

IES UTILITIES INC.

John F. Franz, Jr.
Vice President, Nuclear

July 12, 1994
NG-94-2353

Mr. William T. Russell, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, DC 20555

Subject: Duane Arnold Energy Center (DAEC)
Docket No: 50-331
Op. License No: DPR-49
Request for Technical Specification
Change (RTS-266): Modification of
Surveillance Frequencies during Startup
for Rod Block Instruments
Reference: R. Pulsifer to L. Liu, Amendment # 193 to
Facility Operating License No. DPR-49,
April 14, 1993.
File: A-117, C-51

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 amendment requests revisions to the surveillance frequencies for certain Rod Block Instrument systems. Specifically, the requirement to perform Channel Functional Tests prior to Startup for the Rod Block Monitor (RBM), Flow-biased Average Power Range Monitor (APRM) and Recirculation Flow instruments is being revised to allow the Surveillance Requirements (SR) to be performed in an operating condition where extensive use of jumpers and relay blocks is not necessary to perform these tests. The requirement to perform these SRs "prior to Startup" was recently added to the TS by the referenced letter. During implementation of that Amendment, we recognized that performance of these new SRs would require the use of many jumpers and relay blocks in order to prevent other Engineered Safety Feature (ESF) actuations which were not germane to the specific instruments being tested. Consequently, we are requesting to allow the SRs to be performed after the Reactor is in the RUN mode, but prior to when each system is assumed to function in the plant safety analysis, thereby ensuring that the systems will be demonstrated to be OPERABLE prior to when they are required to be OPERABLE, but without the need for the jumpers and relay blocks.

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This application has been reviewed by the DAEC Operations Committee and the Safety Committee. A copy of this submittal, along with the No Significant Hazards Considerations analysis, is being forwarded to our appointed state official pursuant to 10 CFR Part 50.91.

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
John F. Franz
Vice President, Nuclear

State of Iowa
(County) of Linn

Signed and sworn to before me on this 13th day of July, 1994,

by John F. Franz



Mary Michele O'Neal
Notary Public in and for the State of Iowa
June 8, 1995
Commission Expires

JFF/RAB/pjv~

- Attachments: 1) Evaluation of Change Pursuant to 10 CFR Part 50.92
2) Proposed Change RTS-266 to the DAEC Technical Specifications
3) Safety Assessment
4) Environmental Consideration

cc: R. Browning
L. Liu
L. Root
R. Pulsifer (NRC-NRR)
J. Martin (Region III)
S. Brown (State of IA)
NRC Resident Office
DCRC

EVALUATION OF CHANGE PURSUANT TO 10 CFR PART 50.92Background:

In an earlier application, RTS-1863 (NG-93-0711, March 8, 1993), which was subsequently approved as Amendment #193 to the DAEC Technical Specifications (TS), we revised the Surveillance Requirements (SR) for certain Rod Block Instruments in Table 4.2-C to add a new requirement to perform a CHANNEL FUNCTIONAL TEST within 24 hours prior to Reactor STARTUP provided that the SR had not been performed within the previous 7 days. Specifically, this SR was added to the Rod Block Monitor (RBM) system, Average Power Range Monitor (APRM) Rod Block function and to the Reactor Recirculation Flow system Rod Blocks. These new SRs were added to be consistent with the requirements in the then-current Standard Technical Specifications (STS), NUREG-0123. During implementation of Amendment #193, we discovered that performance of these new SRs "prior to Startup" was very difficult for instrument channels which are only required to be OPERABLE when in RUN mode, *i.e.*, with the plant in a COLD SHUTDOWN condition and the mode switch in either the Shutdown or Startup positions, it is difficult to simulate all the necessary signals to properly test each channel. Consequently, we determined that it was less difficult to perform the SRs with the mode switch actually in the Run position, but with the plant still in COLD SHUTDOWN. However, this necessitates the use of many jumpers and relay blocks to prevent other Engineered Safety Feature (ESF) actuations from occurring that are not germane to this SR. Consequently, we are requesting to revise these SRs to allow them to be performed in a Mode where the CHANNEL FUNCTIONAL TESTs can be performed without the need for these jumpers and relay blocks, *i.e.*, with the plant actually in the RUN mode.

IES Utilities Inc., Docket No. 50-331,

Duane Arnold Energy Center, Linn County, Iowa

Date of Amendment Request: July 12, 1994

Description of Amendment Request:

The proposed changes to the Table 4.2-C requirements for the RBM, APRM and Recirculation Flow rod block functions will allow performance of the CHANNEL FUNCTIONAL TESTs in an operating state where the use of jumpers and relay blocks will be eliminated. Specifically, this application proposes to: 1) revise the requirement to perform a CHANNEL FUNCTIONAL TEST "prior to Startup" on the RBM system to allow the test to be done "prior to exceeding 30% Rated Thermal Power (RTP)," the actual OPERABILITY requirement for RBM per Table 3.2-C; 2) to revise the requirement to perform a CHANNEL FUNCTIONAL TEST "prior to Startup" on the APRM system Upscale and Downscale Rod Blocks to allow the SR to be done "within 24 hours after entering RUN and prior to exceeding 25% RTP," *i.e.*, in a timely manner after entering the condition when these rod blocks are actually functional, but before they are

needed to perform their safety function; and 3) to revise the requirement to perform a CHANNEL FUNCTIONAL TEST on the Reactor Recirculation Flow system Rod Blocks to be done "within 24 hours after entering RUN and prior to exceeding 25% RTP," to be consistent with the APRM rod block changes, as the Recirculation Flow system instruments provide the "flow-biased" input into the APRM Rod Block circuit.

Basis for proposed No Significant Hazards Consideration:

The Commission has provided standards (10 CFR Part 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 request for Technical Specification change, we have concluded:

- 1) The proposed change to the Channel Functional Test frequency for the RBM will not significantly increase the probability or consequences of any previously-evaluated event as we are only matching the mode requirement for performing the SR to the OPERABILITY requirement for the RBM system, *i.e.*, prior to 30% RTP. The system will be verified to be OPERABLE prior to when it is assumed to be OPERABLE in the Updated Final Safety Analysis Report (UFSAR) for the DAEC.

Allowing the Channel Functional Test for the APRM Flow-Biased Rod Block Upscale and Downscale trips to be performed "within 24 hours of entering RUN mode and prior to exceeding 25% RTP" will not increase either the probability or consequences of any previously-analyzed event. The applicable event for the rod block function during reactor startup is a control Rod Withdrawal Error (RWE), which is initiated by either an operator error or a malfunction within the Reactor Manual Control System, not by a malfunction within the APRM system. However, a RWE event that could challenge the fuel thermal limits is precluded because, as documented in the DAEC UFSAR (see Section 15.4) and the analysis submitted to support DAEC TS Amendment # 120¹, significant margin exists below 25% RTP to assure the Safety Limit Minimum Critical Power Ratio (SLMCPR) is not violated by a RWE event. In addition, rod pattern controls are in place during this period to limit the rod withdrawal sequence, *i.e.*, rod worth, such that the fuel thermal limits would not be exceeded. The Control Rod Drop Accident is unaffected by the requested SR change as the "accident" control rod is assumed to be de-coupled from its drive mechanism

¹ NEDC-30813-P, Average Power Range Monitor, Rod Block Monitor and Technical Specification Improvement (ARTS) Program for the Duane Arnold Energy Center, December 1984.

and free-falls from fully inserted to fully-withdrawn. As the drive for that rod is assumed to be fully-withdrawn as an initial condition in the event, the APRM rod block has no role in either preventing or mitigating the rod drop accident. Thus, revising the SR for the APRM Flow-Biased Rod Block has no impact upon the Control Rod Drop Accident.

The SRs for the Recirculation Flow Rod Block trips are being modified for consistency with the APRM Rod Block changes above, as the sole purpose of this Recirculation Flow signal is to provide the flow input signal into the APRM Flow-Biased trips. The Recirculation Flow units are a support system to the APRM Flow-Biased Rod Blocks. There is no event that is either caused by or mitigated by the Recirculation Flow Rod Block trips. They are provided solely to ensure that *if* the flow signal being input into the APRM circuits is not valid, a precautionary rod block will be generated as the APRM Flow-Biased Rod Block setpoint could be in error. Consequently, allowing the Channel Functional Test for the Recirculation Flow Rod Block Upscale, Downscale and Comparator trips to be performed "within 24 hours of entering RUN mode and prior to exceeding 25% RTP" will not increase either the probability or consequences of any previously-analyzed event as these rod blocks are not involved in either preventing or mitigating any analyzed event.

- 2) The proposed change to the Channel Functional Test frequency for the RBM will not introduce any new or different event, as no changes in system design or operation are being made. We are only matching the requirement for performing the SR to the OPERABILITY requirement for the RBM system.

The proposed change to the Channel Functional Test frequency for the APRM and Recirculation Flow Rod Blocks will not introduce any new or different event, as no changes in either system design or operation are being made. In fact, by allowing the Channel Functional Test to be performed in an operating state which does not require extensive use of jumpers and/or relay blocks, we reduce the possibility of an error being made that could cause an inadvertent actuation of an ESF or disabling of an ESF.

- 3) The proposed change matches the mode requirement for performing the SR to the OPERABILITY requirement for the RBM system, *i.e.*, prior to 30% RTP. The system will be verified to be OPERABLE prior to when it is assumed to be OPERABLE in the UFSAR accident analysis. Thus, the margin of safety for the RBM is not reduced.

As stated in the BASES for TS Chapter 3/4.2, the margin of safety for the APRM rod block is to prevent violation of the SLMCPR in RUN by a RWE event. The analysis of the RWE event during Startup (See DAEC UFSAR Section 15.4.2) and during

Power Operation², demonstrates that violations of the SLMCPR are not possible in RUN below 25% RTP when normal control rod patterns are followed (which are reinforced by procedural and/or automatic rod pattern controls). Because the proposed change to the SR for the APRM Flow-Biased Rod Block will still ensure that the trip will be OPERABLE prior to exceeding 25% RTP, this change will not reduce the existing margin of safety.

Again, the Recirculation Flow units are a support system to the APRM flow-biased circuits. The Recirculation Flow Rod Blocks are merely precautionary; they do not prevent or mitigate any accident. Therefore, the proposed revision to the Recirculation Flow Rod Block SR frequency will not reduce the margin of safety for the same reasons given above for the APRM Rod Blocks.

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

Local Public Document Room Location: Cedar Rapids Public Library, 500 First Street SE, Cedar Rapids, Iowa 52401

Attorney for Licensee: Jack Newman, Kathleen H. Shea; Newman, Bouknight & Edgar, P.C.; 1615 L Street NW, Washington, D.C. 20036

² *Ibid.*