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Richard T. Purcell
Site Vice President, Watts Bar Nuclear Plant

JUN 2 6 2000

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

Gentlemen:

In the Matter of	)	Docket No. 50-390
Tennessee Valley Authority	)	

WATTS BAR NUCLEAR PLANT (WBN) - UNIT 1 - FACILITY OPERATING LICENSE NPF-90 - LICENSEE EVENT REPORT (LER) 50-390/2000-002

The enclosed report provides details of an event where, although the safety function was not lost, both trains of the Control Room Emergency Ventilation System (CREVS) were declared technically inoperable. The problems associated with the CREVS required entry into LCO 3.0.3, and therefore, is considered a violation of the Technical Specifications which is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B).

If you should have any questions, please contact P. L. Pace at (423) 365-1824.

Sincerely,

R. T. Purcell

Enclosure
cc: See page 2

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JUN 2 6 2000

cc (Enclosure):

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NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 08/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50.0 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 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20603. If an information collection does not display a currently valid OMB control number, the NRC may no conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
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TITLE (4)

Entry into LCO 3.0.3 due to both trains of the Control Room Emergency Ventilation System being inoperable.

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
										05000
05	25	00	2000	002	00	06	26	00	FACILITY NAME	DOCKET NUMBER 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)	50.73(a)(2)(v)	Specify in Abstract below
		20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)	or in NRC Form 366A

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Jerry L. Bushnell, Licensing Engineer	(423)-365-8048

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	NO X				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On May 25, 2000, with Unit 1 in Mode 1 and operating at approximately 100 percent reactor power, maintenance was initiated on Main Control Room (MCR) isolation valve 0-FCV-31-003. This ventilation valve is part of the Control Room Emergency Ventilation System (CREVS). As part of the planned maintenance, Train A control room isolation (CRI) was initiated by a licensed operator. Once isolated, the differential pressure between the MCR and adjacent plant areas was less than the required positive pressure of ≥ 0.125 inches water gauge. Therefore, Action A of LCO 3.7.10 was entered for one train of CREVS being inoperable. During troubleshooting of the CREVS, an access door for damper 0-ISD-31-4627 was found to be open. The door was closed and subsequently, the MCR pressure returned to normal. A review of the design drawings for the ventilation system indicated that the access door being open affected both Train A and Train B of the system. Therefore, LCO 3.0.3, was entered. The root cause was determined to be a change in the scope of a corrective action document which was implemented without appropriate reviews and approvals. The corrective actions include: 1) A walkdown of seismic Category I, TVA Class S (primary safety-related), pressurized rectangular duct located in the Auxiliary Building, Diesel Building and Control Building to identify those duct access doors which need a positive closure mechanism, 2) Modifications to secure the duct access doors identified by the walkdown, 3) Issuance of a memorandum to engineering personnel to address the lessons learned.

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

I. PLANT CONDITIONS:

Watts Bar Nuclear Plant Unit 1 was in Mode 1 operating at approximately 100 percent reactor power when this event occurred.

II. DESCRIPTION OF EVENT

A. Event

On May 25, 2000, with Unit 1 in Mode 1 and operating at approximately 100 percent reactor power, maintenance was initiated on Main Control Room (MCR) isolation valve 0-FCV-31-003 [EIIS ISV]. This valve is part of System Number 031, the Air Conditioning (Cooling and Heating System) [EIIS VI], and is a ventilation valve which isolates the MCR from outside air during an emergency. This function is considered to be part of a sub-system designated as the Control Room Emergency Ventilation System (CREVS) [EIIS VI]. As part of the planned maintenance, Train A control room isolation (CRI) was initiated by a licensed operator. Once isolated, the differential pressure between the MCR and adjacent plant areas could not be maintained greater than the positive pressure of ≥ 0.125 inches water gauge using Train A alone.

The operation of the CREVS is controlled by the requirements of Limiting Condition for Operation (LCO) 3.7.10, "CREVS," and the pressure requirements of the system are verified on an 18 months basis by the performance of Surveillance Requirement (SR) 3.7.10.4. At the time the pressure problem was noted, Action A of LCO 3.7.10 was entered for one train of CREVS being inoperable.

As part of the actions taken to determine the cause for the inadequate positive pressure, a walkdown of the ventilation system was performed. During the walkdown of Train A of the CREVS, an access door for damper 0-ISD-31-4627 was found to be open. The door was closed and subsequently the MCR pressure was found to be within limits. A review of the design drawings for the ventilation system was also performed which indicated that the access door being open would affect both Train A and Train B of the system. Although each train of CREVS could have individually maintained a positive pressure in the control room, it was concluded that with the access door open neither train would be able to individually pass the SR acceptance criteria of ≥ 0.125 inches water gauge. Therefore, LCO 3.0.3, was entered due to both trains being inoperable while the door was open. This condition is being reported in accordance with 10 CFR 50.73 (a)(2)(i)(B) due to the entry into LCO 3.0.3.

Problem Evaluation Report (PER) 00-007416-000 was initiated to document this event in the TVA Corrective Action Program.

B. Inoperable Structures, Components, or Systems that Contributed to the Event

There were no inoperable structures, components or systems that contributed to this event other than for the CREVS being affected by the open access door for damper 0-ISD-31-4627.

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

II. DESCRIPTION OF EVENT (continued)

C. Dates and Approximate Times of Major Occurrences

Time (EDT)	Occurrences on May 25, 2000
09:51	The Operations staff initiated Train A CRI to support the maintenance being performed on 0-FCV-031-003.
09:53	Action A of LCO 3.7.10 was entered by the Operations staff for one train of CREVS being inoperable.
Time (EDT)	**Occurrences on May 26, 2000**
14:15	The access door for damper 0-ISD-31-4627 was found to be open. The door was closed and a review of the design drawings identified that the door being open affected both trains of CREVS. Due to this, the Operations staff entered LCO 3.0.3.
14:20	After closure of the door and verification that the MCR pressure was ≥ 0.125 inches water gauge, LCO 3.0.3 was exited by the Operations staff.

D. Other Systems or Secondary Functions Affected

There were no other systems or secondary functions affected by the ventilation system access door being open.

E. Method of Discovery

Maintenance to refurbish MCR isolation valve 0-FCV-31-003 was initiated on May 25, 2000. This valve is part of the CREVS. As part of the planned maintenance, Train A CRI signal was initiated by a licensed operator. Once isolated, the differential pressure between the MCR and adjacent plant areas could not be maintained at the required positive pressure of ≥ 0.125 inches water gauge using Train A alone.

F. Operator Actions

The actions taken by Operations personnel related to this event are discussed in Item C, "Dates and Approximate Times of Major Occurrences," of this Section.

G. Automatic and manual safety system responses

There were no automatic or manual safety system responses and none were required.

III. CAUSE OF EVENT

The access door which was found open is located in a ceiling crawl space above the Operations kitchen area. The access door is located in a corner of this crawl space near the roof area and therefore, is in an infrequently accessed area. The Fire Operations staff identified that the fire damper located behind the door is no longer required for plant operation and is identified as "locked open." No Fire Operations procedures or other plant procedures could be found which required the access door to be opened. A list of all System 31 work orders (WOs) closed during year 2000 was reviewed for any work which could have caused the access door to be opened. The review was limited to year 2000 because SR 3.7.10.4 was successfully performed on January 6, 2000, for Train A of CREVS. However, the review identified that there were no WOs which would have caused the access door to be opened. Considering this, the only plausible cause for the access door to have opened is that normal plant vibration and changes of duct pressure from positive to negative caused the access door to open.

Based on the assessments performed for PER 00-007416-000, the root cause of this event was determined to be a change in the scope of PER WBPER970620 which was implemented without appropriate reviews and approvals. A discussion of PER WBPER970620 is provided in Item B, Previous Similar Events, of Section VI, Additional Information, of this LER.

IV. ANALYSIS OF EVENT - ASSESSMENT OF SAFETY CONSEQUENCES

The CREVS provides a protected environment from which operators can control the unit following an uncontrolled release of radioactivity. The CREVS consists of two independent, redundant trains (Trains A and B) that recirculate and filter the MCR air. Each train consists of a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a fan. Ductwork, valves or dampers, and instrumentation also form part of the system. Based on a postulated emergency, the system has adequate capacity to protect the control room personnel for a 30 day duration.

The CREVS is an emergency sub-system and parts of it also operate during normal unit operations. Actuation of the CREVS occurs automatically upon receipt of a safety injection signal, upon indication of high radiation in the outside air supply or the detection of smoke in the outside air supply. Actuation of the system to the emergency mode of operation, closes the unfiltered outside air intake and unfiltered exhaust dampers, and aligns the system for recirculation of the control room air through the redundant trains of air handling units, with a portion of the stream of air directed through HEPA and the charcoal filters. The emergency mode also initiates pressurization and filtered ventilation of the air supply to the MCR. Pressurization of the MCR prevents infiltration of unfiltered air from the surrounding areas of the building.

IV. ANALYSIS OF EVENT - ASSESSMENT OF SAFETY CONSEQUENCES (continued)

SR 3.7.10.4 requires that one CREVS train be capable of maintaining a positive pressure of ≥ 0.125 inches water gauge, relative to outside atmosphere and adjacent areas during the control room isolation (CRI) mode. The integrity of the components which create this positive pressure and form the pressure boundary are tested every 18 months in accordance with approved Surveillance Instructions (SIs). The data obtained during the tests is used to calculate the opening size which may be breached in the pressure boundary without causing unacceptable air leakage. This allowable opening size is calculated and recorded in Technical Instruction (TI) 65, "Breaching the Containment Annulus, ABSCE or Control Building Pressure Boundaries". TI-65 is the document used by WBN to control breaches through ventilation pressure boundaries. This document is updated after each performance of the SIs. Based on the review of data recorded in TI-65, the maximum allowable open area through the Control Room Pressure boundary is 30.1 square inches for Train B (determined from test data obtained December 16, 1998) and 30.3 square inches for Train A (determined from test data obtained January 6, 2000). In response to this event, engineering personnel have calculated that the maximum allowable open area in CREVS is 90.77 square inches when a Train A and Train B CRI signal is jointly received.

It should be noted that during an emergency that initiates an automatic CRI, both trains of CREVS will automatically start. Subsequently, a licensed operator places one train of CREVS in a standby mode to minimize the effects of dose from noble gases. The operator also selects the outside air intake, (normal or emergency) that has the lower airborne radioactivity level based on instrumentation readings. The CREVS also has four pressure differential transmitters per train sensing the MCR pressure relative to the outdoor and surrounding areas. The setpoint for these transmitters is conservatively set at 0.2 inches water gauge positive pressure. The signal generated by the transmitters in a train acts to start the corresponding train of CREVS. This design provides an automatic means to ensure that an appropriate positive pressure is maintained in the MCR during an emergency.

For the event documented by LER 390/2000-002, the access door which was open had an area of 48 square inches. However, based on the above information, with both trains of CREVS operating, the system would have been capable of maintaining acceptable pressure in the MCR relative to adjacent areas with a maximum open area of 90.77 square inches. Therefore, with the 48 square inch door open, CREVS would still have performed its safety function with both trains running. In addition, documentation was reviewed in an effort to bound the time period the access door was open. From this review, WBN was unable to establish the exact time the access door came open, but was able to establish that no other breeches of the system occurred since the last successful CREVS surveillance test on January 6, 2000.

The above records review did find that there was an anomaly noted during the performance of Surveillance Instruction (SI), 0-SI-31-7-B, "Control Room Emergency Ventilation System Filter Train-B Test," on March 14, 2000. During the test, an operator noted that the MCR annunciators for abnormal pressure alarmed shortly after the Control Room Emergency Air Cleanup Fan B-B was started. In response to the alarms, the MCR pressure indications were verified to be lower than the alarm setpoint of .2 inches water gauge. After approximately 20 minutes of fan operation the alarms cleared and no apparent cause for the lower than expected pressures was identified at that time. Therefore, TVA does not have firm evidence that this abnormality was associated with the open access door.

IV. ANALYSIS OF EVENT - ASSESSMENT OF SAFETY CONSEQUENCES (continued)

The annunciators once again alarmed and cleared on March 30, 2000, during the performance of 0-SI-31-6-A, "Main Control Room Air Cleanup Fan A-A Monthly Operability Test," but the cause of the alarms was not determined.

On June 9, 2000, procedure, 0-SI-31-6-B, "Main Control Room Air Cleanup Fan B-B Monthly Operability Test," was performed and data obtained. The results of this test was then compared to the MCR pressures obtained during investigation for the March 30th test. The results of the review found that closing the access door increased the MCR pressure to a pressure greater than that recorded March 30th.

A review of the Operator's logs from January 6, 2000, until the time the door was discovered open on May 26, 2000, was conducted for LCO 3.7.10 entries. During this time period, five entries into the LCO occurred. However, the entries were for maintenance and testing activities that did not impact the ability of the CREVS to perform the safety function of pressurizing the MCR.

V. CORRECTIVE ACTIONS

A. Immediate Corrective Actions

1. A walkdown of the CREVS was performed to determine the cause for the inadequate positive pressure.

2. The access door that was found open in the CREVS was securely closed.

3. Based on the identification of the inadequate CREVS pressure, a Problem Evaluation Report (PER) was initiated to address the problem.

B. Corrective Actions to Prevent Recurrence - (TVA does not consider these items to constitute regulatory commitments. TVA's corrective action program tracks completion of these actions.)

1. The System Engineering organization will perform a walkdown of all seismic Category I, TVA Class S (primary safety-related), pressurized rectangular duct located in the Auxiliary Building, Diesel Building and Control Building to identify those duct access doors which have a potential to inadvertently open due to duct work pressure.

2. Appropriate modifications will be made to secure the duct access doors identified by the walkdown.

V. CORRECTIVE ACTIONS (continued)

3. PER WBPER970620 was initiated to document a problem with access door closure on the Emergency Gas Treatment System (EGTS) (refer to the discussion under Item B, Previous Similar Events, of Section VI, Additional Information, of this LER). The corrective actions related to this PER included a walkdown of safety-related duct work and the installation of a means to augment the closure mechanism to ensure a positive closure of the doors. Therefore, the corrective action for WBPER970620 should have identified the need to modify the closure mechanism for the door found open in the CREVS. To address this the following actions will be taken:

   a. A memorandum will be issued to all design engineers, system engineers and engineering managers. This memorandum will identify the lessons learned from PER 00-007416-000 and to state expectations for engineers and managers to ensure appropriate management review and approval is obtained for changes to scope or intent of PER corrective actions.

   b. TVA has no indication that concerns exist with the implementation of the corrective action program similar to the problem encountered with the implementation of the action for WBPER970620. The results of Nuclear Assurance assessments of closed PERs does not indicate any adverse trend or programmatic weakness with the completion of approved corrective action plans. However, as an additional measure of assurance, a selection of corrective action documents will be reviewed over the next 6 months by the WBN PER Subcommittee to establish that corrective actions are being implemented as stated.

4. Nuclear Engineering will revise appropriate plant drawings to require that screws are used to ensure access doors which open out on seismic category I, TVA Class S (primary safety-related), pressurized rectangular duct located in the Auxiliary Building, Diesel Building and Control Building will remain closed.

VI. ADDITIONAL INFORMATION

A. Failed Components

1. Safety Train Inoperability

There was no safety train inoperability due to a failed component.

2. Component/System Failure Information

a. Method of Discovery of Each Component or System Failure:

This event did not involve a failed component.

VI. ADDITIONAL INFORMATION (continued)

b. Failure Mode, Mechanism, and Effect of Each Failed Component:

This event did not involve a failed component.

c. Root Cause of Failure:

This event did not involve a failed component.

d. For Failed Components With Multiple Functions, List of Systems or Secondary Functions Affected:

This event did not involve a failed component.

e. Manufacturer and Model Number of Each Failed Component:

This event did not involve a failed component.

B. Previous Similar Events

Based on a review of the LERs submitted for WBN, there were no other WBN LERs which were based on ventilation problems caused by the inadvertent opening of an access door. However, Problem Evaluation Report (PER) WBPER970620 was initiated to address a condition where an access door in the Emergency Gas Treatment System (EGTS) was open causing problems with the operation of the system. The corrective action for WBPER970620 required that all seismic Category I, TVA Class S (primary safety-related), positive-pressure ducts, inside and outside containment, be walked down to identify outward opening access doors. Also the corrective action required that a design change be initiated which would establish a means to ensure that the doors are positively closed. The outside containment walkdowns were conducted after the Cycle 1 refueling outage. However, during the course of the outside containment walkdowns, a decision was made that the walkdowns would be from floor level only, due to ALARA concerns, possible adverse risk to plant operation coincident with such a rigorous walkdown, the low probability of recurrence of the condition and other considerations. This decision resulted in the access door which impacted the operation of the CREVS discussed in this LER not being within the scope of the walkdowns performed for WBPER970620 and therefore, not included in the modifications which augmented the latch mechanism.

C. Additional Information: - None.

D. Safety System Functional Failure:

This event did not involve a safety system functional failure as defined in NEI-99-02, Revision 0.

VII. COMMITMENTS - None.