



Entergy Nuclear Northeast  
Indian Point Energy Center  
450 Broadway, GSB  
P.O. Box 249  
Buchanan, NY 10511-0249  
Tel (914) 254-6700

**Anthony J Vitale**  
Site Vice President

NL-17-132

November 8, 2017

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

**SUBJECT:** Notification of Deviation from Electric Power Research Institute (EPRI) Materials Reliability Program (MRP) 227-A, "Pressurized Water Reactor Internals Inspection and Evaluation Guidelines," Examination Schedule – NEI 03-08 "Needed" Work Product Element – For Information Only Indian Point Nuclear Generating Unit No. 3  
Docket No. 50-286  
License No. DPR-64

**REFERENCE:**

1. NEI 03-08, "Guidelines for the Management of Materials Issues," Revision 3, dated February, 2017
2. Entergy letter to NRC, "Notification of Permanent Cessation of Power Operations," dated February 8, 2017 (NL-17-021) (ML17044A004)

Dear Sir or Madam:

Entergy Nuclear Operations, Inc. (Entergy) is providing notification that Indian Point Unit 3 (IP3), has processed a deviation from an Nuclear Energy Institute (NEI) 03-08, "Guideline for the Management of Material Issues," Revision 3 "Needed" work product element in EPRI MRP 227-A, "Pressurized Water Reactor Internals Inspection and Evaluation Guidelines," with appropriate justification and documentation.

The specific deviation defers the implementation of the final scope of IP3 reactor vessel internals MRP-227-A examinations for one refueling cycle from the Spring 2019 (3R20) outage to the Spring 2021 (3R21) outage. Per the requirements of MRP-227-A, the "Needed" examinations shall be completed no later than two refueling outages from the beginning of the license renewal period. 3R20 (2019) is the second refueling outage after entry into the period of extended operation in December 2015. IP3 successfully executed a partial implementation of the MRP-227-A examinations during the Spring 2017 (3R19) refueling outage. This deferral does not include the baffle former bolts which were inspected during the Spring of 2017 refueling outage and will be re-inspected during the Spring of 2019 refueling outage.

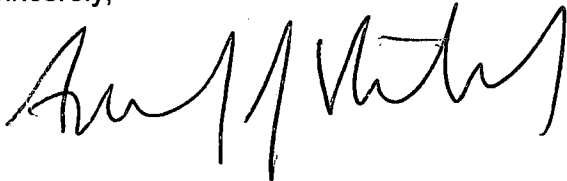
NEI 03-08 (Reference 1) allows deviation from "Needed" elements with the appropriate justification and documentation. The deviation was approved with the appropriate levels of Entergy management. A summary of the technical justification is attached.

A001  
NRR

This notification is provided for information only and no approval or action is expected.

There are no new commitments being made in this submittal. If you have any questions or require additional information, please contact Mr. Robert W. Walpole, Regulatory Assurance Manager at (914) 254-6710.

Sincerely,

A handwritten signature in black ink, appearing to read "Rob Walpole". The signature is written in a cursive style with a large initial "R" and "W".

AJV/rl

Attachment: 1. Indian Point Unit 3 Summary of Deviation

cc: Mr. Daniel H. Dorman, Regional Administrator, NRC Region I  
Mr. Richard V. Guzman, Senior Project Manager, NRC NRR DORL  
Mr. William Burton, Senior Project Manager, NRC DLR  
Ms. Bridget Frymire, New York State Department of Public Service  
Ms. Alicia Barton, President and CEO NYSERDA  
NRC Resident Inspector's Office

ATTACHMENT 1 TO NL-17-132

Indian Point Unit 3  
Summary of Deviation

ENTERGY NUCLEAR OPERATIONS, INC.  
INDIAN POINT NUCLEAR GENERATING UNIT NO. 3  
DOCKET NO. 50-286

**NEI 03-08 Materials Guidelines Deviation Protocol**

The Nuclear Energy Institute (NEI) document NEI 03-08, "Guidelines for the Management of Materials Issues," allows deviations from "Needed" work product elements with the appropriate justification and documentation. From Appendix B, Implementation Protocol, of NEI 03-08, Revision 3, the process for reporting a deviation is as follows:

**8.1.c Utility Notification of Deviations to the NRC**

*If at any time a utility does not implement any "Mandatory" or "Needed" elements of an approved guideline, the utility shall notify the NRC. The notification should occur at about the same time as the justification for deviation is sent to the IP. The NRC notification shall consist of the licensee transmitting a letter to the NRC Document Control Desk with copies to the NRC Plant Project Manager, the NRC Project Manager responsible for the IP that issued the guidance (or NRR's Division of Component Integrity if no IP PM has been identified), the NRC Site Resident Office and the NRC Regional Office. The licensee shall clearly state what they are deviating from, i.e., inspection requirements, inspection schedule, etc. of the applicable guidelines and summarize what is being done in lieu of the requirements, as necessary. In addition, the letter should be very clear to indicate that the letter is being transmitted for information only and that the licensee is not requesting any action from the NRC staff. A copy of the actual deviation and full technical evaluation is not required to be submitted with the notification.*

**Guidance Being Deviated From**

Entergy has elected to defer implementation of the final scope of Indian Point 3 (IP3) Reactor Vessel Internals MRP-227-A examinations for one refueling outage, from 3R20 in 2019 to 3R21 in 2021. The examinations are being rescheduled due to the scheduled shutdown of IP3. On January 9, 2017, Entergy entered an agreement with New York State (NYS) to permanently cease operation of IP3 no later than April 30, 2021. In light of this agreement and based on the industry experience gained performing MRP-227-A examinations, Entergy has determined that it is prudent to defer the remaining IP3 MRP-227-A examinations from 3R20 (2019) to the following outage, 3R21 (2021). Per the requirements of MRP-227-A, the "needed" examinations shall be completed no later than two refueling outages from the beginning of the license renewal period. 3R20 (2019) is the second refueling outage after entry into the period of extended operation in December 2015.

As a result of the baffle bolt inspection findings at IP2 and the issuance of Westinghouse Nuclear Safety Advisory Letter (NSAL) 16-1, "Baffle-Former Bolts" IP3 performed a partial MRP-227-A inspection of baffle assembly components during refueling outage 3R19 (2017). IP3 successfully executed a partial implementation of the MRP-227-A examinations.

<b>Completed MRP-227-A Inspections – 3R19</b>	
<b>Component</b>	<b>Exam Type</b>
<i>Baffle-Former Assembly: Baffle-edge bolts</i>	VT-3
<i>Baffle-Former Assembly: Baffle-former bolts</i>	UT
<i>Baffle-Former Assembly: Assembly (Includes: Baffle plates, baffle edge bolts, and indirect effects of void swelling in former plates)</i>	VT-3

The remaining IP3 MRP-227-A examinations originally scheduled for 3R20 (2019), which are being delayed until 3R21 (2021), are listed below.

<b>Remaining MRP-227-A Inspections</b>	
<b>Component</b>	<b>Exam Type</b>
<i>Control Rod Guide Tube Assembly: Guide plates (cards)</i>	VT-3
<i>Control Rod Guide Tube Assembly: Lower flange welds</i>	EVT-1
<i>Core Barrel Assembly: Upper core barrel flange weld</i>	EVT-1
<i>Core Barrel Assembly: Upper and lower core barrel cylinder girth welds</i>	EVT-1
<i>Core Barrel Assembly: Lower core barrel flange weld (At IPEC this weld is the lower core barrel to lower support casting weld. IPEC does not have a lower core barrel flange)</i>	EVT-1
<i>Thermal Shield Assembly: Thermal shield flexures</i>	VT-3

**Justification for the Deviation**

The following component examinations are needed to fulfill the IP3 MRP-227-A reactor internals examination requirements. All other MRP-227-A required exams were completed in 3R19 (2017) or are not required until 3R21 (2021). Indian Point 2 (IP2) inspection experience from 2016 as well as operating experience from Ginna, Kewanee, Surry U1, Surry U2, Point Beach U1, HB Robinson, Point Beach U2, Turkey Point U3, Turkey Point U4, Prairie Island U1, Prairie Island U2, Diablo Canyon U2, North Anna U1, Catawba U2, DC Cook U2, Farley U1, and Seabrook MRP-227-A examinations were reviewed for relevant findings. All these plants are Westinghouse designed plants. For age comparison, IP3 will be at approximately 30.5 EFPY during 3R20 (2019) and 32.4 EFPY during 3R21 (2021). The range of EFPY for the plants reviewed was 23.14 EFPY to 36 EFPY when MRP-227-A inspections were performed. The estimated EFPY for IP3 performing MRP-227-A exams in 3R21 (2021) is within the EFPY range of the other plants. All of the examination findings at these sites allowed for a ten year re-inspection interval. Therefore, there is a low risk that waiting another fuel cycle to complete the MRP-227-A examinations would allow significant aging degradation to develop that would be considered unacceptable for continued service. No IP3 specific historical operating practices or design differences were identified that would cause concern for having worse findings than IP2 or the other Westinghouse units. A more detailed technical evaluation and discussion is performed for each individual component below.

**Component: Control Rod Guide Tube Assembly: Guide plates (cards)**

**NEI 03-08 Inspection requirement:** The NEI 03-08 inspection requirement for the control rod guide tube assembly: guide plates (cards) is a visual (VT-3) examination no later than two refueling outages from the beginning of the license renewal period and subsequent examinations on a ten year interval. This inspection is intended to identify loss of material (wear) in the guide cards.

**IP3 Specific Discussion:** The IP3 guide cards are a 15x15 design and the control rodlet surface finish is Chrome Plated. MRP 2014-006 endorsed interim guidance to MRP-227-A reflecting the recommendations contained in WCAP-17451-P Revision 1, "Reactor Internals Guide Tube Wear – Westinghouse Domestic Fleet Operational Projections". In WCAP-17451-P Revision 1, IP3 is Plant C. WCAP-17451, Table 5-14, Plant C (IP3), recommends the initial guide card inspection between 39.4 EFPY and 44.5 EFPY. IP3 will only be at approximately 32.4 EFPY in 3R21 (2021); therefore, IP3 meets the recommendation of WCAP-17451-P Revision 1.

**IP2 Operating Experience:** These components were inspected at IP2 in 2016. The IP2 inspection report was reviewed for any findings. The IP2 guide cards are a 15x15 design and the control rodlet surface finish is Chrome Plated. No service related degradation or relevant indications were noted during the MRP-227-A inspections of the control rod guide tube assembly: guide plates (cards) at IP2. When evaluated in accordance with WCAP-17451-P Revision 1, as documented in IP2 plant specific WCAP-18128, the worst worn guide card hole location (Guide Tube B10, Guide Card 8, Hole Location E2) would not reach the yellow zone for an additional 34.7 EFPY past the inspection date, which is well past the expected end of life for IP2.

**Industry Operating Experience:** Operating experience from Ginna, Kewanee, Surry U1, Surry U2, Point Beach U1, HB Robinson, Point Beach U2, Turkey Point U3, Turkey Point U4, Prairie Island U1, Prairie Island U2, Diablo Canyon U2, North Anna U1, Catawba U2, DC Cook U2, Farley U1, and Seabrook MRP-227-A examinations were reviewed for relevant findings. A number of plants have found evidence of guide card wear. Throughout the industry, the worst wear has been observed in 17x17 plants with Ion Nitride control rodlet surface finish. As a result of the industry findings, NSAL-17-1 was issued on January 16, 2017 and IP3 was not listed as an affected plant.

**Conclusion:** Deferring the visual inspection (VT-3) of the control rod guide tube assembly: guide plates (cards) by one fuel cycle to 3R21 (2021) at IP3 is acceptable. Inspecting the IP3 guide cards in 3R21 (2021) meets the recommended initial guide card inspection contained in WCAP-17451-P Revision 1, Table 5-14 Plant C (IP3), as endorsed by MRP-2014-006. Inspections at IP2 found minimal wear after approximately 31 EFPY, with approximately 34.7 EFPY of additional operation before entering the yellow zone. The WCAP-17451-P Revision 1 recommendation is not changed by the industry operating experience for the IP3 plant configuration and IP3 is not listed as an affected plant in NSAL-17-1. Therefore, there are no concerns with deferring the visual inspection of the control rod guide tube assembly: guide plates (cards) at IP3.

**Component:** *Control Rod Guide Tube Assembly: Lower flange welds*

**NEI 03-08 Inspection requirement:** The NEI 03-08 inspection requirement for the control rod guide tube assembly: lower flange welds is an enhanced visual (EVT-1) examination no later than two refueling outages from the beginning of the license renewal period and subsequent examinations on a ten year interval. This inspection is intended to determine the presence of crack-like surface flaws in flange welds.

**IP2 Operating Experience:** These components were inspected at IP2 in 2016 and the inspection report was reviewed for any findings. None of the inspected welds were cracked and no service related degradation or relevant indications were noted during the MRP-227-A inspections of this component at IP2.

**Industry Operating Experience:** Operating experience from Ginna, Kewanee, Surry U1, Surry U2, Point Beach U1, HB Robinson, Point Beach U2, Turkey Point U3, Turkey Point U4, Prairie Island U1, Prairie Island U2, Diablo Canyon U2, North Anna U1, Catawba U2, DC Cook U2, Farley U1, and Seabrook MRP-227-A examinations were reviewed for relevant findings. No service related degradation or relevant indications were noted during the MRP-227-A inspections of these components at any similar Westinghouse plants.

**Conclusion:** Deferring the enhanced visual inspection (EVT-1) of the control rod guide tube assembly: lower flange welds by one cycle is acceptable. Inspections performed at IP2 in 2016 did

not identify concerns with these components. Inspections at similar units throughout the industry have not revealed any concerns with these components. Therefore, there are no concerns with deferring the enhanced visual inspection of the control rod guide tube assembly: lower flange welds at IP3.

**Component:** *Core Barrel Assembly: Upper core barrel flange weld*

**NEI 03-08 Inspection requirement:** The NEI 03-08 inspection requirement for the core barrel assembly: upper core barrel flange weld is an enhanced visual (EVT-1) examination no later than two refueling outages from the beginning of the license renewal period and subsequent examinations on a ten year interval. This inspection is intended to identify crack-like surface flaws in the weld.

**IP2 Operating Experience:** This weld was inspected at IP2 in 2016 and the inspection report was reviewed for any findings. No service related degradation or relevant indications were noted during the MRP-227-A inspection of this weld at IP2.

**Industry Operating Experience:** Operating experience from Ginna, Kewanee, Surry U1, Surry U2, Point Beach U1, HB Robinson, Point Beach U2, Turkey Point U3, Turkey Point U4, Prairie Island U1, Prairie Island U2, Diablo Canyon U2, North Anna U1, Catawba U2, DC Cook U2, Farley U1, and Seabrook MRP-227-A examinations were reviewed for relevant findings. No service related degradation or relevant indications were noted during the MRP-227-A inspections of this weld at any of the plants that were reviewed.

**Conclusion:** Deferring the enhanced visual inspection (EVT-1) of the core barrel assembly: upper core barrel flange weld by one cycle is acceptable. Inspections performed at IP2 in 2016 did not identify concerns with this weld. Inspections at similar units throughout the industry have not revealed any concerns with this weld. Therefore, there are no concerns with deferring the enhanced visual inspection of the core barrel assembly: upper core barrel flange weld at IP3.

**Component:** *Core Barrel Assembly: Upper and lower core barrel cylinder girth welds*

**NEI 03-08 Inspection requirement:** The NEI 03-08 inspection requirement for the core barrel assembly: upper and lower core barrel cylinder girth welds is an enhanced visual (EVT-1) examination no later than two refueling outages from the beginning of the license renewal period and subsequent examinations on a ten year interval. This inspection is intended to identify crack-like surface flaws in the welds.

**IP2 Operating Experience:** These welds were inspected at IP2 in 2016 and the inspection report was reviewed for any findings. No service related degradation or relevant indications were noted during the MRP-227-A inspections of these welds at IP2.

**Industry Operating Experience:** Operating experience from Ginna, Kewanee, Surry U1, Surry U2, Point Beach U1, HB Robinson, Point Beach U2, Turkey Point U3, Turkey Point U4, Prairie Island U1, Prairie Island U2, Diablo Canyon U2, North Anna U1, Catawba U2, DC Cook U2, Farley U1, and Seabrook MRP-227-A examinations were reviewed for relevant findings. No service related degradation or relevant indications were noted during the MRP-227-A inspections of these welds at any similar Westinghouse plants.

**Conclusion:** Deferring the enhanced visual inspection (EVT-1) of the core barrel assembly: upper and lower core barrel cylinder girth welds by one cycle is acceptable. Inspections performed at IP2 in 2016 did not identify concerns with these welds. Inspections at similar units throughout the industry have not revealed any concerns with these welds. Therefore, there are no concerns with deferring the enhanced visual inspection of the core barrel assembly: upper and lower core barrel cylinder girth welds at IP3.

**Component:** *Core Barrel Assembly: Lower core barrel flange weld*

**NEI 03-08 Inspection requirement:** The NEI 03-08 inspection requirement for the core barrel assembly: lower core barrel flange weld is an enhanced visual (EVT-1) examination no later than two refueling outages from the beginning of the license renewal period and subsequent examinations on a ten year interval. This inspection is intended to identify crack-like surface flaws in the weld.

**IP2 Operating Experience:** These components were inspected at IP2 in 2016 and the inspection report was reviewed for any findings. No service related degradation or relevant indications were noted during the MRP-227-A inspections of this weld at IP2.

**Industry Operating Experience:** Operating experience from Ginna, Kewanee, Surry U1, Surry U2, Point Beach U1, HB Robinson, Point Beach U2, Turkey Point U3, Turkey Point U4, Prairie Island U1, Prairie Island U2, Diablo Canyon U2, North Anna U1, Catawba U2, DC Cook U2, Farley U1, and Seabrook MRP-227-A examinations were reviewed for relevant findings. No service related degradation or relevant indications were noted during the MRP-227-A inspections of this weld at any similar Westinghouse plants.

**Conclusion:** Deferring the enhanced visual inspection (EVT-1) of the core barrel assembly: lower core barrel flange weld by one cycle is acceptable. Inspections performed at IP2 in 2016 did not identify concerns with this weld. Inspections at similar units throughout the industry have not revealed any concerns with this weld. Therefore, there are no concerns with deferring the enhanced visual inspection of the core barrel assembly: lower core barrel flange weld at IP3.

**Component:** *Thermal Shield Assembly: Thermal shield flexures*

**NEI 03-08 Inspection requirement:** The NEI 03-08 inspection requirement for the thermal shield assembly: thermal shield flexures is a visual (VT-3) examination no later than two refueling outages from the beginning of the license renewal period and subsequent examinations on a ten year interval. This inspection is intended to identify cracking or loss of materials that results in excessive wear, fracture, or complete separation of the thermal shield flexures.

**IP2 Operating Experience:** These components were inspected at IP2 in 2016 and the inspection report was reviewed for any findings. No service related degradation or relevant indications were noted during the MRP-227-A inspections of these components at IP2.

**Industry Operating Experience:** Operating experience from Ginna, Kewanee, Surry U1, Surry U2, Point Beach U1, HB Robinson, Point Beach U2, Turkey Point U3, Turkey Point U4, Prairie Island U1, Prairie Island U2, Diablo Canyon U2, North Anna U1, Catawba U2, DC Cook U2, Farley U1, and Seabrook MRP-227-A examinations were reviewed for relevant findings. No service



related degradation or relevant indications were noted during the MRP-227-A inspections of these components at any similar Westinghouse plants.

**Conclusion:** Deferring the visual inspection (VT-3) of the thermal shield assembly: thermal shield flexures by one cycle is acceptable. Inspections performed at IP2 in 2016 did not identify concerns with these components. Inspections at similar units throughout the industry have not revealed any concerns with these components. Therefore, there are no concerns with deferring the visual inspection of the thermal shield assembly: thermal shield flexures at IP3.

**Actions Undertaken in Lieu of the Guidance**

As discussed above, the remaining MRP-227-A inspections of the IP3 reactor vessel internals components will be conducted in the 3R21 (2021) refueling outage. The technical justification does not require any additional actions to be taken.