GULF STATES UTILITIES COMPANY

RIVER BEND STATION POST OFFICE BOX 220 ST. FRANCISVILLE, LOUISIANA 70775

AREA CODE 504 635-6094 346-8651

June 1, 1992
RBG- 36902
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, Revision 3 for River Bend Station -Unit 1. This supplemental report is being submitted pursuant to 10CFR50.73 to provide the results of additional investigation and corrective actions.

Sincerely,

W.H. Odell
Manager - Oversight
River Bend Nuclear Group

ADB for JEW
LAE/PDG/GAB/ML/JH

JE22 1/1

cc: U.S. Nuclear Regulatory Commission
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Arlington, TX 76011

NRC Resident Inspector
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Austin, TX 78757

Louisiana Department of Environmental Quality
Nuclear Energy Division
P.O. Box 82135
Baton Rouge, LA 70884-2135
ATTN: Administrator

NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO 3150-0104
EXPIRES 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 50.0 HRS FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530) U.S NUCLEAR REGULATORY COMMISSION WASHINGTON DC 20555 AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104) OFFICE OF MANAGEMENT AND BUDGET WASHINGTON DC 20503

FACILITY NAME (1): RIVER BEND STATION

DOCKET NUMBER (2): 0 5 0 0 0 4 5 8

PAGE (3): 1 OF 0 4

TITLE (4): AUTOSTART OF FUEL BUILDING VENTILATION SYSTEM due to radiation monitor high with out actual radiation high 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(S)
10	26	88	88	022	03	06	01	92		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): 2

POWER LEVEL (10): 72

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

20.402(b)	20.405(c)	X 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)	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: L. A. England, Director-Nuclear Licensing

TELEPHONE NUMBER: AREA CODE 5 0 4 3 8 9 - 4 1 4 5

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	
X	IL	MON	G063	N							

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 9/6/88 at 1428 hours with the unit in operational condition 3 (hot shutdown), on 10/11/88 at 1924 hours with the unit at zero percent power in operational condition 2 (startup) and on 10/22/88 at 1814 hours with the unit at 72 percent power in operational condition 1 (power operation), a high radiation alarm was received from the particulate channel of the fuel building gaseous effluent release radiation monitor 1RMS*RE5B causing an automatic initiation of the fuel building ventilation treatment system. It was determined that no actual high radiation condition existed and the system was returned to its normal standby configuration.

The 9/6/88 and 10/11/88 events were previously reported in LER 88-022, Revision 1. The root cause of these events has been determined to be a result of background activity due to natural radon combined with some small activity from previously contaminated HVAC ductwork which appears to have been sufficient to cause the momentary high alarm.

In addition to MWO 124752 to clean out the contaminated ductwork and MWO 124758 to troubleshoot the particulate detector, MRs 88-0329 and 88-0355 have been implemented to prevent carryover from 1SFC-TK2 and associated ductwork contamination. MR 89-0032 was implemented to remove the ventilation treatment system actuation function from the particulate channel of 1RMS*RE5B.

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 release.

REPORTED CONDITION

On 9/6/88 at 1428 hours with the unit in operational condition 3 (hot shutdown), on 10/11/88 at 1924 hours with the unit at zero percent power in operational condition 2 (startup) and on 10/22/88 at 1814 hours with the unit at 72 percent power in operational condition 1 (power operation), 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 fuel building ventilation treatment system (*BH*). Radiation protection personnel determined that no actual high radiation condition existed and Operations personnel returned the system to its standby configuration.

INVESTIGATION

Radiation Monitor 1RMS*RE5B is a particulate and gas radiation monitor which samples the fuel building gaseous effluent prior to its release via the fuel building. 1RMS*RE5B is described in River Bend Station (RBS) Updated Safety Analysis Report (USAR) Section 11.5 as part of the digital radiation monitoring system (DRMS) required for safety to initiate automatic protective actions to limit the potential release of radioactive materials from the fuel handling areas. 1RMS*RE5B is also listed in RBS Technical Specification Section 3.3.2, "Isolation Actuation Instrumentation", which requires a minimum of one operable radiation monitor per trip system (1RMS*RE5A for Division I and 1RMS*RE5B for Division II). In addition, 1RMS*RE5B is also listed in RBS Technical Specification 3.3.7.11, "Radioactive Gaseous Effluent Monitoring Instrumentation," which requires a minimum of one gas radiation monitor (either 1RMS*RE5A or 1RMS*RE5B) for this effluent pathway.

Radiation monitor 1RMS*RE5B was supplied as Q Class 1 equipment and contains two radiation detectors, a nobel gas radiation detector and a particulate radiation detector. The particulate radiation detector initiated the high radiation alarm and subsequent actuation of the fuel building ventilation treatment system. This particulate channel is not a part of licensee's Technical Specification requirements.

The calibration of 1RMS*RE5B is performed every 18 months by 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 prior to this initiation was performed on 7/9/88. In addition, radiation monitor 1RMS*RE5B is microprocessor based and incorporates a self-test 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 taken. This count is then compared with a minimum checksource limit. If the checksource limit is not met, then the monitor automatically takes itself out of service and initiates an alarm in the main control room. 1RMS*RE5B continues to pass the auto-checksource tests every 8 hours, which indicates that the detector is fully functional.

A field walkdown of the heating ventilation and air conditioning (HVAC) ductwork (*DUCT*) upstream of the radiation monitor sample point was conducted. The particular area of interest was the vent path from the spent fuel pool cleanup demineralizer backwash tank (*TK*) 1SFC-TK2. Inspection, using a portable radiation detector, identified approximately 10 feet of duct at the 95 feet elevation in the new fuel receipt area to be internally contaminated. Radiation readings outside the overhead duct yielded 150 mr/hr. 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 previously during the first refueling outage. Cleanup of the HVAC ductwork has now been completed, (see MWO 124752). Also, Modification Requests (MR) 88-0329 and 88-0355 have been implemented to replace the tank vent internal baffle, provide a diverter for tank inlet flow, replace the existing demister with a larger model and add a check valve in the demister drain to the backwash tank. These modifications prevent carryover from the backwash tank into the ductwork and the associated ductwork contamination.

1RMS*RE5B clearly shows a consistent daily pattern of natural radon activity. During the nights when stable atmospheric conditions were present, the radon activity increases to very near the alert alarm level of 5.56 E-10 μCi/ml. When less stable weather conditions were observed, the natural radon activity levels decreased to 1.87 E-12 μCi/ml.

Modification Request (MR) 88-0312 was initiated to revise the particulate channel setpoints of 1RMS*RE5B. Upon review of the setpoint calculation for the particulate channel, there were no conservatisms identified in the methodology used. Since the setpoints were determined to be valid, MR 88-0312 was cancelled.

The particulate radiation detector of 1RMS*RE5B utilizes filter paper which is continuously drawn at one inch per hour past the detector from the supply spool to the takeup spool. During the travel from the supply spool, to the takeup spool, a sample is drawn through the filter paper.

A field check was also performed for the 10/22 event and verified that the detector filter route between the supply and takeup spool was proper. Chemistry isotopic analysis of the takeup spool indicated that no activity was present on the filter paper. A section of the filter paper under the detector was carefully removed and inspected with a hand held radiation detector. This inspection revealed no activity present. Chemistry grab samples from 1RMS*RE5B also did not indicate the presence of any activity. Since this is the third actuation without recovery of any radioisotopes, Maintenance Work Order (MWO) 124758 was implemented to troubleshoot 1RMS*RE5B to determine if a monitor fault may be present.

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

There have been two other earlier events which were similar and were within 45 days of this third event. All of the events involved a high radiation alarm from the particulate channel of the fuel building gaseous effluent release radiation monitor that caused an automatic initiation of the fuel building ventilation treatment system. The root cause of the previous events have also been attributed to the same root cause as the 10/22/88 event.

Based on an evaluation of the monitor design basis, Technical Specification and SAR accident analysis, it was determined that actuation of the fuel building ventilation treatment system by the particulate channel of 1RMS*RE5B was not required. MR 89-0032 was implemented to revise the monitor firmware, removing the actuation function from the particulate channel of 1RMS*RE5B. This modification did not affect the actuation of the fuel building ventilation treatment system by the noble gas channel of 1RMS*RE5B or the alert and high alarms provided in the control room for both particulate and noble gas channels.

ROOT CAUSE

The root cause of these events has been determined to be a result of background activity due to natural radon combined with some small activity from previously contaminated HVAC ductwork which appears to have been sufficient to cause the momentary high alarm.

CORRECTIVE ACTION

In addition to MWO 124752 to clean out the contaminated ductwork and MWO 124758 to troubleshoot the particulate detector, MRs 88-0329 and 88-0355 have been implemented to prevent carryover from 1SFC-TK2 and associated ductwork contamination. MR 89-0032 was implemented to remove the ventilation treatment system actuation function from the particulate channel of 1RMS*RE5B.

SAFETY ASSESSMENT

The safe operation of the plant and health and safety of the public were not affected as a result of this event. The continued operation of the plant will have no impact on safety since systems which may actuate unnecessarily place the plant in a more conservative configuration by filtering the air prior to releasing it.

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