis, and/or repair or replacement of the affected components prior to reaching 1.0." CUFen (Cumulative Usage Factor Considering Environmental Effects).

a. Inspection Scope

As noted in NRC inspection 05000247/2013009:

Entergy had made four commitments related to the evaluations of environmentally-assisted fatigue. Entergy committed (Commitment 33) to update the fatigue usage calculations for those locations identified in NUREG/CR-6260 using refined fatigue analyses to determine valid CUF less than 1.0 when accounting for the effects of reactor water environment.

Entergy also committed (Commitment 43) to review design basis ASME Code Class 1 fatigue evaluations to determine whether the NUREG/CR-6260 locations that have been evaluated for the effects of the reactor coolant environment on fatigue usage are the limiting locations for the Indian Point Unit 2 and Indian Point Unit 3 configurations.

Entergy committed (Commitment 44) to include written explanation and justification of any user intervention in future evaluations using the WESTEMS "Design CUF" module. Entergy also committed (Commitment 45) that it will not use the NB-3600 option of the WESTEMS program in future design calculations

until the issues identified during the NRC review of the program have been resolved. Commitment 49 narrows the focus of the fatigue calculations to the following reactor vessel internal components:

Indian Point 2

Upper support plate assembly  
 Upper support plate flange  
 Upper core plate  
 Mid core barrel  
 Upper core barrel  
 Core barrel nozzle  
 Core barrel flange  
 Lower radial key plate  
 Lower radial key 45° plane  
 Lower core plate  
 Lower core support plate  
 Lower support columns

Indian Point 3

Upper support plate assembly  
 Upper core plate  
 Core barrel to LSP junction  
 Thermal shield  
 Lower core plate  
 Instrumentation columns  
 Lower support columns

The inspector reviewed Entergy Calculation CN-PAFM-13-32, Revision 3, "Environmental Fatigue Screening Results". The inspector noted that Entergy staff applied the maximum stainless steel  $F_{en}$  of 15.348 to the above locations. The result of doing so caused the following components to exceed the CUF limit of 1.0:

Indian Point 2

Upper support plate assembly  
 Upper support plate flange  
 Lower core plate  
 Lower core support plate  
 Lower support columns

Indian Point 3

Upper support assembly  
 Instrumentation columns  
 Lower support columns

These components were subject to a refined calculation. The values for each transient were analyzed and specific values used rather than approximations. Conservatisms were removed, where appropriate, by (a) application of transient cycles for 60 years, (b) comparison with similar component analysis, and (c) reduction of conservative values in the existing stress calculations without performing a new analysis. Entergy staff then used a simplified version of the modified strain rate method described in NUREG/CR-6909 to derive case-specific environmental weighting factors. Entergy staff simplified this calculation by using an average strain rate, and weighting factor, for each transient pair instead of integrating the strain rate curve for each transient. The inspector noted that by refining the calculations in this manner, for example, the final CUF for the Unit 2 Upper Support Plate Assembly and Flange at the end of the extended period of operation was calculated to be 0.867. The refined CUF for the Unit 3 Upper Support Assembly was 0.867. The refined CUF for the Unit 3 Instrument Columns became 0.173, and the final adjusted value for the Unit 3 Lower Support Columns was 0.740.

The result of the initial application of an environmental weighting factor, and the subsequent refined calculations, was that no component in the reactor vessel was projected to have a CUF greater than the limit of 1.0 at the end of the extended period of operation. This obviates the need for further CUF re-analysis, and/or repair or replacement of the any components reaching or exceeding their fatigue limits.

b. Findings and Observations

No findings were identified.

.2 Commitment Management Program

a. Inspection Scope

The inspector verified whether Entergy staff implemented changes to regulatory commitments in accordance with applicable guidance.

The inspector determined revision of license renewal commitments are controlled by the Entergy Regulatory Assurance organization and treated similar to the change made to any commitment falling under the definition in NEI-99-04, "Guidelines for Managing NRC Commitments" as accepted in SECY-00-0045. The inspector reviewed the last NRC Nuclear Reactor Regulation Audit of the Entergy commitment management program, "Audit of the Licensee's Management of Regulatory Commitments Indian Point Nuclear Generating Unit Nos. 2 and 3 (TAC NOS. MF0305 AND MF0306)", ML13015A190 dated January 16, 2013 that concluded... "that Entergy has (1) implemented NRC commitments on a timely basis, and (2) implemented an effective program for managing NRC commitment changes."

The inspector reviewed Entergy letter NL-15-019, dated March 10, 2015, containing a revision to NUREG 1930, "Safety Evaluation Report Related to the License Renewal of Indian Point Nuclear Generating Plant", Units 2 and 3, Supplement 2, Appendix A, "Commitments For License Renewal Of Indian Point Nuclear Generating Unit Nos. 2 and 3" (ML15075A022). This letter revised Commitment 1, an enhancement to the Aboveground Steel Tanks Program, Commitment 5, an enhancement to the External Surfaces Monitoring Program, and Commitment 7, an enhancement to the Fire Protection Program. In addition, a new Commitment 51 was made:

Implement the enhancements to the Service Water Integrity Program described in LAR Section B.1.34, as shown in NL-14-147. These changes and addition resulted from Entergy's implementation of License Renewal Interim Staff Guidance LR-ISG-2012-02 "Aging Management of Internal Surfaces, Fire Water Systems, Atmospheric Storage Tanks, And Corrosion Under Insulation."

The inspector noted that Entergy staff followed the guidance in NEI-99-04 when implementing these changes in order to bring their application in line with the NRC Interim Staff Guidance.

b. Findings and Observations

No findings were identified.

.3 10 CFR 54.37(b) Newly Identified Structures, Systems and Components

a. Inspection Scope

The inspector verified whether “newly identified” systems, structures, and components (SSCs) were identified and included in the annual updated final safety analysis report (UFSAR) updates as required by 10 CFR 54.37(b). The inspector reviewed SEP-IPEC-LR-001, Revision 0, 8/27/13, “Indian Point Nuclear Power Plant Program Section SEP-IPEC-LR-001, 10 CFR 54.37(b) Determination” to determine whether the procedure complied with the regulation and accounted for the issues discussed in NRC Regulatory Issue Summary 2007-16 “Implementation of the Requirements of 10 CFR 54.37 (b) for Holders of Renewed Licenses, Revision 1, April 28, 2010.

b. Findings and Observations

No findings were identified.

.4 10 CFR 54.21(b) Application Annual Update

a. Inspection Scope

The inspector verified whether the license renewal application was updated annually in accordance with the requirement to submit changes to the current licensing basis (CLB) during the NRC review of the license renewal application as required by 10 CFR 54.21(b). The inspector reviewed Entergy’s last annual update of the license renewal application submitted by letter NL-14-146 dated December 15, 2014 (ML14364A156) to determine it was in conformance with 10 CFR 54.21(b).

b. Findings and Observations

No findings were identified.

.5 10 CFR 71 Updated Final Safety Analysis Report

a. Inspection Scope

In NUREG 1930, “Safety Evaluation Report Related to the License Renewal of Indian Point Nuclear Generating Plant”, Units 2 and 3”, Volume 1, Part 1.6, Summary of Proposed License Conditions the NRC proposes a license condition that “...requires the applicant to include the UFSAR supplement required by 10 CFR 54.21(d) in the first UFSAR update required by 10 CFR 50.71(e) following the issuance of the renewed licenses.”

In the absence of a renewed license Entergy committed, in their letter to the NRC NL-15-121, September 28, 2015, (ML15279A074) to notify the NRC under a separate letter that it has updated the Unit 3 Updated Final Safety Analysis Report to reflect the aging management programs. The inspector determined whether this commitment was met. By letter NL-15-130, October 1, 2015, Entergy transmitted an amendment to their "Updated Final Safety Analysis Report (UFSAR), Revision 06". This update, in compliance with 10 CFR 50.71 (e), included the most currently revised Appendix A, "Updated Final Safety Analysis Report Supplement", of the original application for license renewal.

b. Findings and Observations

No findings were identified.

4OA6 Meetings, Including Exit

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

**ATTACHMENT: SUPPLEMENTARY INFORMATION**

**SUPPLEMENTARY INFORMATION  
KEY POINTS OF CONTACT**

Entergy Personnel

N. Azevedo, Code Programs Supervisor  
C. Caputo, License Renewal Team  
J. Curry, Senior Project Manager  
G. Dahl, Licensing Engineer  
P. Guglielmino, Implementation Team Manager  
L. Lubrano, Component Electrical Engineer  
R. Sporbert, One-Time Inspection Coordinator

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

None

**LIST OF DOCUMENTS REVIEWED**

Commitment 6, 33, and 43

2-PT-2Y015, Revision 3, Thermal Cycle Monitoring Program  
IP-RPT-11-LRD13, Revision 0, Review of the Fatigue Monitoring Aging Management Program for License Renewal Implementation  
EN-LI-100, Revision 13, Process Applicability Determination EN-AD-101, Revision 16, Procedure Process  
WCAP-17199-P, July 2010, Environmental Fatigue Evaluation for Indian Point Unit 2  
WCAP-17149-P, July 2010, Evaluation of Pressurizer Insurge/Outsurge Transients for Indian Point Unit 2  
Entergy Letter dated August 9, 2010 (NL-10-82), License Renewal Application – Completion of Commitment #33 Regarding the Fatigue Monitoring Program Indian Point Nuclear Generating Unit Nos. 2 and 3 [ML102300504]

Commitment 13

2-ELC-016-BUS, Inspection, Cleaning and Testing of 480V Buses, Revision 2 CR-IP2-2009-03029, Water dripping at the bend in the electric tunnel  
CR-IP2-2012-01903, Bus 5A surface rust noted on the interior divider panel  
Work Order 52293872, Inspection of Bus 5A Switchgear and Station Service Transformer  
Work Order 52294517, Inspection of Bus 5A (480 V Switchgear to EDG)  
2-ELC-016-BUS, Revision 4, Inspection, Cleaning and Testing of 480V Buses 2-ELC-403-BUS  
Revision 7, Inspection and Cleaning of 480 Volt Bus Duct  
Work Order 351381, 21 EDG Bus Visual, Cleaning, Bolted Checks in Electrical Tunnel completed on July 18, 2013



Work Order 351382, 22 EDG Bus Visual, Cleaning, Bolted Checks in Electrical Tunnel completed on June 12, 2013  
Work Order 351448, 23 EDG Bus Visual, Cleaning, Bolted Checks in Electrical Tunnel completed on August 12, 2013  
CR-IP2-2013-01738, MEB acceptance criteria  
CR-IP2-2013-01748, Leaks in Unit 2 electrical tunnel CR-IP2-2013-02375, 22 EDG bus inspection  
CR-IP2-2013-02923, 21 EDG bus inspection CR-IP2-2013-03330, 23 EDG bus inspection  
CR-IP2-2013-02912, Thermography procedures  
CR-IP2-2013-02913, Water intrusion into Unit 2 electrical tunnel

Commitment 19

IP-RPT-11-LRD28, Revision 0, Review of the One-Time Inspection Program EN-FAP-LR-024  
Revision 1, One-Time Inspection  
NL-13-046, Amendment 13 to LRA for One-Time Inspection and Selective Leaching Programs  
March 18, 2013  
IPEC Unit 2 One-Time Inspection Tracking Matrix, May 3, 2013 and May 21, 2013 20 Inspection reports for one-time inspections  
IP-RPT-13-LRD03, Revision 0, Unit 2 License Renewal One-Time Inspection Summary Report  
IPEC Unit 2 One-Time Inspection Tracking Matrix, August 28, 2013  
20 Additional inspection reports for one-time inspections Commitment 23  
IP-RPT-11-LRD34, Revision 0, Review of the Selective Leaching Program EN-FAP-LR-02  
Revision 3, Selective Leaching Inspection  
NL-13-046, Amendment 13 to LRA for One-Time Inspection and Selective Leaching Programs  
March 18, 2013  
IPEC Unit 2 Selective Leaching Inspection Tracking Matrix, May 20, 2013 10 Inspection Reports for copper-alloy selective leaching inspections  
12 Inspection reports for gray cast iron selective leaching inspections WO 00326036-01  
WO 00326216-01  
IP-RPT-13-LRD07, Revision 0, License Renewal Selective Leaching Inspection Summary Report  
Altran 13-0313-TR-001, Laboratory Analysis of Several Valves for Selective Leaching  
Revision 0  
Altran 13-0313-TR-001, Laboratory Analysis of Several Valves for Selective Leaching  
Revision 1  
CR-IP2-2013-03037, Selective leaching of gray cast iron components CR-IP2-2013-03360  
Selective leaching of copper alloy components

Commitment 26

Entergy Letter, NL-09-018, "Reply to Request for Additional Information – Miscellaneous Items"  
January 27, 2009  
Entergy Letter NL-11-101, "Clarification for Additional Information (RAI) Aging Management Programs," August 22, 2011  
LR# 173, LR Request, Confirm each AMP will be implemented with ten elements  
IP-RPT-11-LRD38, "Review the Thermal Aging Embrittlement of CASS Aging Management Program for License Renewal Implementation," 1/2/2013

NRC Letter, "License Renewal Issue No. 98-0030, "Thermal Aging Embrittlement of Cast Austenitic Stainless Steel Components," May 19, 2000  
WCAP-10977, Supplement 1, "Additional Information in Support of the Technical Justification for Eliminating Large Primary LOOP Pipe Rupture as the Structural Design Basis for Indian Point Unit 2," January 1989

Commitment 27

IP-RPT-11-LRD39, Revision), "Review of the Thermal Aging & Neutron Embrittlement of CASS Aging Management Program for License Renewal Implementation," ED41109, 1/23/2013  
EPRI 1013234 "Materials Reliability Program: Screening, Categorization, and Ranking of Reactor Internals Components for Westinghouse and Combustion Engineering PWR Design (MRP-191)," November 2006  
EPRI 1022863 "Materials Reliability Program: Pressurized Water Reactor Internals Inspection and Evaluation Guidelines (MRP-227-A)," December 2011  
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Work Order PMRQ 00349802-01, 21 Fuel Oil Storage Tank Underground Piping Inspections  
Work Order PMRQ 00349814-01, 22 Fuel Oil Storage Tank Underground Piping Inspections  
Work Order 00342492-01, Inspect Underground Piping by the IP2 EDG Building DF-2 Area  
Work Order 00342493-01, Inspect Underground Piping by the IP2 EDG Building DF-2-1 Area  
Work Order 00342494-01, Inspect Underground Piping by the IP2 EDG Building DF-2-2 Area

**LIST OF ACRONYMS**

|         |   |
|---------|---|
| ADAMS   | Agencywide Documents Access Management System   |
| ASME    | American Society of Mechanical Engineers        |
| CASS    | Cast Austenitic Stainless Steel                 |
| CFR     | Code of Federal Regulations                     |
| CUF     | Cumulative Usage Factor                         |
| EFPY    | Effective Full Power Years                      |
| ENTERGY | Entergy Nuclear Northeast                       |
| EPRI    | Electric Power Research Institute               |
| ID      | Inner Diameter                                  |
| INPO    | Institute of Nuclear Power Operations           |
| IP2     | Indian Point Unit 2                             |
| IP3     | Indian Point Unit 3                             |
| IPEC    | Indian Point Energy Center                      |
| LRA     | License Renewal Application                     |
| MEB     | Metal-Enclosed Bus                              |
| MRP     | Materials Reliability Project                   |
| NRC     | Nuclear Regulatory Commission                   |
| PTS     | Pressurized Thermal Shock                       |
| RTPTS   | Pressurized Thermal Shock Reference Temperature |
| UFSAR   | Updated Final Safety Evaluation Report          |