

Iowa Electric Light and Power Company

November 26, 1984
NG-84-5310

Mr. James M. Taylor, Deputy Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Duane Arnold Energy Center
Subject: Docket No: 50-331
Operating Licence No: DPR-49
Response to Notice of Violation and Proposed Imposition
of Civil Penalty
File: A-102

Dear Mr. Taylor:

This letter is being submitted pursuant to the requirements set forth in a letter from Mr. James G. Keppler, USNRC Region III Regional Administrator, to Mr. Lee Liu, President and Chief Executive Officer, Iowa Electric Light and Power Company, dated October 29, 1984. Specifically, we are required to submit within 30 days a response to the Notice of Violation and Proposed imposition of Civil Penalty. This letter and attachments constitute that response.

Attachment 1 to this letter, Response to Notice of Violation (10 CFR 2.201) provides our (1) statement of position (admitting or denying the violation), (2) reason for violation, or basis for denial, (3) completed corrective actions, (4) corrective actions which will be taken, and (5) date when full compliance will be achieved. Supporting information for the positions taken in item (2), reason for violation or basis for denial, is provided in Attachment 2.

Iowa Electric recognizes the seriousness of the violation which took place and, as the Notice of Violation acknowledges, took prompt corrective action. As stated in the attachment to this letter, we believe the violation was a violation of an administrative Technical Specification in that procedures were not followed and, as a result, the Standby Liquid Control System (SLCS) valve was closed for approximately five hours (i.e., less than the 24 hour Limiting Condition for Operation). The SLCS is not a two-train system, but is a backup to the Reactor Protective System. This information was discussed during the enforcement conference, and it is our belief that it would not be productive to pursue these points further. We, therefore, will not submit a response under the provisions of 10 CFR 2.205 protesting the Civil Penalty. We enclose our check in the amount of \$25,000 with this response.

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This response, consisting of the foregoing letter and enclosure are true and accurate to the best of my knowledge and belief.

IOWA ELECTRIC LIGHT AND POWER COMPANY

BY Richard W. McGaughy
Richard W. McGaughy
Manager, Nuclear Division

Subscribed and sworn to Before Me on
this 26th day of November 1984.

Hellen M. Furman
Notary Public in and for the State of Iowa

RWM/BR/cg*

Attachments: 1) Response to Notice of Violation (10 CFR 2.201)
2) Additional Information Relevant to Notice of Violation
Enclosure: Check

cc: B. Reid
L. Liu
S. Tuthill
M. Thadani
J. Keppler (NRC Region III)
NRC Resident Office
Commitment Control No. 84-0327

RESPONSE TO NOTICE OF VIOLATION (10 CFR 2.201)

NRC DESCRIPTION OF VIOLATION

A special inspection of activities was conducted at the Duane Arnold Energy Center (DAEC) during the period of July 18 through 26, 1984 to review the events associated with the personnel error that occurred on July 18, 1984 which rendered both trains of the Standby Liquid Control System inoperable.

* * * *

Technical Specification 3.4.A.1 requires that during normal system availability the Standby Liquid Control System be operable. Technical Specification 6.8.1.6 states in part, "Detailed written procedures involving nuclear safety...including surveillance and testing requirement,... shall be prepared. All procedures shall be adhered to."

Surveillance Test Procedures 44C001, "Standby Liquid Control System Boron Concentration Test," requires by Step 4.2 that Valve V-26-11 be unlocked and open. Operating Instruction No. 53, "Standby Liquid Control System," requires in Attachment 2, "System Valve Line Up," that Valve V-26-01 be locked in the open position during plant operation.

Contrary to the above, during the performance of Surveillance Test Procedure 44C001 on July 18, 1984, while the plant was operating, a chemistry technician unlocked and closed Valve V-26-01, rather than unlocking and opening Valve V-26-11 as required by the procedure. The closing of Valve V-26-01 rendered the Standby Liquid Control System inoperable for approximately five hours. The technician had no authorization and was not qualified to conduct the procedure.

This is a Severity Level III violation (Supplement I).
(Civil Penalty - \$25,000)

Iowa Electric Response

(1) Statement of Position

Iowa Electric admits the violation of Technical Specification 6.8.1.6 and Surveillance Test Procedure 44C001. The violation resulted in improper closure of valve V-26-1 which rendered the Standby Liquid Control System inoperable for approximately five hours.

(2) Reason for Violation

On July 18, 1984 during normal full power operation at 1530 hours, two licensed Operators discovered the locked, normally open sodium pentaborate supply valve (V-26-1) to be locked and substantially closed. This valve is the common suction valve for the two Standby

Liquid Control System (SLCS) pumps from the SLCS tank and is procedurally required to be locked open at all times when SLCS is required to be operable. The ensuing investigation revealed the following:

A contract chemistry technician, who had prior experience as a chemistry technician at another nuclear facility and had been performing duties at DAEC since June 17, 1984, went to the Control Room to be authorized to conduct a sensor check STP. The technician also carried with him for authorization all the chemistry surveillances to be performed that shift by chemistry personnel which was then an acceptable practice. The Control Room shift supervisor reviewed the chemistry surveillances and authorized them to be performed. Included in the surveillance tests was a test of the SLCS tank concentration. As the SLCS test required opening of a locked air sparger valve, the shift supervisor issued a controlled key to the chemistry technician for the test. In accordance with administrative control requirements, the technician signed the controlled key log acknowledging receipt of the key.

Upon returning to the chemistry lab, the technician discussed the activity he was charged to do (sensor checks) with a second technician. The second technician indicated that during sensor checks, if a monthly test of the SLCS concentration was also scheduled the technician performing sensor checks normally initiated the first part of the SLCS test (specifically, open the air sparger valve to the SLCS tank). Although the first technician was fully qualified to perform the sensor checks, he was not qualified (or instructed) to perform any other surveillance test. Had he gone to his supervisor, or if the second technician had known that the first technician wasn't qualified, he would have been instructed to perform no more than the sensor checks. However, as a result of the second technician's advice and in his effort to be productive and have the STP performed efficiently, the first technician proceeded to perform his assigned sensor check activities and his assumed responsibility to initiate the SLCS STP.

During performance of his sensor checks and after reviewing the SLCS STP, the technician proceeded to the SLCS to open the air sparger valve, V-26-11, at approximately 1045. The technician, who was not familiar with the system components, incorrectly located valve V-26-1 rather than V-26-11. He then cycled valve V-26-1 after removing the lock with the common key to the SLCS valves that had been provided to him by the Control Room. The technician, perhaps because of uncertainty or because expected bubbling was not heard in the tank, attempted to reposition V-26-1 to its prior position. However, he apparently cycled V-26-1 further closed rather than reopening the valve. He then relocked V-26-1 and contacted the chemistry lab to seek help. The second chemistry technician identified the location of

V-26-11 at the top of the SLCS tank, as opposed to V-26-1, which was at the bottom. The first technician then returned to the SLCS tank, opened the correct valve (V-26-11), and resecured the lock.

A third technician performed the remainder of the STP later that afternoon (prior to discovery of the valve status). Sparger valve (V-26-11) position was independently verified by an operator following test completion. Valve V-26-1 is not referenced in the STP, consequently, the erroneous valve position was not discovered during the performance of the STP.

In summary, the violation of Technical Specification 6.8.1.6 and Surveillance Test Procedure 44C001 occurred as a result of a single error by the chemistry technician.

This violation involved the Standby Liquid Control System, which is required to be operable during normal system availability. Iowa Electric recognizes the importance of this system. However, it should be noted that although there are two SLCS pumps, there are not two "trains" as stated in the NRC Notice of Violation. The system as described in the Updated Final Safety Analysis Report (Section 9.3.4.3) is not required to meet a single failure criterion. The system was inoperable for approximately five hours. This did not violate the applicable Limiting Condition for Operation which allows 24 hours for placing the plant in a cold shutdown condition after the system becomes inoperable. The Technical Specification and UFSAR sections relevant to the foregoing are contained in Attachment 2.

We conclude that the July 18 event did not involve a violation of a Limiting Condition for Operation; nor were two trains of a redundant system rendered inoperable. Therefore, in our view the violation is appropriately categorized as Level IV, not III.

(3) Corrective Action Taken and Results Achieved

The following corrective action has been initiated both for this event and for personnel errors in general.

(a) Immediate Rectification and Notification

The mispositioned valve, V-26-1, was restored immediately to the proper position upon discovery by licensed personnel and, to ensure that the SLCS was fully operational, a full valve line-up verification of the system was conducted by Operations personnel without further incident. Followup investigation determined that the valve had been mispositioned for less than five hours.

Upon discovery of the valve in the improper position, Operations personnel notified NRC, County and State agencies in accordance with NRC regulations and Licensee procedures (NRC was notified at

1558 hours for the simultaneous declaration and termination of an Unusual Event). LER 84-029 was submitted to the NRC which documented our evaluation of the event.

(b) Prompt Investigation and Determination of the Event Cause

Management personnel were notified and an immediate investigation by the Plant Superintendent and support personnel was initiated. The investigation resulted in disclosure of the above circumstances by approximately 1830 hours (3 hours after discovery of the mispositioned valve). These circumstances were also provided promptly to the NRC in a follow-up telephone call.

- (c) Senior management has authorized and directed replacement of contract chemistry technician personnel with permanent Iowa Electric employees. Three Iowa Electric chemistry technicians have been employed to fill positions previously occupied by contract personnel. Two of these individuals are now working in the chemistry lab and are participating in the training process. The third individual's transition into the chemistry lab will occur within 9 months. This is because of the personnel training requirements for his replacement in his present job, and due to our chemistry technician training and certification program. A fourth position is expected to be filled in January 1985.
- (d) The practice of issuing controlled keys to non-Operations personnel to allow manipulation of locks to safety-related valves has been discontinued. As of July 20, 1984, only Operations personnel are permitted to unlock safety-related chain locked valves. These restrictions will remain in place pending future evaluation and administrative controls on a case-by-case basis.
- (e) We are reviewing the application for locked valves and will determine the rating (safety or non-safety) of their associated locks and keys compared to the current criteria for locked valves.
- (f) The practice of issuing STPs to a single technician for an entire department was immediately discontinued. The technician who is to perform the STP must also obtain authorization for that STP.
- (g) Plantwide meetings were held to emphasize that personnel may only take direction from appropriate supervision, that personnel errors must be reduced, and that personnel are expected to identify questions and potential errors so that direction and/or rectification can promptly occur.
- (h) A personnel development program following general employee training is being generated. This program will formalize

Item g(above) guidance and the importance of activities and what to do if an error is committed or suspected. This program will be implemented before resumption of operation following the Cycle 8 refueling outage which will commence in February 1985.

- (i) In-plant supervising responsibilities have been re-emphasized for all plant disciplines and activities. Direct supervisory involvement in plant activities was strengthened and a coordinated, aggressive approach is being taken to eliminate personnel errors at DAEC.
- (j) Increased personnel awareness of errors has been and will continue to be emphasized through:
 - 1) Special meetings held to discuss errors and solutions with plant personnel.
 - 2) Task force comprised of union and management personnel to study causes and corrective actions, and to recommend preventive measures.
 - 3) Routine meetings with a common agenda for all personnel to discuss plant items.
 - 4) Prompt changes in procedures when problems are noted with procedures.
 - 5) Additional and more thorough training on plant modifications.
 - 6) Display board with postings concerning personnel errors and number of accident-free days.

(4) Corrective Action Pending

Section 3 (above) describes actions that are long-term programmatic improvements as well as specific corrective action for this incident.

(5) Date of Full Compliance

Full compliance was achieved with the prompt identification and valve position rectification by licensed operators on July 18, 1984.

ADDITIONAL INFORMATION RELEVANT TO NOTICE OF VIOLATION

The Notice of Violation refers to Technical Specification 3.4.A as well as Technical Specification 6.8.1.6 discussed in Attachment 1, and we believe that the following information is pertinent to this response. Technical Specification 3.4.A.1 states:

Normal System Availability

During periods when fuel is in the reactor and prior to startup from a Cold Condition, the Standby Liquid Control System shall be operable, except as specified in 3.4.B below. This system need not be operable when the reactor is in the Cold Condition and all control rods are fully inserted and Specification 3.3.A is met.

Section 3.4.B.1 states:

Operation with Inoperable Components

From and after the date that a redundant component is made or found to be inoperable, Specification 3.4.A.1 shall be considered fulfilled and continued operation permitted provided the component is returned to an operable condition within seven days.

Section 3.4.D states:

If Specification 3.4.A through C cannot be met, the reactor shall be placed in a Cold Shutdown Condition with all operable control rods fully inserted within 24 hours.

As stated in the Notice of Violation, the closing of Valve V-26-1 rendered the Standby Liquid Control System inoperable for a period of approximately five hours. However, as stated in Technical Specification 3.4.D, if specification 3.4.A and 3.4.B cannot be met, the reactor shall be placed in a cold shutdown condition within 24 hours. Since the 24 hour Limiting Condition for Operation was not exceeded, Technical Specification 3.4 was not violated.

Additionally, Iowa Electric must comment on another aspect of the Notice. It describes the error, in part, as follows:

"...the personnel error that occurred on July 18, 1984 ...rendered both trains of the Standby Liquid Control System inoperable.
(Emphasis added)

The SLC system is a backup to the Reactor Protection System (RPS), and the RPS was fully operable throughout the event. Although, as described in the UFSAR, the reliability and availability of the SLCS are enhanced by providing redundancy of pumps and valves, the SLCS is not designed to meet the single-failure criterion, and does not consist of two trains.

The DAEC UFSAR states in part:

9.3.4 STANDBY LIQUID CONTROL SYSTEM

9.3.4.1 Design Bases

The safety objective of the standby liquid control (SLC) system is to provide a backup method, independent of the control rods, to initiate and maintain the reactor subcritical as the nuclear system cools. Maintaining subcriticality thus ensures that the fuel barrier is not threatened by overheating in the improbable event that not enough of the control rods can be inserted to counteract the positive reactivity effects of a colder moderator.

9.3.4.1.2 Safety Design Bases

The SLC system meets the following safety design bases:

1. Backup capability for reactivity control is provided, independent of normal reactivity control provisions in the nuclear reactor, to be able to shut down the reactor if the normal control ever becomes inoperative.

9.3.4.3 Safety Evaluation

The SLC system is a special safety system not required for unit operation or to meet the single-failure criterion. The system is expected never to be needed for unit safety because of the large number of independent control rods available to shut down the reactor.

However, system reliability and the availability are enhanced by providing redundancy of pumps and valves. Two sets of the components required to actuate the system--pumps and explosive valves--are provided in parallel. Redundancy is not required for the tank heater or heating cable.