DSB

IOWA ELECTRIC LIGHT AND POWER COMPANY

DUANE ARNOLD ENERGY CENTER
P. O. Box 351
Cedar Rapids, Iowa 52406

September 20, 1979
DAEC-79-239

Mr. James G. Keppler, Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission - Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: Licensee Event Report No. 79-001
(30 day)

UPDATE REPORT
PREVIOUS REPORT
DATED 2/27/79

File: A-118a

Dear Mr. Keppler:

In accordance with Appendix A to Operating License DPR-49, Technical Specifications and Bases for Duane Arnold Energy Center and Regulatory Guide 10.1, please find attached a copy of the subject Licensee Event Report. (Total of 3 copies transmitted)

Very truly yours,

Ellery L. Hammond

Ellery L. Hammond
Chief Engineer
Duane Arnold Energy Center

Docket 50-331

attachment
ELH/JCZ/lh

cc: Director, Office of Inspection and Enforcement (30)
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Director, Management Information and Program Control (3)
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

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SEP 24 1979

NRC FORM 366 (7-77)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

UPDATE REPORT - PREVIOUS REPORT DATED 2/27/79

CONTROL BLOCK: (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

01 | LICENSEE CODE: I A D A C 1 (2) | LICENSE NUMBER: 0 0 - 0 0 0 0 0 - 0 0 (3) | LICENSE TYPE: 4 1 1 1 1 (4) | CAT (5)

CON'T

01 | REPORT SOURCE: L (6) | DOCKET NUMBER: 0 5 0 0 0 3 3 1 (7) | EVENT DATE: 0 1 2 8 7 9 (8) | REPORT DATE: 0 9 2 0 7 9 (9)

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

02 While operating the recirculation system in preparation for a hydrostati
03 c test, no flow indication was noted for the number 3 and 4 jet pumps. F
04 low instrumentation was immediately tested and found operable. Additiona
05 l testing was then performed which confirmed blockage existed in either
06 the N2B riser or in the associated jet pumps numbers 3 and 4. Planning w
07 as begun for investigating the nature and position of the blockage and f
08 or its removal. A review of repair procedures was begun. (see RO 78-030)

09 | SYSTEM CODE: C B (11) | CAUSE CODE: A (12) | CAUSE SUBCODE: F (13) | COMPONENT CODE: P I P E X X (14) | COMP. SUBCODE: C (15) | VALVE SUBCODE: Z (16)

(17) LER/RO REPORT NUMBER | EVENT YEAR: 7 9 | — | SEQUENTIAL REPORT NO.: 0 0 1 | / | OCCURRENCE CODE: 0 3 | REPORT TYPE: X | — | REVISION NO.: 1

ACTION TAKEN: X (18) | FUTURE ACTION: Z (19) | EFFECT ON PLANT: C (20) | SHUTDOWN METHOD: Z (21) | HOURS (22): 0 0 0 0 | ATTACHMENT SUBMITTED: Y (23) | NPRD-4 FORM SUB.: N (24) | PRIME COMP. SUPPLIER: N (25) | COMPONENT MANUFACTURER: C 3 1 0 (26)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 Investigation revealed consultant personnel managing the replacement of
11 all recirc system inlet nozzle safe-ends had not followed procedures pro
12 perly and had apparently not ensured a lead shield plug and cannister wa
13 s removed from the N2B nozzle. Contributing cause lack of Quality verifi
14 cation that pipe was clear prior to closure. Lead plug was removed.

15 | FACILITY STATUS: G (28) | % POWER: 0 0 0 (29) | OTHER STATUS (30): NA | METHOD OF DISCOVERY: A (31) | DISCOVERY DESCRIPTION (32): Operator Observation

16 | ACTIVITY RELEASED: Z (33) | CONTENT OF RELEASE: Z (34) | AMOUNT OF ACTIVITY (35): NA | LOCATION OF RELEASE (36): NA

PERSONNEL EXPOSURES

17 | NUMBER: 0 0 0 (37) | TYPE: Z (38) | DESCRIPTION (39): NA

PERSONNEL INJURIES

18 | NUMBER: 0 0 0 (40) | DESCRIPTION (41): NA

LOSS OF OR DAMAGE TO FACILITY (43)

19 | TYPE: Z (42) | DESCRIPTION: NA

PUBLICITY

20 | ISSUED: N (44) | DESCRIPTION (45): NA | NRC USE ONLY

NAME OF PREPARER J. C. Zimmerman PHONE: 319-851-5611

GPO 917-926

DUANE ARNOLD ENERGY CENTER

Iowa Electric Light and Power Company

LICENSEE EVENT REPORT-Supplemental Data

Docket No. 050-0331

Licensee Event Report Date: September 20, 1979 Previous Report Dated 2/27/79

Reportable Occurrence No: 79-001

EVENT DESCRIPTION

While operating the recirculation system in preparation for a hydrostatic test, no flow indication was noted for the number 3 and 4 jet pumps. Flow instrumentation was immediately tested and found operable. Additional testing was then performed which confirmed blockage existed in either the N2B riser or in the associated jet pumps numbers 3 and 4. Planning was begun for investigating the nature and position of the blockage and for its removal. A review of repair procedures was begun. (see RO 78-030).

CAUSE DESCRIPTION

Investigation revealed consultant personnel managing the work involved in the replacement of all recirculation system inlet nozzle safe-ends had not followed procedures properly and had apparently not ensured a lead shielding plug was removed from the N2B nozzle prior to closure of the inlet piping. A contributing cause was lack of quality verification that the piping was completely clear prior to closure.

The lead shielding plug causing the blockage was comprised of ten separate pieces cut and sized to conform to the pipe I.D. In order to prevent the lead plug from coming in contact with the inconnel pipe, the plug was fit inside a can consisting of a perimeter section and a backing plate. A fiber-scope inspection of the pipe internals revealed the plug had been displaced and broken up by water flow in the recirculation system.

CORRECTIVE ACTION

Jet Pumps #3 and #4 were partially disassembled and removed from the reactor vessel. Inspection of the riser pipe located 6 lead plug sections and the can perimeter section. The six plug sections and can perimeter section were removed from the riser pipe, and the pipe was reinspected to ensure no foreign objects remained. Inspection of the can perimeter section revealed several small tabs used to secure the backing plate were missing. Inspection of the jet pumps revealed three plug sections and the backing plate lodged in the nozzles. These were removed and inspected. The backing plate was found to have a section missing. Next, selected fuel cells were removed from the core in an effort to locate the 10th lead plug section. This section was located near the center of the bottom head and removed. Reactor re-assembly was then begun.

Licensee Event Report Date: Sept. 20, 1979

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CORRECTIVE ACTION CON'T.

A series of analyses were performed to determine the potential effects of lead contamination on 304 stainless and alloy 600 (Inconnel) components in the reactor and associated piping. These tests showed that operation of the reactor above 500°F for 48 hours would completely dissolve any lead deposited within the reactor coolant system with no adverse effects.

A lost parts analysis for the missing can perimeter section tabs indicated they would cause no significant problems. To determine the potential lifetime of the missing section of backing plate while in the reactor, a representative aluminum sample was subjected to autoclave tests simulating the BWR environment. These tests showed that exposure of the material to minimum recirculation flow (corresponding to 5% reactor power) at 540°F, would completely oxidize the material within 156 hours.

The subsequent reactor startup provided the necessary conditions to ensure removal of all lead and aluminum contaminants.

In order to increase the effectiveness of the DAEC Quality Control Department, an organization change has been made to modify the reporting structure. The DAEC Quality Control Supervisor now reports directly to the Manager, Quality Assurance who in turn reports to the Senior Vice President.