

March 22, 1994

Docket No. 50-331  
License No. DPR-49

IES Utilities Incorporated  
ATTN: Mr. Lee Liu  
Chairman of the Board and  
Chief Executive Officer  
IE Towers  
P.O. Box 351  
Cedar Rapids, IA 52406

Dear Mr. Liu:

SUBJECT: NOTICE OF VIOLATION (NRC INSPECTION REPORT NO. 50-331/93019(DRS))

This will acknowledge receipt of your letter dated February 11, 1994, in response to our letter dated January 14, 1994, transmitting a Notice of Violation associated with Inspection Report No. 50-331/93019(DRS). This report summarized the results of the routine safety inspection at your Duane Arnold Energy Center. We have reviewed your corrective actions and have no further questions at this time. These corrective actions will be examined during future inspections.

Sincerely,

Geoffrey C. Wright, Chief  
Engineering Branch

~~050033~~  
250007  
cc: D. Wilson, Plant Superintendent -  
Nuclear  
K. Young, Manager, Nuclear  
Licensing

cc w/ltr dtd 02/11/94:  
OC/LFDCB  
Resident Inspector, RIII  
Stephen Brown, Iowa Department  
of Commerce  
Licensing Project Manager, NRR

bcc: PUBLIC IE-01

RIII [see previous concurrence]  
Huber/kjc  
3/ /94

RIII  
Jacobson  
3/ /94

RIII  
Lanksbury  
3/22/94

RIII  
Wright  
3/24/94

IE-01

March 22, 1994

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Sincerely,

Geoffrey E. Grant, Director  
Division of Reactor Safety

cc: D. Wilson, Plant Superintendent -  
Nuclear  
K. Young, Manager, Nuclear  
Licensing

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RIII  
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3/21/94

RIII  
Jacobson  
3/22/94

RIII  
Lanksbury  
3/ /94

RIII  
Wright  
3/ /94

RIII  
Grant  
3/ /94

**IES**  
**INDUSTRIES INC.**

February 11, 1994  
NG-94-0336

Dr. Thomas E. Murley, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Station P1-137  
Washington, D.C. 20555

Subject: Duane Arnold Energy Center  
Docket No: 50-331  
Op. License No: DPR-49  
Reply to Notice of Violation Transmitted with  
Inspection Report 93019  
File: A-102

Dear Dr. Murley:

This letter and its attachment are provided in response to the recent inspection of the Duane Arnold Energy Center's (DAEC's) Generic Letter (GL) 89-10 Motor-Operated Valve Program.

The Attachment responds to the items identified in the Notice of Violation.

This letter contains the following new commitment:

Complete re-evaluation of VOTES data on all Generic Letter 89-10 valves tested prior to Refueling Outage 12 by April 1, 1994, using our revised engineering acceptance criteria.

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Dr. Thomas E. Murley  
February 11, 1994  
NG-94-0336  
Page 2

If you have any questions regarding this matter, please feel free to contact my office.

Sincerely,



John F. Franz  
Vice President, Nuclear

Attachment: Reply To A Notice Of Violation Transmitted with  
Inspection Report 93019

JFF/RJM:so

cc: R. Murrell  
L. Liu  
L. Root  
R. Pulsifer (NRC-NRR)  
J. Martin (Region III)  
NRC Resident Office  
DCRC

IES UTILITIES INC.  
REPLY TO A NOTICE OF VIOLATION  
TRANSMITTED WITH INSPECTION REPORT 93019

VIOLATION 1a

1. 10 CFR 50, Appendix B, Criterion XI requires, in part, that "a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents," and that "test results shall be documented and evaluated to assure that test requirements have been satisfied."
  - a. Contrary to the above, on September 16, 1993, the licensee performed static testing of the high pressure coolant injection outboard isolation valve, MO-2239, using procedure VALVOP-L993-001, that did not incorporate all appropriate acceptance limits to ensure MOV torque switch settings were correct and that the MOV could perform its design basis function. Specifically, no acceptance limits were established to control the maximum motor current input. (50-331/93019-01a(DRS))

This is a Severity Level IV violation (Supplement 1).

RESPONSE TO VIOLATION 1a

1. Reason For The Violation.

On September 2, 1993, Static Valve Operation Test and Evaluation System (VOTES) testing for MO-2239 was performed to satisfy Generic Letter (GL) 89-10. MO-2239 produced a thrust which was acceptable but close to the calculated minimum required thrust. Upon evaluation of the test data, the torque switch trip setpoint was raised higher in the allowable thrust range. The valve was declared operable on September 18, 1993.

On October 5, 1993, during reactor startup testing after the refueling outage, Surveillance Test Procedure (STP) 45D001-CY, "HPCI System Cycle Operability Test," was performed prior to exceeding 150 psig reactor pressure. During performance of the STP, the motor operator supply circuit breaker for MO-2239 tripped when the valve was shut. As a result, the HPCI system was declared inoperable and the appropriate notifications were made. Troubleshooting determined that the operator's torque switch was not opening prior to the motor operator supply circuit breaker tripping. Based on our conclusion that the

breaker trip setting was exceeded due to a failure of the torque switch, the torque switch was replaced and post-maintenance testing was completed on MO-2239. VOTES data obtained after torque switch replacement indicated that the valve was closing with more thrust than that obtained with the old torque switch and was below locked rotor current. Based on this information, the valve was declared operable.

On October 7, 1993, MO-2239 received an isolation signal due to low reactor pressure as anticipated during a planned plant evolution. Again, the torque switch for MO-2239 failed to open prior to the supply circuit breaker tripping.

After a comprehensive review of the test data, it was determined that the supply current for MO-2239 was too close to locked rotor current at the torque switch trip setpoint. The review revealed that a diagnostic software default value was used during initial valve testing on September 2, instead of an appropriate equipment-specific value. As a result, the torque switch adjustment performed on September 16, 1993 used incorrect current data as its basis which caused the motor to draw locked rotor current prior to developing sufficient torque to trip the closed torque switch. Our review also determined that the design specification for maximum degraded voltage current was not reviewed and compared to the actual current being observed during valve testing.

## 2. Corrective Steps That Have Been Taken And The Results Achieved

On October 7, 1993, MO-2239, and thus the HPCI System, were declared inoperable. The reactor startup was halted and all withdrawn control rods were reinserted. Notifications were made and a root cause review was initiated. The torque switch setting was reduced to provide adequate margin between torque switch trip and motor capability. Diagnostic data confirmed that the motor operator was operating within the design thrust and current requirements.

Previously, the weak link calculations specified the maximum thrust for which a particular valve/operator combination was to be setup. Because torque limitations of the motor under normal and degraded conditions may be more limiting than the weak link analysis, acceptance limits have been established to control the maximum motor current input. Additionally, the VOTES test procedure now provides for a redundant external electrical current measurement to verify the VOTES data.

An evaluation of the VOTES data for all Generic Letter 89-10 valves tested from Refueling Outage 12 to present was completed and the appropriate actions have been taken. This

re-evaluation was performed using our recently revised engineering acceptance criteria.

Additional training emphasizing this event was provided to VOTES technicians.

Additionally, the maintenance directive for planning of Limitorque motor operator VOTES testing (MD-035) has been revised to include a requirement that the engineering evaluation of VOTES data is completed prior to returning a valve to operable status.

3. Corrective Actions That Will Be Taken To Avoid Further Violations.

A Re-evaluation of VOTES data on all Generic Letter 89-10 valves tested prior to Refueling Outage 12 will be completed by April 1, 1994, using our revised engineering acceptance criteria.

4. Date When Full Compliance Will Be Achieved.

Full compliance was achieved on November 22, 1993, when maintenance procedure VALVOP-L993-001 was revised to include acceptance limits for maximum motor current input.

VIOLATION 1b

1. 10 CFR 50, Appendix B, Criterion XI requires, in part, that "a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents," and that "test results shall be documented and evaluated to assure that test requirements have been satisfied."

b. Contrary to the above, residual heat removal drain to waste surge tank inboard isolation valve, MO-1937, was returned to service following dynamic diagnostic testing before performing calculations to evaluate and document that acceptance criteria in SpTP-187 had been met. (50-331/93019-01b(DRS))

This is a Severity Level IV violation (Supplement 1).

RESPONSE TO VIOLATION 1b

1. Reason For The Violation

Special Test Procedure (SpTP)-187, Dynamic VOTES test for MO-1937 (Residual Heat Removal System Drain to Radwaste), section 9, "Extrapolation of Dynamic Test Data and Acceptance Criteria for MO-1937", contains the acceptance criteria for the dynamic test. Administrative procedure 1406.1, "Procedure Use and Adherence", requires that this section be completed prior to declaring the valve operable. However, MO-1937 was declared operable and returned to service without section 9 being completed. Additionally, we have determined that there was not a mechanism in place to provide for a prompt review and verification of the test data which could have identified this discrepancy.

2. Corrective Steps That Have Been Taken And The Results Achieved.

On December 3, 1993, a Quality Deficiency Report (QDR) was written to document the deficiency. Also on December 3, 1993, the extrapolation of SpTP-187 test data per section 9 was completed and verified by engineering and determined to be satisfactory for operability. All other dynamic tests performed to date were also reviewed to ensure that all steps of the SpTPs were satisfactorily completed.

Maintenance procedure VALVOP-L993-001, which controls the VOTES testing for all MOVs, was revised on November 1, 1993, to require verification sign-offs for critical steps.

Additionally, the maintenance directive for planning of Limitorque motor operator VOTES testing (MD-035) has been revised to include a requirement that the engineering evaluation of VOTES data is completed prior to returning a valve to operable status.

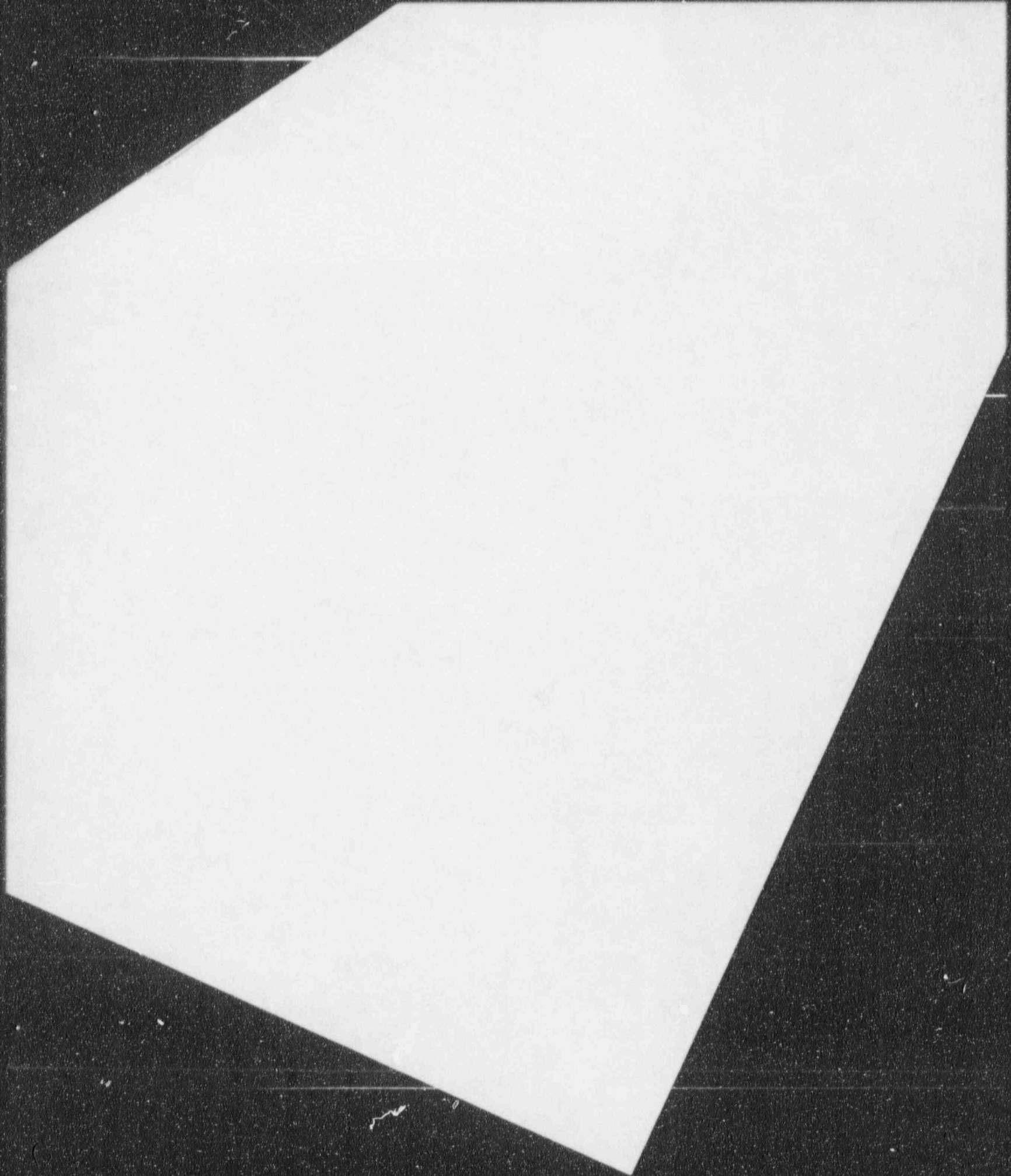
3. Corrective Actions That Will Be Taken To Avoid Further Violations.

As stated above, all actions to avoid further violations have been completed.

4. Date When Full Compliance Will Be Achieved.

Full compliance was achieved on December 3, 1993, when section 9 of SpTP-187 was completed and verified.





VIOLATION 2

10 CFR 50, Appendix B, Criterion XVI, requires, in part, "measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected."

Contrary to the above, as of December 6, 1993, corrective action was not taken following the completion of engineering evaluations conducted September 1993, and December 3, 1993, which concluded that the residual heat removal shutdown cooling outboard suction isolation valve, MO-1909, was in a potentially nonconforming condition. Specifically, the evaluations indicated that the valve may not be able to operate under design basis conditions.  
(50-331/93019-05(DRS))

This is a Severity Level IV violation (Supplement 1).

RESPONSE TO VIOLATION 2

1. Reason For The Violation.

MO-1909, RHR Shutdown Cooling Isolation Valve, was declared operable on September 10, 1993, following static VOTES testing. At the time, MOV operability was based on having passed its "in-field" acceptance criteria. The more detailed engineering evaluation of MOV test results was not required to be completed prior to declaring the valve operable. On November 10, 1993, a meeting was held with DAEC MOV Program personnel and NRC Region III personnel on the DAEC MOV Program and MOV test acceptance criteria. Based on issues identified at that meeting, the MOV engineering acceptance criteria was revised to better account for rate of loading.

A Re-evaluation of Refueling Outage 12 MOV test results against the revised engineering acceptance criteria determined that MO-1909 did not meet the revised acceptance criteria. Because the valve met the "in-field" acceptance criteria applicable at the time of testing the significance of this was not fully recognized and appropriate corrective action was not promptly pursued.

2. Corrective Steps That Have Been Taken and Results Achieved.

On December 3, 1993, a QDR was generated and, in accordance with Generic Letter 91-18, an immediate operability determination was performed. Also, on December 7, 1993, a more detailed evaluation of MO-1909 test results subsequently determined that MO-1909 was operable.

A Re-evaluation of all VOTES tests performed from the beginning of Refueling Outage 12 to present was completed and appropriate actions taken. This Re-evaluation was performed using the revised engineering acceptance criteria.

Additionally, the maintenance directive for planning of Limitorque motor operator VOTES testing (MD-035) has been revised to include a requirement that the engineering evaluation of VOTES data is completed prior to returning a valve to operable status.

3. Corrective Actions That Will Be Taken To Avoid Further Violations.

A Re-evaluation of VOTES data on all Generic Letter 89-10 valves tested prior to Refueling Outage 12 will be completed by April 1, 1994, using our recently revised engineering acceptance criteria.

4. Date When Full Compliance Will Be Achieved.

Full compliance was achieved on December 8, 1993, when MO-1909 was re-evaluated and determined to be operable.

**IES**  
**INDUSTRIES INC.**

February 11, 1994  
NG-94-0370

Dr. Thomas E. Murley, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Station P1-137  
Washington, D.C. 20555

Subject: Duane Arnold Energy Center  
Docket No: 50-331  
Op. License No: DPR-49  
Reply to Notice of Deviation Transmitted with  
Inspection Report 93019  
File: A-102

Dear Dr. Murley:

This letter and its attachment are provided in response to the recent inspection of the Duane Arnold Energy Center's (DAEC's) Generic Letter (GL) 89-10 Motor-Operated Valve (MOV) Program.

The Attachment responds to the item identified in the Notice of Deviation.

This letter contains the following new commitment:

Submit the revised GL 89-10 MOV Program Plan (including a revised dynamic test scope) to the NRC Staff by March 14, 1994.

If you have any questions regarding this matter, please feel free to contact my office.

Sincerely,

*David Wilson for*

John F. Franz  
Vice President, Nuclear

Attachment: Response To Notice Of Deviation Transmitted With  
Inspection Report 93019

JFF/RJM:so

cc: R. Murrell  
L. Liu  
L. Root  
R. Pulsifer (NRC-NRR)  
J. Martin (Region III)  
NRC Resident Office  
Commitment Control  
DCRC

IES UTILITIES INC.  
RESPONSE TO NOTICE OF DEVIATION  
TRANSMITTED WITH INSPECTION REPORT 93019

NRC NOTICE OF DEVIATION

During an NRC inspection conducted on November 29 through December 9, 1993, a deviation of commitments to the NRC with regard to Generic Letter (GL) 89-10 was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Action," 10 CFR Part 2, Appendix C, the deviation is listed below:

The licensee's December 28, 1989 response to GL 89-10 indicated the intent to meet GL 89-10 recommendations which included performing differential pressure (dp) tests where practicable and submitting any changes to scheduled commitments to the NRC staff.

Contrary to the above, as of November 29, 1993, the dp/full flow test scope was significantly reduced in that the licensee was no longer performing design-basis dp/full flow tests where practicable and furthermore, did not inform the NRC staff. The test program scope was not consistent with commitments to GL 89-10. (50-331/93019-02(DRS))

RESPONSE TO NOTICE OF DEVIATION

1. Reason For The Deviation

The DAEC dynamic testing program scope was significantly reduced in January, 1993, to reflect the complexity of dynamic testing and limited time available to complete the original testing scope. This revised dynamic testing scope, including selection strategies for determining if a valve was to be included in the dynamic (dp) testing scope, was presented to NRC Region III Staff during an IE-NRC Management Meeting in April, 1993. IE apparently did not clearly communicate the extent of the change to the program plan.

2. Corrective Steps Taken and Results Achieved

As a result of recently identified concerns regarding the DAEC's MOV Program, the MOV Team has been significantly expanded and has been restructured to ensure timely and accurate responses to NRC commitments associated with GL 89-10.

3. Corrective Actions That Will Be Taken to Avoid Further Deviations

The DAEC MOV Team is currently revising the MOV Program Plan. The revised MOV Program Plan will include guidance for establishing the dynamic testing scope. Additionally, the Program Plan will include guidance for degraded voltage, feedback of the test data to parallel train valves, pressure locking and thermal binding and other issues that were identified during the recent MOV inspection. The revised Program Plan will be forwarded to the NRC as part of the 60-day response required by NRC Inspection Report 93019. Future revisions of the program plan will be clearly communicated to the NRC.

4. Date When Corrective Actions Will Be Complete

All corrective actions will be completed by March 14, 1994, with the submittal of the revised GL 89-10 MOV Program Plan (including a revised dynamic test scope) to the NRC Staff.