

Indiana Michigan  
Power Company  
500 Circle Drive  
Buchanan, MI 49107 1373



March 18, 2004

AEP:NRC:4049-01

Docket No: 50-315

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

Donald C. Cook Nuclear Plant, Unit 1  
DEPARTMENT OF TRANSPORTATION EXEMPTION REQUEST  
ADDITIONAL INFORMATION

Reference: Letter from John A. Zwolinski, Indiana Michigan Power Company (I&M) to Nuclear Regulatory Commission (NRC) Document Control Desk, "Donald C. Cook Nuclear Plant, Unit 1, Department of Transportation Exemption Request," AEP:NRC:4049, dated January 19, 2004.

The attached response to the Department of Transportation's (DOT's) request for additional information regarding I&M's exemption request from the requirements of 49 CFR 173.403 and 49 CFR 173.427(b)(1) is being forwarded for the NRC's information.

A proprietary contractor report supporting the DOT exemption request is to be forwarded to the DOT by April 2, 2004. Because I&M is requesting no action of the NRC, the proprietary contractor report will be forwarded to the DOT only.

This letter contains no new commitments to the NRC. Should you have any questions, please contact Mr. Michael K. Scarpello, Supervisor of Nuclear Licensing, at (269) 697-5020.

Sincerely,

A handwritten signature in black ink, appearing to read 'John A. Zwolinski'.

John A. Zwolinski  
Director of Design Engineering and Regulatory Affairs

Attachment: Department of Transportation Exemption Request

APOI

c: J. L. Caldwell, NRC Region III  
K. D. Curry, Ft. Wayne AEP, w/o attachment  
J. T. King, MPSC, w/o attachment  
MDEQ – WHMD/HWRPS, w/o attachment  
NRC Resident Inspector  
J. F. Stang, Jr., NRC Washington, DC

Attachment to AEP:NRC:4049-01

Department of Transportation  
Exemption Request

Indiana Michigan  
Power Company  
500 Circle Drive  
Buchanan, MI 49107 1373



March 18, 2004

Mr. Delmer F. Billings  
Director, Exemptions and Approvals Hazardous Materials Safety  
U. S. Department of Transportation  
400 7th St., S.W.  
Washington, DC 20590-0001

Donald C. Cook Nuclear Plant Units 1 and 2  
EXEMPTION REQUEST FROM THE SURFACE CONTAMINATED  
OBJECT DEMONSTRATION REQUIREMENTS OF 49 CFR 173.403 AND  
THE PACKAGING REQUIREMENTS OF 49 CFR 173.427(b)(1) FOR THE  
SHIPMENT OF FOUR STEAM GENERATOR LOWER ASSEMBLIES  
FROM DONALD C. COOK NUCLEAR PLANT  
REQUEST FOR ADDITIONAL INFORMATION

Dear Mr. Billings:

By letter dated January 19, 2004, Indiana Michigan Power Company (I&M) requested exemption from the subject regulations for the shipment of four steam generator lower assemblies from the Donald C. Cook Nuclear Plant. Subsequently, by letter dated February 20, 2004, the Department of Transportation (DOT) requested additional information regarding the application. The attachment to this letter provides the requested information.

I&M will transmit a proprietary drop analysis report, ST-462, Revision 0, "One-Foot Drop Analysis of the D. C. Cook Unit 1 SGLA," to the DOT by April 2, 2004.

If you have any questions concerning this information, please contact Mr. Michael K. Scarpello, Supervisor of Nuclear Licensing, at (269) 697-5020.

Sincerely,

A handwritten signature in black ink, appearing to read "JAZ", is written over the word "Sincerely,".

John A. Zwolinski  
Director of Design Engineering and Regulatory Affairs

Attachment:

Response to Department of Transportation Request for Additional Information

Enclosures:

1. ST-452, Revision 1, Structural Evaluation of the D. C. Cook Unit 1 SGLA Closures
2. C-068-163033-114, D. C. Cook SGLA Unit 1 Cover Plates and Seal Plugs
3. PL-DTK-03-015, Revision 1, Transportation and Emergency Response Plan for D. C. Cook Unit 1 Steam Generator Project
4. ER-03-006, Revision 1, Characterization of D. C. Cook Unit 1 Steam Generator Lower Assemblies

## Attachment

### Response to Department of Transportation (DOT) Request For Additional Information

By letter dated January 19, 2004, Indiana Michigan Power Company (I&M) requested exemption from the subject regulations for the shipment of four steam generator lower assemblies (SGLAs) from the Donald C. Cook Nuclear Plant (CNP). Subsequently, by letter dated February 20, 2004, the DOT requested additional information regarding the application. The following provides the requested information.

#### DOT Request 1

“Your application requests an exemption from the 49 CFR 173.427(b)(1) requirement for low specific activity and surface contaminated object radioactive material to be packaged in an IP-1, IP-2 or IP-3 subject to the limitations of Table 8, and in accordance with the guidance of U.S. NRC Generic Letter 96-07. The NRC Generic Letter states that shippers wishing to ship an unpackaged steam generator as an SCO need to request relief from the regulatory requirements to package SCO by demonstrating that the unpackaged, sealed steam generator provides the safety equivalent to the required Industrial Packaging. Our position is that in a case where IP-2 packaging is required by 49 CFR 173.427(b)(1) for large component transport, as is the case here, the relief able to be granted is from the free drop test and stacking test requirements of 49 CFR 173.465(c) and (d), respectively. The complete component may be subjected to the free drop test requirements oriented in the transport position, rather than the orientation that will cause maximum damage, without the benefit of any securement devices or systems. The acceptance criteria for this test are found in 49 CFR 173.411(b)(2)(i) and (ii), i.e., prevention of: 1) loss or dispersal of the radioactive contents; and, 2) significant increase in the radiation levels recorded or calculated at the external surfaces for the condition before the test. Demonstration of compliance must be shown by any of the methods prescribed by 49 CFR 173.461. The demonstration of compliance must be for the entire component including all penetration covers such as those for the transition cone cover, primary nozzles, manways, blowdown lines, level taps, and handholes. The stacking test requirement may be eliminated, if any stacking is administratively prohibited. All other IP-2 requirements of 49 CFR 173.411(b)(2) would continue to be required, including the general design requirements of 49 CFR 173.410. Please clarify if your proposed package configuration can satisfactorily demonstrate our position.”

#### I&M Response

The CNP SGLAs have been evaluated per 49 CFR 173.461(4) under the conditions of a one foot free drop. The model for the drop analysis was established within the boundaries stated in DOT Request 1. The results of this analysis are contained in the reports listed below.

- ST-452, Revision 1, “Structural Evaluation of the D.C. Cook Unit 1 SGLA Closures” (non-proprietary), which is enclosed.

- ST-462; Revision 0, "One-Foot Drop Analysis of the D. C. Cook Unit 1 SGLA," (proprietary), which is to be provided by April 2, 2004.

Also enclosed is a copy of drawing C-068-163033-114, "D.C. Cook SGLA Unit 1 Cover Plates and Seal Plugs" that is referenced in the drop analysis.

The project's Transportation and Emergency Response Plan has no provision for stacking, precluding the need for the demonstration of a satisfactory stacking test as required in 49 CFR 173.465(d).

#### DOT Request 2

"Your application response to 49 CFR 107.105(c)(5) refers to an exemption request from the 'conveyance limits,' however there is no description of this proposal as required by 49 CFR 107.105(c)(1). Please clarify if you are requesting an exemption from any conveyance limits."

#### I&M Response

I&M is not requesting an exemption from conveyance limits.

#### DOT Request 3

"Your application states that the quantities of radioactive material are estimates based on past dose rate surveys which will be reevaluated at a later time, and levels greater than those provided will be reported to the DOT. Our position is that any quantities of radioactive material greater than those described in your exemption request would invalidate any exemption granted. Please demonstrate your commitment to obtain a modification to any exemption permitted, if greater quantities of radioactive material are found due to your stated reevaluation."

#### I&M Response

I&M agrees to obtain a modification to the exemption for the CNP SGLAs if greater quantities of radioactive material are found prior to transportation.

#### DOT Request 4

"Your application illustrates trunnions, that were typically used as a fabrication lifting device, installed on the steam generator lower assemblies. 49 CFR 173.410(b) requires lifting attachments that are structurally part of the package be designed with a minimum safety factor of three against yielding. Please clarify if these trunnions meet the requirements of 49 CFR 173.410(b), will be disabled, or removed."

## I&amp;M Response

The trunnions meet the requirements of 49 CFR 173.410(b).

## DOT Request 5

“Your application does not address non-fixed contamination levels typically found on the exterior of steam generators. Please provide: 1) data for the maximum non-fixed contamination levels on the exterior of the steam generators prior to and after application of any coatings used to render the contamination fixed; and, 2) information on any coating material used as well as the rationale for its selection; and, 3) any other measures to be employed to control non-fixed contamination on the exterior of the steam generators during transport.”

## I&amp;M Response

The following provides the known information related to SGLA non-fixed contamination levels. A coating was applied to the exterior of the SGLAs prior to removal from reactor containment during the 1999/2000 steam generator replacement project. Routine surveys for non-fixed contamination performed while the SGLAs were in a steam generator storage building show levels less than 1000 dpm/100 cm<sup>2</sup>. As an additional measure to control non-fixed contamination during transport, a 7-8 mil thick polyethylene film will be applied to 100% of the SGLA exterior. This shrink-wrapping method was successfully used for preparation of the Unit 2 SGLAs in 1999 under DOT exemption E-12190 and also improves the aesthetic appearance of the units. Consequently, I&M considers shrink-wrap a “best practice” approach for contamination control and to maintain radiation exposure of site personnel as low as reasonably achievable.

## DOT Request 6

“Steam generators typically contain surface irregularities such as tapped holes and gaps or crevices near bolted/gasketed covers where significant non-fixed contamination can exist and application of a surface fixative is difficult or inappropriate. Please clarify how non-fixed contamination will be rendered fixed in these areas.”

## I&amp;M Response

Dow Corning RTV (room-temperature vulcanizing) sealant will be applied to those areas with the potential for containing significant non-fixed contamination such as tapped holes and gaps or crevices near bolted/gasketed covers.



## DOT Request 7.

“The radiological characterization, dated October 31, 2003, included in your application, calculates an  $A_2$  value for the steam generator lower assemblies. On January 26, 2004, we published a final rule in the Federal Register that modifies many of the  $A_2$  limits. Voluntary compliance may begin February 25, 2004. The mandatory effective date of this rulemaking is October 1, 2004. Since your proposed shipment may occur after the mandatory effective date, please provide an additional recalculation of the  $A_2$  values of the steam generator lower assemblies with the recently revised  $A_2$  limits that may be effective at the time of your shipment.”

## I&amp;M Response

A recalculation of the  $A_2$  values of the SGLAs using the recently revised  $A_2$  limits is included in the enclosed revised characterization report ER-03-006, Revision 1, “Characterization of D.C. Cook Unit 1 Steam Generator Lower Assemblies.”

## DOT Request 8

“The radiological characterization, included in your application, does not provide quantification of the non-fixed contamination plus the fixed contamination of the inaccessible surfaces by  $\text{cm}^2$  broken down by beta and gamma and low toxicity alpha emitters, and all other alpha emitters. Please provide these contamination values.”

## I&amp;M Response

The requested contamination values are included in the enclosed revised characterization report, ER-03-006, Revision 1, “Characterization of D.C. Cook Unit 1 Steam Generator Lower Assemblies.”

Finally, since the time our original application was submitted, potential restrictions along the rail route from CNP to Barnwell were identified. As a consequence, an alternate rail route to the Envirocare of Utah facility has been developed. Provisions for this alternate route have been included in the enclosed revised transportation plan, PL-DTK-03-015, Revision 1, “Transportation and Emergency Response Plan for D.C. Cook Unit 1 Steam Generator Project.”