IES
UTILITIES INC.

John F. Franz, Jr.
Vice President, Nuclear

March 10, 1995
NG-95-0815

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

Subject: Duane Arnold Energy Center (DAEC)
Docket No: 50-331
Op. License No: DPR-49
Response to Request for Additional Information Regarding Removal of Certain Motor-Operated Valves from the DAEC Generic Letter 89-10 Program.

References: 1) T.Hsia (NRC) to IES Utilities Inc., "Summary of Meeting held on September 22, 1994, Extension of Generic Letter 89-10 Program Schedule at Duane Arnold," October 12, 1994.
2) J. Franz (IES) to W. Russell (NRC), "Generic Letter 89-10 Program," NG-94-4017, November 30, 1994.
3) G. Kelly (NRC) to L. Liu (IES), "Extension of Generic Letter 89-10 Program Schedule at Duane Arnold (TAC No. M89574)," February 2, 1995.

File: A-101b

Dear Mr. Russell:

In our meeting on September 22, 1994 (Ref. 1) we discussed removal of seventeen (17) Motor-Operated Valves (MOVs) from the Generic Letter 89-10 program at the DAEC. As part of that presentation, we stated that the design basis of these valves does not include system recovery from so-called "secondary modes of operation," *e.g.*, surveillance testing, in time to support the accident mitigation function. In Reference 2, we responded to the Staff's request for additional information regarding the functions of these 17 MOVs. The information provided in Reference 2 supports our position on recovery from secondary modes of operation, in that the stroke times specified in the original plant design for many of these valves is not sufficiently rapid to support the system response times assumed in the DAEC accident analysis. It is therefore clear that the valves were never intended to recover from secondary modes of operation in time to support the accident mitigation function. This was a deliberate decision incorporated into the

20

A064
1/1

original plant design. Consequently, we reiterate our position that these valves do not have an active safety function and do not belong in the Generic Letter 89-10 program.

During follow-up discussions with your Staff on the information provided in Reference 2, additional questions were raised regarding specific valves in this group of 17 MOVs. Our responses to those questions are provided in the Attachment to this letter.

Pending resolution of the open item(s) with the Staff regarding the removal of these valves from the Generic Letter 89-10 program, which the Staff has acknowledged in Reference 3 will take several months, we have agreed with the Staff to institute additional interim administrative controls regarding these 17 valves. Those additional administrative controls are described in the Attachment to this letter.

The following new commitments are being made in this letter.

1) We will institute the following additional administrative controls on the 17 MOVs prior to startup from the current Refuel Outage (RFO13):

   a) The torque switch settings for these valves will be maintained at their "as-left" settings (or higher), as determined from their last diagnostic test.

   b) All additional requirements for these MOVs will be as prescribed in Section 5.0 of MOV Procedure 3.1 of the DAEC MOV Program Manual.

   c) Operating experience will be evaluated, on an on-going basis, to determine if any adjustments to the control switches for these valves are required.

   These controls will remain in place pending the resolution of the open item regarding the removal of these 17 MOVs from the Generic Letter 89-10 program. It is further noted that we do not plan to perform periodic re-verification testing on any of these MOVs.

2) The Reactor Core Isolation Cooling (RCIC) Test Return Valve (MO-2515) will be diagnostically tested under static conditions during RFO13. This is the only valve in the group of 17 MOVs that has not been diagnostically tested to date.

We look forward to continuing the dialogue with the Staff over the function of these 17 MOVs and resolving the open item relative to removal of these valves from the Generic Letter 89-10 program.

Please contact this office if you have further questions regarding this matter.

Sincerely,

John F. Franz
Vice President, Nuclear

Attachment: 1) IES Utilities' Response to NRC's Request for Additional Information Regarding the Removal of 17 Valves from the DAEC Generic Letter 89-10 MOV Program

JFF/RAB/pjv~

cc: R. Browning
L. Liu
B. Fisher
L. Root
G. Kelly (NRC-NRR)
J. Martin (Region III)
NRC Resident Office
DOCU

IES Utilities' Response to NRC's Request for Additional Information
Regarding the Removal of 17 Valves from the
DAEC Generic Letter 89-10 MOV Program

NRC Request: Explain all instances where the Residual Heat Removal (RHR) Cross-tie Valve (MO-2010) is closed, including the ability to re-open this valve in each instance and its effect upon RHR OPERABILITY.

IES Response: MO-2010 is closed in three conditions: 1) RHR Shutdown Cooling; 2) Post-Accident Containment Heat Removal; and, 3) RHR System Maintenance. We will discuss each in turn.

1) RHR Shutdown Cooling: During Shutdown Cooling, MO-2010 is closed to isolate the "A" side of RHR from the "B" side of RHR, which is the primary loop for Shutdown Cooling. The Low Pressure Coolant Injection (LPCI) mode of RHR, which is the safety mode, is considered OPERABLE during the plant shutdown/cooldown sequence as stated in the footnote to the LPCI Technical Specification 3.5.A.5. The basis for this footnote is that the probability of a Loss-of-Coolant Accident (LOCA) is minimal during the short time between entering Shutdown Cooling and reaching Cold Shutdown. Furthermore, in the unlikely event that a LOCA does occur during this brief transition, the reduced complement of Emergency Core Cooling Systems (ECCS), *i.e.*, two RHR pumps in LPCI mode and both Core Spray subsystems, can furnish the necessary core cooling without reliance on re-opening of MO-2010 (Reference DAEC Operating License Amendment #200).

2) Post-Accident Containment Heat Removal: After adequate core cooling is established post-LOCA, one or both loop(s) of RHR may be used for Containment heat removal, *i.e.*, Drywell Spray, Torus Spray or Suppression Pool Cooling modes. Depending upon the mode being used, the Cross-tie Valve may be closed. Because long-term core cooling must be assured prior to re-aligning RHR from LPCI mode to one of the Containment heat removal modes[1], there is no need to re-open the Cross-tie Valve post-LOCA.

3) RHR System Maintenance: During on-line maintenance of the RHR system, it may be necessary to isolate one loop of RHR from the other to work on the inoperable component(s). This may require closure of the Cross-tie valve. Because this is a maintenance activity that renders the LPCI mode of RHR

[1] Long-term core cooling is assured through both 1) equipment interlocks, which prevent diversion of coolant from the reactor until core coverage is maintained, and 2) Emergency Operating Procedures (EOPs), which ensure that the Operator has sufficient make-up capability without the LPCI function before transferring RHR to the Containment Cooling mode(s).

inoperable, the Technical Specification Limiting Condition for Operation (LCO) is entered. In addition, there is a routine Preventative Maintenance (PM) activity on MO-2010 for periodic lubrication and general inspection. During the "lube & inspect" PM, the valve is cycled closed and then re-opened as part of the post-maintenance test. The prerequisite for this PM says that either the plant must be in Cold Shutdown or if the plant is on-line, the valve must remain open during the maintenance (except during the post-maintenance cycling). Thus, if the PM is done during Cold Shutdown, there is no OPERABILITY issue. If the PM is done on-line, outside of a pre-planned LCO, the valve is closed only during the post-maintenance cycling. This period of time is very short (less than 10 minutes) and, given the frequency of the performance of this PM (once every three years), the probability of a challenge to the system requiring MO-2010 to be open during the cycling of the valve is sufficiently small as to be negligible. Thus, we do not enter the LCO solely due to the cycling of MO-2010.

NRC Request: In the specific cases of MO-2115 (Core Spray Outboard Injection Valve) and MO-1941 (RHR Heat Exchanger Outlet Valve), were the results of dynamic testing on their "sister" valves, MO-2135 and MO-2031 respectively, fed back into calculations and torque switch settings for these valves? What was the impact upon the valves' operating margin?

IES Response: The dynamic test performed on MO-2135 resulted in a valve factor of 0.6 in the opening direction. The effect of this higher valve factor was evaluated and it was determined that the valve's capability at the as-tested torque switch setting was greater than the minimum-required stem thrust for this valve. Thus, no adjustment to the torque switch setting for MO-2135 was required as a result of the dynamic test to ensure adequate operating margin. Therefore, the setting for the companion valve, MO-2115, was similarly not affected.

The result of the dynamic test on MO-2031 validated the original design valve factor of 0.5. Thus, there was no need to revise the calculation for MO-1941.

NRC Request: What periodic re-testing will be done on these 17 valves?

IES Response: We do not plan to perform any periodic re-tests, either static or dynamic, on these valves.

NRC Request: The calculated Maximum Expected Differential Pressure (MEDP) for MO-2316 (HPCI/RCIC Redundant Shutoff Valve) is zero, based upon taking credit for the upstream valve (CV-2315) having a much faster closing time. Describe the ability of MO-2316 to close without taking credit for the faster closing time of CV-2315. Also, was similar credit taken for companion valve stroke times in any other valve's MEDP calculation?

IES Response: During the initial design basis review of MO-2316, the MEDP for this valve was determined to be zero. This determination took credit for the operating characteristic of the upstream HPCI test return isolation valve (CV-2315). CV-2315 is an air-operated globe valve which is throttled during HPCI pump testing to create the required pressure drop to simulate a back-pressure corresponding to reactor vessel injection conditions. Because CV-2315 would initially be in a throttled, *i.e.*, partially closed, position and given that the stroke times from the fully-opened position for these two valves are similar, CV-2315 would therefore close substantially sooner than MO-2316, thereby eliminating the differential pressure across MO-2316. Even if CV-2315 failed to close upon demand, given its throttled position, the resulting downstream pressure seen at MO-2316 would be substantially lower than the estimated differential pressure that MO-2316 is capable of overcoming. We have therefore concluded that this flow path isolation would occur with high reliability.

It is noted that the MEDP determined for each of the valves in the GL 89-10 program was determined individually without reliance on the repositioning of valves providing a common function. The above example for MO-2316 is a unique case.

NRC Request: Describe your administrative program for ensuring high reliability of these 17 MOVs that are proposed to be removed from the Generic Letter 89-10 program.

IES Response: The DAEC MOV Program Procedure for establishing the design and acceptance criteria for MOVs (MOV 3.1), consists of two principal parts: the Generic Letter 89-10 requirements and the requirements for valves not included in the Generic Letter 89-10 program. The non-Generic Letter 89-10 requirements are contained in Section 5.0 of MOV 3.1. The Section 5.0 requirements are based upon the vendor recommendations and our operating experience for torque switch settings and periodic maintenance on the valves. These 17 valves will be maintained per the existing Section 5.0 requirements with the following exceptions. Because the torque switch settings for these 17 valves were originally determined in accordance with the Generic Letter 89-10 program requirements (such as weak-link analysis, degraded voltage evaluations and static and/or dynamic diagnostic testing), we will continue to use these torque switch settings to maintain these valves. However, because degraded voltage conditions need not be considered for non-Generic Letter 89-10 valves, we may assign the margin afforded by the degraded voltage allowance elsewhere, if needed, to maintain operating margin on these valves. We will evaluate operating experience gained through valve testing in accordance with the Generic Letter 89-10 program and any other relevant industry information to the maintenance of these 17 valves.

These controls will remain in place pending the resolution of the open item regarding the removal of these 17 MOVs from the Generic Letter 89-10 program.