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CNRO-2016-00005

February 25, 2016

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

SUBJECT: Response to Request for Additional Information Pertaining to a Change to the Entergy Quality Assurance Program Manual (QAPM)

Arkansas Nuclear One, Units 1 & 2  
Docket Nos. 50-313, 50-368, & 72-13  
License Nos. DPR-51 & NPF-6

Indian Point Nuclear Power Plant, Units 1, 2, & 3  
Docket Nos. 50-003, 50-247, 50-286, & 72-51  
License Nos. DPR-05, DPR-26, & DPR-64

Grand Gulf Nuclear Station  
Docket Nos. 50-416 & 72-50  
License No. NPF-29

Big Rock Point Nuclear Plant-ISFSI  
Docket Nos. 50-155 & 72-43  
License No. DPR-6

River Bend Station  
Docket Nos. 50-458 & 72-49  
License No. NPF-47

James A. FitzPatrick Nuclear Power Plant  
Docket Nos. 50-333 & 72-12  
License No. DPR-59

Waterford 3 Steam Electric Station  
Docket Nos. 50-382 & 72-75  
License No. NPF-38

Palisades Nuclear Power Plant  
Docket Nos. 50-255 & 72-07  
License No. DPR- 20

Pilgrim Nuclear Power Station  
Docket Nos. 50-293 & 72-1044  
License No. DPR-35

- REFERENCES:
1. Entergy Letter to the NRC, *Request for Approval of Change to the Entergy Quality Assurance Program Manual (QAPM)*, dated November 6, 2015
  2. E-mail from Richard Guzman, NRC, to Edward Harris, Entergy, *RE: Request for Approval to the Entergy Quality Assurance Program Manual (Fleet Submittal CAC Nos. MF7086-MF7087) - Draft Request for Additional Information*, dated January 6, 2016

Dear Sir or Madam:

Via Reference 1, Entergy Operations, Inc. and Entergy Nuclear Operations, Inc. (collectively referred to as "Entergy") submitted to the NRC for approval a change to the Entergy Quality Assurance Program Manual (QAPM). The proposed change represents a reduction in

commitment pursuant to 10 CFR 50.54(a)(4). Via Reference 2, the NRC transmitted to Entergy a Request for Additional Information (RAI) pertaining to Entergy's request.

The responses to the RAI are provided in the attachment to this letter.

Should you have any questions, please contact Mr. Ed Harris, Manager, QA at (601) 368-5649.

Yours truly,

A handwritten signature in black ink, appearing to be 'MP/EDH/NWE/ghd', written in a cursive style.

MP/EDH/NWE/ghd

Attachment: Responses to NRC Request for Additional Information

cc: T. G. Mitchell (ECH)  
J. A. Ventosa (IPEC)  
D. Jacobs (ECH)  
M. W. Woodby (ECH)  
J. F. McCann (ECH)  
J. G. Browning (ANO)  
K. J. Mulligan (GGNS)  
E. W. Olson (RBS)  
M. R. Chisum (W3)  
L. M. Coyle (IPEC)  
B. R. Sullivan (JAF)  
J. A. Dent (PNP)  
A. J. Vitale (PAL)  
E. D. Harris (ECH)  
D. J. Mannai (WPO)  
B. S. Ford (ECH)  
N. W. Ernst (ECH)

NRC Region I Administrator  
NRC Region III Administrator  
NRC Region IV Administrator  
NRC PM (ANO)  
NRC PM (GGNS)  
NRC PM (RBS)  
NRC PM (W3)  
NRC PM (IPEC)  
NRC PM (JAF)  
NRC PM (PAL)  
NRC PM (PNP)  
NRC Senior Resident Inspector (ANO)  
NRC Senior Resident Inspector (GGNS)  
NRC Senior Resident Inspector (RBS)  
NRC Senior Resident Inspector (W3)  
NRC Senior Resident Inspector (IPEC)  
NRC Senior Resident Inspector (JAF)  
NRC Senior Resident Inspector (PAL)  
NRC Senior Resident Inspector (PNP)

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**ATTACHMENT**

**RESPONSES TO NRC REQUEST FOR ADDITIONAL INFORMATION**

## **RESPONSES TO NRC REQUEST FOR ADDITIONAL INFORMATION**

### **RAI-1**

Title 10, Part 50, of the Code of Federal Regulations (10 CFR Part 50), “Domestic Licensing of Production and Utilization Facilities,” Part 50.54 “Conditions of licenses,” “(jj) Structures, systems, and components subject to the codes and standards in 10 CFR 50.55a must be designed, fabricated, erected, constructed, tested, and inspected to quality standards commensurate with the importance of the safety function to be performed.” Part 50.55a, “Codes and standards,” states that a licensee meet the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, as applicable.

ASME Boiler and Pressure Vessel Code Case N-384-1, “Use of Prepackage General Purpose Cement Grouts, Epoxy Grouts, and Epoxy Bonding Materials,” Section III, Division 2, Class CC, states in part that, “for Section III, Division 2, construction, it is permissible to use prepackaged general purpose cement grouts, in lieu of site mixed (proportioned) materials, provided that products used as grout are tested for strength in accordance with the strength requirements for grout in Table CC-5200-1.”

Per Entergy Change Notice 2015-00023, “the proposed deletion reduces the commitment established in the consolidated Quality Assurance Program Manual (QAPM) as approved by the NRC via Safety Evaluation Report dated November 6, 1998, which included section K.3 in Table 1. Elimination of the requirement to perform compressive strength testing for prepackaged non-shrink grout is based on an ASME inquiry for testing requirements of prepackaged non-shrink grout. The ASME responded via QA92-003, that testing of prepackage non-shrink grout did not fall under the jurisdiction of Table B of ANSI N45.2.5, ‘Supplementary Quality Assurance requirements for Installation, Inspection and Testing of Structural Concrete and Structural Steel during the Construction Phase of Nuclear Power Plants,’ dated 1974.”

Provide clarification as to whether Code Case N-384-1 was considered and how Entergy incorporates the requirements of ASME Section III, Division 2, in its QAPM.

### **Response**

ASME Code Case N-384-1 was not considered because the QAPM is not the document that specifies or governs codes of record for construction, those being documented in the site’s Updated Final Safety Analysis Report (UFSAR) and reference specifications.

On January 13, 2016, representatives from Entergy and the NRC discussed the proposed change to the QAPM in a telephone conference call. During that call, the NRC asked Entergy to provide each plant’s major codes of record for concrete and grout. This information is provided in the table below along with applicable FSAR sections. (Please note: Big Rock Point and IP1 are not included in the table since they both have been decommissioned.)

Site	Major Code(s) of Record for Concrete & Grout	FSAR Section(s)
ANO-1	<ul style="list-style-type: none"> <li>• ACI 301-66, "Specifications for Structural Concrete for Buildings"</li> <li>• ACI 318-63, "Building Code Requirements for Reinforced Concrete"</li> <li>• ASME Section III, Division 2, 1989 Edition/No Addenda               <ul style="list-style-type: none"> <li>○ Used for mechanical splicing reinforcing steel associated with the once-through steam generator/reactor vessel closure head</li> </ul> </li> </ul>	5.1.8 5.2.1.3.1
ANO-2	<ul style="list-style-type: none"> <li>• ACI 301-66</li> <li>• ACI 318-63</li> <li>• RG 1.55, Rev. 0, 1973</li> </ul>	3.8.1.2.1 3.8.1.6.1.6
GGNS	ACI 318-71	3.8.1.2.2.1.b
IP-2	ACI 318-63	5.1.3.1
IP-3	ACI 318-63	5.1.1.1 5.1.1.5
JAF	<ul style="list-style-type: none"> <li>• ACI 318-63</li> <li>• ACI-301</li> </ul>	12.4.8.a 12.4.9
PLP	<ul style="list-style-type: none"> <li>• ACI 318-63</li> <li>• ACI 301-66</li> </ul>	Table 5.2-2 5.9.1.1.1
PNP	<ul style="list-style-type: none"> <li>• RG 1.55, Rev. 0, 1973</li> <li>• ACI 318-63</li> <li>• ACI 318-71</li> </ul>	1.10.4 12.2.2.12 Appendix O, O.4.3.4 and O.4.4.1
RBS	<ul style="list-style-type: none"> <li>• ACI 318-71 and its 1974 Supplement, "Building Code Requirements for Reinforced Concrete with Ultimate Strength Design Application"</li> <li>• RG 1.55, Rev. 0, 1973</li> <li>• CC-3000 of ASME Code, Section III, Division 2 (1977)               <ol style="list-style-type: none"> <li>1. The concrete pressure-resisting portions of the drywell wall and top slab are designed in accordance with Article CC-3000 of ASME Section III, Division 2, (1977 Edition)</li> </ol> </li> </ul>	3.8.3.2 3.8.3.5 3.8.4.2 3.8.4.4 3.8.5.5
W3	<ul style="list-style-type: none"> <li>• ACI 318-63, Part IV B</li> <li>• ACI 318-71</li> <li>• ACI 301-66</li> <li>• ACI 301-72</li> <li>• RG 1.55, Rev. 0, 1973</li> </ul>	3.8.3.2.1.a 3.8.3.2.2.f 3.8.4.4.1.a 3.8.3.6.1.3

**RAI-2**

In 10 CFR 50.34(h)(3), "Conformance with the standard review plan (SRP)," it states that "the SRP was issued to establish criteria that the NRC staff intends to use in evaluating whether an applicant/licensee meets the Commission's regulations."

NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Chapter 3, "Design of Structures, Components, Equipment, and Systems," and Chapter 17, "Quality Assurance," subsections references several Regulatory Guides (RGs) as well as codes and standards such as the following - but not limited to:

- RG 1.55, "Concrete Placement in Category I Structures"
- RG 1.94, "Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants"
- RG 1.107, "Qualifications for Cement Grouting for Prestressing Tendons in Containment Structures"
- RG 1.136 "Design Limits, Loading Combinations, Materials, Construction, and Testing of Concrete Containments"
- ASME Section III, "Rules for Construction of Nuclear Power Plant Components," Division 2, "Code for Concrete Reactor Vessels and Containments"

Per Entergy Change Notice 2015-00023, it is stated that "the proposed change to the QAPM, as revised and noted, continues to satisfy the requirements of 10 CFR 50 Appendix B and the RGs and ANSI Standards referenced in the QAPM Table of Contents and QAPM Attachment, Table 1."

The NRC staff was unable to ascertain whether the aforementioned ASME code and RGs were considered prior to the change notice submittal. Provide clarification on how Entergy incorporates these RGs and applicable codes and standards in the QAPM.

### **Response**

Each nuclear facility identifies ASME Codes, standards, and RGs to which it is committed in the facility's UFSAR and reference specifications. As stated in the response to RAI 1, above, the QAPM is not the document that specifies or governs codes of record for construction.

Entergy has committed to comply with the QA guidance documents listed in Table 1 of the QAPM. Of the RGs listed above, only the exception specified in Item K.3 of QAPM Table 1, Section K for RG 1.94 (applied to ANSI 45.2.5, Table B) is affected by this proposed change; any regulatory commitments to other RGs remain unaltered. With this proposed change, Entergy removes the exception applied to ANSI 45.2.5 Table B and, thereby, continues to comply with the requirements specified in Table B without exception. Entergy's nuclear facilities will continue to comply with those codes for testing pre-packaged grout to which they are committed.