

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) RIVER BEND STATION	DOCKET NUMBER (2) 0 5 0 0 0 4 5 8	PAGE (3) 1 OF 0 4
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TITLE (4) Autostart Of Fuel Building Ventilation Treatment System Due To Radiation Monitor High Alarm Without Actual High Radiation Condition

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 (5)
0	9	0	8	8	0	0	2	2				0 5 0 0 0
0	9	0	8	8	0	0	1	0				0 5 0 0 0

OPERATING MODE (9) 3	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)									
POWER LEVEL (10) 0	20 402(b)	20 406(e)	<input checked="" type="checkbox"/>	80 73(a)(2)(iv)	73 71(b)					
	20 406(a)(1)(ii)	80 38(a)(1)	<input type="checkbox"/>	80 73(a)(2)(iv)	73 71(c)					
	20 406(a)(1)(iii)	80 38(a)(2)	<input type="checkbox"/>	80 73(a)(2)(iv)	OTHER (Specify in Abstract below and in Text, NRC Form 368A)					
	20 406(a)(1)(iv)	80 73(a)(2)(ii)	<input type="checkbox"/>	80 73(a)(2)(iv)(i)						
	20 406(a)(1)(v)	80 73(a)(2)(iii)	<input type="checkbox"/>	80 73(a)(2)(iv)(ii)						
20 406(a)(1)(vi)	80 73(a)(2)(iv)	<input type="checkbox"/>	80 73(a)(2)(iv)							

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME L. A. England - Director-Nuclear Licensing		AREA CODE 5 0 4	NUMBER 3 8 1 - 4 1 4 5

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)									
CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NRC
X	I	L	M	O	N	G	0	6	3

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO			0	1	0

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

On 9/5/88 at 1428 hours, with the unit in operational condition 3 (hot shutdown - zero percent power), a high radiation alarm was received from the particulate channel of the fuel building gaseous effluent release radiation monitor causing an automatic initiation of the fuel building ventilation treatment system. Operations personnel determined that no actual high radiation condition existed and returned the systems to their normal configuration.

Background activity due to natural radon was high and together with some small activity from contaminated ductwork appears to have been sufficient to cause the momentary high alarm.

A maintenance work order request has been initiated to decontaminate the ductwork in question, and a review will be performed to determine the contamination source.

The health and safety of the public were not adversely affected as a result of this event since the systems which actuated placed the plant in a more conservative configuration by filtering air prior to releasing it.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  RIVER BEND STATION	DOCKET NUMBER (2)  0500045888	LER NUMBER (6)			PAGE (3)	
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TEXT (if more space is required, use additional NRC Form 3654 (1/77))

REPORTED CONDITION

On 9/6/88 at 1428 hours, with the unit in operational condition 3 (hot shutdown - zero percent power), a high radiation alarm (\*ALM\*) was received from the particulate channel of the fuel building (\*ND\*) gaseous effluent release radiation monitor (\*RE\*), 1RMS\*RE5B, causing an automatic initiation of the fuel building ventilation treatment system (\*BH\*).

Operations personnel determined that no actual high radiation condition existed and returned the systems to their normal configuration.

INVESTIGATION

The calibration of 1RMS\*RE5B is performed every 18 months per Surveillance Test Procedure (STP)-511-4206, "SCIS/RMS - Fuel Building Ventilation Exhaust Radiation - High 18 Month Chcal; 18 Month LSFT (1RMS\*RE5B)". The most recent calibration was performed on 7/9/88. In addition, radiation monitor 1RMS\*RE5B is microprocessor based and incorporates a selftest feature called auto-checksource.

Once every 8 hours, a small checksource is automatically placed in front of the detector for 60 seconds, and a count is taken. This count is then compared with a minimum checksource limit. If the checksource limit is not met, the monitor automatically takes itself out of service and actuates an alarm in the main control room. As 1RMS\*RE5B continues to pass the auto-checksource tests every 8 hours, this indicates that the detector is fully functional.

A second check, to verify that the detector was not over reporting activity, was performed by using the fast filter advance to place clean filter paper in front of the detector. With clean filter paper (but sample flow still on), the count rate dropped from 149 cpm to a background value of 67 cpm. A field check was also performed and verified that the detector filter route between the supply and takeup spool was correct.

A third check to determine if electrical noise was entering the detector circuitry was performed. This check consisted of visually inspecting the connectors to and from the detector, preamplifier, and high voltage power supply. Each connection was lightly tugged to determine if any increased counts were observed. No increased counts were observed due to light mechanical agitation of the connectors. In addition, an examination of the high alarm history revealed that the indicated radiation level rose from the alert level to the high alarm level over a period of approximately 2 minutes 24 seconds. The indicated radiation level then remained close to the high alarm level for approximately 6 minutes 20 seconds whereupon it decreased below alert level.

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TEXT (if more space is required, use additional NRC Form 365A 2/ (17))

This occurrence is different from typical noise induced radiation alarms which rise very rapidly through alert to high alarm (usually less than 1 second).

A field walkdown of the heating ventilation and air conditioning (HVAC) ductwork (\*DUCT\*) upstream of the radiation monitor sample point was then conducted. The particular area of interest was the vent path from the spent fuel pool demineralizers backwash tank (\*TK\*) (1SFC-TK2). Inspection with a portable radiation detector revealed approximately 10 feet of duct in the new fuel receipt area at the 95 foot elevation to be internally contaminated.

Radiation readings outside the overhead duct yielded 150 mr/hr at contact. Radiation readings decreased along the duct until they dropped to 0.5 mr/hr approximately 30 feet away. Discussions with radiation protection personnel revealed that this duct had been contaminated during the first refueling outage (approximately 9 months before the event reported here).

On 9/8/88, the particulate collection filter on radiation monitor 1RMS\*RE5A was analyzed by the chemistry department. 1RMS\*RE5A receives its sample just upstream of 1RMS\*RE5B. 1RMS\*RE5A has a fixed filter that had been in place for more than three days. Since the contamination had been in the duct for 9 months, particular attention was given to looking for the presence of long half-life isotopes. The analysis results did not reveal sufficient activity on the filter paper to enable isotopic determination. A final inspection of the filter paper via a microscope showed the presence of small silver colored particles which may have been fractured demineralizer resin.

Because the period of time the high alarm was present on 1RMS\*RE5B was on the order of minutes (close to the half-life of naturally occurring radon gas), the natural radon gas activity was also researched. 1RMS\*RE5B clearly shows a consistent daily pattern of natural radon activity. During the nights when stable atmospheric conditions were present, the radon activity increased to very near the alert alarm level of 5.56 E-10 uC/ml. When less stable weather conditions were observed, the natural radon activity levels decreased to 1.87 E-12 uC/ml. Furthermore, when on 9/12/88 a weather front passed through resulting in very unstable weather conditions, the indicated radon activity was even lower (8.90 E-14 uC/ml).

In addition to 1RMS\*RE5B, there are three other model 0386-1201-02 gas and particulate radiation monitors which have experienced chronic alert alarms due to natural radon activity, namely 1RMS-RE126 (main plant exhaust (\*VC\*) stack), 1RMS-RE118 (turbine building (\*NM\*) vent), and 1RMS-RE126 (offgas building vent).

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		8 8	0 2 2	0 0	0 4	OF	0 4

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

Modification request (MR) 87-0026 was initiated to provide revised setpoints which are above natural radon activity levels. 1RMS\*RE5B was not included in the implementation of this MR.

Particulate radiation detector 1RMS\*RE5B appears to have been functioning properly. Background activity due to natural radon was high, and together with some small activity from the contaminated HVAC duct appears to have been sufficient to cause a momentary high alarm.

A review of previously submitted LERs from River Bend Station revealed no actuations with a similar root cause.

**CORRECTIVE ACTION**

A maintenance work order request (MWOP) to decontaminate the contaminated ductwork has been initiated. An MR to include 1RMS\*RE5B in the particulate detector review is under consideration.

Gulf States Utilities (GSU) Engineering will perform a design review to determine the source of the contamination, and a supplement to this report will be provided by 1/6/89.

**SAFETY ASSESSMENT**

The safe operation of the plant and health and safety of the public were not adversely affected as a result of this event since the systems which actuated placed the plant in a more conservative configuration by filtering the air prior to releasing it.

Note: Energy Industry Identification System Codes are identified in the text as (\*XX\*).



**GULF STATES UTILITIES COMPANY**

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AREA CODE 504    635-6094    346-8651

October 6, 1988  
RBG- 28965  
File Nos. G9.5, G9.25.1.3

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

Gentlemen:

River Bend Station - Unit 1  
Docket No. 50-458

Please find enclosed Licensee Event Report No. 88-022 for River Bend Station - Unit 1. This report is being submitted pursuant to 10CFR50.73.

Sincerely,

J. E. Booker  
Manager-River Bend Oversight  
River Bend Nuclear Group

*pdf RBG RRS*  
JEB/TFP/PDG/RRS/ch

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