

Indiana Michigan
Power Company
500 Circle Drive
Buchanan, MI 49107 1395



October 31, 2003

AEP:NRC:3034
10 CFR 54

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

SUBJECT: Donald C. Cook Nuclear Plant Units 1 and 2
Docket No. 50-315 and 50-316
Application for Renewed Operating Licenses

REFERENCE: Letter from M. W. Rencheck, Indiana Michigan Power Company, to U. S. Nuclear Regulatory Commission Document Control Desk, "Donald C. Cook Nuclear Plant Units 1 and 2 Advance Notice of Intent to Pursue License Renewal," C0901-12, dated September 26, 2001

Dear Sir or Madam:

Pursuant to U. S. Nuclear Regulatory Commission (NRC) regulations set forth in 10 CFR Parts 50, 51, and 54, Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant (CNP), Units 1 and 2 (Facility Operating Licenses DPR-58 and DPR-74, respectively), hereby applies for the renewal of the Facility Operating Licenses for CNP Units 1 and 2. The current Facility Operating License for CNP Unit 1 expires at midnight on October 25, 2014. The current Facility Operating License for CNP Unit 2 expires at midnight on December 23, 2017. By this license renewal application, I&M seeks to extend the term of each operating license by 20 years beyond its current expiration date. This application also seeks renewal of the source material, special nuclear material, and by-product material licenses that are subsumed in or combined with each of the Facility Operating Licenses.

The CNP License Renewal Application (LRA) is submitted in accordance with the applicable requirements of 10 CFR Part 54, 10 CFR Part 50, and Subpart A of 10 CFR Part 51. This application meets the timeliness requirements of 10 CFR 2.109(b) and 10 CFR 54.17(c) and provides appropriate administrative, technical and environmental information sufficient to support the NRC findings required by 10 CFR 54.29.

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I&M will support the NRC review activities as a pilot plant in the License Renewal "Class of 2003" per the request of the NRC Staff. The application has been prepared in a format compatible with NUREG-1800, *Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants*, issued July 2001, and in accordance with the "Class of 2003" Standard License Renewal Application Format. NUREG-1801, *Generic Aging Lessons Learned Report*, published July 2001, is referenced in the application. In addition, I&M used guidance provided in NEI 95-10, *Industry Guideline for Implementing the Requirements of 10 CFR 54 - The License Renewal Rule*, Revision 3, NUREG-1437, *Generic Environmental Impact Statement for License Renewal of Nuclear Plants* (May 1996), and applicable interim staff guidance documents.

Preparation of this license renewal application involved the detailed review of plant systems, structures, and components, which were then subjected to further evaluation as part of the aging management review. Additionally, an extensive review of the design and licensing basis was performed to identify long-lived components. As appropriate, these components were subjected to analysis and/or an aging management program in support of continued safe operation into the extended operating period.

The aging management reviews identified structures and components to be included in the scope of aging management programs. The reviews identified 12 new aging management programs and enhancements to 16 other station programs to provide reasonable assurance that the effects of aging will be adequately managed such that the intended functions of systems, structures and components will be maintained during the extended period of operation. Each new program and program enhancement has been entered in the CNP commitment management program and will be planned to assure the resources and schedules for implementation are consistent with continued plant operation during the renewal term.

During the performance of the environmental review, I&M did not identify any new or significant information that would either invalidate NRC Category 1 findings in NUREG-1437 or identify any new issues requiring evaluation. A review of the applicable Category 2 issues determined the impacts of CNP's license renewal to be small. Therefore, license renewal of the CNP does not have any significant environmental impacts.

These activities were undertaken by a dedicated License Renewal Team with experience in operations, maintenance, and engineering. In order to ensure quality, the LRA was subjected to the same rigor as a license amendment

request, as well as an additional review of the final product by an independent consultant.

As required by 10 CFR 54.21(a), actions have been identified that have been or will be taken to demonstrate that the effects of aging will be adequately managed consistent with the current design and licensing basis for the period of extended operation. Pursuant to 10 CFR 54.21(b), current licensing basis changes that have a material effect on the content of this application will be identified in annual updates to this application. Annual updates will be submitted while the application is under NRC review, and at least three months prior to the scheduled completion of the NRC review.

The following enclosures and attachments are provided with this letter:

- Enclosure 1 provides an oath and affirmation affidavit.
- Enclosure 2 is a compact disc (CD) containing the entire LRA, including the Applicant's Environmental Report (ER) suitable for posting on the NRC website.
- Enclosure 3 is a CD containing the entire LRA, including the ER, and a copy of this signed cover letter, to facilitate entry into the NRC's record retrieval system, ADAMS.

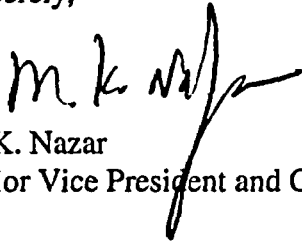
- Attachment 1 provides a summary list of regulatory commitments made in this application. LRA Appendix B provides additional detail.
- Attachment 2 provides a paper copy of the CNP LRA, including the ER.

To facilitate NRC review of the application, I&M is providing 80 additional copies of the entire LRA, including the ER, and supporting information via CDs. These CDs are formatted in a manner that is consistent with guidance provided in NRC Regulatory Issue Summary (RIS) 2001-05, "*Guidance on Submitting Documents to the NRC by Electronic Information Exchange or on CD-ROM.*" The CDs contain hyperlinks within the application and between the application and the Updated Final Safety Analysis Report and other reference materials, which are included for information only on these CDs. "Information Only" copies of the license renewal drawings used in the scoping phase of the license renewal project will be submitted under separate cover.

To enhance public access to this application, I&M is transmitting a paper copy of the LRA, including the ER, to the Bridgman Public Library in Bridgman, Michigan, and the St. Joseph Maud Preston Palenske Memorial Library in St. Joseph, Michigan.

Should you have any questions, please contact Mr. Richard J. Grumbir, Project Manager, License Renewal, at (269) 697-5141.

Sincerely,



M. K. Nazar
Senior Vice President and Chief Nuclear Officer

RS/rdw

Enclosures:

1. Notarized Oath and Affirmation Statement
2. CD-ROM, "Donald C. Cook License Renewal Application" (NRC website)
3. CD-ROM, "Donald C. Cook License Renewal Application" (ADAMS)

Attachments:

1. List of Regulatory Commitments
2. Donald C. Cook Nuclear Plant License Renewal Application, including Applicant's Environmental Report

c: Without enclosures and attachments

K. D. Curry, AEP Ft. Wayne

J. T. King, MPSC

K. Lagory, Argonne National Laboratory (10 copies of Information Only CD)

MDEQ - WHMD/HWRPS

NRC Resident Inspector

R. H. Schaaf, NRC Washington DC

M. A. Shuaibi, NRC Washington DC

Without Enclosures 2 and 3

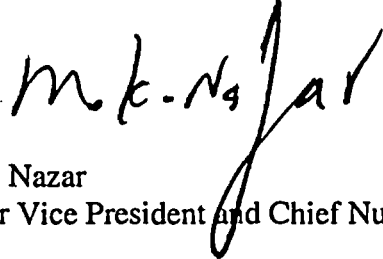
J. L. Caldwell, NRC Region III (1 copy of Information Only CD)

J. H. Eads, NRC Washington DC (69 copies of Information Only CD)

AFFIRMATION

I, Mano K. Nazar, being duly sworn, state that I am Senior Vice President and Chief Nuclear Officer of American Electric Power Service Corporation and Vice President of Indiana Michigan Power Company (I&M), that I am authorized to sign and file this request with the 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.

American Electric Power Service Corporation



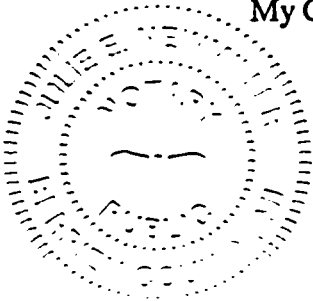
M. K. Nazar
Senior Vice President and Chief Nuclear Officer

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 31st DAY OF October, 2003
Julie E. Newmiller
Notary Public

My Commission Expires 8-22-2004

JULIE E. NEWMILLER
Notary Public, Berrien County, MI
My Commission Expires Aug 22, 2004



ATTACHMENT 1 TO AEP:NRC:3034

LIST OF REGULATORY COMMITMENTS

The following table summarizes those actions committed to by Indiana Michigan Power Company (I&M) in this document. Implementation of these commitments will afford Donald C. Cook Nuclear Plant (CNP) staff guidance in managing aging effects. Additional detail can be found in Appendix B of the License Renewal Application. Any other actions discussed in this submittal represent intended or planned actions by I&M. They are described to the Nuclear Regulatory Commission (NRC) for information and are not regulatory commitments.

Commitment	Date
<p>The Alloy 600 Aging Management Program will be implemented prior to the period of extended operation. This program will manage aging effects of Alloy 600/690 components and Alloy 52/152 and 82/182 welds in the reactor coolant system that are not addressed by other aging management programs. This program will detect cracking from primary water stress corrosion cracking prior to the loss of component intended function by using the examination and inspection requirements specified in American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI.</p>	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The following enhancements to the Boric Acid Corrosion Prevention Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • The program scope will be revised to address electrical components in addition to ferrite steel. • The program acceptance criteria will be revised to address electrical components in addition to ferrite steel. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The Buried Piping Inspection Program will be implemented prior to the period of extended operation. The program will include (a) preventive measures to mitigate corrosion and (b) periodic inspections to manage the effects of corrosion on the pressure-retaining capability of buried carbon steel piping and tanks. Preventive measures will be in accordance with standard industry practice for maintaining external coatings and wrappings. Buried piping and tanks will be inspected when they are excavated during maintenance.</p>	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>

Commitment	Date
<p>The Cast Austenitic Stainless Steel (CASS) Evaluation Program will be implemented prior to the period of extended operation. The program will include a determination of the susceptibility of the CASS components to thermal aging embrittlement based on casting method, molybdenum content, and percent ferrite. Prior to the period of extended operation, CNP will develop aging management program details (for example, plans for additional volumetric inspections or flaw tolerance evaluations) for the reactor coolant system piping heats of material that are susceptible to reduction of fracture toughness.</p>	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The following enhancements to the Fire Protection Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • In the CO₂ and halon procedures, ensure that conditions that may affect the performance of the system (such as corrosion, mechanical damage, or damage to dampers) are observed and degraded conditions are addressed via the Corrective Action Program. • Enhance procedures to ensure the diesel fuel supply line is monitored for degradation. during performance testing. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The following enhancements to the Fire Water System Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • A sample of sprinkler heads will be inspected using the guidance of National Fire Protection Association 25, Section 2.3.3.1. • The Fire Water System Program will be enhanced to implement the requirements of the NRC interim staff guidance pertaining to non-intrusive measurement of pipe wall thickness. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The Heat Exchanger Monitoring Program will be implemented prior to the period of extended operation. The program will inspect heat exchangers for degradation using non-destructive examinations, such as eddy-current inspections or visual inspections, or if appropriate, the heat exchanger will be replaced. If degradation is found, an evaluation will be performed to determine its effects on the heat exchanger design functions.</p>	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>

Commitment	Date
<p>The following enhancements to the Inservice Inspection (ISI) – ASME Section XI, Augmented Inspections Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • An augmented ISI volumetric inspection of the spray additive tanks and the portions of the containment spray system that are wetted by sodium hydroxide. • An augmented ISI volumetric inspection of the portions of the discharge header in containment that may contain water with concentrated contaminants. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The following enhancement to the Instrument Air Quality Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • Enhance the CNP Program procedure prior to the period of extended operation to clearly specify frequencies for the dewpoint and dryer tours. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The Non-EQ Inaccessible Medium-Voltage Cable Program is a new program that will be implemented prior to the period of extended operation. This program applies to inaccessible (e.g., in conduit or direct-buried) medium-voltage cables within the scope of license renewal that are exposed to significant moisture simultaneously with applied voltage. This program will test these cables to provide an indication of the condition of the conductor insulation. The specific type of test performed will be determined prior to the initial test.</p>	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The Non-EQ Instrumentation Circuits Test Review Program will be implemented prior to the period of extended operation. The electrical cables included in the scope of this program meet all of the following criteria:</p> <ul style="list-style-type: none"> • Not subject to the EQ requirements of 10 CFR 50.49; • Used in instrumentation circuits with sensitive, high voltage, low-level signals; and • Exposed to adverse localized environments caused by heat, radiation, or moisture. <p>This program will be consistent with the method discussed with the NRC staff during the March 13, 2003, meeting regarding NUREG-1801, Section XI.E2.</p>	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>

Commitment	Date
<p>The Non-EQ Insulated Cables and Connections Program will be implemented prior to the period of extended operation. The Non-EQ Insulated Cables and Connections Program will apply to accessible insulated cables and connections installed in structures within the scope of license renewal and prone to adverse localized environments.</p>	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The following enhancements to the Pressurizer Examinations Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • The condition of the internal spray head, spray head locking bar, and coupling will be determined by a one-time visual examination (VT-3) of these components in one CNP unit. This examination will be performed to accepted ASME Section XI methods and standards to ensure that degradation of these items has not occurred. • If flaws are detected in the spray head, spray head locking bar, or coupling, engineering analysis will be completed to determine corrective actions which could include replacement of the spray head. The need for subsequent inspections will be determined after the results of the initial inspection are evaluated. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The following enhancements to the Preventive Maintenance (PM) Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • Revise PM tasks for the emergency diesel generator (EDG) ventilation system to include inspection of the flex joints; for the control room ventilation air handler packages to include inspection of the heat exchanger tubes and flex joints; and for the auxiliary feedwater pump room cooling units to include inspection of the internal evaporator tubes, valves and tubing. • The PM program will manage the aging effects for the emergency diesel engine elastomer flex hoses or tubing, reactor coolant pump lube oil leakage collection components, rubber hoses in the compressed air system, rubber hoses in the Post-Accident Containment Hydrogen Monitoring System reagent gas supply, security diesel engine elastomer flex hoses or tubing, and elastomer condensate storage tanks floating head seals. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>

Commitment	Date
<p>The following enhancements to the Reactor Vessel Integrity Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • I&M will pull and test one additional standby capsule for each unit between 32 effective full-power years (EFPY) and 48 EFPY to cover the peak fluence expected at 60 years. A fluence update will be performed at approximately 32 EFPY when Capsules W (Unit 1) and S (Unit 2) are pulled and tested. A subsequent fluence update will be performed when the standby capsules are pulled and tested between 32 EFPY and 48 EFPY. • Modifications to design and operation that result in changes to the neutron energy spectrum or operating temperatures will be compared to the original environment in which the capsules were irradiated. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The Reactor Vessel Internals CASS Program will be implemented prior to the period of extended operation. This program will provide visual inspections and non-destructive examinations of the reactor vessel internals during the period of extended operation. The program will monitor propagation of cracks from existing flaws. In addition to the features of the program described in NUREG-1801, Section XI.M13, the program will manage the aging effect of distortion due to void swelling of the reactor vessel internals. Applicable components will be determined based on the neutron fluence and thermal embrittlement susceptibility of the component.</p> <p>I&M will participate in industry-wide programs designed by the pressurized water reactor (PWR) Materials Reliability Project Issues Task Group for investigating the impacts of aging on PWR vessel internal components.</p>	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>

Commitment	Date
<p>The Reactor Vessel Internals Plates, Forgings, Welds, and Bolting Program is a new program that will be implemented prior to the period of extended operation. This program will include visual inspections and non-destructive examinations of the reactor vessel internals during the period of extended operation. A visual inspection will be performed on plates, forgings, and welds to detect and monitor cracking caused by Irradiation Assisted Stress Corrosion Cracking enhanced by reduction of fracture toughness by irradiation embrittlement and distortion due to swelling. For baffle bolts, a volumetric inspection of critical locations will be performed to assess cracking.</p> <p>I&M will participate in industry-wide programs designed by the PWR Materials Reliability Project Issues Task Group for investigating the impacts of aging on PWR vessel internal components.</p>	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The following enhancements to the Service Water System Reliability Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • The Service Water System Reliability Program will be enhanced to check for selective leaching during visual inspections. • Develop new PM activity or revise existing PM activity to ensure the 8-inch expansion joints in the essential service water supply lines to the EDG heat exchangers are inspected for evidence of loss of material, change in material properties and cracking. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The Small Bore Piping Program will be implemented prior to the period of extended operation. The small bore piping inspection will involve a one-time volumetric examination of susceptible items in selected locations of Class 1 small bore piping. These inspections will occur at or near the end of the initial operating period for CNP Units 1 and 2.</p>	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>

Commitment	Date
<p>The following enhancements to the Structures Monitoring Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • Include the following in the Structures Monitoring Program: equipment supports, instrument panels, racks, cable trays, conduits, cable tray supports, conduit supports, elastomers, pipe hangers/supports, fire protection pump house superstructure and walls, gas bottle storage tank rack and foundation, security diesel generator room, switchyard control house, fire protection water storage tank foundation, primary water storage tank foundation, and the roadway west of the greenhouse. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The following enhancements to the Structures Monitoring – Crane Inspection Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • Develop procedures or recurring tasks to: evaluate the effectiveness of the maintenance monitoring program and the effects of past and future usage on the structural reliability of in-scope cranes, verify that in-scope crane rails and structural components are visually inspected on a routine basis for loss of material, and verify that significant visual indications of loss of material due to corrosion or wear are evaluated according to applicable industry standards and good industry practice. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The following enhancement to the Structures Monitoring – Masonry Wall Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • Include the following in the Masonry Wall Program: <ul style="list-style-type: none"> – 4-hour fire-rated masonry block in the turbine building and greenhouse; and – Masonry block in the auxiliary building. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>

Commitment	Date
<p>The following enhancements to the System Testing Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • Develop a PM procedure to inspect the centrifugal charging pumps minimum flow orifices and the Unit 1 centrifugal charging pumps discharge orifices. • Ensure procedures for engineered safety features ventilation unit, the fuel handling area exhaust unit, and control room ventilation unit surveillance testing include visual verification that the drain valves and drain piping have not experienced loss of material to the extent that their pressure boundary function is compromised. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The following enhancements System Walkdown Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • Enhance the System Walkdown Program to ensure that balance of plant systems are adequately addressed with regard to license renewal considerations. • Enhance the System Walkdown Program to ensure that evidence of corrosion is monitored adequately. • Enhance the System Walkdown Program acceptance criteria to ensure adequate detection of aging effects. • Develop and implement enhanced administrative controls for the System Walkdown Program. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The Wall Thinning Monitoring Program is a new program that will be implemented prior to the period of extended operation. The Wall Thinning Monitoring Program inspections will be performed to ensure piping wall thickness is above the minimum required in order to avoid failures under normal conditions and postulated transient and accident conditions, including seismic events.</p>	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>

Commitment	Date
<p>The following enhancements to the Primary and Secondary Water Chemistry Control Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • Revise the program controlling procedures to require individual implementing procedures to identify and prescribe any special collection and preservation needs of a sample. • Bring the parameters monitored/inspected and acceptance criteria into clear alignment with the Electric Power Research Institution (EPRI) water chemistry guidelines. • Include sulfate monitoring criteria for the refueling water storage tank (RWST) that are consistent with the EPRI guidelines, and the sulfate criteria for other systems impacted by RWST chemistry. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The Chemistry One-Time Inspection Program will be implemented and completed prior to the period of extended operation. Combinations of nondestructive examinations (including visual, ultrasonic, and surface techniques) will be performed by qualified personnel following procedures that are consistent with the Section XI of the ASME B&PV Code and 10 CFR 50, Appendix B. Follow-up of unacceptable inspection findings may include expansion of the inspection sample size and locations.</p>	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>
<p>The following enhancements to the Fatigue Monitoring Program will be implemented prior to the period of extended operation:</p> <ul style="list-style-type: none"> • I&M will perform one or more of the following prior to the period of extended operation for the pressurizer surge line: <ul style="list-style-type: none"> – Further refine the fatigue analysis to lower the pressurizer surge line cumulative usage factors to below 1.0; – Repair the affected locations; – Replace the affected locations; – Manage the effects of fatigue of the pressurizer surge line by an NRC-approved inspection program; and/or – Review changes to ASME B&PV Code actions relating to environmental fatigue. Any refined analysis will use the methodology approved by the ASME Committee and NRC. 	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>

Commitment	Date
<p>Interim staff guidance (ISG) document ISG-5 addresses fuse holders that are not part of a larger assembly, but support safety-related and nonsafety-related functions in which a failure of a fuse precludes a safety function from being accomplished. Fuse holders that meet these requirements will be evaluated before the beginning of the period of extended operation for possible aging effects. The fuses will either be replaced, modified to remove the aging effects, or a program will be implemented to manage the aging effects. The aging management program (if needed) for fuse holders will consider the aging stressors for the metallic clips.</p>	<p>Unit 1: October 25, 2014</p> <p>Unit 2: December 23, 2017</p>

ATTACHMENT 2 TO AEP:NRC:3034

DONALD C. COOK NUCLEAR PLANT
LICENSE RENEWAL APPLICATION,
INCLUDING ENVIRONMENTAL REPORT