NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Oconee Nuclear Station, Unit 1	0 5 0 0 0 2 6 9	1 OF 0 5

TITLE (4) Vent Gaseous Radiation Monitor 1RIA-45 Removed From Service During Refueling Operations

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	DOCKET NUMBER(S)
0 3	1 4	8 6	8 6	— 0 0 5	— 0 0	0 4	1 4	8 6	N/A	0 5 0 0 0
									N/A	0 5 0 0 0

OPERATING MODE (9)	6	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)	X 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)	50.72(b)(2)(iii)
		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
Sandy G. Godwin, Licensing	7 0 4 — 3 7 3 — 2 3 6 2

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 March 14, 1986, with Unit 1 shut down for refueling, the Vent Gaseous Radiation Monitor (1RIA-45) was removed twice from service in conjunction with repair work on the Vent Particulate Radiation Monitor (1RIA-43). Fuel was being moved in the Reactor Building (RB) at the same time. This violated the intention of Technical Specification 3.8.10 which requires 1RIA-45 and the RB Purge System to be operable during refueling operations.

The discovery of 1RIA-45 being out of service occurred at 2204 hours. The immediate corrective action was to stop fuel movement. 1RIA-45 was placed back in service at 2334 hours after 1RIA-43 was repaired and 1RIA-45 and the RB Purge System were tested. Fuel handling resumed at 2335 hours. The health and safety of the public were not affected by this incident.

This incident is classified as Personnel Error because work was done on 1RIA-43 without evaluating the possibility of 1RIA-45 being affected.

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BACKGROUND

The Reactor Building Purge System including radiation monitor 1RIA-45 which initiates the purge isolation, is required by Technical Specifications to be operable prior to refueling operations. The proper functioning of these components is desired to prevent a significant release of fission productions if a fuel handling accident occurs.

Radiation monitor 1RIA-45 monitors the Unit 1 Vent (stack) for low range gaseous radioactivity. It also has interlocks which automatically terminate the Reactor Building purge and close the purge isolation valves when radiation levels in the vent get high enough to cause 1RIA-45 to alarm.

1RIA-43 detects air particles by monitoring a moving filter paper with a plastic beta scintillator. The filter paper is rolled out and taken up by an advance drive mechanism.

1RIA-45 is part of a Vent Radiation Monitor cabinet, along with three other monitors. All four monitors share a common sample nozzle off the Unit 1 Vent. A dual pumping system, driven by a single motor, is provided to supply continuous air samples to the monitors. One pump supplies air samples to a particulate monitor, 1RIA-43. The second pump supplies air samples to a fixed charcoal filter that is monitored for iodine by 1RIA-45 and 1RIA-46, for normal and high radiation ranges, respectively. The motor for the pumps is normally turned off when performing maintenance on any of the four monitors, thus all would be out of service at that same time.

DESCRIPTION OF EVENT

On March 14, 1986, with Unit 1 shut down for refueling, a "Refueling Procedure" step which states:

> "The Reactor Building Purge System, including the Radiation Monitor, 1RIA-45, which initiates purge isolation, shall be tested and verified to be operable within 24 hours prior to refueling operations"

was performed.

All of the reactor operators and the senior reactor operator on the shift for this night were knowledgeable about this limit in the refueling procedure and about the Vent Radiation Monitor cabinet having a dual pump motor.

During this time, a work request was being performed, which sets the flow for the sample pumps on 1RIA-32, -39, -41, -43, -47 and -48 at the RIA cabinets. At approximately 2020 hours, a low flow indication for 1RIA-43

tested before refueling operations resumed. Involved personnel were counseled concerning the event.

Planned corrective actions are:

All licensed reactor operators will review this incident investigation report for lessons learned and for the necessity of maintaining the limitations of the refueling procedure.

The standing work requests for setting the flow for RIA sample pumps (for RIAs 32, 39, 41, 43, 44, 47, 48), will be changed to add a precaution to not turn off any radiation monitor cabinet pump without getting clearance from Operations.

Appropriate personnel are evaluating a Technical Specification interpretation for all three nuclear stations that will address removing equipment from service for brief periods of maintenance when compensatory actions would be inappropriate.

A data base search of previous Incident Investigation Report lists 104 incidents in the category of "radiological significance". Only four of them involved a RIA being out of service during a release or purge to the Vent. A review of these reports found that RIA-45 has not been out of service during refueling operations; therefore, this incident is not recurring.

There were no abnormal radiation exposures or personnel injuries as a result of this incident.

CAUSE OF EVENT

The intent of Technical Specification 3.8, "Fuel Loading and Refueling", item 3.8.10, was violated twice on March 14, 1986, once for approximately four minutes and again for approximately one hour when 1RIA-45 was taken out of service during refueling operations on Unit 1. In both cases the Unit 1 Assistant Shift Supervisor was aware that the RIA supply pump could be taken out of service. The root cause of these events is a cognitive error. Clearance was given for the Vent Particulate Radiation Monitor, 1RIA-43, to be repaired without inquiring about what the repair work would do to the Vent Radiation Monitor cabinet. No one was informed of any limits or precautions concerning the Vent Gaseous Radiation Monitor, 1RIA-45, that are in the refueling procedure. Therefore this incident is classified as Personnel Error.

Contributing causes to the event was the lack of communication between involved personnel. If all of the appropriate people had been aware of all that was going on, the event would have been avoided.

was observed. It was suspected that the moving filter paper was clogged, so the Vent Radiation Monitor cabinet dual pump motor was turned off and the inlet and outlet valves from the Vent were valved closed. The 1RIA-43 lid was lifted briefly, long enough to determine that a solenoid mechanism on the filter paper advance drive was malfunctioning. The Vent Radiation Monitor cabinet was valved back in and the dual pump motor was turned back on at approximately 2024 hours.

Appropriate personnel were notified that 1RIA-43 was malfunctioning.

At approximately 2100 hours, work was started to repair 1RIA-43. The Vent Radiation Monitor cabinet was turned off and valved out. At this time, a violation of the intent of Technical Specification 3.8.10 occurred because 1RIA-45 was now out of service while fuel was being handled.

It was determined that the solenoid mechanism for the filter paper drive for 1RIA-43 needed replacing. While the part was being obtained, a remote particulate sampler was set up at the Vent Radiation Monitor cabinet to cover 1RIA-43 being out of service. The HP Specialist noticed that the pump was off. He went to the HP office to check on the sampling requirements for 1RIA-44, -45 and -46. Meanwhile, a solenoid was replaced in 1RIA-43. The drive mechanism still would not function properly, so it was determined that the problem was within the rack drive mechanism.

At 2204 hours, the Unit 1 Nuclear Control Operator (NCO) was notified that a remote particulate sampler was set up and that he would also provide the necessary sampling for 1RIA-44, -45 and -46, also out of service. The NCO and the Senior Reactor Operator (SRO) in the control room, realizing 1RIA-45 should not be out of service during fuel movement, notified the Refueling Supervisor and had fuel movement stopped. The SRO confirmed that 1RIA-45 was out of service. The SRO was told that 1RIA-45 would be returned to service in about 10 minutes, but 1RIA-43 was not repaired. At approximately 2210 hours, the Vent Radiation Monitor cabinet was valved back in and the dual pump motor was turned back on. 1RIA-43 was repaired at 2255 hours. The Vent Radiation Monitor cabinet was returned to service, including 1RIA-43, -44, -45 and -46.

The Unit 1 NCO had written a priority one work request, to perform the functional test for 1RIA-45 and the RB Purge Isolation. The test was completed at 2334 hours, and fuel handling resumed at 2335 hours.

CORRECTIVE ACTION

The immediate corrective action was to stop refueling operations to prevent the possibility of a fuel accident occurring without automatic Reactor Building purge isolation. The Vent Radiation Monitor cabinet was put back in service and the Reactor Building Purge Isolation System was functionally

SAFETY ANALYSIS

This incident of 1RIA-45 being out of service rendered the automatic Reactor Building Purge Isolation System inoperable. If a fuel assembly did sustain some mechanical damage during refueling operations, a subsequent release of fission products would occur. The activity would be assumed to be released as a puff from the Unit Vent, because no vent or purge isolation was possible. The ONS FSAR Section 15.11.2.1, "Single Fuel Assembly Handling Accidents", states that the result of a conservative analysis performed for a fuel handling accident within the Reactor Building indicates that a 0.5 rem whole body and a 32 rem thyroid dose at the site boundary could occur. It also states that these values are well within the limits of 10 CFR 100. No radioactivity was released during this incident.

With the procedures and experience that ONS has, mechanical damage to the fuel assemblies during refueling operations is possible but improbable.

It is concluded that the health and safety of the public were not affected by this incident.

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April 14, 1986

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

Subject: Oconee Nuclear Station, Unit 1
Docket Nos. 269, -270, -287
LER 269/86-05

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a) (1) and (d), attached is Licensee Event Report 269/86-05 concerning vent gaseous radiation monitor 1RIA-45 being removed from service during refueling operations.

This report is submitted in accordance with §50.73(a)(2)(i) and 50.72 (b)(2)(iii). This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

Hal B. Tucker/mm

Hal B. Tucker

SGG:slb

Attachment

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