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Indiana Michigan Power  
Cook Nuclear Plant  
One Cook Place  
Bridgman, MI 49106  
IndianaMichiganPower.com

September 15, 2016

AEP-NRC-2016-78  
10 CFR 50.90

Docket Nos.: 50-315  
50-316

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

Donald C. Cook Nuclear Plant Unit 1 and Unit 2  
Supplement to the License Amendment Request to Adopt TSTF-490, Revision 0,  
"Deletion of E Bar Definition and Revision to Reactor Coolant System  
Specific Activity Technical Specification" and Implement Full-Scope  
Alternative Source Term

References:

1. Letter from J. P. Gebbie, Indiana Michigan Power Company (I&M), to U. S. Nuclear Regulatory Commission (NRC) Document Control Desk, "Donald C. Cook Nuclear Plant, Units 1 and 2, License Amendment Request to Adopt TSTF-490, Revision 0, "Deletion of E Bar Definition and Revision to Reactor Coolant System Specific Activity Technical Specification" and Implement Full-Scope Alternative Source Term, dated November 14, 2014, Agencywide Documents Access and Management System Accession Number ML 14324A209.

By Reference 1, Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant Unit 1 and Unit 2, requested a license amendment to adopt Technical Specifications Task Force (TSTF)-490 and implement full-scope alternative source term. As a result of discussion between I&M and U. S. Nuclear Regulatory Commission staff, it was determined that a supplement to Reference 1 was needed to clarify the definition of Dose Equivalent Xenon (Xe)-133, as described in TSTF-490.

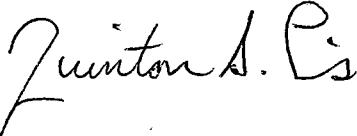
This letter provides the supplemental information. Enclosure 1 to this letter provides an affirmation statement pertaining to the information contained herein. Enclosure 2 contains the revised mark-up for the Unit 1 Technical Specifications (TS) 1.1 definition of Dose Equivalent Xe-133 and Enclosure 3 contains the revised mark-up for the Unit 2 TS 1.1 definition of Dose Equivalent Xe-133.

The conclusions reached in the original determination that this License Amendment Request contains No Significant Hazards Considerations and the basis for the categorical exclusion from performing an Environmental Impact Statement have not changed as a result of this supplement.

ADD  
NRR

There are no new regulatory commitments made in this letter. Should you have any questions, please contact Mr. Michael K. Scarpello, Regulatory Affairs Manager, at (269) 466-2649.

Sincerely,



Q. Shane Lies  
Site Vice President

TLC/ml

Enclosures:

1. Affirmation
2. Donald C. Cook Nuclear Plant Unit 1 Technical Specification Page Marked to Show Proposed Changes
3. Donald C. Cook Nuclear Plant Unit 2 Technical Specification Page Marked to Show Proposed Changes

c: R. J. Ancona, MPSC  
A. W. Dietrich, NRC Washington DC  
MDEQ – RMD/RPS  
NRC Resident Inspector  
C. D. Pederson, NRC Region III  
A. J. Williamson – AEP Ft. Wayne, w/o enclosures

Enclosure 1 to AEP-NRC-2016-78

AFFIRMATION

I, Q. Shane Lies, being duly sworn, state that I am Site Vice President of Indiana Michigan Power Company (I&M), that I am authorized to sign and file this request with the U. S. Nuclear Regulatory Commission on behalf of I&M, and that the statements made and the matters set forth herein pertaining to I&M are true and correct to the best of my knowledge, information, and belief.

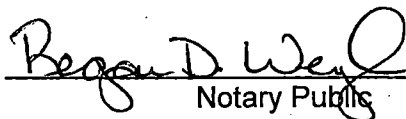
Indiana Michigan Power Company



Q. Shane Lies  
Site Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 15<sup>th</sup> DAY OF September 2016

  
\_\_\_\_\_  
Notary Public

My Commission Expires 01/21/2018

**Enclosure 2 to AEP-NRC-2016-78**

**Donald C. Cook Nuclear Plant Unit 1 Technical Specification Page Marked to Show  
Proposed Changes**

1.1 Definitions

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DOSE EQUIVALENT XE-133 DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138 actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT XE-133 shall be performed using effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, 1993, "External Exposure to Radionuclides in Air, Water, and Soil."

~~$\bar{E}$  AVERAGE DISINTEGRATION ENERGY~~  ~~$\bar{E}$  shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > 15 minutes, making up at least 95% of the total noniodine activity in the coolant.~~

**Enclosure 3 to AEP-NRC-2016-78**

**Donald C. Cook Nuclear Plant Unit 2 Technical Specification Page Marked to Show  
Proposed Changes**

## 1.1 Definitions

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DOSE EQUIVALENT XE-133 DOSE EQUIVALENT XE-133 shall be that concentration of XE-133 (microcuries per gram) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides Kr-85m, Kr-85, Kr-87, Kr-88, Xe-131m, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138 actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT XE-133 shall be performed using effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, 1993, "External Exposure to Radionuclides in Air, Water, and Soil."

~~$\bar{E}$  AVERAGE DISINTEGRATION ENERGY~~  ~~$\bar{E}$  shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives > 15 minutes, making up at least 95% of the total noniodine activity in the coolant.~~