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James J. Fiscaro

Director
Nuclear Safety

January 30, 1996

U.S. Nuclear Regulatory Commission
Document Control Desk
Mail Stop P1-37
Washington, D.C. 20555

Subject: River Bend Station - Unit 1
Docket No. 50-458
License No. NPF-47
Licensee Event Report 50-458/95-013-00
File Nos. G9.5, G9.25.1.3

RBG-42412
RBF1-96-0034

Gentlemen:

In accordance with 10 CFR 50.73, enclosed is the subject report. This is the final report.

Sincerely,

J. W. Leavins
for J. J. Fiscaro

JJF/PRH/kvm
enclosure

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

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St. Francisville, LA 70775

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Radiation Protection Division
P.O. Box 82135
Baton Rouge, LA 70884-2135
ATTN: Administrator

FACILITY NAME (1) **River Bend Station** DOCKET NUMBER (2) **05000-458** PAGE (3) **1 of 5**

TITLE (4)
OPERATION OUTSIDE OF TECHNICAL SPECIFICATION LIMITS, DUE TO TRIP, MAINTENANCE, AND REPAIR OF EMERGENCY DIESEL GENERATOR II.

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
12	28	95	95	-- 013	-- 00	01	30	96	N/A	05000
									N/A	05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
		20.2201(b)		20.2203(a)(2)(v)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)		50.73(a)(2)(viii)		
POWER LEVEL (10)	90.0	20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(i)(B)		
		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)		<input checked="" type="checkbox"/> 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)		SPECIAL REPORT IAW T.S. 3.8.1		

LICENSEE CONTACT FOR THIS LER (12)
NAME: **D. N. Lorfing, Supervisor -- Licensing** TELEPHONE NUMBER (include Area Code): **504-381-4157**

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
F	EEA LOA	HTEXCH	T193	Y					

SUPPLEMENTAL REPORT EXPECTED (14) YES NO (If yes, complete EXPECTED SUBMISSION DATE)

EXPECTED SUBMISSION DATE (15) MONTH: DAY: YEAR:

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

On December 28, 1995, the Division II Emergency Diesel Generator (EDG) (*DG*) was operating in preparation for various maintenance activities. During the run, the EDG tripped due to an instrument problem. This began a 72 hour Limiting Condition for Operation (LCO) during which other maintenance activities were performed. Upon conclusion of scheduled maintenance, one post-maintenance run and one Surveillance test were manually terminated due to low lube-oil-pressure indication, and noise. It was later determined that a previously known minor lube-oil-cooler-jacket-water leak had experienced a step-change. Since the first LCO would expire before the emergent leak-repair could be completed, NRC Enforcement Discretion was requested, and granted, to extend the original LCO period by 72 hours.

The lube oil cooler (*HX*) leak was repaired. Cylinder number four was disassembled, inspected, reworked, and the EDG was returned to service after successful surveillance testing.

Division I EDG equipment and off-site power circuits remained operable and extensive compensatory actions were implemented during the Division II EDG outage.

NRC FORM 365A (5-92)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95	
LICENSEE EVENT REPORT (LER) TEX; CONTINUATION		<small>ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (M-11B 7714), 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.</small>	
		FACILITY NAME (1) River Bend Station	DOCKET NUMBER (2) 05000-458

REPORTED CONDITION

On December 28, 1995, the Division II Emergency Diesel Generator (EDG) (*DG*) was operating in preparation for various maintenance activities. During the run, the EDG tripped due to an instrument problem. This began a 72 hour Limiting Condition for Operation (LCO) during which other maintenance activities were performed. Upon conclusion of scheduled maintenance, one post-maintenance run and one Surveillance test were manually terminated due to low lube-oil-pressure indication, and noise. It was later determined that a previously known minor lube-oil-cooler-jacket-water leak had experienced a step-change. Since the first LCO would expire before the emergent leak-repair could be completed, NRC Enforcement Discretion was requested, and granted, to extend the original LCO period by 72 hours.

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Division I EDG equipment and off-site power circuits remained operable and extensive compensatory actions were implemented during the Division II EDG outage.

This event is reportable as operation prohibited by Technical-Specifications, 10 CFR 50.73(a)(2)(i)(B), since the original 72 hour LCO was exceeded. In addition, an EDG Special Report is required under Technical Specifications Section 3.8.1.8, and Regulatory Guide 1.108, sections C.2.e.(6) and C.3.b. This report is submitted to satisfy all requirements.

INVESTIGATION

At 0702 on the 28th of December, the Emergency Diesel Generator for Division II tripped. The operator was controlling power by observing the wattmeter and since it was sluggish in displaying actual power, the operator reduced power, momentarily placing the machine in a reverse power condition. This occurred during maintenance preparations for a crankshaft web deflection test. This started a 72 hour LCO action. Other important maintenance activities were also being performed under the 72 hour LCO on the Division II EDG and subsequently, the EDG was started on December 28th for a post maintenance run. The unit was then secured from this run, due to lowering lube oil pressure and high filter dP. This event constitutes a valid test and failure under Regulatory Guide 1.108 because a condition had been revealed in which an attempt to continue running could have caused engine degradation.

Between 12/28 and 12/30, the diesel was started twice for post-maintenance runs and secured due to an air leak in the pneumatic control logic which produced false trip annunciators. Neither of these events constituted a valid test or failure. They were unrelated to the oil cooler leakage.

In the morning of 12/30, the Div II EDG was started for a post-maintenance run. The unit was loaded and operated satisfactorily for approximately 30 minutes with no apparent problems. In the afternoon of December 30th, the diesel was started to confirm operability. After approximately 12 minutes of full-load operation in the

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surveillance test, unusual sounds and a slight elevation of the lube oil sump level were noted and the test was manually-terminated. This event constituted a valid test and failure. The run termination's of 28 and 30 December were due to the same oil-cooler leak. Therefore the two terminations are considered to be a single valid failure.

Subsequent investigation indicated water was in the lube oil and it came from a leaking tube-sheet-packing-gland on the associated lube-oil-cooler. The existing 72 hour LCO did not contain sufficient time to repair the lube-oil-cooler and disassemble and inspect the EDG. An Enforcement Discretion request was prepared and submitted to the NRC and was granted. All repairs were made and the unit was returned to service prior to expiration of the extension, although beyond the original 72 hour LCO.

ROOT CAUSE

BACKGROUND

On November 10, 1994, an oil sample collected from the Division II EDG indicated the presence of water in the lube oil. Later periodic samples were taken however, only some of them confirmed the initial finding. Analysis of the samples indicated the water in the oil was from the jacket-water-cooling system.

A periodic oil sampling program was initiated which confirmed a source of water from the jacket water cooling system to the lube-oil system. The in-leakage was small and found to occur only for a short period of time immediately following unit shutdown (system design pressures prevent water in-leakage to the lube oil system while the diesel is running). The disposition of the previous Condition Report indicated the small leak did not affect the functional reliability of the diesel generator and operation until the next refueling outage was acceptable provided periodic sampling and monitoring was performed until the leak was repaired. Since this condition was discovered, monitoring of the water in the oil system showed the in-leakage rate had remained extremely small and intermittent with no apparent degradation of the oil system or the engine.

Previous oil samples did not show an upward trend in water content and such a significant step-change was unexpected.

TRIP OF 12/28

The Emergency Response and Information System (ERIS) traces show that the original reverse power trip of 12/28 was caused by an operator action which was precipitated by a sluggish wattmeter. Because of the erroneous indication, the operator lowered the generator load into the negative region and the EDG tripped after the preset 10 second time delay. The ERIS traces showed no indication of step load changes. The wattmeter and associated circuits were checked and the sluggish response could not be re-created. No root cause could be determined for the anomalous meter indication.

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TERMINATED SURVEILLANCE

The root cause of the oil cooler water leak was the improper installation, during refueling outage-four (RF4), of a packing-ring on the low pressure waterbox-to-shell interface and the use of too much RTV gasket sealer. The improper installation caused a jacket water to lube oil leak which is not possible when the joint is assembled correctly.

CORRECTIVE ACTIONS

WATTMETER

The wattmeter was calibrated and re-tested. Unsuccessful efforts were made to recreate the failure. The sluggish wattmeter is considered to be an isolated event.

LUBE-OIL-COOLER

The filters were changed and cleaned. The previously known minor oil-cooler-water leak was examined and there was no evidence verifying the leak rate had increased. Bulk oil samples contained no detectable water, and bottom samples from the cooler contained no more than a trace.

The lube oil cooler rework was completed and post-maintenance tests were satisfactory. Following testing, the lube oil cooler was restored to service.

DIESEL ENGINE

A visual inspection of the engine showed that cylinder number four sustained slight damage to its liner and piston. Cylinder number four was disassembled for a more detailed inspection and found to be slightly scored on the piston and cylinder liner. Shiny metal spots were identified, indicating this wear was new. No signs of thermal stress, metallic bluing, burrs, abrasions, or similar bulk metal wear were found. The other seven liners were normal. The oil was sampled following the abnormal noise and no metal wear products were detected. The oil filters contained no babbitt or other foreign material. The cylinder four upper and lower rod bearings were removed to allow nondestructive testing. The rod bearings did not show any excessive or abnormal wear. The rod bearing thickness was measured and was within the tolerance for new bearings. A liquid dye penetrant test of the upper rod bearing showed no cracking had occurred. Some small scratching was evident on the surface of the upper rod bearing, but the rod bearing was determined to be acceptable for use. Based upon the results of these inspections, additional inspections of the remaining cylinders were not required. The liner of cylinder-four was resurfaced using a Sunnen hone and new piston rings were installed. New upper and lower connecting rod bearings were installed to expedite reassembly.

No other damage was detected by any of the detailed engine inspections. The oil analysis and filter inspections showed no indications of damage to the engine. The engine was considered to be acceptable for use and was reassembled. Following break-in runs to seat the new rings in cylinder number four, the surveillance test was successfully completed and the unit returned to service.

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SAFETY ASSESSMENT

A qualitative risk assessment was performed to evaluate the safety significance of this one time deviation from the River Bend TS. Based on the safety evaluation, allowing an additional 72 hours to restore the Division II EDG to service did not cause a significant increase in core damage risk. The full evaluation can be found in the Enforcement Discretion request, dated December 31, 1995, RBG-42325.

FAILURE STATISTICS AND TEST FREQUENCY STATUS

The current statistics for valid EDG failures are as follows:

- Surveillance interval: Monthly
- Test intervals do conform to Technical Specifications.
- 1 valid failure, (this event), for Division II EDG, in the last 25 valid tests.
- 1 valid failure, (this event), for Division II EDG, in the last 100 valid tests.
- 2 valid failures in the last 100 tests for all RBS diesel generators.

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