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Rick J. King
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April 3, 2000

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

Subject: River Bend Station
Docket No. 50-458
License No. NPF-47
Licensee Event Report 50-458 / 00-03-00

File Nos. G9.5, G9.25.1.3

RBG-45296
RBF1-00-0070

Ladies and Gentlemen:

In accordance with 10CFR50.73, enclosed is the subject Licensee Event Report.
There are no commitments in this document.

Sincerely,

A handwritten signature in cursive script that reads "Rick J. King".

RJK/dhw
enclosure

JE22

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cc: U. S. Nuclear Regulatory Commission
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LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If 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.

FACILITY NAME (1)

River Bend Station

DOCKET NUMBER (2)

05000-458

PAGE (3)

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TITLE (4)
Inoperable Division 3 Battery Caused By An Incorrectly Assembled Terminal Following Surveillance Testing

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 NAME	DOCKET NUMBER
03	04	2000	2000	03	00	04	03	2000	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)				
3	0%	20.2201(b)	20.2203(a)(2)(v)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)	50.73(a)(2)(viii)
		20.2203(a)(1)	20.2203(a)(3)(i)		50.73(a)(2)(ii)	50.73(a)(2)(x)
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)		50.73(a)(2)(iii)	73.71
		20.2203(a)(2)(ii)	20.2203(a)(4)		50.73(a)(2)(iv)	OTHER
		20.2203(a)(2)(iii)	50.36(c)(1)		50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
		20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME
D. N. Lorfing, Supervisor - Licensing

TELEPHONE NUMBER (Include Area Code)
225-381-4157

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	NO	EXPECTED	MONTH	DAY	YEAR
	<input checked="" type="checkbox"/>				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

At approximately 3:00 a.m. on March 4, 2000, with the plant shutdown in a refueling outage, a connection having a high resistance reading was discovered on the Division 3 125-volt DC battery during surveillance testing. Troubleshooting found that a washer was installed between the battery terminal plate and a battery cable lug. Other connections on the battery had the washer correctly installed on the opposite side of the cable lug, between the lug and the hex nut. The connection was reassembled in the same configuration as the other terminals. The resistance of the connection was measured and found to be acceptable in accordance with the surveillance test.

The incorrect configuration of the connection and the resultant high resistance caused the battery to not meet the surveillance requirements of River Bend Technical Specifications. A review of plant records concluded that this condition had existed since April 1999. This exceeds the allowable outage time of the applicable Technical Specifications. This event is being reported in accordance with 10CFR50.73(a)(2)(i)(B) as operation prohibited by Technical Specifications.

An engineering review determined that the battery was capable of performing its safety function during the period that the incorrect connection configuration existed. Therefore, this event was not significant with respect to the health and safety of the public.

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REPORTED CONDITION

At approximately 3:00 a.m. on March 4, 2000, with the plant shutdown in a refueling outage, an incorrectly assembled connection was discovered on the Division 3 120-volt battery (**BTRY**) during surveillance testing. The battery supplies DC loads in the Division 3 electrical system to support operation of the high pressure core spray (HPCS) pump and diesel generator.

Part of the regularly scheduled surveillance test was the measurement of the electrical resistance across each of the terminal connections on the individual battery cells. The test acceptance criteria is less than 150 micro-ohms. The resistance of three paralleled connections on the negative terminal on cell number 60 in the battery bank was measured at approximately 250 micro-ohms.

While the connection was incorrectly assembled, the Division 3 battery did not meet the surveillance requirements of River Bend Technical Specification 3.8.4, "DC Sources – Operating." The required actions of that specification would have caused the HPCS system and the associated standby service water pump to be immediately declared inoperable and the battery returned to an operable condition within 12 hours. This event is being reported in accordance with 10CFR50.73(a)(2)(i)(B) as operation prohibited by Technical Specifications.

INVESTIGATION

Upon discovery of the high resistance connection on the cell no. 60 terminal, the terminal bolt was checked with a torque wrench, and the resistance was again measured with no improvement noted. The subsequent troubleshooting found that a washer was installed between the battery terminal plate and the battery cable (**CBL**) lug. Other terminals on the battery had the washer correctly installed on the opposite side of the cable lug, between the lug and the hex nut.

The connection on the cell 60 negative terminal was reassembled in the same configuration as the other terminals. The resistance of the connection was then measured at approximately 20 micro-ohms, which was within the surveillance test acceptance criteria.

Maintenance documentation was reviewed to determine when the incorrect assembly of the cell 60 connection occurred. The battery was replaced in March 1999, and the final installation of the connection was completed and tested on April 14, 1999. The resistance measured on the cell 60 connection was 26 micro-ohms. On April 17, a service discharge test of the battery was performed, and the test procedure requires the disassembly of the cell 60 negative terminal to allow installation of temporary cables. Station electricians performed the discharge test satisfactorily, and the procedure directed the cell 60 connection be restored to its normal configuration. No resistance reading was taken on the restored connection, as none was required by the procedure.

No documentation of tests or inspections involving disassembly of the cell 60 connection was found for the period since April 1999. Likewise, no data regarding terminal resistance measurements taken in that period was found. The incorrect assembly was determined to have existed since restoration following the service discharge test on April 17, 1999.

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CAUSAL ANALYSIS AND CORRECTIVE ACTIONS

On April 17, 1999, the connection on the cell no. 60 negative terminal was disassembled in accordance with the service discharge test procedure to allow installation of a cable leading to the load tester. The attachment of the test cable used a washer on the backside of the battery terminal plate where it was obscured from view. It is postulated that, when the test cable was removed, the washer adhered to the backside of the plate in a layer of anti-corrosive grease. The washer should have been removed for the normal configuration of the terminal. No washers should be installed between the cable lugs and the terminal plate.

This event was caused by inattention to detail by the maintenance technician reassembling the cell 60 connection following the service discharge test. A likely contributing factor was the difficulty in visually inspecting the connection due to its poor accessibility. The incorrectly placed washer could not be seen without using a stepladder to view the connection from above. The anti-corrosion grease on the terminal plate likely caused the washer to adhere to the backside of the plate out of view. Additionally, a procedure inadequacy was identified in that the test instructions did not require performing a resistance check following reassembly of the terminal connection after the service discharge test was performed.

The subsequent troubleshooting identified the cause of the high resistance reading to be the incorrect connection assembly. The connection was reassembled and tested satisfactorily. Terminal connection resistance readings were taken on the Division 1 and 2 batteries to verify their operability. Corrective actions to prevent recurrence will be tracked in River Bend's corrective action program.

PREVIOUS OCCURRENCE EVALUATION

A search of River Bend Licensee Event Reports submitted since January 1995 found no previous instances of battery installation errors.

SAFETY SIGNIFICANCE

The design of the Division 3 battery includes significant design margin above that required by Institute of Electrical and Electronic Engineers Standard 485 ("IEEE Recommended Practice for Sizing Large Lead Storage Batteries for Generating Stations and Substations"). Specifically, the battery has been designed with 20-amperes of simulated constant power load connected via the main Division III 125 VDC distribution panel. This load forces the voltage drop to the distribution panel to be artificially high. This margin more than bounds the expected additional voltage drop caused by the identified connection. There is reasonable assurance that the Division III 125 VDC system was capable of performing its required safety function during the period that the identified condition existed. Therefore, this event was not significant with respect to the health and safety of the public.

This condition did not constitute a loss of safety function.

(Note: Energy industry component identification codes are annotated in the text as (**XXX**).)