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Rick J. King
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November 5, 2001

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 / 01-002-00

File Nos. G9.5, G9.25.1.3

RBG-45864
RBF1-01-0238

Ladies and Gentlemen:

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

Sincerely,

RJK/dhw
enclosure

IE22

cc: U. S. Nuclear Regulatory Commission
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611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

NRC Sr. Resident Inspector
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NRC FORM 366 (1-2001)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 6-30-2001

Estimated burden per response to comply with this mandatory information 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 Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
River Bend Station	05000 458	1 OF 3

TITLE (4) Potential Violation of Maximum Reactor Power Limit Due to Nonconservative Error in Core Thermal Power Calculation Software

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
										05000
10	04	2001	2001	– 002 –	00	11	05	2001	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	5
POWER LEVEL (10)	0

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

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

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
J.W. Leavines, Manager - Licensing	225-381-4642

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

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 15 single-spaced typewritten lines) (16)

On October 4, 2001, a review by River Bend engineering of a General Electric (GE) report determined that the station has in the past potentially operated slightly above the maximum core thermal power as authorized in the facility operating license. This event is being reported as required by River Bend's license condition 2.E under the 10CFR50.73 reporting format.

In September 2001, GE issued a report titled "Impact of Steam Carryover Fraction on Process Computer Heat Balance Calculations." The GE report details the condition in which a nonconservative error in the process computer software causes the calculation of core thermal power to be slightly low. It is estimated that the station has operated, at times, approximately three megawatts thermal over its licensed maximum limit.

The moisture carryover constant in River Bend's process computer was previously defined to be 0.1 percent. As a conservative measure to assure compliance with the operating license, that value has been changed to 0.0. Any process computer heat balance subroutines will now utilize the new constant value of 0.0, pending the disposition of the forthcoming GE Service Information Letter on this subject.

As stated in the General Electric report, use of the carryover fraction of 0.1 percent in thermal power calculations, while nonconservative, does not represent a safety issue. Therefore, this condition was of minimal consequence with respect to the health and safety of the public.

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NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)* **(17)**

REPORTED CONDITION

On October 4, 2001, a review by River Bend engineering of a GE report determined that the station has in the past potentially operated slightly above the maximum core thermal power as authorized in the facility operating license. This event is being reported as required by River Bend's license condition 2.E under the 10CFR50.73 reporting format.

In September 2001, GE issued a report titled "Impact of Steam Carryover Fraction on Process Computer Heat Balance Calculations." The GE report details the condition in which a nonconservative error in the process computer software causes the calculation of core thermal power to be slightly low. This error leads to a scenario in which actual core thermal power can, unknown to the operator, be slightly above the maximum value allowed by the operating license. It is estimated that the station has operated, at times, approximately three megawatts thermal over its licensed maximum limit.

INVESTIGATION

The performance specifications on most boiling water reactor (BWR) steam dryers require less than 0.1 percent steam carryover fraction (moisture content in the steam) leaving the reactor vessel. This specification value is commonly used in the process computer for core thermal power calculations. Measurements of the carryover fraction produced by later generations of BWR's has shown that steam dryer performance has improved significantly as dryer designs have evolved.

At the time of this investigation, River Bend used a design value of 0.1 percent for the moisture carryover fraction in the core thermal power calculation performed by the plant process computer.

CORRECTIVE ACTIONS

General Electric has not provided a determination of whether the 0.1 percent value is a part of the licensed core monitoring methodology, and is currently working on a Service Information Letter to address this condition.

The moisture carryover constant in River Bend's process computer was previously defined to be 0.1 percent. As a conservative measure to assure compliance with the operating license, that value has been changed to 0.0. Any process computer heat balance subroutines will now utilize the new constant value of 0.0, pending the disposition of the forthcoming GE Service Information Letter.

SAFETY SIGNIFICANCE

As stated in the General Electric report, use of the carryover fraction of 0.1 percent in thermal power calculations, while nonconservative, does not represent a safety issue. This error in calculated core thermal power is an order of magnitude less than the precision in the minimum critical power ratio evaluation process. The 0.1 percent error in core thermal power is significantly less than the precision

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NARRATIVE *(If more space is required, use additional copies of NRC Form 366A)* **(17)**

of the process computer core thermal power estimate. Additionally, River Bend's accident analysis assumes through various methodologies that core thermal power is 2 percent greater than maximum rated at the initiation of an event, in accordance with Regulatory Guide 1.49. The error induced by the nonconservative carryover fraction caused reactor power to be, at maximum, approximately 100.1 percent of rated. Therefore, this condition did not have the potential to cause fuel thermal limits to be exceeded. This condition was of minimal consequence with respect to the health and safety of the public.