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Fred Dacimo
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NL-13-152

December 12, 2013

U.S. Nuclear Regulatory Commission
Document Control Desk
11545 Rockville Pike, TWFN-2 F1
Rockville, MD 20852-2738

SUBJECT: Amendment 15 to License Renewal Application (LRA)
Indian Point Nuclear Generating Unit Nos. 2 and 3
Docket Nos. 50-247 and 50-286
License Nos. DPR-26 and DPR-64

- REFERENCES
1. Entergy Letter dated April 23, 2007, F. R. Dacimo to Document Control Desk, "License Renewal Application" (NL-07-039)
 2. Entergy Letter dated April 23, 2007, F. R. Dacimo to Document Control Desk, "License Renewal Application Boundary Drawings" (NL-07-040)
 3. Entergy Letter dated April 23, 2007, F. R. Dacimo to Document Control Desk, "License Renewal Application Environmental Report References" (NL-07-041)
 4. Entergy Letter dated October 11, 2007, F. R. Dacimo to Document Control Desk, "License Renewal Application (LRA)" (NL-07-124)
 5. Entergy Letter dated November 14, 2007, F. R. Dacimo to Document Control Desk, "Supplement to License Renewal Application (LRA) Environmental Report References" (NL-07-133)

Dear Sir or Madam:

In the referenced letters, Entergy Nuclear Operations, Inc. applied for renewal of the Indian Point Energy Center operating license. This letter contains Amendment 15 of the License Renewal Application (LRA).

Should you have any questions concerning this report, please contact Mr. Robert W. Walpole, Licensing Manager, at (914) 254-6710.

A128
NRR

I declare under penalty of perjury that the foregoing is true and correct. Executed on

12/12/13.

Sincerely,



FRD/rw

Attachment 1. Annual Update Amendment

cc: Mr. William Dean, Regional Administrator, NRC Region I
Mr. Sherwin E. Turk, NRC Office of General Counsel, Special Counsel
Mr. Dave Wrona, NRC Branch Chief, Engineering Review Branch I
Ms. Kimberly Green, NRC Sr. Project Manager, Division of License Renewal
Mr. Douglas Pickett, NRR Senior Project Manager
Ms. Bridget Frymire, New York State Department of Public Service
NRC Resident Inspector's Office
Mr. Francis J. Murray, Jr., President and CEO NYSERDA

ATTACHMENT 1 TO NL-13-152

Annual Amendment

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT Nos. 2 and 3
DOCKET NOS. 50-247 and 50-286

**INDIAN POINT NUCLEAR GENERATING UNIT Nos. 2 AND 3
LICENSE RENEWAL APPLICATION
ANNUAL AMENDMENT**

In accordance with 10 CFR 54.21(b), each year following submittal of the license renewal application and at least 3 months before scheduled completion of the NRC review, an amendment to the renewal application must be submitted that identifies any change to the current licensing basis (CLB) of the facility that materially affects the contents of the license renewal application (LRA), including the FSAR supplement. This attachment is the required annual amendment to the LRA.

Amendment 15 is based on a review of documents potentially affecting the CLB during the periods of July 1, 2013 through August 31, 2013 for IP2 and September 1, 2012 through August 31, 2013 for IP3. For IP2 the period from September 1, 2012 through June 30, 2013 was addressed in Amendment 14 (ML13274A238).

The review concluded that certain sections of the LRA are affected by changes to the CLB. The table below lists the CLB change, the affected LRA section and an explanation of the change to the LRA.

CLB Change	LRA Section Affected	LRA Change
Dwg 9321-20283 (EC 41901) added copper alloy > 15% zinc strainer housings to city water makeup system	Table 3.3.2-19-13-IP3	Added line items for copper alloy > 15% zinc strainer housings
Dwg 9321-27363 (EC 45108) added stainless steel strainer housings to chemical and volume control system	Table 2.3.3-6-IP3 Table 3.3.2-6-IP3	Added line items for stainless steel strainer housings
Components previously added to the LRA in response to EC 30847, have been re-evaluated and are deleted from the LRA. The affected components are not credited in the CLB.	Appendix A Section A.2.1.28	Delete listing of components related to the black start diesel (GT3-BSD) from the Periodic Surveillance and Preventive Maintenance Program
	Appendix A Section A.2.1.39	Delete the black start diesel (GT3-BSD) from the program description and from the enhancement to the WCC-Closed Cooling Water Program

CLB Change	LRA Section Affected	LRA Change
	Appendix B Section B.1.29	Delete listing of components related to the black start diesel (GT3-BSD)
	Appendix B Section B.1.40	Delete the black start diesel (GT3-BSD) from the program description and from the enhancement to the WCC-Closed Cooling Water Program
	Table 2.3.3-13-IP2	Delete component types related to the black start diesel (GT3-BSD) from Table 2.3.3-13-IP2
	Section 3.3.2.1.13	Delete materials, environments, aging effects and programs related to the black start diesel (GT3-BSD)
	Table 3.3.2-13-IP2	Delete component type line items related to the black start diesel (GT3-BSD) from Table 3.3.2-13-IP2

(Changes are shown as strikethroughs for deletions and underlines for additions)

Table 2.3.3-6-IP3
Chemical and Volume Control System
Components Subject to Aging Management Review

Component Type	Intended Function(s)
<u>Strainer housing</u>	<u>Pressure boundary</u>

Table 3.3.2-6-IP3
Chemical and Volume Control
Summary of Aging Management Review

Table 3.3.2-6-IP3: Chemical and Volume Control								
Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
<u>Strainer housing</u>	<u>Pressure boundary</u>	<u>Stainless steel</u>	<u>Air – indoor (ext)</u>	<u>None</u>	<u>None</u>	<u>VII.J-16 (AP-18)</u>	<u>3.3.1-99</u>	<u>A</u>
<u>Strainer housing</u>	<u>Pressure boundary</u>	<u>Stainless steel</u>	<u>Treated borated water (int)</u>	<u>Loss of material</u>	<u>Water Chemistry Control – Primary and Secondary</u>	<u>VII.E1-17 (AP-79)</u>	<u>3.3.1-91</u>	<u>A</u>
<u>Strainer housing</u>	<u>Pressure boundary</u>	<u>Stainless steel</u>	<u>Treated borated water > 140°F (int)</u>	<u>Cracking</u>	<u>Water Chemistry Control – Primary and Secondary</u>	<u>VII.E1-20 (AP-82)</u>	<u>3.3.1-90</u>	<u>A</u>
<u>Strainer housing</u>	<u>Pressure boundary</u>	<u>Stainless steel</u>	<u>Treated borated water > 140°F (int)</u>	<u>Loss of material</u>	<u>Water Chemistry Control – Primary and Secondary</u>	<u>VII.E1-17 (AP-79)</u>	<u>3.3.1-91</u>	<u>A</u>

Table 3.3.2-19-13-IP3
City Water Makeup System
Nonsafety-Related Components Potentially Affecting Safety Functions
Summary of Aging Management Review

Table 3.3.2-19-13-IP3: City Water Makeup System								
Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
<u>Strainer housing</u>	<u>Pressure boundary</u>	<u>Copper alloy > 15% Zn</u>	<u>Air – indoor (ext)</u>	<u>None</u>	<u>None</u>	<u>V.F-3 (EP-10)</u>	<u>3.2.1-53</u>	<u>C</u>
<u>Strainer housing</u>	<u>Pressure boundary</u>	<u>Copper alloy > 15% Zn</u>	<u>Treated water (int)</u>	<u>Loss of material</u>	<u>Periodic Surveillance and Preventive Maintenance</u>	<u>=</u>	<u>=</u>	<u>G, 305</u>
<u>Strainer housing</u>	<u>Pressure boundary</u>	<u>Copper alloy > 15% Zn</u>	<u>Treated water (int)</u>	<u>Loss of material</u>	<u>Selective Leaching</u>	<u>VII.G-13 (A-47)</u>	<u>3.3.1-84</u>	<u>C, 303</u>

LRA Appendix A

A.2.1.28 Periodic Surveillance and Preventive Maintenance Program

- ~~GT3-BSD jacket water cooling heat exchanger~~
- ~~GT3-BSD flexible bellows, piping, silencer and turbocharger exposed to exhaust gas~~

A.2.1.39 Water Chemistry Control – Closed Cooling Water Program

The Water Chemistry Control – Closed Cooling Water Program is an existing program that includes preventive measures that manage loss of material, cracking, or fouling for components in closed cooling water systems (component cooling water (CCW), instrument air (IP2 only), fresh water cooling, ~~black start diesel (GT3-BSD) cooling~~, conventional closed cooling (CCC), instrument air closed cooling (IACC), emergency diesel generator cooling, security generator cooling, station air (IP1) cooling and SBO/Appendix R diesel generator cooling). These chemistry activities provide for monitoring and controlling closed cooling water chemistry using procedures and processes based on EPRI guidance for closed cooling water chemistry.

The One-Time Inspection Program for Water Chemistry utilizes inspections or non-destructive evaluations of representative samples to verify that the Water Chemistry Control – Closed Cooling Water Program has been effective at managing aging effects.

The Water Chemistry Control – Closed Cooling Water Program will be enhanced to include the following.

- Revise appropriate procedures to maintain water chemistry of the SBO/Appendix R diesel generator cooling system per EPRI guidelines.
- Revise appropriate procedures to maintain the security generator, ~~black start diesel (GT3-BSD)~~ and fire protection diesel cooling water pH and glycol within limits specified by EPRI guidelines.

LRA Appendix B

B.1.29 PERIODIC SURVEILLANCE AND PREVENTIVE MAINTENANCE

Fuel oil system	<p>IP2: Use visual or other NDE techniques to internally inspect the fuel oil cooler for the SBO/Appendix R diesel generator to manage fouling.</p> <p>Use visual or other NDE techniques to inspect internal and external surfaces of the emergency fuel oil trailer transfer tank and associated valves for loss of material.</p> <p>IP2 Black Start Diesel (GT3-BSD):</p> <p>Use visual or other NDE techniques to inspect external surfaces for jacket water cooling heat exchanger (tubes) to manage fouling.</p> <p>Use visual or other NDE techniques to internally inspect surfaces for stainless steel flexible bellows, carbon steel piping and silencer, and aluminum turbocharger exposed to exhaust gas to manage loss of material and cracking.</p>
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B.1.40 WATER CHEMISTRY CONTROL – CLOSED COOLING WATER

Program Description

The Water Chemistry Control – Closed Cooling Water Program is an existing program that includes preventive measures that manage loss of material, cracking, or fouling for components in closed cooling water systems: component cooling water (CCW), instrument air closed cooling (IACC), ~~fresh water cooling, black start diesel (GT3-BSD) cooling,~~ emergency diesel generator cooling, SBO/Appendix R diesel generator cooling (IP2), Appendix R diesel generator cooling (IP3), security generator cooling, station air cooling (IP1), conventional closed cooling (CCC) (IP2 only), and turbine hall closed cooling (THCC) (IP3 only). These chemistry activities provide for monitoring and controlling closed cooling water chemistry using IPEC procedures and processes based on EPRI guidelines for closed cooling water issued as EPRI TR-1007820, Closed Cycle Cooling Water Chemistry, Rev. 1, dated April 2004. This guideline supersedes EPRI TR-107396, Closed Cycle Cooling Water Chemistry Guideline, Revision 0, issued November 1997, referenced in NUREG-1801. Differences in Revision 0 and Revision 1 are described below.

Enhancement

Attributes Affected	Enhancement
2. Preventive Actions 3. Parameters Monitored or Inspected 5. Monitoring and Trending 6. Acceptance Criteria	IP2: Revise appropriate procedures to maintain water chemistry of the SBO/Appendix R diesel generator cooling system per EPRI guidelines. IP2: Revise appropriate procedures to maintain the security generator, black start diesel (GT3-BSD) and fire protection diesel cooling water pH and glycol within limits specified by EPRI guidelines.

Table 2.3.3-13-IP2 Fuel Oil Components Subject to Aging Management Review	
Component Type	Intended Function
Filter housing	Pressure boundary
Flexible bellows	Pressure boundary
Heat exchanger (bonnet)	Pressure boundary
Heat exchanger (tubes)	Heat transfer
Heat exchanger (tubes)	Pressure boundary
Silencer	Pressure boundary
Turbocharger	Pressure boundary

3.3.2.1.13 Fuel Oil

Materials

Fuel oil system components are constructed of the following materials.

- carbon steel
- copper alloy
- copper alloy > 15% zinc
- glass
- gray cast iron
- stainless steel
- aluminum

Environment

Fuel oil system components are exposed to the following environments.

- air – indoor
- air – outdoor
- concrete
- fuel oil
- soil
- exhaust gas
- treated water

Aging Effects Requiring Management

The following aging effects associated with the fuel oil system require management.

- fouling
- loss of material
- cracking-fatigue

Aging Management Programs

The following aging management programs manage the aging effects for fuel oil system components.

- Aboveground Steel Tanks
- Bolting Integrity
- Buried Piping and Tanks Inspection
- Diesel Fuel Monitoring
- External Surfaces Monitoring
- Fire Protection
- Periodic Surveillance and Preventive Maintenance
- ~~Water chemistry control — Closed Cooling Water~~
- ~~Selective Leaching~~

**Table 3.3.2-13-IP2
Fuel Oil Systems
Summary of Aging Management Review**

Table 3.3.2-13-IP2: Fuel Oil Systems								
Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Filter housing	Pressure boundary	Carbon steel	Air – indoor (ext)	Loss of material	External Surfaces Monitoring	VII.I-8 (A-77)	3.3.1-58	A
Filter housing	Pressure boundary	Carbon steel	Fuel oil (int)	Loss of material	Diesel Fuel Monitoring	VII.H1-10 (A-30)	3.3.1-20	B, 316
Filter housing	Pressure boundary	Carbon steel	Air – indoor (int)	Loss of material	External Surfaces Monitoring	V.B-1 (E-25)	3.2.1-32	E
Flexible bellows	Pressure boundary	Stainless steel	Air – indoor (ext)	None	None	VII.J-15 (AP-17)	3.3.1-94	A
Flexible bellows	Pressure boundary	Stainless steel	Exhaust gas (int)	Cracking-fatigue	Periodic surveillance and preventive maintenance	–	–	H
Flexible bellows	Pressure boundary	Stainless steel	Exhaust gas (int)	Loss of material	Periodic surveillance and preventive maintenance	VII.H2-2 (A-27)	3.3.1-18	E
Heat exchanger (bonnet)	Pressure boundary	Carbon steel	Air – indoor (ext)	Loss of material	External Surfaces Monitoring	VII.I-8 (A-77)	3.3.1-58	A

Table 3.3.2-13-IP2: Fuel Oil Systems

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Heat exchanger (bonnet)	Pressure boundary	Carbon steel	Treated water (int)	Loss of material	Water chemistry control—closed cooling water	VII.C2-1 (A-63)	3.3.1-48	D
Heat exchanger (tubes)	Heat transfer	Copper alloy >15% zn	Air—indoor (ext)	Fouling	Periodic surveillance and preventive maintenance	—	—	G
Heat exchanger (tubes)	Heat transfer	Copper alloy >15% zn	Treated water (int)	Fouling	Water chemistry control—closed cooling water	VII.C2-2 (AP-80)	3.3.1-52	D
Heat exchanger (tubes)	Pressure boundary	Copper alloy >15% zn	Air—indoor (ext)	None	None	V.F-3 (EP-10)	3.2.1-53	G
Heat exchanger (tubes)	Pressure boundary	Copper alloy >15% zn	Treated water (int)	Loss of material	Selective leaching	VII.H1-4 (AP-43)	3.3.1-84	G
Heat exchanger (tubes)	Pressure boundary	Copper alloy >15% zn	Treated water (int)	Loss of material	Water chemistry control—closed cooling water	VII.E1-2 (AP-34)	3.3.1-51	D
Piping	Pressure boundary	Carbon steel	Treated water (int)	Loss of material	Water chemistry control—closed cooling water	VII.H2-23 (A-25)	3.3.1-47	D

Table 3.3.2-13-IP2: Fuel Oil Systems

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Piping	Pressure boundary	Carbon-steel	Exhaust gas (int)	Loss of material	Periodic surveillance and preventive maintenance	VII.H2-2 (A-27)	3.3.1-18	E
Piping	Pressure boundary	Carbon-steel	Air—indoor (int)	Loss of material	External Surfaces Monitoring	V.A-19 (E-29)	3.2.1-32	E
Piping	Pressure boundary	Aluminum	Air—indoor (ext)	None	None	V.F-2 (EP-3)	3.2.1-50	G
Piping	Pressure boundary	Aluminum	Air—indoor (int)	None	None	V.F-2 (EP-3)	3.2.1-50	G
Silencer	Pressure boundary	Carbon-steel	Air—indoor (ext)	Loss of material	External surfaces monitoring	VII.I-8 (A-77)	3.3.1-58	A
Silencer	Pressure boundary	Carbon-steel	Exhaust gas (int)	Cracking-fatigue	Periodic surveillance and preventive maintenance	—	—	H
Silencer	Pressure boundary	Carbon-steel	Exhaust gas (int)	Loss of material	Periodic surveillance and preventive maintenance	VII.H2-2 (A-27)	3.3.1-18	E

Table 3.3.2-13-IP2: Fuel Oil Systems

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG-1801 Vol. 2 Item	Table 1 Item	Notes
Turbocharger	Pressure boundary	Gray cast iron	Air—indoor (ext)	Loss of material	External surfaces monitoring	VII.1-8 (A-77)	3.3.1-58	A
Turbocharger	Pressure boundary	Gray cast iron	Air—indoor (int)	Loss of material	External surfaces monitoring	V.A-19 (E-29)	3.2.1-32	E
Turbocharger	Pressure boundary	Aluminum	Air—indoor (int)	None	None	V.F-2 (EP-3)	3.2.1-50	G
Turbocharger	Pressure boundary	Aluminum	Exhaust gas (int)	Loss of material	Periodic surveillance and preventive maintenance	—	—	G