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DAEC Plant Support Center
Operated by Nuclear Management Company, LLC

April 16, 2001
NG-01-0499

Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station 0-P1-17
Washington, DC 20555-0001

Subject: Duane Arnold Energy Center
Docket No: 50-331
Op. License No: DPR-49
Response to Request for Additional Information (RAI) to Technical Specification Change Request (TSCR-042) – Extended Power Uprate (TAC # MB0543)
Reference: NG-00-1900, "Technical Specification Change Request (TSCR-042): 'Extended Power Uprate'," dated November 16, 2000.
File: A-117, SPF-189

Dear Sir(s):

On March 16, 2001, a conference call was held with the NRC Staff to review a draft Request For Additional Information (RAI) on the referenced amendment request. The proposed RAI had been provided to us electronically on March 15, 2001. As a result of this conference call, the first question was modified from the electronic version of the draft RAI. The Attachment to this letter contains the modified RAI and our Responses.

No new commitments are being made in this letter.

Please contact this office should you require additional information regarding this matter.

Sincerely yours,

Kenneth S. Putnam
Manager, Nuclear Licensing

Attachment: DAEC Responses to NRC Instrumentation and Control Engineering Branch Request for Additional Information Regarding Proposed Amendment for Power Uprate

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DAEC Responses to NRC Instrumentation and Control Engineering Branch Request for Additional Information Regarding Proposed Amendment for Power Uprate

The Instrumentation and Controls has reviewed the licensee's submittal of November 16,2000, and has determined that the submittal is lacking adequate detail in our areas of responsibilities. Therefore, in order for us to complete its review, the licensee should address the following:

1. For power uprates, the GE setpoint methodology discussed in GE topical report NEDC-32980P has been used to determine instrument setpoints. Therefore, this methodology should be referenced in the basis section of the TS. Also confirm that the same methodology has been used for both BOP as well as NSSS.

DAEC Response: a) The use of the GE setpoint methodology is incorporated into the DAEC licensing basis via the Updated Final Safety Analysis Report (UFSAR), not the Technical Specification (TS) BASES. (See DAEC UFSAR Section 7.1.3.) However, the DAEC TS BASES do contain a detailed description of the application of the methodology, in so far as to explain the relationship between the Analytical Limits in the accident analysis and the development of the TS Allowable Values and in-plant trip settings.

b) The DAEC current licensing basis does not apply the GE setpoint methodology to non-safety related instrumentation, such as balance-of-plant (BOP) instruments. This is consistent with the NRC's Safety Evaluation Report approving the GE setpoint methodology (Reference, letter B. Boger (NRC) to R. Pinelli (BWROG), dated November 6, 1995) and Regulatory Guide 1.105, Rev. 3. DAEC uses standard industrial practices and vendor recommendations with respect to BOP instrument calibrations.

2. Table 5-1 of NEDC-32980P provides changes in the analytical limit for setpoints for the current and power uprate condition. The justification for these changes is based on the assumption that they do not increase the probability and consequences of postulated accidents, or reduce significantly the margin of safety. In order for the staff to arrive at the same conclusion, information is needed on instrument setpoints and allowable values in addition to the analytical limit for the instrumentation identified in Table 5-1 at both the current and uprate power conditions.

DAEC Response: See Attached Table 1.

Table 1: Comparison of Current and Uprated Instrument Values

	ANALYTICAL LIMIT (AL)		*ALLOWABLE VALUE (AV)*		*NOMINAL TRIP SETPOINT (NTSP)*	
Parameter	*CURRENT*	*EPU*	*CURRENT*	*EPU*	*CURRENT*	*EPU*
APRM Calibration Basis	1658 MWt	1912 MWt				
APRM High Power Scram						
TLO Fixed (%RTP)	126	No change	No change	No change	No change	No change
SLO Fixed (%RTP)	126	No change	No change	No change	No change	No change
TLO Flow Biased (%RTP)	(var slope)W_D + 71.83	0.55W_D + 72.18	% recirc Flow %RTP 0 ≤63.4RPT 25 ≤77.7RPT 50 ≤92.5RPT 75 ≤107.1RPT 100 ≤121.6RPT	0.55W_D + 67.7	0.58W_D + 62	0.55W_D + 65.36
SLO Flow Biased (%RTP)	(var slope)W_D + 68.33	0.55W_D + 67.78	% recirc Flow %RTP 0 ≤59.9RPT 25 ≤74.3RPT 50 ≤89.0RPT	0.55W_D + 61.4	0.58W_D + 58.5	0.55W_D + 58.18
Rod Block Monitor Upscale Function Ranges						
Low Power Range (%RTP)	≥ 30 and < 65	No change	No change	No change	No change	No change
Intermediate Power Range (%RTP)	≥ 65 and < 85	No change	No change	No change	No change	No change
1st High Power Range (%RTP)	≥ 85 and < 90	No change	No change	No change	No change	No change
2nd High Power Range (%RTP)	≥ 90	No change	No change	No change	No change	No change
Inop. & Downscale Power Range (%RTP)	≥ 30 and < 90	No change	No change	No change	No change	No change
Vessel High Pressure Scram (psig)	1075.9	No change	No change	No change	No change	No change
Vessel Water Level – Low (inches above vessel zero)	535.5	No change	No change	No change	No change	No change
High Pressure ATWS RPT (psig)	1168.6	No change	No change	No change	No change	No change
Safety Relief Valve Setpoints (psig)	1110 ±3%	No change	No change	No change	No change	No change
	1120 ±3%	No change	No change	No change	No change	No change
	1130 ±3%	No change	No change	No change	No change	No change
	1140 ±3%	No change	No change	No change	No change	No change
Safety Valve Setpoints (psig)	1240 ±3%	No change	No change	No change	No change	No change
Low Condenser Vacuum Pressure MSIV Closure (Run Mode) (inches Hg vacuum)	≥ 7 and ≤ 13	No change	No change	No change	No change	No change
TSV & TCV Scram Bypass (%RTP)	30	26	171.9 psig[1]	123.2 psig[1]	169.1 psig[1]	120.3 psig[1]
Main Steam Line High Flow Isolation (% rated steam flow)	140	No change	138.0%	No change	136.3%	136.4%[2]
Main Steam Line Tunnel High Temperature Isolation (°F)	210.6	No change	No change	No change	No change	No change
RCIC Steam Line High Flow Isolation (inches H_2O)	196.8 (inboard) 190.8 (outboard)	No change No change	No change No change	No change No change	No change No change	No change No change
HPCI Steam Line High Flow Isolation (inches H_2O)	490 (inboard) 133 (outboard)	No change No change	No change No change	No change No change	No change No change	No change No change
Low Steam Line Pressure MSIV Closure (Run Mode)	800	No change	No change	No change	No change	No change

Footnotes to Table 1:

NOTE: W_D is recirculation drive flow in % of that required to achieve 100% core flow at 100% power.

1. The actual in-plant settings are in terms of Turbine First Stage Pressure. For EPU conditions, the corresponding %RTP values will be confirmed during startup testing. The change in first stage pressure from current to EPU conditions is due to the change in flow characteristics of the new high pressure turbine.
2. Minor change in NTSP is due to instrument replacement to accommodate higher flowrate at EPU conditions.