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David N. Lorfing
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RBG-47045

July 1, 2010

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

Subject: Licensee Event Report 50-458 / 10-002-00
River Bend Station – Unit 1
Docket No. 50-458
License No. NPF-47

File No. G9.5

RBF1-10-0105

Dear Sir or Madam:

In accordance with 10CFR50.73, enclosed is the subject Licensee Event Report. This document contains no commitments. If you have any questions, please contact me 225-381-4157.

Sincerely,

David N. Lorfing
Manager – Licensing

DNL/dhw
Enclosure

JE22
NRR

cc: U. S. Nuclear Regulatory Commission
Region IV
612 East Lamar Blvd., Suite 400
Arlington, TX 76011-4125

NRC Sr. Resident Inspector
P. O. Box 1050
St. Francisville, LA 70775

INPO Records Center
E-Mail (MS Word format)

Mr. Jim Calloway
Public Utility Commission of Texas
1701 N. Congress Ave.
Austin, TX 78711-3326

Mr. Jeffrey P. Meyers
Louisiana Department of Environmental Quality
Attn: OEC-ERSD
P.O. Box 4312
Baton Rouge, LA 70821-4312

NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2010

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not 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)

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4. TITLE

Standby Gas Treatment Filter Inoperable Due to Inadequate Surveillance Test Acceptance Criteria

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
										05000
05	05	2010	2010	- 002 -	00	07	01	2010	FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE

1

10. POWER LEVEL

100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
David N. Lorfing, Manager – Licensing	225-381-4157

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
X	BH	EHTR	AAF	N					

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On May 5, 2010, an investigation of surveillance test results determined that a deficiency in test acceptance criteria had caused a failure in the standby gas treatment filter "B" to go undetected since May 26, 2005. Technical Specification 5.5.7, "Ventilation Filter Testing Program," requires that the heaters in the filter be able to dissipate 61 kilowatts (kW) of power. The investigation of this event determined that a failure of part of the heater circuitry had resulted in heater power decreasing to approximately 46kW, causing the filter to be inoperable. The test procedure deficiency involved the calculation of electrical heater capacity. The investigation of this event determined that bus voltages assumed by the design basis accident were not considered when developing the criteria for the affected test procedures. The cause of this condition was determined to be a lack of rigor in engineering processes at the time when those acceptance criteria were issued. Actions are being taken to revise the test acceptance criteria. An engineering review of completed test results has been put into place as an interim action.

This condition had existed for a period greater than the allowable outage time cited in Technical Specifications 3.6.4.3. This condition did not cause the filter to be incapable of performing its safety function, and, thus, was of minimal significance to the safety of the public. This condition is being reported in accordance with 10CFR50.73(a)(2)(i)(B) as operations prohibited by Technical Specifications.

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REPORTED CONDITION

On May 5, 2010, an investigation of surveillance test results determined that a deficiency in test acceptance criteria had caused a failure in the standby gas treatment (BH) filter (**FLT**) "B" to go undetected since May 26, 2005. The test procedure deficiency involved the calculation of electrical heater capacity. Technical Specification 5.5.7, "Ventilation Filter Testing Program," requires that the heaters in the filter be able to dissipate 61 kilowatts (kW) of power. The investigation of this event determined that a failure of part of the heater (**EHTR**) circuitry had resulted in heater power decreasing to approximately 46kW, causing the filter to be inoperable. This condition had existed for a period greater than the allowable outage time cited in Technical Specifications 3.6.4.3. As such, this event is being reported in accordance with 10CFR50.73(a)(2)(i)(B) as operations prohibited by Technical Specifications.

BACKGROUND

The function of the standby gas treatment (GTS) system ensures that radioactive materials that leak from the primary containment into the secondary containment following a design basis accident are filtered and adsorbed. The system is comprised of two 100 percent capacity redundant air filtration systems. Exhaust from the reactor building annulus and the auxiliary building are monitored for airborne radioactivity before being discharged to the atmosphere. Upon indication of high airborne radioactive contamination in the ventilation exhaust, or following a loss of coolant accident, exhaust air is diverted through the GTS filters before being released to the atmosphere.

Each filter consists of the following components in series, all mounted in a welded steel housing: demister, electric heaters, pre-filters, high-efficiency particulate filters, a charcoal bed, a second bank of particulate filters, and associated instrumentation and controls. The heater in each filter consists of nine resistive elements grouped into three banks. A temperature controller modulates the three banks of heaters to maintain a preset differential temperature between the heater inlet and outlet.

The function of the heater is to maintain relative humidity less than 70 percent. Relative humidity greater than 70 percent is considered detrimental to the effectiveness of the charcoal's ability to retain radioactive iodine. To verify that enough heat is being generated to reduce relative humidity to less than 70 percent, the minimum heater capacity of 61kW is required by the licensing basis.

IMMEDIATE ACTIONS

On May 5, 2010, a review of results from the GTS filters "A" and "B" monthly operability tests noted a difference in the data between the two filters. Heater amperage readings were different for all three phases when comparing filter "A" to filter "B." The values for the three phases of the "A" filter were approximately 120 amps, while the values for the "B" filter were approximately 80 amps. Both values were within the procedure's acceptable criteria. As a result, the acceptance criteria in the procedures were questioned.

Subsequent investigation determined that the filter "B" heater amperage values were too low to provide the minimum 61kW power capacity required by Technical Specifications. It was determined that the surveillance procedure assumes a minimum required heating capability of greater than 61kW

at 460 volts. The measured heater power is corrected to 460 volts, and, if the corrected value is greater than 61kW, the heater is considered to be operable. The actual design basis requires the heaters to function at significantly less than 460 volts, which will significantly reduce the heating capability. In the worst case, the switchgear voltage is assumed to be approximately 420 volts during a loss of coolant accident (LOCA) with the Division 3 switchgear tied to the same offsite power source and preferred transformer as the Division 2 switchgear under degraded voltage conditions on the offsite source.

When it was discovered that GTS filter "B" was not operable, the actions required by Technical Specifications were taken, and a work order was initiated to troubleshoot and repair the heaters. Maintenance technicians discovered that the heater element bus bar for three of the elements had failed, creating a discontinuity in the electrical circuit. The appropriate repairs were completed, and the filter was returned to service.

In order to bound the extent of condition, surveillance procedures for safety related ventilation filters in the control building and fuel building were reviewed. No similar performance deficiencies were noted in that data.

CAUSAL ANALYSIS

The investigation of this event determined that bus voltages assumed by the design basis accident were not considered when developing the criteria for the affected test procedures. The cause of this condition was determined to be a lack of rigor in engineering processes at the time when those acceptance criteria were issued. In a program inspection in 1995, the question of bus voltages being used in the STPs was raised. However, only the nameplate or "design voltage" of the heater was considered, and not design basis accident voltages.

CORRECTIVE ACTIONS TO PREVENT RECURRENCE

Surveillance test acceptance criteria will be revised and incorporated into the test procedures. In the interim, an engineering review of test results has been added to the post-test evaluation process. These actions are being tracked in the station's corrective action process.

Since 2000, several improvements have been made to Engineering processes, procedures, and expectations. Procedures now dictate that the initiation of the formal design change request process will occur when:

- Engineering technical support or direction is required and the support request is not inherent in another approved process,
- Substantiation of engineering judgment supporting initial operability determination input, or,
- Engineering technical support or advice that is used to evaluate the condition of equipment in the plant.

In addition to the requirements of the design change process, other procedural guidance has been instituted for validation and verification, as well as independent review, to protect against errors. No further actions in this area are planned.

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PREVIOUS OCCURRENCE EVALUATION

A review of reported events at River Bend Station since January 2007 found no previous similar occurrences.

SAFETY SIGNIFICANCE

The GTS filter efficiency was evaluated for adverse effects due to the degraded heater capacity and the resulting increase in relative humidity of the air entering the charcoal bed. This evaluation has preliminarily concluded that the efficiency of the filter would have been greater than that required by Technical Specifications and assumed by the accident analysis. (The completion of calculations to confirm this determination is being tracked in the station's corrective action program.) As such, GTS filter "B" remained capable of performing its design basis function.

(NOTE: Energy Industry Component Identification codes are annotated as (**XX**).)