FORD 1

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FACIL:50-296 Browns Ferry Nuclear Power Station, Unit 3, Tennessee 05000296
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SUBJECT: LER 90-005-00:on 901231,reactor bldg vent exhaust monitor removed from svc causing compensatory sample to be isolated. Caused by inadequate design review.Procedures revised to utilize new sample taps on refuel floor.W/910128 ltr.

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Joseph R. Bynum
Vice President, Nuclear Operations

JAN 28 1991

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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Dear Sir:

TVA - BROWNS FERRY NUCLEAR PLANT (BFN) UNIT 3 - DOCKET NO. 50-296 - FACILITY OPERATING LICENSE DPR-68 - REPORTABLE OCCURRENCE REPORT BFRO-50-296/90005

The enclosed report provides details concerning the reactor building vent exhaust monitor removed from services. This caused a compensatory sample to be isolated, thereby causing technical specification monitoring requirements to be exceeded. This report is submitted in accordance with 10 CFR 50.73(a)(2)(i)(B).

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. R. Bynum
Vice President
Nuclear Operations

Enclosure
cc: see page 2

IE22
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U.S. Nuclear Regulatory Commission

JAN 28 1991

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NRC Form 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

Approved OMB No. 3150-0104
Expires 4/30/92

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Browns Ferry Unit 3	0 5 0 0 0 2 9 6	1 OF 0 5

TITLE (4) When the reactor building vent exhaust monitor was removed from service, a compensatory sample was isolated, thereby causing a technical specification monitoring requirement to be exceeded.

EVENT DAY (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
1 2	3 1	9 0	9 0	0 0 5	0 0	0 1	2 9	9 1		0 5 0 0 0

OPERATING MODE (9)	N	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	TELEPHONE NUMBER
	AREA CODE
J. E. Wallace, Compliance Licensing Engineer	2 0 5 7 2 9 - 2 0 5 3

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)

On December 31, 1990 at 0530 hours, TVA discovered that during the reactor building vent exhaust monitor source calibration and functional test, monitor 3-RM-90-250 [MON] was valved out several times for periods of less than three hours. The aggregate time that the monitor was out of service was estimated to be 12 hours. The closure of these valves isolated the temporary continuous monitoring system that had been installed to satisfy plant technical specification requirements.

The cause of the event was an inadequate design review. With the design as it was, the calibration Surveillance Instruction (SI) and a chemistry sample procedure could not be performed simultaneously as required. A contributing cause was a misinterpretation of the technical specification requirements.

The immediate corrective action was to isolate the affected vents, thereby invalidating the need for a compensatory sample and the SI was completed. Additional corrective actions taken to prevent recurrence were: (1) upstream chemistry sampling points were installed and (2) responsible organization will revise calibration and functional test SIs for the 10 effluent CAMs to clarify sampling requirements when monitor is inoperable prior to Unit 2 restart.

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

DESCRIPTION OF EVENT

On December 31, 1990 at 0530 hours, TVA discovered that during the reactor building vent exhaust monitor source calibration and functional test, monitor 3-RM-90-250 [MON] was valved out several times for periods of less than three hours. The aggregate time that the monitor was out of service was estimated to be 12 hours.

At 1410 hours on December 30, 1990, SI 3-SI-4.2.K.2.a, reactor building vent exhaust monitor 3 RM-90-250 source calibration and functional test for the calibration of 3-RM-90-250, was started. Gaseous effluent radiation monitor 3-RM-90-250 had been previously removed from service to install a newer monitor. The exhaust monitor measures the amount of noble gas, radioiodine, and particulates being released from three sample points (i.e., Reactor Building Ventilation System [VS], Turbine Building Ventilation System [VK], and Refuel Floor Ventilation System [VG].

At 1800 hours, inlet isolation valves to 3-RM-90-250 were closed in accordance with the surveillance instruction. At 1920 hours, a radiochemical laboratory analyst (RLA) (Non-licensed Utility) noted the 3-RM-90-250 temporary sampler was running but the Reactor, Refuel, and Turbine Building Zones were isolated. Instrumentation and controls (I&C) personnel (Non-licensed Utility) opened the valves to allow the RLA to obtain a grab sample and said the valves had only been closed a few minutes. At this time, the I&C section presumed that the grab sample satisfied all actions of Table 3.2.K. The incident was reported to the chemistry control shift supervisor.

At 0600, on December 31, 1990, 3-SI-4.2.K.2.a was stopped by the shift operation supervisor (Licensed utility). Also, the inlet isolation valves were opened.

During this event, all three units were defueled and no fuel handling or operations over the spent fuel were performed. This event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B), an operation prohibited by the technical specifications.

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

ANALYSIS OF EVENT

The Continuous Air Monitors take an isokinetic sample of various exhaust ventilation effluents and the release rate for each activity is recorded on the control room strip chart recorder. A high radioactivity or monitor malfunctions alarms in the main control room. Since this monitor does not initiate an isolation signal, the system is not essential during a transient or accident; consequently, no redundancy is required.

During the modification for the monitor replacement, the inlet piping was cut out and new piping was installed. This installation eliminated an upstream chemistry sample point. The required chemistry sample was being obtained on the monitor's front panel in accordance with chemistry procedure O-SI-4.8.B.1.a.2, Airborne Effluent Release Rate By Manual Sampling.

The compensatory sampling was in place to satisfy the requirements of technical specification Table 3.2.K Actions A, B, and D which state the following:

Action A: "With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, effluent releases via the affected pathway may continue provided a temporary monitoring system is installed or grab samples are taken and analyzed at least once every 8 hours."

Action B: "With a number of channels OPERABLE less than required by the Minimum Channels Operable requirement, effluent releases via this pathway may continue provided samples are continuously collected with auxiliary sampling equipment for periods on the order of seven (7) days and analyzed in accordance with the sampling and analysis program specified in the REM within 48 hours after the end of the sampling period."

Action D: "With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours."

The absence of continuous monitoring could have resulted in an unmonitored release to the environment when continuous sampling was disrupted for approximately 12 hours. An evaluation of the available data indicates that there was a low probability that any radiological release via this pathway had occurred because of the current plant condition. Finally, the isolation signals for these systems are generated from a Geiger-Muller type detector, externally attached to the effluent ducts.

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

CAUSE OF EVENT

The root cause of the missed compensatory sampling was an oversight in the design review for the installation of the new exhaust monitors to ensure compensatory sampling could be performed. It was later determined that additional test connections would be required to replace the sampling points removed during the modification to ensure the simultaneous performance of I&Cs calibration SI and chemistry's compensatory sampling requirement. A contributing factor for the missed compensatory sampling was in inadequate precaution in the procedure which resulted in a misinterpretation of the technical specification requirements.

CORRECTIVE ACTION

The immediate corrective actions were: (1) terminated the surveillance instruction, (2) isolated the affected ventilation duct; thereby, compensatory monitoring would not be required, and (3) completed the SI. To prevent recurrence of this event, new chemistry grab sample points were installed upstream of the inlet isolation valves for 10 effluent CAMs.

0-SI-4.8.B.1.a.2 has been revised to utilize new sample taps on the refuel floor CAMs. Responsible organization will revise calibration and functional test SIs for the 10 effluent CAMs to clarify sampling requirements when monitor is inoperable.

PREVIOUS SIMILAR EVENTS

LER 259/85010 - The control room operator received an erroneous alarm from the reactor building ventilation system. Compensatory samples were being taken until 2200 hours when a maintenance personnel told the radiological laboratory analyst (RLA) that the "as-found" condition showed that two of the three channels were working properly. This interface lead to the RLA prematurely suspending needed sampling. The root cause was due to personnel error, failure to follow procedure. This root cause was not related to design problems.

LER 259/85046 - The sampling hose for the turbine building ventilation CAM was left disconnected during a source check test. The disconnected hose was discovered and reconnected. This disconnected hose event required sample hoses to be disconnected. The root cause of this event was personnel error. Although the sample lines in the December 30, 1990 event were isolated, they were not inadvertently left in that configuration. Therefore, the corrective actions for LER 259/85046 were adequate for the event and would not be expected to contribute to the December 30, 1990 event.

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

LER 259/88010 - The chemistry section was notified that the reactor building closed cooling water heat exchanger was removed from service. At that time, the RLA presumed that the raw cooling water to the heat exchanger was also isolated. Therefore, the RLA prematurely suspended sampling. This heat exchanger event is different since no secondary systems were involved in the December 30, 1990 event.

LER 259/88041 - An RLA failed to perform a compensatory sample for the raw cooling water system. The root cause was due to an inadequate shift turnover. The system was still out-of-service and this piece of information was not discussed at the shift turnover. This previous LER did not address any design errors; therefore, its corrective action appear adequate and did not contribute to the December 30, 1990 event.

LER 259/90005 - An RLA took two of three chemistry samples in a secondary location on the raw cooling water system. This was due to the RLA not realizing that a third raw cooling water heat exchanger was in service. This previous event's root cause was due to failure to follow procedure in that the analyst did not contact the control room to verify if the third heat exchanger was in service. In the December 30, 1990 event, the chemistry was cognizant of the out-of-service component; therefore, the corrective actions did not contribute to the December 30, 1990 event.

COMMITMENTS

Responsible organization will revise calibration and functional test SIs for the 10 effluent CAMs to clarify sampling requirements when monitor is inoperable prior to Unit 2 restart.