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Wilfred Connell
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WC-199-96
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Docket No. 50-461

10CFR50.73

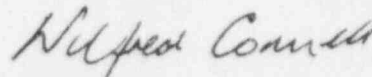
Document Control Desk
Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Clinton Power Station - Unit 1
Licensee Event Report No. 96-007-00

Dear Sir or Madam:

Enclosed is Licensee Event Report No. 96-007-00: Inadequate Job Preparation for Reactor Water Cleanup System Maintenance Resulted in Inoperable Leak Detection Instruments. This report is submitted in accordance with the requirements of 10CFR50.73.

Sincerely yours,


Wilfred Connell
Vice President

MAR/csm

Enclosure

cc: NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety
INPO Records Center

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LICENSEE EVENT REPORT (LER)

(See reverse for required number of
digits/characters for each block)ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY
INFORMATION COLLECTION REQUEST: 60.0 HRS. REPORTED LESSONS
LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK
TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE
INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S.
NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20556-0001, AND
TO THE PAPERWORK REDUCTION PROJECT (3160-0104), OFFICE OF
MANAGEMENT AND BUDGET, WASHINGTON, DC 20603.

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DOCKET NUMBER (2)

05000461

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TITLE (4)

Inadequate Job Preparation for Reactor Water Cleanup System Maintenance Resulted in Inoperable Leak Detection Instruments

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 NAME	DOCKET NUMBER
05	29	96	96	007	00	06	28	96	None	05000
									FACILITY NAME	DOCKET NUMBER
									None	05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)				
POWER LEVEL (10)	100	20.2201(b)	20.2203(a)(2)(v)	X	50.73(a)(2)(i)	50.73(a)(2)(viii)
		20.2203(a)(1)	20.2203(a)(3)(i)		50.73(a)(2)(ii)	50.73(a)(2)(x)
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)		50.73(a)(2)(iii)	73.71
		20.2203(a)(2)(ii)	20.2203(a)(4)		50.73(a)(2)(iv)	OTHER
		20.2203(a)(2)(iii)	50.36(c)(1)	X	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
		20.2203(a)(2)(iv)	50.36(c)(2)	X	50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

A. K. Beecher, Project Operations Specialist

TELEPHONE NUMBER (Include Area Code)

(217) 935-8881, Extension 3373

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 15 single-spaced typewritten lines) (16)

With the plant in POWER OPERATION at about 100 percent reactor power, maintenance personnel removed the ceiling plug on the Reactor Water Cleanup (RWCU) system "B" heat exchanger (HX) room in preparation for RWCU system maintenance. Subsequent to the ceiling plug removal, operators noted a decrease in RWCU system "B" HX room ambient temperature. Upon investigation, it was determined that with the RWCU system "B" HX room ceiling plug removed and room configuration thereby altered, associated Leak Detection (LD) system instrument channels would not be able to perform their design function of providing an isolation signal to group 4 (RWCU system isolation valves) primary containment isolation valves. Operators isolated the RWCU system "B" HX when the impact of removing the ceiling plug was recognized. The cause of the event was attributed to personnel error as a result of a lack of attention to detail during job planning. Corrective action for this event includes briefing work control group, operations, and maintenance personnel and labeling of both RWCU system HX rooms ceiling plugs.

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

DESCRIPTION OF EVENT

On May 29, 1996, the plant was in Mode 1 (POWER OPERATION), at about 100 percent reactor [RCT] power. At about 1900 hours, during performance of Clinton Power Station (CPS) surveillance procedure 9000.01, "Control Room Surveillance Log," a main control room operator noted a decrease in the reactor water cleanup (RWCU) system [CE] "B" heat exchanger (HX)[HX] room ambient temperature from that recorded for previous shifts.

At about 2128 hours, after noting that the RWCU system "B" HX equipment room ceiling plug had been removed at approximately 1200 hours that day in preparation for RWCU system maintenance (maintenance work request (MWR) D50980), the Operations shift supervisor directed the RWCU system "B" HX to be isolated and invoked Plant Manager Standing Order (PMSO) 050, "Execution of CPS Technical Specification or Off-Site Dose Calculation Manual Requirements." PMSO-050 directs that the Operations shift supervisor shall declare an instrumentation channel inoperable within six (6) hours after the channel indicates questionable values if an investigation into the validity of the channel values has not commenced. PMSO-050 further directs that the Operations shift supervisor shall declare an instrumentation channel inoperable within twelve (12) hours of the first questionable value if the investigation to determine the validity of the channel reading has not been completed. PMSO-050 was invoked until a determination could be made regarding the operability of the Leak Detection system (LD)[IJ] instrument channels [CHA] (1E31-N626A & B) associated with the RWCU system "B" HX room ambient temperature. Operability of these instrument channels was in question because the effect of removing the RWCU system "B" HX room ceiling plug on instrument channels 1E31-N626A & B was not known.

Additionally, at about 2128 hours, the Operations shift supervisor directed engineering personnel to determine the effect of removing the RWCU system "B" HX equipment room ceiling plug on the operability of instrument channels 1E31-N626A & B.

LD system instrument channels 1E31-N626A & B are designed to provide an isolation signal in a one-out-of-two logic to group 4 (reactor water cleanup system) primary containment isolation valves in the event a predetermined temperature is exceeded in the RWCU system "B" HX room.

On May 30, 1996, at about 0020 hours, engineering personnel determined that with the RWCU system "B" HX room ceiling plug removed, RWCU system "B" HX room ambient temperature instrument channels 1E31-N626A & B were not capable of performing their design function of detecting an RWCU system leak in the "B" HX room equivalent to 25 gallons per minute (gpm) (based on an increase in room ambient temperature). The basis for this determination was that removal of the ceiling plugs significantly changes the configuration of the room. Due to heat loss through the opening created by removal of the ceiling plug, the resulting room configuration is such that ambient temperature would not increase to the predetermined temperature at which either instrument channel 1E31-N626A or B will provide an isolation signal in the event of an RWCU system leak equivalent to 25 gpm. Subsequent to this determination, the Operations shift supervisor declared instrument channels 1E31-N626A & B inoperable. Condition report 1-96-05-068 was initiated to track a cause analysis and corrective action determination for this event.

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In accordance with Technical Specification 3.3.6.1, "Primary Containment and Drywell Isolation Instrumentation," Action E.1, with one or more automatic functions with isolation capability not maintained, the isolation capability is required to be restored within 1 hour. Technical Specification 3.3.6.1 Action I.1 requires that the affected penetration flow path be isolated within 1 hour if Technical Specification 3.3.6.1 Action E.1 is not met. Technical Specification 3.3.6.1 Action K.1 requires that the plant be in Mode 3 (HOT SHUTDOWN) within 12 hours if Action I.1 is not met. Since the RWCU system "B" HX was isolated at about 2128 hours, the actions required by Technical Specification 3.3.6.1 were met with regard to RWCU system isolation functions associated with RWCU system "B" HX room ambient temperature instrumentation channels.

On May 31, 1996, a critique was held to determine the chronology of facts together with the problems identified and required immediate corrective actions associated with the removal of the RWCU system "B" HX room ceiling plug which occurred on May 29, 1996. During the critique, it was discovered that the RWCU system "B" HX room ceiling plug had also been removed on April 9, 1996, in preparation for work to be performed in accordance with MWR D50980. On April 12, 1996, the RWCU system "B" HX room ceiling plug was reinstalled because the scheduled date for performance of work specified by MWR D50980 had been deferred.

During the time the RWCU system "B" HX room ceiling plug was removed from April 9-12, 1996, the RWCU system "B" HX was not isolated. However, approximately 15 minutes after removal of the RWCU system "B" HX room ceiling plug on April 9, 1996, an unrelated automatic reactor scram occurred (see Clinton Power Station licensee event report (LER) 96-005-00) which resulted in the plant being placed in Mode 3. During the entire April 9-12 period that the RWCU system "B" HX room ceiling plug was removed, the plant remained in Mode 3. Since the plant was in Mode 3 during the time the ceiling plug was removed, the Action required by Technical Specification Action K.1 was met. However, Technical Specification 3.3.6.1 Action K.2 requires that the plant be in Mode 4 (COLD SHUTDOWN) within 36 hours if Action I.1 is not met. Since the plant was not placed in Mode 4 during the April 9-12, 1996, period that the RWCU system "B" HX room ceiling plug was removed, the actions required by Technical Specification 3.3.6.1 were not met with regard to RWCU system isolation functions associated with RWCU system "B" HX room ambient temperature instrumentation channels.

No automatic or manually initiated safety system responses were necessary to place the plant in a safe and stable condition. No other equipment or components were inoperable at the start of this event to the extent that their inoperable condition contributed to this event.

CAUSE OF EVENT

The cause of this event is attributed to personnel error as a result of a lack of attention to detail. The impact of removing the RWCU system "B" HX room ceiling plug on the operability of room ambient temperature instrument channels was not identified by the work control group and Operations personnel who planned and reviewed the MWR D50980 work package.

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CORRECTIVE ACTION

Work control group, Operations, Maintenance, and outage planning personnel will be briefed on the details of this event. Briefings will include the need to question the impact of work that changes the configuration of equipment rooms and the associated impact of such work on equipment/instrument operability.

Each of the RWCU system HX rooms ceiling plugs will be labeled to indicate that the main control room should be notified prior to plug removal.

Other equipment room ceiling/floor plugs will be identified which, if removed, could impact the operability of equipment/instruments located within the associated room. When identified, the ceiling/floor plugs will be labeled appropriately to identify the impact of removing the plug on equipment/instrument operability.

ANALYSIS OF EVENT

This event is reportable under the provisions of 10CFR50.73(a)(2)(v) with respect to the May 29 and April 9-12, 1996, removal of the RWCU system "B" HX room ceiling plug because inoperability of both LD system instrument channels associated with the RWCU system "B" HX room ambient temperature trip function was a condition that alone could have prevented group 4 primary containment isolation valves from performing their safety function of controlling the release of radioactive material in the event of a leak in the RWCU system "B" HX room equivalent to 25 gpm. This event is also reportable under the provisions of 10CFR50.73(a)(2)(vii) because removal of the ceiling plug on April 9-12 and May 29 was a condition which caused both LD system instrument channels associated with the RWCU system "B" HX room ambient temperature to become inoperable in a single system designed to control the release of radioactive material in the event of a leak in the RWCU system "B" HX room equivalent to 25 gpm. This event is reportable under the provisions of 10CFR50.73(a)(2)(i) with respect to the April 9-12, 1996, ceiling plug removal because not placing the plant in Mode 4 within 38 hours from the time that the noted LD system instrument channels were rendered inoperable (with the RWCU system "B" HX not being isolated) is a condition prohibited by plant Technical Specifications.

The RWCU system "B" HX equipment room ambient temperature instruments were inoperable approximately nine hours and twenty-eight minutes prior to discovery.

Analysis of the safety consequences and implications of this event identified that it has potential nuclear safety significance. With the RWCU system "B" HX room ceiling plug removed, LD system instruments 1E31-N626A & B were not capable of providing an isolation signal to group 4 primary containment isolation valves in the event of a RWCU system leak in the "B" HX room equivalent to 25 gpm. If a small leak in the RWCU system continues without system isolation, offsite radiation dose limits for normal power operation (i.e., those limits specified in 10CFR20) could potentially be reached. However, the automatic isolation function of group 4 primary containment isolation valves in the event of a RWCU system leak of 25 gpm in either of the two RWCU system HX rooms is not considered in any transient or accident analysis in the Updated Safety Analysis Report (USAR) since a 25 gpm leak in the RWCU system is bounded by design basis accident scenarios such as main steam line breaks.

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ADDITIONAL INFORMATION

No equipment or components failed during this event.

CPS LER 91-007-01 was similar to this event in that it discussed an undetected failure of a fan in the RWCU system "B" HX room air handling unit which resulted in inoperable LD system instrumentation. However, the cause of LER 91-007-01 was not related to the maintenance planning and work authorization process.

For further information regarding this event, contact A. K. Beecher, Project Operations Specialist at (217) 935-8881, extension 3373.