

SR 3.6.3.4 physical position verification requirements.

The design function of the affected containment isolation valves, and the initial conditions for accidents that require these valves to be closed, will not be affected by the proposed changes. Therefore, the changes will not increase the probability or consequences of an accident previously evaluated.

2. Does not create the possibility of a new or different kind of accident from any accident previously analyzed.

The proposed license amendment will revise the position verification requirements for manual containment isolation devices that are locked, sealed, or otherwise secured in the closed position.

No changes to the actual position/status of these valves are proposed by this amendment. The proposed amendment will not result in changes to the design, physical configuration or operation of the plant. Therefore, the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does not involve a significant reduction in the margin of safety.

Changes to the position verification requirements of normally closed manual containment isolation valves that are locked, sealed, or otherwise secured do not change the position/status of these valves. The proposed amendment does not impact the ability of these valves to perform their design function of controlling containment leakage rates during design basis radiological accidents. Therefore, the proposed amendment does not result in a reduction of the margin of safety.

The NRC staff has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 50.92(c) are satisfied. Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration.

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*Nuclear Management Company, LLC, Docket No. 50-331, Duane Arnold Energy Center, Linn County, Iowa*

*Date of amendment request:* March 11, 2003.

*Description of amendment request:* The proposed amendment would change the operating license to authorize the licensee to revise the updated final safety analysis report (UFSAR) by deleting a footnote stating that the Nuclear Regulatory Commission (NRC) does not endorse the reactor building crane as single-failure-proof.

*Basis for proposed no significant hazards consideration determination:*

As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

For heavy load handling associated with the spent fuel pool, Section 5.1.4(2) of NUREG-0612 states "The effects of heavy load drops in the reactor building should be analyzed to show that the evaluation criteria of Section 5.1 are satisfied."

An alternative to this is Section 5.1.4(1): "The reactor building crane, and associated lifting devices used for handling of \* \* \* heavy loads, should satisfy the single-failure-proof guidelines of Section 5.1.6 of this report."

The upgraded crane and handling systems satisfy the guidelines of Section 5.1.6. The evaluation criteria of NUREG-0612, Section 5.1 are met with a single-failure-proof crane that satisfies the guidelines of Section 5.1.6, or consequence analysis that satisfies Section 5.1.4(2).

Section 5.2 of NUREG-0612 states that an evaluation of fault trees shows that: "(1) The likelihood for unacceptable consequences in terms of excessive releases of gap activity or potential for criticality due to accidental dropping of postulated heavy loads after implementation of the guidelines of Section 5.1 is very low; and (2) The potential for unacceptable consequences is comparable for any of the alternatives evaluated for fault trees, indicating the relative equivalency between alternatives."

Since the NRC fault tree evaluation shows that the potential for unacceptable consequences is comparable for the two alternatives in Section 5.1.4 of NUREG-0612, the proposed request does not significantly change the potential for unacceptable consequences to the plant in conducting heavy load handling above the spent fuel pool. The probability of a load drop accident caused by use of the reactor building crane has been reduced to where it is so small to be considered not credible within regulatory accepted standards. The reason for this is attributed to the following:

(a) The reactor building crane is single-failure-proof. In 1985, the DAEC [Duane Arnold Energy Center] Reactor Building Crane was modified to meet the requirements of NUREG-0554 "Single Failure Proof Cranes for Nuclear Power Plants." The design of the Ederer hoist and trolley system was evaluated in a Staff SER [Safety Evaluation Report] of the Generic Licensing Topical Report EDR-1, Rev. 3, for Ederer's Nuclear Safety-Related Extra Safety and Monitoring (X-SAM) Cranes, dated August 3, 1983.

(b) The rigging used with the crane will be single-failure-proof per Section 5.1.6 of NUREG-0612.

(c) The requirements of NUREG-0612 Phase 1 have been implemented. The NRC provided a Safety Evaluation (SE) and Technical Evaluation Report (TER) by letter dated June 12, 1984 that concluded that the guidelines of NUREG-0612, Sections 5.1.1

and 5.3 had been satisfied and that Phase I of this issue for the DAEC was acceptable.

Therefore, this proposed change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The crane has been upgraded to meet single-failure-proof requirements in accordance with the applicable provisions of NUREG-0612 and NUREG-0554. The use of a single-failure-proof crane with rigging and procedures that implement the requirements of NUREG-0612 assures that a cask drop is not credible. The loading on the single-failure-proof crane will not exceed the design rated load of the crane.

Rigging for critical loads will meet NUREG-0612 requirements for single-failure-proof handling systems whenever a critical load is to be lifted over safety related equipment, or over the spent fuel pool, or over the cask when it is in the reactor building and loaded with fuel. When a cask is loaded on the crane hook, the crane trolley and bridge movements will be maintained within well defined limits of operation.

The loading conditions, load combinations, allowable stress limits, and methods of analysis used in the evaluations are consistent with the current licensing basis for the DAEC and NRC approved methods.

Therefore, this proposed amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed amendment will not involve a significant reduction in a margin of safety.

In 1985, the reactor building crane was upgraded to single-failure-proof in compliance with NUREG-0554. The upgraded crane and handling system is in compliance with NUREG-0612, Sections 5.1.1 and 5.1.6. The NRC in NUREG-0612, Section 5.2 documented their review of the potential consequences of a load drop when handled by a single-failure-proof crane using single-failure-proof rigging compared with other alternatives and concluded as follows: "The likelihood for unacceptable consequences in terms of excessive releases of gap activity or potential for criticality due to accidental dropping of postulated heavy loads after implementation of the guidelines of Section 5.1 is very low."

This means that a load drop is considered to be unlikely within regulatory accepted standards when the load is handled by a single-failure-proof crane and handling system, and performed in accordance with Section 5.1 of NUREG-0612. A single-failure-proof crane design incorporates the applicable design basis event that in this case is a seismic event. A load drop is of such low probability that it is considered unlikely when it is handled with the reactor building crane since the crane and its handling systems satisfy the NUREG-0612 criteria for a single-failure-proof crane. Therefore, any load lifted over the spent fuel pool using the reactor building crane has a very low probability of falling into the spent fuel pool