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Vice President, Nuclear

January 30, 1996
NG-96-0063

Mr. William T. Russell, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-37
Washington, DC 20555-0001

Subject: Duane Arnold Energy Center
Docket No: 50-331
Op. License No: DPR-49
Request for Technical Specification
Change (RTS-289): "Revision of Control Rod Scram Insertion Time
Testing Requirements"

References: 1) NUREG-1433 Revision 1, "Standard Technical Specifications, General
Electric Plants, BWR/4"
2) EAS-46-0487, "Revised Reactivity Control Systems Technical
Specification", dated August 1987
3) EAS-56-0889, "BWR/2-5 Scram Time Technical Specification", dated
August 1989
4) Letter from Nader Sadeghi (GE) to Ron Ballou (GE), dated January 4,
1996

File: A-117

Dear Mr. Russell:

In accordance with the Code of Federal Regulations, Title 10, Sections 50.59 and 50.90, IES Utilities Inc. hereby requests revision to the Technical Specifications (TS) for the Duane Arnold Energy Center (DAEC).

The proposed change will revise certain control rod scram insertion time testing limits. The proposed change is compatible with the limits specified in the Improved Standard Technical Specifications (ITS) (Reference 1).

This application has been reviewed by the DAEC Operations Committee and the Safety Committee. A copy of this submittal, along with the evaluation of No Significant Hazards Consideration, is being forwarded to our appointed state official pursuant to 10 CFR Section 50.91. We ask that this application be given immediate attention to prevent a potential plant shutdown resulting from evolutions currently planned for late March.

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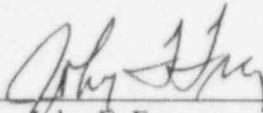
An IES Industries Company

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Approval of this application by March 22, 1996 is requested. Should you have any questions regarding this matter, please contact this office.

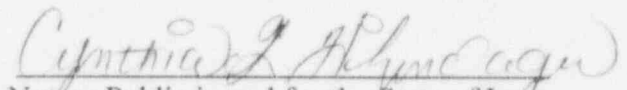
This letter is true and accurate to the best of my knowledge and belief.

IES UTILITIES INC.

By 
John F. Franz
Vice President, Nuclear

State of Iowa
(County) of Linn

Signed and sworn to before me on this 30TH day of JANUARY, 1996,
by JOHN F. FRANZ.


Notary Public in and for the State of Iowa

3-29-96
Commission Expires

- Attachments: 1) Evaluation of Change Pursuant to 10 CFR Section 50.92
2) Proposed Change RTS-289 to the DAEC Technical Specifications
3) Safety Assessment
4) Environmental Consideration
5) Letter from Nader Sadeghi (GE) to Ron Ballou (GE)

LLS/lis

cc: L. Sueper
L. Liu
B. Fisher
G. Kelly (NRC-NRR)
H. Miller (Region III)
S. Brown (State of Iowa)
NRC Resident Office
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EVALUATION OF CHANGE PURSUANT TO 10 CFR SECTION 50.92

Background:

Section 3.3.D.1 of the Duane Arnold Energy Center (DAEC) Technical Specifications (TS) currently requires that the average control rod scram insertion time to rod position 46 be no greater than 0.35 seconds. In addition, Section 3.3.D.2 of the DAEC TS currently requires that the average scram insertion time to rod position 46 be no greater than 0.37 seconds for the three fastest control rods of all groups of four control rods in a two-by-two (2X2) array.

The control rod scram average insertion time criteria are intended to demonstrate that the Control Rod Drive (CRD) system functions properly as part of the primary success path (scram) for mitigation of design basis accidents and transients. The four control rod group scram insertion time requirements demonstrate that the scram reactivity insertion rates assumed in the transient analysis are met locally since DAEC TS 3.3.D.1 places no restriction on the distribution of scram insertion times, only on the average. Together, these control rod scram insertion requirements demonstrate that the CRD system will perform its intended function. The basis for the scram insertion time to position 46 is as an indicator of overall CRD (scram) performance. It demonstrates the beginning of rod motion, and hence, negative reactivity insertion.

The DAEC transient analysis assumes a constant average control rod insertion speed. While the TS limits have been readily met in the past, the current limits provide little margin for the average control rod scram insertion time limits for rod position 46 (less than 5% rod insertion) specified in TS 3.3.D.1 and 3.3.D.2. Reference 3, which was developed to support the Improved Standard Technical Specifications (ITS, Reference 1), studied the effects of relaxing the insertion time requirement for rod position 46 for BWRs/2-5. This study demonstrated that increasing the design basis 5% insertion time to 0.49 seconds had a negligible impact on the results of plant transients and accidents. To account for single failures, a stuck control rod and 'slow' scrambling rods, the ITS scram times provided are faster than those assumed in the design basis analysis. The ITS scram insertion time limit developed for rod position 46 was 0.44 seconds. The 0.44 second limit for rod position 46 was intended to be applied in the ITS as a limit on each control rod, while allowing for a limited number of slow rods. On the other hand, the DAEC TS specifies an average insertion time for all of the Operable control rods in the core while applying additional limitations on the average of the three fastest control rods in any 2X2 array. However, both approaches assure that the reactivity insertion rates assumed in the transient analysis are met. Therefore, it is appropriate to apply the 0.44 second limit for rod position 46 to the average scram time of all Operable control rods and to the average scram insertion time for the three fastest control rods in any 2X2 array. Increasing the scram insertion time to rod position 46 will not degrade our ability to monitor CRD performance.

IES Utilities Inc., Docket No. 50-331,
Duane Arnold Energy Center, Linn County, Iowa
Date of Amendment Request: January 30, 1996

Description of Amendment Request:

The proposed amendment:

1. Increases the allowed average scram insertion time specified in Section 3.3.D.1 from 0.35 seconds to 0.44 seconds for rod position 46.
2. Increases the allowed average scram insertion time for the three fastest control rods in a 2X2 array specified in Section 3.3.D.2 from 0.37 seconds to 0.44 seconds for rod position 46.

Basis for proposed No Significant Hazards Consideration:

The Commission has provided standards (10 CFR Section 50.92(c)) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license for a facility 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; (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

After reviewing this proposed amendment, we have concluded:

1) The proposed amendment does not involve a change in the probability or consequences of an accident previously evaluated. The amount of reactivity inserted at rod position 46 (approximately 5% of rod insertion) is small and the time required to insert this amount of reactivity is not explicitly considered in the plant transient analysis. A generic BWR/2-5 study (Reference 3) performed on behalf of the BWR Owner's Group to support the ITS demonstrated that relaxing the 5% rod insertion time requirement had a negligible impact on plant transient performance provided the insertion time requirements to the other rod positions are met. We have confirmed that this study is applicable to the DAEC. Increasing the allowable average scram insertion time to rod position 46 for all Operable control rods in addition to increasing the allowable average scram insertion time to rod position 46 for the three fastest control rods in any 2X2 array would still demonstrate that the CRD system will perform its intended function. Scram time is a measure of CRD performance for operability. As such, it is not the initiator of any plant event. Therefore, the proposed change will not result in an increase in the probability of an accident occurring.

2) The amount of reactivity inserted at rod position 46 (approximately 5% of rod insertion) is small and the time required to insert this amount of reactivity is not explicitly considered in the transient analysis. A generic BWR/2-5 study showed that relaxing the 5% rod insertion time requirement had a negligible impact on plant transient performance. Increasing the allowable average scram insertion time to rod position 46 for all Operable control rods, while increasing the allowable average scram insertion time to rod position 46 for the three fastest control rods in any 2X2 array, would still demonstrate that the CRD system will perform its intended function. Therefore, increasing the limits proposed does not create the possibility of a new or different kind of accident from any previously evaluated. Scram time is a measure of CRD performance for operability. As such, it is not the initiator of any plant event.

3) The safety limit most affected by an increase in scram times is the Minimum Critical Power Ratio (MCPR). The DAEC TS safety limit for MCPR is 1.07. To ensure that the MCPR safety limit is not exceeded during design basis transients and accidents, an operating limit is conservatively placed on the MCPR during normal plant operation (OLMCPR). The amount of reactivity inserted at rod position 46 (approximately 5% of rod insertion) is small. The analysis used to establish the OLMCPR does not consider the scram insertion time at position 46 but does consider the scram insertion time to rod position 38 for the most limiting transient (turbine load rejection without bypass). The required scram time to position 38 remains unchanged by this proposed amendment. A generic BWR/2-5 study showed that relaxing the 5% rod insertion time requirement had a negligible impact on plant transient performance. This change will not result in any changes to the calculated OLMCPR, which assures that the safety limit MCPR will not be exceeded. Therefore, this change will not reduce the margin of safety.

Based upon the above, we have determined that the proposed amendment will not involve a significant hazards consideration.

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Attorney for Licensee: Jack Newman, Kathleen H. Shea; Morgan, Lewis & Bockius, 1800 M Street NW, Washington, D.C. 20036-5869