June 29, 2004

LICENSEE: Indiana Michigan Power Company

FACILITY: Donald C. Cook Nuclear Plant, Units 1 and 2

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE HELD ON MAY 12, 2004, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION (NRC) AND INDIANA MICHIGAN POWER COMPANY (I&M) REPRESENTATIVES CONCERNING DRAFT REQUESTS FOR ADDITIONAL INFORMATION ON DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION (TAC NOS. MC1202 AND MC1203)

The U.S. Nuclear Regulatory Commission staff (the staff) and representatives of Indiana Michigan Power Company (the applicant) held a telephone conference call on May 12, 2004, to discuss draft requests for additional information (D-RAI) concerning the Donald C. Cook Nuclear Plant (CNP) license renewal application (LRA).

The conference call was useful in clarifying the intent of the staff's questions. On the basis of the discussion, the applicant was able to better understand the staff's questions. No staff decisions were made during the telephone conferences. In some cases, the applicant agreed to provide information for clarification.

Enclosure 1 provides a listing of the telephone conference call participants. Enclosure 2 contains the D-RAI discussed with the applicant, including a brief description on the status of the item. The applicant has had an opportunity to comment on this summary.

/RA/

Jonathan Rowley, Project Manager
License Renewal Section A
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos.: 50-315 and 50-316

Enclosures: As stated

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SUBJECT: SUMMARY OF TELEPHONE CONFERENCE HELD ON MAY 12, 2004, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION (NRC) AND INDIANA MICHIGAN POWER COMPANY (I&M) REPRESENTATIVES CONCERNING DRAFT REQUESTS FOR ADDITIONAL INFORMATION ON DONALD C. COOK NUCLEAR PLANT, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION (TAC NOS. MC1202 AND MC1203)

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Participants	**Affiliation**
Jonathan Rowley	U.S. Nuclear Regulatory Commission (NRC)
Jai Rajan	NRC
Richard McNally	NRC
Neil Haggerty	Indiana Michigan Power Company (I&M)
Bob Kalinowski	I&M
Ted Ivey	I&M

DRAFT REQUESTS FOR ADDITIONAL INFORMATION (D-RAIs) DISCUSSED FOR DONALD C. COOK (CNP), UNITS 1 AND 2, LICENSE RENEWAL DURING MAY 12, 2004 TELEPHONE CONFERENCE

Donald C. Cook (CNP) LRA Section 3.2, "ENGINEERED SAFETY FEATURES SYSTEMS"

D-RAI 3.2-3

LRA Table 3.2.2-2 credits the Containment Leak Rate Testing Program for managing loss of material of carbon steel piping in an air (internal) environment. This is a plant specific program since the comparable environment for carbon steel piping is not evaluated in the GALL report. The applicant is requested to perform a one-time inspection in addition to the Containment Leak Rate Testing Program to identify and mitigate any aging effects due to moisture in the internal air of the carbon steel piping.

Discussion: The applicant indicated that this question was clear. This D-RAI will be sent as a formal RAI.

D-RAI 3.2-5

LRA Table 3.2.2-2 credits the Bolting and Torquing Activities programs for managing the loss of mechanical closure integrity of carbon steel and stainless steel bolts in an external air environment. The applicant is requested to discuss how cracking and loss of preload resulting in loss of mechanical closure integrity is managed. Also the applicant is requested to provide the inspection activities in its program which are equivalent to the appropriate ASME Section XI requirements. In addition the applicant is requested to address how the aging effects are managed for inaccessible bolts.

Discussion: Clarification as to what 'inaccessible' entails was needed. Therefore, this D-RAI will be revised as follows and sent as a formal RAI.

> **D-RAI 3.2-5**
>
> LRA Table 3.2.2-2 credits the Bolting and Torquing Activities programs for managing the loss of mechanical closure integrity of carbon steel and stainless steel bolts in an external air environment. The applicant is requested to discuss how cracking and loss of preload resulting in loss of mechanical closure integrity is managed. Also the applicant is requested to provide the inspection activities in its program which are equivalent to the appropriate ASME Section XI requirements. In addition the applicant is requested to address how the aging effects are managed for inaccessible bolts. These include bolts such as those located in cavities or obstructed by other components and devices.

D-RAI 3.2-9

LRA Tables 3.2.2-1, -2, and -3 do not list the material type for valve bodies. The applicant is requested to identify the material type environment, aging effect and management programs for these valve bodies.

Discussion: The applicant clarified that "valve bodies" is equivalent to "valves." The applicant indicated the question was clear. This D-RAI will be sent as a formal RAI.

D-RAI 3.2-10

The GALL report recommends a plant-specific aging management program for loss of material due to general, pitting, and crevice corrosion and microbiologically induced corrosion (MIC) in carbon steel components exposed to lubricating oil that may be contaminated with water. Similar aging effects (except general corrosion) are possible for copper alloy. The NRC staff considers a periodic inspection program appropriate to manage this aging effect. For the oil cooler shell and tubes in the emergency core cooling system exposed to an oil environment, the applicant is requested to provide a periodic inspection program in addition to an oil analysis program for aging management for loss of material due to general (carbon steel), pitting, and crevice corrosion and MIC, or provide justification for not managing this aging effect.

Discussion: The applicant indicated that aging management of the tube side is addressed in Table 3.2.2-3 of the LRA. That portion of the question will be removed. Therefore, this D-RAI will be revised as follows and sent as a formal RAI.

> **D-RAI 3.2-10**
>
> The GALL report recommends a plant-specific aging management program for loss of material due to general, pitting, and crevice corrosion and microbiologically induced corrosion (MIC) in carbon steel components exposed to lubricating oil that may be contaminated with water. Similar aging effects (except general corrosion) are possible for copper alloy. The NRC staff considers a periodic inspection program appropriate to manage this aging effect. For the oil cooler shell in the emergency core cooling system (LRA Table 3.2.2-3) exposed to an oil environment, the applicant is requested to provide a periodic inspection program in addition to an oil analysis program for aging management for loss of material due to general (carbon steel), pitting, and crevice corrosion and MIC, or provide justification for not managing this aging effect.

D-RAI 3.2-12

The GALL report recommends further evaluation of programs to manage the loss of material due to pitting and crevice corrosion to verify the effectiveness of the Water Chemistry Control Program. A one-time inspection of select components at susceptible locations is an acceptable method to determine whether an aging effect is occurring or is progressing very slowly so that the intended function will be maintained during the period of extended operation. LRA Tables 3.2.2-1, 3.2.2.-2, and 3.2.2-3 list various carbon steel components in a treated water environment and stainless steel components in a borated water environment with the aging effect being loss of material. The aging management program for these components is the Water Chemistry Control Program; however, the One-Time Inspection Program is not credited to verify the effectiveness of the Water Chemistry Control Program. The applicant is requested to explain why a one-time inspection is not performed to determine the effectiveness of the Water Chemistry Control Program. Also, state the aging mechanisms for the loss of material.

Discussion: The applicant indicated that the staff should consider the information in Section B.1.41, Page B-131 of the LRA to clarify this question. Therefore, this D-RAI will be revised as follows and sent as a formal RAI.

D-RAI 3.2-12

The GALL report recommends further evaluation of programs to manage the loss of material due to pitting and crevice corrosion to verify the effectiveness of the Water Chemistry Control Program. A one-time inspection of select components at susceptible locations is an acceptable method to determine whether an aging effect is occurring or is progressing very slowly so that the intended function will be maintained during the period of extended operation. LRA Tables 3.2.2-1, 3.2.2.-2, and 3.2.2-3 list various carbon steel components in a treated water environment and stainless steel components in a borated water environment with the aging effect being loss of material. The aging management program for these components is the Water Chemistry Control Program but no one-time inspection program is identified in the Tables listed above. However a new plant specific Chemistry One-Time Inspection Program is discussed in LRA Appendix B, Page B-131. It is stated in the description of this program that it is comparable to the NUREG-1801, Section XI.M32, One-Time Inspection Program but less broader in scope than the NUREG-1801 program. The applicant is requested to clarify that the inspections and examinations performed within the scope of its new Chemistry One-Time Inspection Program will verify the effectiveness of the Chemistry Control Program in managing the ageing effect of loss of material in the various carbon steel components in a treated water environment and stainless steel components in a borated water environment listed in LRA Tables 3.2.2-1, 3.2.2-2, and 3.2.2-3.

(CNP) LRA Section 3.4, "STEAM AND POWER CONVERSION SYSTEMS"

D-RAI 3.4-1

LRA Table 3.4.2-1 identifies no aging effects for copper alloy in an outside environment. The outside environment is generally defined as: "An environment where component are exposed to direct sunlight, precipitation, and freezing conditions. The outside environment also conservatively includes components located in sheltered areas where the component is beneath some type of roof structure or outdoor enclosure (such as a valve box) but is otherwise open to the ambient environment." This material is not identified for this environment in the GALL report. However, the GALL report recommends aging management for the loss of material due to general corrosion on the external surfaces of carbon (alloy) steel components exposed to operating temperatures less than 212°F, such corrosion may be due to air, moisture, or humidity. The applicant is requested to provide a program to manage corrosion on the external surface of copper alloy components in an outside environment or to provide justification for not managing this aging effect.

Discussion: The applicant indicated that the correct reference to this question is Table 3.4.2-3 and not Table 3.4.2-1. Therefore, this D-RAI will be revised as follows and sent as a formal RAI.

D-RAI 3.4-1

LRA Table 3.4.2-3 identifies no aging effects for copper alloy in an outside environment. The outside environment is generally defined as: "An environment where component are exposed to direct sunlight, precipitation, and freezing conditions. The outside environment also conservatively includes components located in sheltered areas where the component is beneath some type of roof structure or outdoor enclosure (such as a valve box) but is otherwise open to the ambient environment." This material is not identified for this environment in the GALL report. However, the GALL report recommends aging management for the loss of material due to general corrosion on the external surfaces of carbon (alloy) steel components exposed to operating temperatures less than 212°F, such corrosion may be due to air, moisture, or humidity. The applicant is requested to provide a program to manage corrosion on the external surface of copper alloy components in an outside environment or to provide justification for not managing this aging effect.

D-RAI 3.4-6

The applicant identifies no applicable aging effect for carbon steel components in an embedded environment. Provide the specification for the embedded environment. If this environment involves concrete, corrosion of carbon steel components embedded in concrete through carbonation etc., is commonly known degradation process. Provide the basis for the concluding that no applicable aging effect exists for carbon steel components in this particular embedded environment.

Discussion: The applicant indicated that there are no embedded components. Therefore, this D-RAI will be revised as follows and sent as a formal RAI.

D-RAI 3.4-6

The applicant identifies no applicable aging effect for carbon steel components in an embedded environment. If this environment involves concrete, corrosion of carbon steel components embedded in concrete through carbonation etc., is commonly known degradation process. If there are no carbon steel components in an embedded environment in the steam and power conversion systems, then the applicant is requested to validate this statement.

D-RAI 3.4-8

LRA Table 3.4.2-1 identifies loss of material and fouling for copper alloy heat exchanger tubes in treated water environment. The applicant credits the Water Chemistry Control Program to manage this aging effect. This material is not identified for this component in the GALL report, but the GALL report recommends Water Chemistry Control and a one-time inspection to manage loss of material for carbon/alloy steel components in a treated water environment. The applicant is requested to perform a one-time inspection of the copper alloy heat exchanger tubes to verify the effectiveness of the Water Chemistry Control Program or to provide justification for not performing a one-time inspection.

Discussion: The applicant indicated that the correct reference to this question is Table 3.4.2-3 and not Table 3.4.2-1. Also, the applicant indicated that the staff should consider the information in Section B.1.41, Page B-131 of the LRA to clarify this question. Therefore, this D-RAI will be revised as follows and sent as a formal RAI.

D-RAI 3.4-8

LRA Table 3.4.2-3 identifies loss of material and fouling for copper alloy heat exchanger tubes in treated water environment. The applicant credits the Water Chemistry Control Program to manage this aging effect. This material is not identified for this component in the GALL report, but the GALL report recommends Water Chemistry Control and a one-time inspection to manage loss of material for carbon/alloy steel components in a treated water environment. LRA Table 3.4.2-3 does not identify a one time inspection to verify the effectiveness of the Water Chemistry Control Program. However, a new plant specific one time inspection program (B.1.41) is discussed in LRA, Appendix B. The applicant is requested to clarify that this program will include inspections and examinations to verify the effectiveness of the Water Chemistry Control Program to manage loss of material and fouling for copper alloy heat exchanger tubes in treated water environment.

D-RAI 3.4-9

LRA Table 3.4.2 states that Preventive Maintenance Program will manage change in material properties and cracking of elastomeric material of tanks in a treated water environment. However, the Preventive Maintenance Program in Appendix B of the LRA does not provide any discussion of the aging management of pressure retaining elastomeric tanks in a treated water environment. Describe how the applicant will manage the change in material properties and cracking in tanks including inspection methods for inaccessible locations, frequency of inspections and acceptance criteria and the bases thereof.

Discussion: The applicant indicated that the correct reference to this question is Table 3.4.2-3 and not Table 3.4.2. Therefore, this D-RAI will be revised as follows and sent as a formal RAI.

D-RAI 3.4-9

LRA Table 3.4.2-3 states that Preventive Maintenance Program will manage change in material properties and cracking of elastomeric material of tanks in a treated water environment. However, the Preventive Maintenance Program in Appendix B of the LRA does not provide any discussion of the aging management of pressure retaining elastomeric tanks in a treated water environment. Describe how the applicant will manage the change in material properties and cracking in tanks including inspection methods for inaccessible locations, frequency of inspections and acceptance criteria and the bases thereof.

D-RAI 3.4-10

LRA Table 3.4.2 identifies loss of material and cracking as an aging effect for various stainless steel components in treated water and steam environments. The applicant credits the Water Chemistry Control Program to manage this aging effect. Stainless steels are susceptible to loss of material in this type of environment and the GALL report recommends that, for loss of material due to pitting and crevice corrosion, the effectiveness of the Water Chemistry Control Program should be verified to ensure that significant degradation is not occurring. The applicant is requested to perform a one-time inspection to verify the effectiveness of the Water Chemistry Control Program or to provide justification for not performing a one-time inspection.

Discussion: The applicant indicated that the correct reference to this question is Table 3.4.2-1, -2, -3, and -4, and not Table 3.4.2. Also, the applicant indicated that the staff should consider the information in Section B.1.41, Page B-131 of the LRA to clarify of this question. Therefore, this D-RAI will be revised as follows and sent as a formal RAI.

> **D-RAI 3.4-10**
>
> LRA Table 3.4.2-1, -2, -3, and -4 identify loss of material and cracking as an aging effect for various stainless steel components in treated water and steam environments. The applicant credits the Water Chemistry Control Program to manage this aging effect. Stainless steels are susceptible to loss of material in this type of environment and the GALL report recommends that, for loss of material due to pitting and crevice corrosion, the effectiveness of the Water Chemistry Control Program should be verified to ensure that significant degradation is not occurring. The applicant is requested to confirm that the one-time inspection program discussed in LRA, Appendix B, will verify the effectiveness of the Water Chemistry Control Program for various stainless steel components in treated water and steam environments.

D-RAI 3.4-11

LRA Table 3.4.2-1 identifies loss of material as an aging effect for alloy steel steam/fluid traps in a steam and treated water environment. The applicant credits the Water Chemistry Control Program to manage this aging effect. The GALL report recommends Water Chemistry Control and a one-time inspection to manage loss of material for carbon/alloy steel components in a treated water environment. The applicant is requested to perform a one-time inspection to verify the effectiveness of the Water Chemistry Control Program or to provide justification for not performing a one-time inspection.

Discussion: The applicant indicated that the staff should consider the information in Section B.1.41, Page B-131 of the LRA to clarify this question. Therefore, this D-RAI will be revised as follows and sent as a formal RAI.

> **D-RAI 3.4-11**
>
> LRA Table 3.4.2-1 identifies loss of material as an aging effect for alloy steel steam/fluid traps in a steam and treated water environment. The applicant credits the Water Chemistry Control Program to manage this aging effect. The

GALL report recommends Water Chemistry Control and a one-time inspection to manage loss of material for carbon/alloy steel components in a treated water environment. The applicant is requested to confirm that the new one-time inspection program discussed in LRA, Appendix B, will include inspections and examinations to verify the effectiveness of the Water Chemistry Control Program to manage loss of material for alloy steel steam/fluid traps in a steam and treated water environment.

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