April 16, 2003

Mark A. Peifer
Site Vice President
Duane Arnold Energy Center
Nuclear Management Company, LLC
3277 DAEC Road
Palo, IA 52324-0351

SUBJECT: DUANE ARNOLD ENERGY CENTER - ISSUANCE OF EMERGENCY AMENDMENT REGARDING ENTRY INTO LCO 3.7.5 WITH AN INOPERABLE CBC SUBSYSTEM (TAC NO. MB8418)

Dear Mr. Peifer:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 250 to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center. This amendment consists of changes to the Technical Specifications (TS) in response to your application dated April 14, 2003, as supplemented April 15, 2003. This request was treated as an emergency amendment in accordance with 10 CFR 50.91(a)(5).

The amendment revises Limiting Condition for Operation (LCO) 3.7.5, “Control Building Chiller (CBC) System,” Required Action A.1 to add a provision that temporarily removes the restrictions of LCO 3.0.4 until May 16, 2003. This amendment allows entry into LCO 3.7.5 with an inoperable CBC subsystem.

A copy of our related safety evaluation is also enclosed. A Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/ by H. Chernoff

Darl S. Hood, Senior Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosures: 1. Amendment No. 250 to License No. DPR-49
2. Safety Evaluation

cc w/encls: See next page

April 16, 2003

Mark A. Peifer
Site Vice President
Duane Arnold Energy Center
Nuclear Management Company, LLC
3277 DAEC Road
Palo, IA 52324-0351

SUBJECT: DUANE ARNOLD ENERGY CENTER - ISSUANCE OF EMERGENCY AMENDMENT REGARDING ENTRY INTO LCO 3.7.5 WITH AN INOPERABLE CBC SUBSYSTEM (TAC NO. MB8418)

Dear Mr. Peifer:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 250 to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center. This amendment consists of changes to the Technical Specifications (TS) in response to your application dated April 14, 2003, as supplemented April 15, 2003. This request was treated as an emergency amendment in accordance with 10 CFR 50.91(a)(5).

The amendment revises Limiting Condition for Operation (LCO) 3.7.5, "Control Building Chiller (CBC) System," Required Action A.1 to add a provision that temporarily removes the restrictions of LCO 3.0.4 until May 16, 2003. This amendment allows entry into LCO 3.7.5 with an inoperable CBC subsystem.

A copy of our related safety evaluation is also enclosed. A Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,
/RA/ by H. Chernoff
Darl S. Hood, Senior Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosures: 1. Amendment No. 250 to License No. DPR-49
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

PUBLIC	GGrant, RIII	EWeiss
GHill (2)	DHood	MReinhart
PDIII-1 Reading	WBeckner	RDennig
ACRS	OGC	
THarris	HChernoff	

ADAMS Accession No. ML031070087 *Previously Concurred

OFFICE	PDIII-1/PM	PDIII-1/LA	SPLB/SC*	SPSB/SC*	RORP/SC*	OGC*	PDIII-1/SC
NAME	DHood ***/RA/ HChernoff***	THarris ***/RA/ RBouling***	EWeiss	MReinhart	RDennig	JMoore	LRaghavan ***/RA/ LRaghavan***
DATE	04/16/03	04/16/03	04/16/03	04/16/03	04/16/03	04/16/03	04/16/03

OFFICIAL RECORD COPY

Duane Arnold Energy Center

cc:

John Paul Cowan
Chief Nuclear Officer
Nuclear Management Company, LLC
27780 Blue Star Memorial Highway
Cover, MI 49043

Jeffrey S. Forbes
Senior Vice President
Nuclear Management Company, LLC
Monticello Nuclear Generating Plant
2807 West Country Road 75
Monticello, MN 55362-9637

John Bjorseth
Plant Manager
Duane Arnold Energy Center
3277 DAEC Road
Palo, IA 52324

Steven R. Catron
Manager, Regulatory Affairs
Duane Arnold Energy Center
3277 DAEC Road
Palo, IA 52324

U. S. Nuclear Regulatory Commission
Resident Inspector's Office
Rural Route #1
Palo, IA 52324

Regional Administrator
U. S. NRC, Region III
801 Warrenville Road
Lisle, IL 60532-4531

Jonathan Rogoff, Esquire
General Counsel
Nuclear Management Company, LLC
700 First Street
Hudson, WI 54016

Bruce Lacy
Nuclear Asset Manager
Alliant Energy/Interstate Power
and Light Company
3277 DAEC Road
Palo, IA 52324

Daniel McGhee
Utilities Division
Iowa Department of Commerce
Lucas Office Buildings, 5th floor
Des Moines, IA 50319

Chairman, Linn County
Board of Supervisors
930 1st Street SW
Cedar Rapids, IA 52404

Mark A. Peifer
Site Vice President
Duane Arnold Energy Center
Nuclear Management Company, LLC
3277 DAEC Road
Palo, IA 52324-0351

NUCLEAR MANAGEMENT COMPANY, LLC

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 250
License No. DPR-49

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Nuclear Management Company, LLC (the licensee) dated April 14, 2003, as supplemented April 15, 2003, complies with the standards and requirements of the Atomic Energy Act of l954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with l0 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 250, are hereby incorporated in the license. NMC shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of the date of issuance and shall be implemented immediately.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ by J. Stang

L. Raghavan, Chief, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: April 16, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 250

FACILITY OPERATING LICENSE NO. DPR-49

DOCKET NO. 50-331

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised areas are identified by amendment number and contain marginal lines indicating the areas of change.

Remove	Insert
3.7-11	3.7-11
B 3.7-27	B 3.7-27
B 3.7-28	B 3.7-28
B 3.7-29	B 3.7-29

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 250 TO FACILITY OPERATING LICENSE NO. DPR-49

NUCLEAR MANAGEMENT COMPANY, LLC

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

1.0 INTRODUCTION

By application dated April 14, 2003, as supplemented April 15, 2003, the Nuclear Management Company, LLC (NMC or the licensee), requested changes to the Technical Specifications (TSs) for the Duane Arnold Energy Center (DAEC). The amendment would revise Limiting Condition for Operation (LCO) 3.7.5, "Control Building Chiller (CBC) System," Required Action A.1 to add a provision that temporarily removes the restrictions of LCO 3.0.4 until May 16, 2003. This amendment would allow entry into LCO 3.7.5 with an inoperable CBC subsystem. The licensee requested that the proposed amendment be processed as an emergency amendment as discussed in Section 5.0 of this safety evaluation.

On April 12, 2003, the plant was in MODE 4 (cold shutdown) in a planned refueling outage. In preparation for required testing to satisfy TS Surveillance Requirement (SR) 3.8.1.13, the licensee was transferring the CBC system from the "B" to the "A" subsystem. During startup of the "A" CBC subsystem, the compressor motor failed. As a result of the unique design of this motor (dual speed), the licensee has not been able to find a suitable replacement and the only practical alternative for the licensee is to repair the existing motor. The current estimate for repair of the motor and its reinstallation is beyond the current estimate for plant startup from the current refueling outage. LCO 3.7.5 requires two CBC subsystems to be operable. In addition, LCO 3.0.4 prohibits DAEC from entering an applicable condition of LCO 3.7.5. Therefore, with the existing TSs, the licensee is not able to restart DAEC until the motor is repaired. As a result, the licensee is requesting the TS change described above to permit restart of DAEC.

2.0 REGULATORY EVALUATION

LCO 3.0.4 states, "When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall not be made except when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time."

LCO 3.0.4 establishes limitations on changes in MODES or other specified conditions in the Applicability when an LCO is not met. It precludes placing the unit in a MODE or other specified condition stated in the Applicability when the following exist:

1. Unit conditions are such that the requirements of the LCO would not be met in the Applicability desired to be entered; and

2. Continued noncompliance with the LCO requirements, if the Applicability were entered, would result in the unit being required to exit the Applicability desired to be entered to comply with the Required Actions.

Compliance with Required Actions that permit continued operation of the unit for an unlimited period of time in a MODE or other specified condition provides an acceptable level of safety for continued operation. This is without regard to the status of the unit before or after the MODE change. Therefore, in such cases, entry into a MODE or other specified condition in the Applicability may be made in accordance with the provisions of the Required Actions. The provisions of LCO 3.0.4 should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability. The provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS.

Exceptions to LCO 3.0.4 are stated in the individual TSs. These exceptions allow entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered do not provide for continued operation for an unlimited period of time. Exceptions may apply to all the ACTIONS or to a specific Required Action of a TS. LCO 3.0.4 is only applicable when entering (1) MODE 3 from MODE 4, (2) MODE 2 from MODE 3 or 4, or (3) MODE 1 from MODE 2. Furthermore, LCO 3.0.4 is applicable when entering any other specified condition in the Applicability only while operating in MODE 1, 2, or 3. The requirements of LCO 3.0.4 do not apply in MODES 4 and 5, or in other specified conditions of the Applicability (unless in MODE 1, 2, or 3) because the ACTIONS of individual TSs sufficiently define the remedial measures to be taken.

The licensee requested that the NRC staff process this proposed change as an emergency amendment in accordance with 10 CFR 50.91(a)(5).

3.0 TECHNICAL EVALUATION

The NRC staff has reviewed the licensee's regulatory and technical evaluations submitted in the April 14, 2002, application, as supplemented April 15, 2003. The evaluation below supports the conclusion that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) such activities will be conducted in compliance with the Commission's regulations; and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

The licensee has evaluated the proposed change. The licensee's evaluation included assessments of the design and licensing bases, probabilistic insights, and reviews of equipment performance within the scope of 10 CFR 50.65. The licensee concluded, in part, that (1) in the unlikely event of a failure of the remaining operable CBC subsystem, the licensee's procedures require actions to establish alternate cooling/ventilation; (2) the proposed change is below the Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-informed Decisions on Plant Specific Changes to the Licensing Basis," criteria for a small change in both core damage frequency and large early release fraction and that these values

bound the risk associated with the transition from MODE 4 to other modes; and (3) the CBC system has exhibited good reliability and performance within the last 3 years, as monitored by the licensee's 10 CFR 50.64 program.

Other DAEC TSs, as well as other plants' TSs, contain provisions similar to the proposed change. These are typically associated with ACTIONS that have Completion Times of 30 days or longer. An example of this is DAEC TS LCO 3.7.1, "Residual Heat Removal Service Water (RHRSW) System," which allows MODE 1, 2, or 3 to be entered with one RHRSW subsystem inoperable (Condition A). The associated Required Action for Condition A has a 30-day Completion Time.

As described in the DAEC Updated Final Safety Analysis Report (UFSAR), the CBC system provides temperature control for the control building HVAC system under both normal and accident conditions and provides HVAC support to the main control room, safety-related battery rooms, and the essential switchgear rooms. The CBC system consists of two independent, redundant subsystems that provide cooling of recirculated control room air. The chillers receive cooling water from either the emergency service water system (emergency supply) or the well water system (normal supply) and are supplied with both emergency and normal power. The CBC system is capable of removing sensible and latent heat loads from the control room, including consideration of equipment heat loads and personnel occupancy requirements.

A single subsystem can provide the required temperature control to maintain a suitable control building environment. The CBC system is designed to maintain the environment at 75 °F dry bulb and not more than 50-percent relative humidity when the outdoor air is at either summer design conditions (90 °F dry bulb and 76 °F wet bulb), or winter design conditions (minus 6 °F).

Loss of the CBC system would activate an annunciator in the control room. In response to this, plant operators would use an existing annunciator response procedure (ARP) to establish alternate control building cooling and ventilation. The ARP also directs entry into the abnormal operating procedures for fire protection which address establishing additional alternate control building ventilation if initial actions do not keep area temperatures within limits. These additional actions include blocking doors open and using existing auxiliary ventilation equipment. Chapter 9.4, "Air-Conditioning, Heating, Cooling, and Ventilation Systems," of the DAEC UFSAR says ". . . an outside ambient temperature of 105 °F maintained for 24 hours would cause the control room temperature to increase to 95 °F if only one cooling system [was] in operation. This maximum room temperature is well below the maximum operating temperature (104 °F) and will not make the rooms uninhabitable or effect equipment operability."

The licensee's supplemental letter of April 15, 2003, shows that the local-area, 7-day weather forecast expects the high ambient temperature to be 67 °F. The licensee's current estimate to restore the inoperable CBC to operability is April 21, 2003. Thus, expected cool local-area outside ambient temperatures give additional assurance that control room temperatures will remain well below the maximum operating temperature while only one cooling system is in operation. TS LCO 3.7.5 specifies that the plant is to be in MODE 3 within 12 hours and within MODE 4 within 36 hours should the operable CBC subsystem fail during, or after, a MODE transition. Thus, appropriate controls are in place to timely shut down the plant if the CBC system is lost.

The NRC staff further notes that it has recently approved a generic TS change regarding MODE change limitations for use in the Consolidated Line Item Improvement Program (CLIIP). This change approved modifications to LCO 3.0.4 and SR 3.0.4 allowing MODE changes into a TS condition that has a specific Required Action and Completion Time. While this generic change has not been proposed or implemented at DAEC, the conditions described in the licensee's April 14, 2003, application are consistent with the flexibility described in the safety evaluation for the CLIIP item.

Based on the above, the NRC staff concludes that appropriate controls are in place in TS 3.7.5 to facilitate a timely shutdown of the plant should the operable CBC subsystem fail during or after a MODE transition. The NRC staff has determined that the presence of an alternate ventilation method has been shown by the licensee's evaluations to be capable of maintaining control building temperatures. This alternate ventilation method provides an appropriate compensatory measure in the unlikely event of a loss of the operating CBC subsystem. Additionally, the licensee has established administrative measures, as described in Section 5.0 of this safety evaluation, to control activities that could adversely impact the operating CBC subsystem when the proposed LCO 3.0.4 exclusion is in effect.

In addition, the licensee proposed changes to the TS Bases in support of the proposed change to TS 3.7.5. The NRC has no objection to the licensee's proposed changes to the TS Bases.

4.0 EMERGENCY CIRCUMSTANCES

The Commission's regulations at 10 CFR 50.91 contain provisions for issuance of an amendment where the Commission finds that emergency circumstances exist, in that a licensee and the Commission must act quickly and that time does not permit the Commission to publish a *Federal Register* notice allowing 30 days for prior public comment. The emergency exists in this case in that the proposed amendment is needed to allow the licensee to resume operation and increase power up to the plant's licensed power level. The NRC staff has determined that the licensee used its best efforts to make a timely application and that the licensee could not reasonably have foreseen the problem that led to this TS change request.

On April 12, 2003, the plant was in MODE 4 (cold shutdown) in a planned refueling outage. In preparation for required testing to satisfy TS SR 3.8.1.13, the licensee was transferring the CBC system from the "B" to the "A" subsystem. During startup of the "A" CBC subsystem, the compressor motor failed. As a result of the unique design of this motor (dual speed), the licensee has not been able to find a suitable replacement and the only practical alternative for the licensee is to repair the existing motor. The current schedule for entry into MODE 2 is April 16, 2003. The repaired motor is expected to be available for installation and testing by April 21, 2003.

LCO 3.7.5 requires two CBC subsystems to be operable. In addition, LCO 3.0.4 prohibits DAEC from entering an applicable condition of LCO 3.7.5. With the existing TSs, the licensee is not able to restart DAEC until the motor is repaired. Therefore, pursuant to 10 CFR 50.91(a)(5), the licensee requested the TS change as an emergency change.

Accordingly, the Commission has determined that emergency circumstances exist pursuant to 10 CFR 50.91(a)(5) and could not have been avoided, that the submittal of information was timely, and that the licensee did not create the emergency condition.

5.0 REGULATORY COMMITMENTS

In support of the proposed TS changes, the licensee made the following commitments, as stated in its April 15, 2003, supplemental letter:

> For the duration of this temporary TS allowance, NMC commits to not moving irradiated fuel assemblies (or portions thereof) within the secondary containment, except as part of performing/supporting Core Alterations in Mode 5 (Refuel).
>
> [NMC] will establish controls, as part of the plant "startup package" to ensure that the "B" Control Building Chiller and its necessary support systems (e.g., "B" Diesel Generator) are "protected" to preclude any work activities (maintenance, testing, etc.) from being performed that would jeopardize its Operability, until the "A" Control Building Chiller is restored to Operable status.

The NRC staff has determined that license conditions are not required for these commitments. The licensee will control these commitments in accordance with its commitment management program.

6.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulation at 10 CFR Section 50.92(c) states that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would 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 accident previously evaluated; or (3) result in a significant reduction in a margin of safety. The NRC staff has made a final determination that no significant hazards consideration is involved for the proposed amendment and that the amendment should be issued as allowed by the criteria contained in 10 CFR 50.91. The NRC staff's final determination is presented below:

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

The proposed change would allow entry, until May 16, 2003, into the applicability of TS LCO 3.7.5, while in TS Condition A and the associated Required Action A.1. This means that the plant would be permitted to enter the applicability of LCO 3.7.5 with one of two CBC subsystems inoperable. Failures of CBC subsystems are not initiating events for design-basis accidents. The unavailability of one CBC subsystem during MODE transitions would not adversely impact probability of an accident previously evaluated. Therefore, the probability of an accident previously evaluated is not significantly increased.

The consequences of an accident during the relatively short period of MODE transitions with one CBC subsystem inoperable, as allowed by the proposed TS change, are equal to the consequences of an accident while complying with Required Action A.1 at any time during its 30-day Completion Time. This is also the case for the other specified applicable conditions within the LCO (e.g., moving irradiated fuel assemblies within the secondary containment), which are bounded by the design-basis accidents during power operation (i.e., loss-of-coolant

accident). Therefore, the consequences of an accident previously evaluated are not significantly affected by the proposed TS change.

The proposed TS change will not affect any other structure, system, or component designed for the mitigation of previously analyzed events. The proposed TS change would not affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of any accident previously evaluated. Therefore, the proposed change would not increase the consequences of any previously evaluated accident.

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

The proposed TS change does not involve a physical alteration of the plant. No new or different type of equipment will be installed. The proposed TS change would not introduce new failure modes or effects and would not, in the absence of other unrelated failures, lead to an accident whose consequences exceed the consequences of accidents previously evaluated. Therefore, the proposed changes would not create the possibility of a new or different kind of accident from any previously evaluated.

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

The TSs allow operation of the plant without the full complement of required equipment through the TS Conditions and associated Required Actions. The risk associated with this allowance is managed by the imposition of Required Actions that must be performed within the prescribed Completion Times.

The proposed TS change would not alter the Required Actions or Completion Times of LCO 3.7.5 to restore the CBC subsystem to operable status within 30 days. The proposed TS change allows the TS Condition to be entered and the associated Required Actions and Completion Times to be used in different circumstances (i.e., during planned changes in MODES associated with a plant startup), as well as entry into the other specified conditions of the LCO Applicability. However, as discussed in the TS Bases for LCO 3.0.4, this allowance is to be used prudently and not relied upon routinely as an operational convenience. Thus, any use of the proposed LCO 3.0.4 exclusion is predicated upon the reasonable assurance of completion of the restoration of the inoperable equipment within the allowed Completion Time. In addition, sufficient equipment would remain available to actuate upon demand for the purpose of mitigating an analyzed event, absent another independent single failure. Therefore, the proposed TS change will not significantly reduce any margin of safety that currently exists.

Based on the above evaluation, the NRC staff has concluded that the proposed TS change involves no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of no significant hazards consideration is justified.

7.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Iowa State official was notified of the proposed issuance of the amendment. The State official had no comments.

8.0 ENVIRONMENTAL CONSIDERATIONS

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes a surveillance requirement. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluent that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has made a final finding that the amendment involves no significant hazards consideration. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

9.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: H. Chernoff

Date: April 16, 2003