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ILLINOIS POWER COMPANY



CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

June 29, 1989

10CFR50.73

Docket No. 50-461

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: Clinton Power Station - Unit 1
Licensee Event Report No. 89-023-00

Dear Sir:

Please find enclosed Licensee Event Report No. 89-023-00:
Failure of Penetration Seal Contractor to Identify and Seal Electrical
Conduits Results in Failure to Meet Secondary Containment Integrity
Requirements. This report is being submitted in accordance with the
requirements of 10CFR50.73.

Sincerely yours,

D. L. Holtzscher
Acting Manager -
Licensing and Safety

RSF/krm

Enclosure

cc: NRC Resident Office
NRC Region III, Regional Administrator
INPO Records Center
Illinois Department of Nuclear Safety
NRC Clinton Licensing Project Manager

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LICENSEE EVENT REPORT (LER)

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TITLE (4) Failure of Penetration Seal Contractor to Identify and Seal Electrical Conduits Results in Failure to Meet Secondary Containment Integrity Requirements																					
EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)											
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES None					DOCKET NUMBER(S) 0 5 0 0 0							
0 4	1 0	8 9	8 9	0 2 3	0 0	0 6	2 9	8 9						0 5 0 0 0							
OPERATING MODE (9) 4		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																			
POWER LEVEL (10) 0 0 0		20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(b)							
		20.405(a)(1)(i)				50.36(c)(1)				50.73(a)(2)(v)				73.71(c)							
		20.405(a)(1)(ii)				50.36(c)(2)				50.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)							
		20.405(a)(1)(iii)				X 50.73(a)(2)(i)				50.73(a)(2)(viii)(A)											
		20.405(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)											
		20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(x)											
LICENSEE CONTACT FOR THIS LER (12)																					
NAME R. B. Gill, Director - Design and Analysis Engineering, extension 3738										TELEPHONE NUMBER AREA CODE 2 1 7 9 3 5 - 8 8 8 1											
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																					
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS											
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR							
YES (If yes, complete EXPECTED SUBMISSION DATE)										X NO											

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

ABSTRACT

On May 31, 1989, Illinois Power determined that the secondary containment integrity requirements of Technical Specification 3.6.6.1 had not been met. This determination was based on the discovery, on April 10, 1989, that air was blowing from weep holes of two electrical pull boxes. Investigation identified that five conduits penetrating the secondary containment gas boundary did not have required internal ventilation seals. No activities requiring secondary containment integrity were in progress at the time of discovery of the breach of secondary containment integrity. The cause of this event is attributed to the failure of the penetration seal contractor to identify and seal the conduits. Corrective actions included installing internal ventilation seals in the five conduits and reviewing similar walls of the secondary containment gas boundary to determine if the conduits have internal ventilation seals as required. This review identified four additional unsealed conduits which were immediately reworked. Additionally, because the air blowing from weep holes was discovered during inspection of electrical equipment in response to Environmental Qualification (EQ) issues at Clinton Power Station, the personnel performing these inspections were briefed to be aware of conditions involving the possible breach of ventilation barriers during the EQ inspections.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

DESCRIPTION OF EVENT

On May 31, 1989, in response to NRC questions, Illinois Power Company (IP) determined that a condition involving five conduits [CND] was reportable under the provisions of 10CFR50.73 because the conduits did not meet the requirements of Technical Specification 3.6.6.1 for secondary containment integrity. The five conduits penetrate the secondary containment gas boundary but did not have internal ventilation seals [SEAL] required to ensure secondary containment integrity.

Although Technical Specification requirements for secondary containment integrity were not met, this event was not safety significant. Preoperational testing and subsequent periodic surveillance testing of the secondary containment system, in conjunction with the standby gas treatment system (SGTS) [BH], have demonstrated that the secondary containment system will perform its design function of limiting thyroid and whole body dose at the site boundary, at the low population zone, and at the control room within the guidelines of 10CFR100 and 10CFR50, General Design Criterion 19.

On April 10, 1989, the plant was in Mode 4 (COLD SHUTDOWN), at approximately one hundred and twenty degrees Fahrenheit and atmospheric pressure, and the plant's first refueling outage was in progress.

At approximately 1535 hours, a quality assurance (QA) inspector identified a breach of secondary containment integrity when he noticed air blowing from weep holes of electrical pull boxes [PBX] 1PB6280K and 1PB6589. The QA inspector identified this breach while verifying that weep holes, required for Environmental Qualification (EQ), were present in certain electrical equipment. The QA inspector initiated a nonconformance document and Maintenance Work Request D01060 to cause investigation and correction of the breach of secondary containment integrity.

The Operations Shift Supervisor (SS) was notified of the breach of secondary containment integrity at approximately 1555 hours. The Operations SS reviewed the breach of secondary containment integrity and incorrectly determined that it was not reportable under the provisions of 10CFR50.73. The basis for this determination was: 1) no activities requiring secondary containment integrity were in progress at the time the breach was discovered and therefore secondary containment integrity was not required, and 2) the Operations SS believed that the closed pull boxes were considered ventilation barriers and therefore no breach of secondary containment integrity occurred until the weep holes were drilled in the boxes. The Operations SS was not aware of the specific design requirement for internal ventilation seals in conduits that penetrate the secondary containment gas boundary. Operations Shift Supervisors and Assistant Shift Supervisors will be briefed on this event

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so that they understand that engineering assistance may be necessary when determining operability of secondary containment seals. This briefing is scheduled to be complete by July 17, 1989.

Additionally, personnel involved in the disposition of the nonconformance document associated with this specific breach of secondary containment integrity did not recognize that this specific breach of secondary containment integrity was an event reportable under the provisions of 10CFR50.73. Although the personnel involved in the disposition of nonconformance documents are not required by procedure to perform reviews for 10CFR50.73 reportability, personnel involved in the disposition of nonconformance documents associated with breaches of secondary containment integrity have been briefed on this LER to provide additional assurance that reportable breaches of secondary containment integrity are identified and reported in a timely manner.

On April 11, 1989, investigation of the air blowing from the weep holes of the two pull boxes and investigation of conduits in the immediate vicinity of the two pull boxes identified a total of five electrical conduits that penetrated a sheet metal wall of the secondary containment gas boundary and that did not have internal ventilation seals required for secondary containment integrity. Pull box 1PB6280K contained two conduits, C62788 and C61845, that did not have internal ventilation seals. Pull box 1PB6589 contained one conduit, C61523, which did not have an internal ventilation seal. Actuator 1VG04YA, SGTS Train A suction damper actuator, contained one conduit, C61522, which did not have an internal ventilation seal. Instrument box A538, located on a secondary containment gas boundary wall adjacent to the wall containing the conduits of 1PB6280K, 1PB6589 and 1VG04YA, was inspected because its cover was partially removed. Inspection of this instrument box identified one conduit which did not have an internal ventilation seal.

A review of penetration seal records identified that the internal ventilation seals were never installed in the five conduits and therefore secondary containment integrity requirements had not been met since initial plant operations. The failure to maintain requirements for secondary containment integrity is a violation of Technical Specification 3.6.6.1 which requires that secondary containment integrity be maintained in Modes 1 (POWER OPERATION), 2 (STARTUP), 3 (HOT SHUTDOWN), when irradiated fuel is being handled in the secondary containment, and during core alterations and operations with a potential for draining the reactor vessel.

No automatic or manually initiated safety system responses were necessary to place the plant in a safe and stable condition. On June 24, 1989, with the plant in Mode 1, at approximately fifty-three percent reactor [RCT] power, during performance of corrective actions associated with this LER, four additional unsealed conduits were identified. Information

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related to the four additional unsealed conduits is provided in the CORRECTIVE ACTION section of this LER. No other equipment or components were inoperable at the start of this event such that their inoperable condition contributed to this event.

CAUSE OF EVENT

The cause of this event is attributed to a construction/installation error by the Clinton Power Station (CPS) penetration seal contractor, BISCO. BISCO was responsible for reviewing the secondary containment gas boundary and identifying and sealing conduits that penetrate the gas boundary. BISCO failed to identify the five conduits (and the four additional unsealed conduits discussed below) penetrating the gas boundary in adjacent walls located at elevation 781 feet in the Auxiliary Building and for this reason, the ventilation seals were not installed.

CORRECTIVE ACTION

The internal ventilation seals for the five conduits identified on April 11, 1989, were installed on April 14, 1989, and assigned penetration numbers AB-781-03-3083.01(B), AB-781-03-3084.01(B), AB-781-03-3085.01(B), AB-781-03-3086.01(B), and AB-781-03-3087.01(B).

Sheet metal walls of the secondary containment gas boundary, similar to the sheet metal walls containing the five unsealed conduits, were reviewed to verify that conduits penetrating those walls had been documented. This review identified four additional conduits that were not previously documented. On June 24, 1989, an inspection of these four conduits for the presence of required internal ventilation seals identified that the required ventilation seals had not been installed. The four conduits were immediately reworked to meet design configuration. The four conduits were located on elevation 781 feet of the Auxiliary Building and have been assigned penetration numbers AB-781-01-3078, AB-781-01-3079, AB-781-03-3088 and AB-781-03-4006.

Because the air blowing from weep holes was discovered during inspection of electrical equipment in response to EQ issues at CPS, the personnel performing these equipment inspections were briefed on April 11, 1989 to be aware of conditions involving the possible breach of ventilation barriers during the EQ inspections and to notify engineering of those conditions when discovered. No additional breaches of secondary containment integrity were identified during the EQ-related inspections.

Based on the root cause investigations and corrective actions associated with this LER and with previously identified penetration seal discrepancies, and on the fact that no safety significant concerns have been identified, IP has a high confidence level in the effectiveness of the CPS penetration seal program.

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ANALYSIS OF EVENT

This event is reportable under the provisions of 10CFR50.73(a)(2)(i)(B) due to an operation prohibited by Technical Specification 3.6.6.1.

Review of this event identified that the internal conduit seals for penetration numbers AB-781-C3-3083.01(B), AB-781-03-3084.01(B), AB-781-03-3085.01(B), AB-781-03-3086.01(B), and AB-781-03-3087.01(B) were not in place from initial plant operation, approximately September 29, 1986, until installed on April 14, 1989, and that internal conduit seals for penetration numbers AB-781-01-3078, AB-781-C1-3079, AB-781-03-3088 and AB-781-03-4006 were not in place from initial plant operation until June 24, 1989. The Technical Specification requirements for secondary containment integrity, therefore, have not been met fully since initial plant operations.

An assessment of the safety consequences and implications of this event indicates that the event is not considered to be safety significant for existing plant conditions or for other plant modes or power levels. This determination is based on the following facts:

- ° Although a leakage path existed between secondary containment and the outside atmosphere since initial plant operation, any leakage through the unsealed electrical conduits has been accounted for in the preoperational test for Secondary Containment Drawdown which was performed with satisfactory results.
- ° Periodic surveillance testing has demonstrated satisfactorily the ability to maintain the negative pressure requirements for secondary containment integrity.
- ° In accordance with section 6.2 of the Updated Safety Analysis Report, the design maximum allowable inleakage for secondary containment is 1500 cubic feet per minute (cfm) at 0.25 inches of vacuum water gauge.
- ° Review of the test results for the most recent drawdown test (performed in November 1988) indicates that secondary containment inleakage was 1417 cfm at 0.25 inches of vacuum water gauge.

Satisfactory completion of drawdown tests and periodic surveillance tests demonstrates that the secondary containment system, in conjunction with the standby gas treatment system, will perform its design function of limiting thyroid and whole body dose at the site boundary, at the low population zone, and at the control room within the guidelines of 10CFR100 and 10CFR50, General Design Criterion 19.

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No release of radioactive material to the outside environment occurred as a result of this event.

ADDITIONAL INFORMATION

LER 89-006-00 discussed the misinterpretation of a design specification by the CPS penetration seal contractor that resulted in unsealed electrical conduits and the failure to meet requirements for secondary containment integrity.

For further information regarding this event, contact R. B. Gill, Director - Design and Analysis Engineering, Nuclear Station Engineering Department, at (217) 935-8881, extension 3738.