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November 15, 1995
NG-95-2969

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-286, (EOC)RPT Operability
and Surveillance Requirements

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 amendment would revise the requirements for the End of Cycle Recirculation Pump Trip logic to match more closely the assumptions applicable to the turbine trip events for which it was installed. The surveillance requirements are also proposed to be revised, based on those same assumptions.

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.

In order to allow adequate time for implementation, we request that the proposed TS amendment be made effective 90 days from issuance.

Should you have any questions regarding this matter, please contact this office.

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An IES Industries Company

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 15 day of November, 1995,

by Debra J. Schwenker



Notary Public in and for the State of Iowa

Commission Expires

- Attachments: 1) Evaluation of Change Pursuant to 10 CFR Section 50.92
2) Proposed Change (RTS-286) to the DAEC Technical Specifications
3) Environmental Consideration
4) Safety Assessment

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cc: S. Catron
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:

The End of Cycle Recirculation Pump Trip ((EOC)RPT) system was installed at the Duane Arnold Energy Center (DAEC) in 1980 to increase the margin to the reactor fuel safety limit for Minimum Critical Power Ratio (MCPR) during the transients involving turbine trips at the end of an OPERATING CYCLE while at reactor power greater than or equal to 30%. The system consists of instruments arranged in two trains of logic which monitor the position of certain turbine valves, in order to initiate the opening of the reactor recirculation pump motor-generator set output circuit breakers. Tripping the recirculation pumps reduces the core flow and thereby adds negative reactivity which counteracts the positive reactivity added by the pressurization associated with a turbine trip.

The existing Technical Specifications (TS) require that reactor power be reduced to below 85% in the event that the (EOC)RPT system is not OPERABLE. The intent is to maintain an adequate margin to the safety limit (SL) MCPR. However, with current fuel designs, this margin can be readily met with little or no reduction in reactor power. This proposed amendment would impose an operating limit (OL) MCPR penalty on continued plant operation to maintain that necessary margin to the SLMCPR as an alternative to requiring a power reduction.

Additionally, there may be entire OPERATING CYCLES during which the (EOC)RPT would not be required because of sufficient margin to the OLMCPR. Consequently, IES will have the option to operate the DAEC with the (EOC)RPT in bypass and accept the resulting OLMCPR penalty in order to minimize the potential for spurious trips of the recirculation pumps and unnecessary surveillances of the (EOC)RPT which require that plant operating power be reduced.

During development of this TS change request, it was determined that the "Minimum Operable Channels Per Trip System" and the "Response Time" acceptance criteria should be input specific in order to ensure that the (EOC)RPT performs as designed.

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

Duane Arnold Energy Center, Linn County, Iowa

Date of Amendment Request: November 15, 1995

Description of Amendment Request:

The proposed TS amendment would revise the "Applicable Operating Mode" to recognize that the (EOC)RPT is bypassed below 30% rated thermal power. It would revise the "Minimum Operable Channels per Trip System" to recognize that there is a need to maintain one channel of each type of input in order to satisfy the TS. It would revise the Action Statement to require implementation of an OLMCPR penalty for continued operation without the (EOC)RPT. That OLMCPR penalty would be OPERATING CYCLE-specific and derived from the difference in MCPR calculated for the turbine trip events with (EOC)RPT in service and out of service. That penalty would be included in the DAEC cycle-specific CORE OPERATING LIMITS REPORT (COLR). The proposed amendment would also revise the Surveillance Requirements to increase the surveillance interval for

with the Improved Standard TS, NUREG 1433, and to revise the response time acceptance criteria based on recent reviews of the assumptions and the testing methodology. The 72 hour LIMITING CONDITION FOR OPERATION and subsequent 4 hours to implement the OLMCPR penalty remain unchanged from the current time limits for (EOC)RPT logic out of service and time to reduce power, respectively.

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 TS amendment will not significantly increase the probability or consequences of any previously evaluated accidents. The (EOC)RPT system was installed to preclude violation of reactor fuel limits, and the system will be preserved for that purpose. In the event that system is not available, an operating penalty will be imposed on the MCPR limit to assure sufficient margin to the limit to preclude fuel damage during the postulated turbine trip events.

The change to the "Minimum Operable Channels per Trip System" will assure that inputs monitoring both the turbine control valve fast closure and the turbine stop valve closure will be available to initiate (EOC)RPT.

The change to the "Applicable Operating Mode" is an editorial change which reflects the existing hardware bypass.

The change to Action 81 in TS Table 3.2-G will assure that when the (EOC)RPT system does not meet the minimum TS availability requirements, the SLMCPR will not be challenged. By imposing a OLMCPR penalty for continued operation, the fuel thermal limits will not be challenged, since the (EOC)RPT system was installed to accomplish the same goal. No increase in the consequences of the turbine trip events will result from this change. The OLMCPR penalty is dependent on cycle-specific parameters and will therefore be included in the cycle-specific COLR.

The change to the surveillance interval results in (EOC)RPT logic channel functional tests being performed once per quarter instead of once per month. The change also revises the allowed out-of-service time (AOT) for testing from two hours to six hours. These changes are consistent with the Improved Standard Technical Specifications, NUREG-1433, Revision 1. The (EOC)RPT is initiated by instruments common to the Reactor Protection System (RPS) (i.e., turbine stop valve closure and turbine control valve fast closure). The surveillance interval and AOT changes for these instruments were evaluated in "Technical Specification Improvement Analysis for BWR Reactor Protection System," NEDC-30851P-A, March 1988, for the RPS function. Although the (EOC)RPT functions were not explicitly identified in that document, these changes can be considered bounded by that analysis. The basis for this conclusion is similar to the basis established for the control rod block

instrumentation common to the RPS, as documented in "Technical Specification Improvement Analysis for BWR Control Rod Block Instrumentation," NEDC-30851P-A, Supplement 1, October 1988. Failure of the (EOC)RPT function could potentially lead to exceeding the SLMCPR, similar to the consequences of an unmitigated rod withdrawal error. The slight increase in risk of a SLMCPR violation due to extending (EOC)RPT surveillance interval and AOT is offset by the same benefits associated with the similar approved surveillance interval and AOT for the RPS. Both the above referenced reports have been approved for application at the DAEC via TS Amendment 193, dated April 14, 1993.

The changes to the "Operating Modes for which Surveillance Required" are clarifications and will result in a more efficient utilization of resources. By stating that the surveillance applies only when the (EOC)RPT system is OPERABLE, the surveillances will not be performed needlessly. During the early part of an OPERATING cycle, the (EOC)RPT is not required to mitigate a turbine trip, and therefore, may be bypassed. At the time when the (EOC)RPT is assumed to be OPERABLE pursuant to the analysis, it will be made OPERABLE unless accepting the penalty on the OLMCPR is preferable. The result of the proposed change will still be that the (EOC)RPT is demonstrated OPERABLE at any time when it is required.

The change to the acceptance criteria for response time testing reflects a recent review of the analytical assumptions and the testing methodology. The (EOC)RPT is assumed to interrupt power to the recirculation pump motor within 175 milliseconds after initiation of either turbine stop valve closure or turbine control valve fast closure. The response time test only measures a portion of the complete trip (the rest was measured as part of start-up testing). The portion measured is dependent on which trip input is being tested. The turbine control valve closure is sensed by a pressure switch monitoring the hydraulic fluid controlling the valve and therefore has no delay between valve motion and initiation of the (EOC)RPT logic. The turbine stop valve closure is sensed by position switch. Since this switch is set to initiate (EOC)RPT at 10% valve closed, there is a brief delay between the beginning of valve motion and initiation of the (EOC)RPT logic. The respective proposed response time tests account for these differences, as described in the footnotes on TS page 3.2-36, and demonstrate that the measured portions of the action are within the allowed time periods.

None of the proposed changes will significantly increase the probability of any accident previously evaluated because the (EOC)RPT is not an initiator of any of those events. None of the proposed changes will significantly increase the consequences of an accident because the (EOC)RPT system serves to prevent a turbine trip event from exceeding the fuel SLMCPR, and it will continue to perform in that capacity at any time when it is required to assure margin to the SLMCPR.

2) The proposed changes will not add a new or different kind of accident because the plant will not be operated in a different way. By allowing the implementation of a penalty on OLMCPR in lieu of reducing reactor power, the risk of a plant transient is reduced. Similarly, the surveillance interval and AOT extensions will also result in fewer plant power reductions for testing.

The (EOC)RPT initiates a trip of the recirculation pumps and any TS change affecting that system cannot result in an effect on any system other than those pumps. Consequently, no new accidents are postulated as a result of this proposed change.

3) The proposed change will not result in a significant reduction in any margin of safety. The (EOC)RPT performs to assure adequate margin to the SLMCPR. The proposed change will preserve that function and require that additional margin to the SLMCPR be imposed for those times when the (EOC)RPT is not OPERABLE. The other changes are proposed because they assure correct (EOC)RPT function (inputs and response times).

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

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