

ATTACHMENT 2 TO CO999-10

PROPOSED T/S PAGES

MARKED UP PAGES

UNIT 1 Page 3/4 9-8

UNIT 2 Page 3/4 9-7

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3/4 **LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS**  
3/4.9 **REFUELING OPERATIONS**

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CRANE TRAVEL - SPENT FUEL STORAGE POOL BUILDING

LIMITING CONDITION FOR OPERATION

- 3.9.7 Loads in excess of 2,500 pounds shall be prohibited from travel over fuel assemblies in the storage pool. Loads carried over the spent fuel pool and the heights at which they may be carried over racks containing fuel shall be limited in such a way as to preclude impact energies over 24,240 in.-lbs., if the loads are dropped from the crane.

APPLICABILITY: With fuel assemblies in the storage pool.

ACTION:

With the requirements of the above specification not satisfied, place the crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

- 4.9.7.1 Crane interlocks which prevent crane travel with loads in excess of 2,500 pounds over fuel assemblies shall be demonstrated OPERABLE within 7 days prior to crane use and at least once per 7 days thereafter during crane operation.

This Surveillance Requirement is not required during the movement of steam generator sections in the auxiliary building for the Unit 1 steam generator replacement project. When crane travel interlocks are disengaged, administrative controls shall be in place to prevent loads from passing over the spent fuel pool.

- 4.9.7.2 The potential impact energy due to dropping the crane's load shall be determined to be  $\leq 24,240$  in.-lbs. prior to moving each load over racks containing fuel.

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Shared system with Cook Nuclear Plant - Unit 2



3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS  
3/4.9 REFUELING OPERATIONS

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CRANE TRAVEL - SPENT FUEL STORAGE POOL BUILDING\*

LIMITING CONDITION FOR OPERATION

- 3.9.7 Loads in excess of 2,500 pounds shall be prohibited from travel over fuel assemblies in the storage pool. Loads carried over the spent fuel pool and the heights at which they may be carried over racks containing fuel shall be limited in such a way as to preclude impact energies over 24,240 in.-lbs., if the loads are dropped from the crane.

APPLICABILITY: With fuel assemblies in the storage pool.

ACTION:

With the requirements of the above specification not satisfied, place the crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

- 4.9.7.1 Crane interlocks which prevent crane travel with loads in excess of 2,500 pounds over fuel assemblies shall be demonstrated OPERABLE within 7 days prior to crane use and at least once per 7 days thereafter during crane operation.

This Surveillance Requirement is not required during the movement of steam generator sections in the auxiliary building for the Unit 1 steam generator replacement project. When crane travel interlocks are disengaged, administrative controls shall be in place to prevent loads from passing over the spent fuel pool.

- 4.9.7.2 The potential impact energy due to dropping the crane's load shall be determined to be  $\leq 24,240$  in.-lbs. prior to moving each load over racks containing fuel.

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\* Shared system with Cook Nuclear Plant - Unit 1.

ATTACHMENT 3 TO CO999-10

PROPOSED T/S PAGES  
CHANGES INCORPORATED

UNIT 1 Page 3/4 9-8

UNIT 2 Page 3/4 9-7

3/4 **LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS**  
3/4.9 **REFUELING OPERATIONS**

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CRANE TRAVEL - SPENT FUEL STORAGE POOL BUILDING\*

LIMITING CONDITION FOR OPERATION

- 3.9.7 Loads in excess of 2,500 pounds shall be prohibited from travel over fuel assemblies in the storage pool. Loads carried over the spent fuel pool and the heights at which they may be carried over racks containing fuel shall be limited in such a way as to preclude impact energies over 24,240 in.-lbs., if the loads are dropped from the crane.

APPLICABILITY: With fuel assemblies in the storage pool.

ACTION:

With the requirements of the above specification not satisfied, place the crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

- 4.9.7.1 Crane interlocks which prevent crane travel with loads in excess of 2,500 pounds over fuel assemblies shall be demonstrated OPERABLE within 7 days prior to crane use and at least once per 7 days thereafter during crane operation.

This Surveillance Requirement is not required during the movement of steam generator sections in the auxiliary building for the Unit 1 steam generator replacement project. When crane travel interlocks are disengaged, administrative controls shall be in place to prevent loads from passing over the spent fuel pool.

- 4.9.7.2 The potential impact energy due to dropping the crane's load shall be determined to be  $\leq 24,240$  in.-lbs. prior to moving each load over racks containing fuel.

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\* Shared system with Cook Nuclear Plant - Unit 1.



3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS  
3/4.9 REFUELING OPERATIONS

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\*CRANE TRAVEL - SPENT FUEL STORAGE POOL BUILDING\*

LIMITING CONDITION FOR OPERATION

- 3.9.7 Loads in excess of 2,500 pounds shall be prohibited from travel over fuel assemblies in the storage pool. Loads carried over the spent fuel pool and the heights at which they may be carried over racks containing fuel shall be limited in such a way as to preclude impact energies over 24,240 in.-lbs., if the loads are dropped from the crane.

APPLICABILITY: With fuel assemblies in the storage pool.

ACTION:

With the requirements of the above specification not satisfied, place the crane load in a safe condition. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

- 4.9.7.1 Crane interlocks which prevent crane travel with loads in excess of 2,500 pounds over fuel assemblies shall be demonstrated OPERABLE within 7 days prior to crane use and at least once per 7 days thereafter during crane operation.

This Surveillance Requirement is not required during the movement of steam generator sections in the auxiliary building for the Unit 1 steam generator replacement project. When crane travel interlocks are disengaged, administrative controls shall be in place to prevent loads from passing over the spent fuel pool.

- 4.9.7.2 The potential impact energy due to dropping the crane's load shall be determined to be  $\leq 24,240$  in.-lbs. prior to moving each load over racks containing fuel.

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\* Shared system with Cook Nuclear Plant - Unit 1.





## ATTACHMENT 4 TO CO999-10

### NO SIGNIFICANT HAZARDS CONSIDERATION EVALUATION

Indiana Michigan Power Company (I&M) has evaluated this proposed amendment and determined that it involves no significant hazards consideration. According to 10 CFR 50.92(c), a proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment does not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated; or
2. Create the possibility of a new or different kind of accident from any previously evaluated; or
3. Involve a significant reduction in a margin of safety.

The proposed changes would allow movement of steam generator (SG) sections in support of the Unit 1 steam generator replacement project (SGRP) that exceeds the design basis seismic capability of the auxiliary building load handling equipment and structures. Also, a license condition for DPR-58 and DPR-74 would be added to provide relief from performance of Technical Specifications (T/S) Surveillance Requirement 4.9.7.1 and to bypass crane travel interlocks during the SG lifts.

The determination that the criteria set forth in 10 CFR 50.92 are met for this amendment request is indicated below.

1. Does the change involve a significant increase in the probability of occurrence or consequences of an accident previously evaluated?

No. NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," generically evaluates the probabilities for a heavy load handling event that could result in consequences that exceed 25% of 10 CFR 100 limits. The NRC determined, assuming heavy load handling in accordance with NUREG-0612 guidelines, that the associated risks are acceptable based on the very low likelihood of a load drop. The proposed activity will be performed in accordance with NUREG-0612 as approved for Donald C. Cook Nuclear Plant (CNP) and will be similar to the heavy loads program reviewed, approved, and demonstrated effective during the Unit 2 SGRP. The cranes feature single-failure-proof hoisting and braking systems in accordance with NUREG-0554, "Single-Failure-Proof Cranes for Nuclear Power Plants," and are evaluated to safely retain the load in the unlikely event of the safe shutdown earthquake (SSE). As such, this change does not introduce any new accident precursors or initiators and there is not a significant increase in the probability of previously evaluated accidents.

Administrative controls substitute for crane travel interlocks during the lifts to prevent loads from being carried over spent fuel assemblies. In addition, a load path evaluation has determined that, in the unlikely event of a load drop, requirements for safe shutdown of the operating unit, decay heat removal, and spent fuel pool cooling continue to be satisfied. As a result, there is no significant increase in the consequences of a load drop. Based on the above, the probability of occurrence and the consequences of accidents previously evaluated are not increased.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

No. The potential accident involved in the proposed change is a design basis seismic event during load handling. The NUREG-0554 guideline for crane seismic capability is safe retention of the load during an SSE. A current engineering study demonstrates that the SG sections are safely retained by the cranes during load handling even in the unlikely event of an SSE. Although the crane travel interlocks are disengaged during the lifts, administrative controls prevent loads from being carried over the spent fuel pool. Furthermore, the load path, methods, and types of loads are similar to those previously reviewed and approved for the Unit 2 SGRP. That review also found that the possibility of a new or different kind of accident was not created. The current reviews and analyses for the Unit 1 SGRP have not identified a credible new kind of accident or one that is different from the evaluated load drop scenario. Based on the above, the possibility of a new or different kind of accident from any previously evaluated is not created.

3. Does the proposed change involve a significant reduction in a margin of safety.

No. Handling of heavy loads during the proposed activity will be in accordance with the guidelines of NUREG-0612 (including appropriate codes and standards) as approved for CNP and will be similar to the heavy loads program previously approved for the Unit 2 SGRP. Administrative controls substitute for crane travel interlocks during the lifts to ensure that no loads are carried over spent fuel assemblies. The loads will be lifted by cranes with the single-failure proof features specified by NUREG-0554. For these loads, the design basis seismic capability of the load handling equipment and structures is exceeded. However, the likelihood of a seismic event coincident with the limited lift times for these loads is very remote. Furthermore, an evaluation of these lifts that considers the conservatism inherent in the design basis calculations concludes that the loads are safely retained even in the event of an SSE. Based on the above, the proposed change does not involve a significant reduction in the margin of safety.

In summary, based on the above evaluation, I&M has concluded that the proposed amendment involves no significant hazards consideration.

ATTACHMENT 5 TO C0999-10

ENVIRONMENTAL ASSESSMENT

Indiana Michigan Power Company (I&M) has evaluated this license amendment request against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. I&M has determined that this license amendment request meets the criteria for a categorical exclusion set forth in 10 CFR 51.22(c)(9). This determination is based on the fact that this change is being proposed as an amendment to a license issued pursuant to 10 CFR 50 that changes a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or that changes an inspection or a surveillance requirement, and the amendment meets the following specific criteria.

- (i) The amendment involves no significant hazards consideration.

As demonstrated in Attachment 5, this proposed amendment does not involve significant hazards consideration.

- (ii) There is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite.

There will be no significant change in the types or significant increase in the amounts of any effluents released offsite.

- (iii) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed changes will not result in significant changes in the operation or configuration of the facility. There will be no change in the level of controls or methodology used for processing of radioactive effluents or handling of solid radioactive waste, nor will the proposal result in any change in the normal radiation levels within the plant. Therefore, there will be no significant increase in individual or cumulative occupational radiation exposure resulting from this change.

## ATTACHMENT 6 TO CO999-10

### UNIT 2 SGRP CRANE AND AUXILIARY BUILDING MODIFICATIONS AND ANALYSES

The following items describe the modifications and associated analyses that were performed to support the handling of steam generator (SG) sections for the Unit 2 steam generator replacement project (SGRP) that are also applicable to the Unit 1 SGRP. These modifications were evaluated by the NRC and found in Reference 1 to be acceptable for the loading conditions resulting from the Unit 2 SGRP. These same requirements will be in place for the proposed load handling of the SG sections.

#### 1. Modification of Original Auxiliary Building Crane (west auxiliary building crane)

The original auxiliary building crane was procured and erected prior to the guidelines of NUREG-0554, "Single-Failure-Proof Cranes for Nuclear Power Plants." However, the NRC staff found in Reference 1 that the original auxiliary building crane did satisfy the criteria of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," and T/S 3/4.9.7. Modifications implemented for the Unit 2 SGRP included structural additions and a new trolley design. The modified crane was determined to meet the single-failure-proof criteria of NUREG-0554. The original 150-ton design-rated load (DRL), a rating that does not consider seismic forces, was unchanged. The maximum critical load (MCL), applicable when a crane can be a direct or indirect cause of radiological release, was established through analysis as 55 tons. This rating accounts for seismic forces including the safe shutdown earthquake (SSE).

#### 2. Addition of Second Auxiliary Building Crane (east auxiliary building crane)

A second single-failure-proof crane was installed in the auxiliary building to accommodate the heavy loads associated with the Unit 2 SGRP. The east auxiliary building crane was designed, procured and installed to the single-failure-proof criteria of NUREG-0554, with a DRL of 150 tons and MCL of 60 tons. This crane was used alone to handle the eight Unit 2 SG steam dome lifts.

#### 3. Tandem Auxiliary Building Crane Configuration

The two auxiliary building cranes were modified for tandem configuration as a lift system to handle the eight heaviest lifts, the Unit 2 steam generator lower assemblies. The tandem configuration retains the single-failure-proof features of the individual cranes and provides a DRL of 300 tons.

#### 4. Modification of the Auxiliary Building

In the auxiliary building, modifications to the crane runway girders and associated end columns were implemented in addition to the auxiliary building cranes to prepare for the

Unit 2 SG section lifts. These modifications included the addition of girder web and bearing stiffeners, web splice bolts, rail splices, reinforcing and welding reinforcement, and horizontal connections to resist forces on the crane runway and runway girders.

#### 5. Structural Analyses

Structural analyses performed by the crane supplier, Whiting Corporation, were provided for the modified west auxiliary building crane (Reference 3) and for the east auxiliary building crane (Reference 4). Analyses were also performed on the auxiliary building columns, the secondary framing members between the columns, and on the girders that support the cranes and trolleys (Reference 5). The following loading conditions were evaluated: 1) tandem crane, 300 ton lift, no seismic forces; 2) tandem crane, no lifted load, SSE; and 3) single crane, 60 ton lift, SSE. These load cases indicate that the cranes were not qualified seismically for movement of the Unit 2 SG sections.

#### 6. Load Test

Following the modifications described above and prior to the Unit 2 SGRP, a load test of the tandem crane was performed in accordance with American National Standards Institute (ANSI) B30.2.0-1976, "Overhead and Gantry Cranes." The total lifted load was 375 tons, meeting the ANSI requirement for a 125% load test. The test was performed along the Unit 2 SGRP load path. Following the load test, a visual inspection was completed by certified inspectors, including the welds on the support structure, to ensure that there were no signs of distress or distortion.

ATTACHMENT 7 TO CO999-10

COMMITMENTS

The following table identifies actions committed to by Indiana Michigan Power Company (I&M) in this submittal. Other actions discussed in the submittal represent intended or planned actions by I&M. They are described to the Nuclear Regulatory Commission (NRC) for the NRC's information and are not regulatory commitments.

Commitment	Date
The training for the crane operators used for the SG section lifts will include the guidance of ANSI B30.2, Chapter 2-3, "Conduct of Operators." Training will include orientation with the specific procedures to be used for the SG section lifts prior to beginning the corresponding crane operations.	Prior to moving SG sections in the auxiliary building
The auxiliary building cranes will be inspected to confirm consistency with the single-failure-proof guidelines of NUREG-0554, "Single-Failure-Proof Cranes for Nuclear Power Plants."	Prior to moving SG sections in the auxiliary building
Prior to use for Unit 1 SGRP, special lifting devices used for Unit 2 SGRP will be inspected and tested per ANSI N14.6-1978 requirements.	Prior to use
Rigging being used to move SG sections in the auxiliary building will meet the single-failure-proof criteria of NUREG-0554	Prior to moving SG sections in the auxiliary building
Administrative controls will be implemented to ensure that the requirements of TS 3.9.7.1 are met during the time that the crane travel limit switches are disengaged.	Prior to moving SG sections in the auxiliary building
Complete auxiliary building and auxiliary building crane design basis calculation review to support engineering study on seismic adequacy of auxiliary building cranes and supporting structure.	Prior to moving SG sections in the auxiliary building

