



Tanya M. Hamilton
Vice President
Harris Nuclear Plant
5413 Shearon Harris Road
New Hill, NC 27562-9300

10 CFR 50.90

February 16, 2018
Serial: HNP-18-020

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

Shearon Harris Nuclear Power Plant, Unit 1
Docket No. 50-400/Renewed License No. NPF-63

Subject: Supplement to Response to Request for Additional Information Regarding
License Amendment Request For Spent Fuel Storage Pool Criticality Analyses

Reference:

1. Duke Energy letter, Shearon Harris Nuclear Power Plant, Unit 1, *Response to Request for Additional Information Regarding License Amendment Request For Spent Fuel Storage Pool Criticality Analyses (CAC No. MF9996; EPID L-2017-LLA-0303)*, dated January 18, 2018 (Agencywide Document Access and Management System (ADAMS) Accession Nos. ML18018B974, ML18018B975).

Ladies and Gentlemen:

By application dated June 28, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17193B165), Duke Energy Progress, LLC (Duke Energy), submitted a license amendment request (LAR) for Shearon Harris Nuclear Power Plant, Unit 1 (HNP), regarding spent fuel storage pool criticality analyses.

The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the LAR and determined that additional information was needed to complete their review. Duke Energy received requests for additional information (RAIs) from the NRC by letters dated December 20, 2017 (ADAMS Accession No. ML17339A566), and January 8, 2018 (ADAMS Accession No. ML18005A548). Responses to these requests were provided in Reference 1.

Duke Energy has been requested to provide a nonproprietary version of Attachment 2 of the Reference 1 Enclosure. This nonproprietary copy is provided as Attachment 1 to this letter.

The content of this supplemental correspondence does not change the No Significant Hazards Consideration provided in Reference 1.

No regulatory commitments are contained in this letter.

In accordance with 10 CFR 50.91(b), HNP is providing the state of North Carolina with a copy of this supplemental correspondence.

Should you have any questions regarding this submittal, please contact Jeffrey Robertson, HNP Regulatory Affairs Manager, at (919) 362-3137.

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

Executed on February 16, 2018.

Sincerely,

A handwritten signature in cursive script, appearing to read "Tanya M. Hamilton".

Tanya M. Hamilton

Attachment:

1. Holtec International Report No. HI-2167295, "Structural Evaluation of Harris Dream Insert," Revision 3 (Nonproprietary)

cc: J. Zeiler, NRC Senior Resident Inspector, HNP
W. L. Cox, III, Section Chief N.C. DHSR
M. Barillas, NRC Project Manager, HNP
C. Haney, NRC Regional Administrator, Region II

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cc: J. Zeiler, NRC Senior Resident Inspector, HNP
W. L. Cox, III, Section Chief N.C. DHSR
M. Barillas, NRC Project Manager, HNP
C. Haney, NRC Regional Administrator, Region II

SERIAL HNP-18-020

ATTACHMENT 1

**HOLTEC INTERNATIONAL REPORT NO. HI-2167295, "STRUCTURAL EVALUATION OF
HARRIS DREAM INSERT," REVISION 3 (NONPROPRIETARY)**

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

RENEWED LICENSE NUMBER NPF-63

22 PAGES PLUS COVER

STRUCTURAL EVALUATION OF HARRIS DREAM INSERT

FOR

SHEARON HARRIS NUCLEAR PLANT

Holtec Report No: HI-2167295

Holtec Project No: 2635

Sponsoring Holtec Division: NPD

Report Class : SAFETY RELATED

COMPANY PRIVATE



TABLE OF CONTENTS

TABLE OF CONTENTS.....	i
SUMMARY OF REVISIONS.....	ii
1.0 PURPOSE AND SCOPE.....	1
2.0 METHODOLOGY	1
3.0 ACCEPTANCE CRITERIA.....	1
4.0 ASSUMPTIONS.....	2
5.0 INPUT DATA.....	3
6.0 COMPUTER CODES.....	5
7.0 CALCULATIONS.....	5
7.1 Normal Handling Condition	5
7.2 Deflection of L-Shaped Cross Section.....	8
7.3 Seismic Conditions	10
7.4 Buckling Analysis.....	12
7.5 Withdrawal Analysis.....	14
8.0 COMPUTER FILES	15
9.0 CONCLUSIONS.....	15
10.0 REFERENCES	15

APPENDIX A – APPROVED COMPUTER PROGRAM LIST (4 pages)

APPENDIX B – MATERIAL PROPERTY DATA FOR METAMIC (3 pages)

SUMMARY OF REVISIONS

Revision 0: [REDACTED]

Revision 1: [REDACTED] () [REDACTED]
[REDACTED]

Revision 2: [REDACTED]
[REDACTED]
[REDACTED]

Revision 3: [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

|

1.0 PURPOSE AND SCOPE

The spent fuel racks in the Shearon Harris Nuclear Plant pools contain Boraflex, which over time tends to degrade and loses its neutron absorbing capability. To offset the loss of Boraflex, Duke Energy (Duke) plans to install DREAM inserts in the interstitial spaces between the stored fuel assemblies and the rack cell walls. The DREAM inserts are manufactured from aluminum and Metamic. The dimensions of the inserts are provided in [1].

The purpose of this calculation is to evaluate the structural integrity of the inserts under normal operating (i.e., installation and handling) and accident condition (i.e., seismic event) loads. [REDACTED]

2.0 METHODOLOGY

- [REDACTED]
- a) [REDACTED]
 - b) [REDACTED]
 - c) [REDACTED]
 - d) [REDACTED]
 - e) [REDACTED]

3.0 ACCEPTANCE CRITERIA

The aluminum to aluminum weld at the top of the DREAM insert, where the support blocks are welded to the locating dowels, shall be qualified according to ASME Subsection NF stress limits [4]. [REDACTED]

[REDACTED]

[REDACTED]

4.0 ASSUMPTIONS

The following assumptions are made in this report:

4.1. [REDACTED]

4.2. [REDACTED]

4.3. [REDACTED]

4.4. [REDACTED]

4.5. [REDACTED]

4.6. [REDACTED]

4.7. [REDACTED]

4.8 [REDACTED]

[REDACTED]

5.0 INPUT DATA

[illegible]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

[illegible]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED] [REDACTED] [REDACTED]

[REDACTED]

[REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED]

[REDACTED]

[REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED]

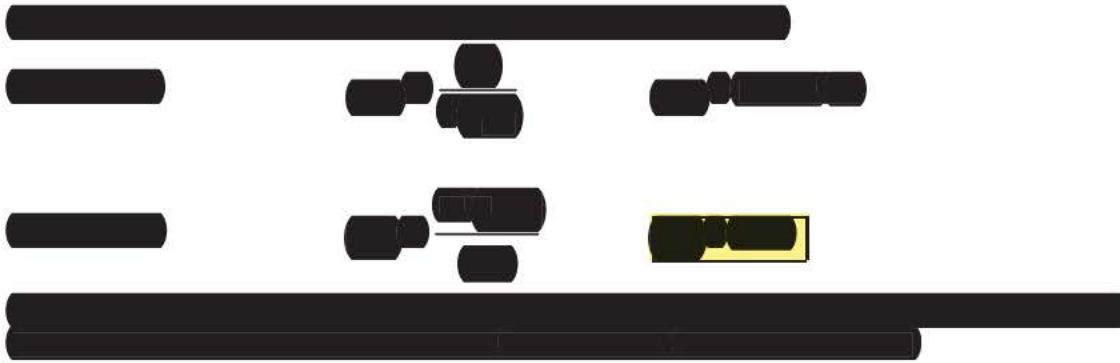
[REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED]

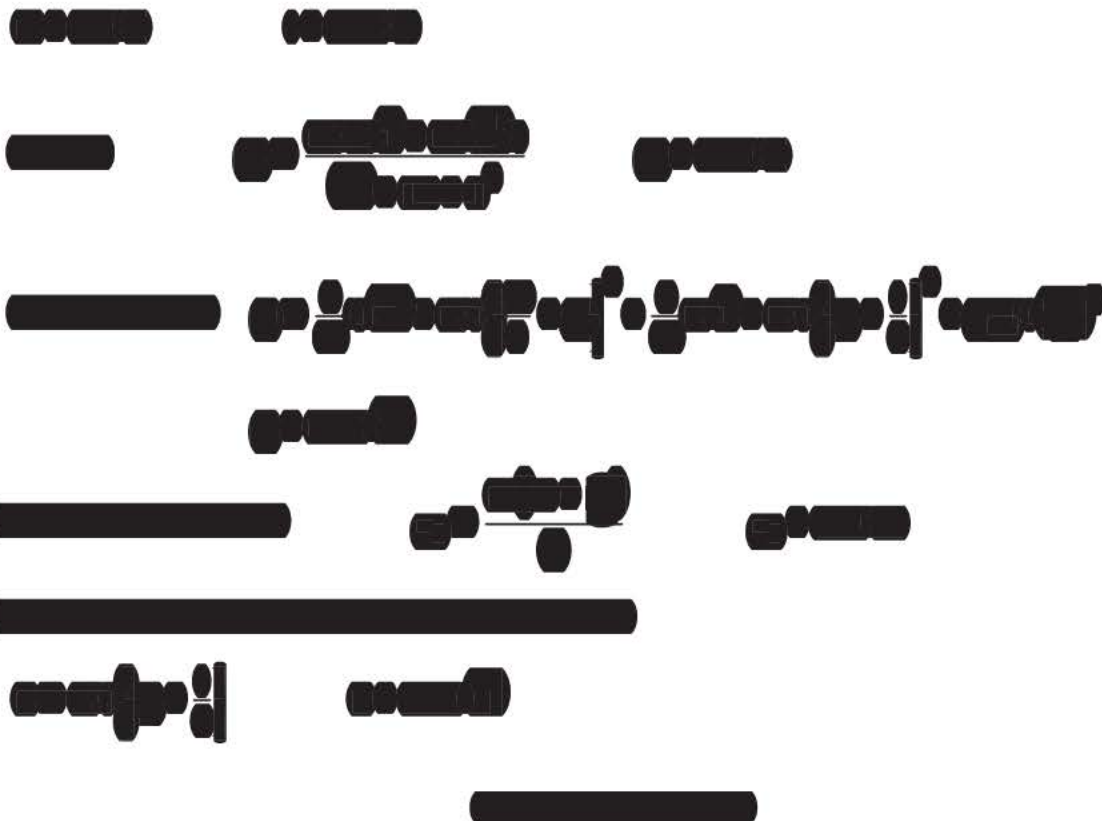
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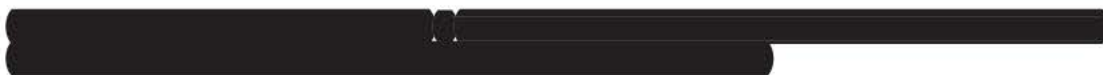
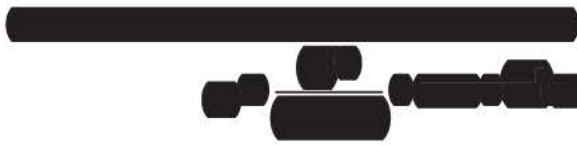
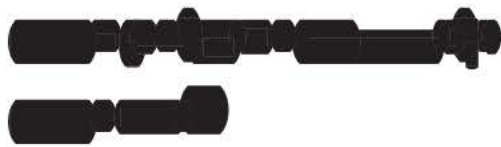
[REDACTED] [REDACTED] [REDACTED]

[REDACTED]



t





[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[REDACTED]

[REDACTED]

[REDACTED]



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

7.4

7.4.1



7.4.2 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

7.5

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED]

[REDACTED] [REDACTED] [REDACTED] v_0 [REDACTED]

[REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED]

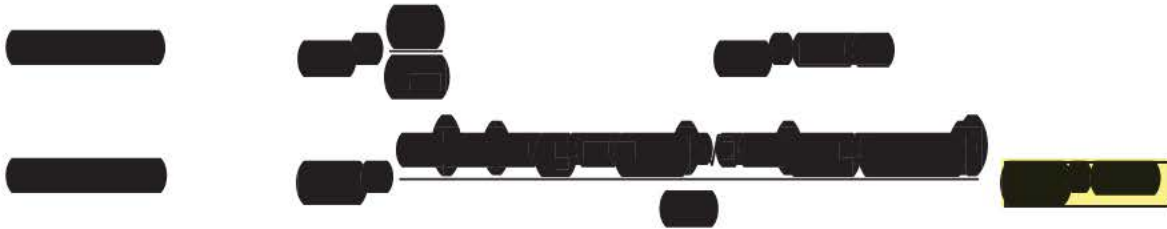
[REDACTED] [REDACTED] [REDACTED]

[REDACTED] [REDACTED] [REDACTED] [REDACTED]

[REDACTED]

[REDACTED] [REDACTED] [REDACTED]

[REDACTED]



8.0

[REDACTED]

9.0 CONCLUSIONS

[REDACTED]

The DREAM inserts are found to be structurally adequate to perform their intended design function under both normal and seismic conditions.

10.0 REFERENCES

1. [REDACTED]
2. [REDACTED]
3. [REDACTED]
4. [REDACTED]
5. [REDACTED]
6. [REDACTED]
7. [REDACTED]

- [Redacted]
- [Redacted]
[Redacted]
- [Redacted]
- [Redacted]
[Redacted]
- [Redacted]
[Redacted]
- [Redacted]
[Redacted]

APPENDIX B – MATERIAL PROPERTY DATA FOR METAMIC

