WOLF CREEK
NUCLEAR OPERATING CORPORATION

John A. Bailey
Vice President
Nuclear Operations

October 18, 1989

NO 89-0181

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

Subject: Docket No. 50-482: Licensee Event Report 89-019-00

Gentlemen:

The attached Licensee Event Report (LER) is submitted pursuant to 10 CFR 50.73 (a) (2) (i) concerning a Technical Specification violation.

Very truly yours,

John A. Bailey

John A. Bailey
Vice President
Nuclear Operations

JAB/aem

Attachment

cc: B. L. Bartlett (NRC), w/a
E. J. Holler (NRC), w/a
R. D. Martin (NRC), w/a
D. V. Pickett (NRC), w/a

IE22
1/1

NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Wolf Creek Generating Station	0 5 0 0 0 4 8 2	1 OF 0 5

TITLE (4) Technical Specification 3.0.3 Entry Caused By Discovery Of Equipment Inoperability In One Train While The Other Train Was Out Of Service

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)
0 9	1 9	8 9	8 9	— 0 1 9 —	0 0	1 0	1 8	8 9		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): 1

POWER LEVEL (10): 1 0 0

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)	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)	X 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	TELEPHONE NUMBER
Merlin G. Williams - Manager Plant Support	AREA CODE 3 1 6 — 3 6 4 - 8 8 3 1

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	J G	R L Y	P 2 9 7	Y					

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 September 15, 1989, during performance of a surveillance test procedure, the "A" train Centrifugal Charging Pump (CCP) Minimum Flow Valve, BG HV-8110, did not stroke properly in response to a simulated flow signal. The surveillance test was suspended pending a review of the procedure methodology as the procedure had recently been revised. On September 19, 1989, at 0420 CDT, a preventative maintenance outage began for several "B" train components, including the emergency power source for the "B" train CCP. At approximately 1200 CDT on September 19, it was determined that no procedural problem existed, and that an equipment problem associated with BG HV-8110 had likely caused the September 15 test deficiency. At approximately 1755 CDT, it was determined that with BG HV-8110 inoperable, the "A" train CCP could not be considered operable. Because the "B" train CCP was also inoperable, the unit entered Technical Specification (T/S) 3.0.3

At 1940 CDT, the "A" train CCP was restored to service after replacement of a faulty slave relay, and T/S 3.0.3 was exited at that time. This event occurred as a result of reaching [illegible] incorrect conclusion when initially evaluating the test deficiency. [illegible] station's philosophy of a conservative approach to problem solving w[illegible] re-emphasized to licensed personnel. The responsibilities of test [illegible]rmers has been reiterated to Instrumentation and Control personnel.

NRC Form 366 (9-83)

INTRODUCTION

On September 19, 1989, at 1755 CDT, the unit entered Technical Specification (T/S) 3.0.3 because of the inoperability of two independent Emergency Core Cooling System subsystems [BP, BQ]. At the time of this event, the "B" train Emergency Diesel Generator [EK-DG] was out of service for planned maintenance activities rendering the "B" train Centrifugal Charging Pump [BQ-P] inoperable. It was subsequently determined that the "A" train Centrifugal Charging Pump was also inoperable. At 1940 CDT, the "A" train Centrifugal Charging Pump was restored to operable status and T/S 3.0.3 was exited. This report is being submitted pursuant to 10CFR50.73 (a)(2)(i)(B) as a condition prohibited by the plant's Technical Specifications.

DESCRIPTION OF EVENT

On September 15, 1989, at 1455 CDT, Instrumentation and Control (I&C) personnel commenced performance of surveillance test procedure STS IC-603A, "Slave Relay Test K603 Train A Safety Injection." This procedure, in part, demonstrates proper operation of valve BG HV-8110, the "A" Train Centrifugal Charging Pump Minimum Flow Valve [BQ-V]. Under normal operation, BG-HV-8110 is open to provide recirculation flow to the centrifugal charging pump. Following receipt of a safety injection signal, the minimum flow valve should remain open if there is not sufficient flow passing through the flow switch in order to maintain adequate minimum flow to the centrifugal charging pump. This recirculation flow is necessary at high Reactor Coolant System pressures in order to prevent damage to the centrifugal charging pump under low flow conditions. The minimum flow valve also receives an auto-closure signal to automatically isolate the recirculation line when sufficient flow has been sensed by the flow switch. This automatic closure feature ensures adequate safety injection flow is delivered to the reactor coolant system.

During performance of the procedure, BG HV-8110 stroked closed on a high flow signal as expected and then stroked back open, which was not expected. Because the procedure had recently undergone a major revision, the test performer believed that a procedural problem had likely caused the unexpected stroke open of BG HV-8110. STS IC-603A was suspended at 1542 CDT to allow for further review of the procedure methodology.

On September 19, 1989, at 0420 CDT, several "B" train components, including Emergency Diesel Generator "B" and Residual Heat Removal Pump "B" [BP-P] were tagged out of service for preventative maintenance activities. Entry was made into T/S 3.8.1.1, Actions b and d. Action b requires, in part, that with one diesel generator of the required A.C. electrical power sources inoperable, demonstrate the operability of the offsite A.C. sources within 1 hour and at least once per 8 hours thereafter and demonstrate the operability of the remaining operable diesel generator within 24 hours; restore the inoperable diesel generator to operable status within 72 hours or be in at least hot standby within the next 6 hours and in cold shutdown within the following 30 hours. Action d requires, in part, that with one diesel generator inoperable verify that all required systems, subsystems, trains, components, and devices that depend on the remaining operable diesel generator as a source of emergency power, are also operable, and that the steam-driven auxiliary feedwater pump [BA-P] is operable. Entry was also made into T/S 3.5.2, Action a, which requires, in part, that with one Emergency Core Cooling System subsystem inoperable, to restore the inoperable subsystem to operable status within 72 hours. An Emergency Core Cooling System subsystem consists of one Centrifugal Charging Pump, one Safety Injection Pump [BQ-P], one Residual Heat Removal Pump and one Residual Heat Removal Heat Exchanger [BP-HX].

At approximately 1200 CDT, on September 19, 1989, I&C personnel completed a review of STS IC-603A and concluded that no procedural problem existed. It was determined that a circuitry problem, most likely a bad relay, had caused the unexpected test result on September 15. An evaluation was initiated to determine if improper operation of BG HV-8110 would cause inoperability of the "A" train Centrifugal Charging Pump. While this evaluation was being conducted, work was suspended on Emergency Diesel Generator "B" and efforts were focused on restoring it to service. In addition, preparations to replace the suspect relay were initiated.

At approximately 1755 CDT, Safety Analysis personnel concluded that there may be insufficient high head Safety Injection flow for certain accidents from the "A" Centrifugal Charging Pump if the recirculation valve were to malfunction. Therefore, the "A" Centrifugal Charging Pump could not be considered operable. The "B" Centrifugal Charging Pump could not be considered operable because of the inoperability of its emergency power source. Because the Technical Specifications do not contain provisions for inoperability of two Emergency Core Cooling System subsystems, the plant entered T/S 3.0.3.

At approximately 1827 CDT, I&C personnel confirmed the presence of a faulty slave relay [JG-RLY] By 1940 CDT, the slave relay had been replaced and STS IC-603A had been completed satisfactorily, thus restoring the "A" Centrifugal Charging Pump to operable status. T/S 3.0.3 was exited at that time.

STS IC-603B, the corresponding "B" train surveillance procedure, was subsequently performed satisfactorily to confirm proper operation of the slave relay controlling the recirculation valve for the "B" Centrifugal Charging Pump.

By approximately 2212 CDT, on September 21, 1989, the "B" train Emergency Diesel Generator was restored to operable status, and the Action Statements of Technical Specifications 3.8.1.1 and 3.5.2 were exited at that time.

ROOT CAUSE AND CORRECTIVE ACTIONS

This event occurred as a result of an incorrect conclusion being reached when initially evaluating the test deficiency encountered during the performance of STS IC-603A. The I&C technician performing the surveillance test believed that the test deficiency could have been caused by a procedure error. This was the first performance of the procedure utilizing a new methodology. When dispositioning the test deficiency, the Shift Supervisor (utility licensed operator) classified the deficiency as a procedural error and believed that the procedure would be reviewed and revised as necessary. The I&C technician was unaware of any urgency to review the procedure methodology because the surveillance "late date" was not until September 30 and because the Shift Supervisor had classified the deficiency as a Non-Technical Specification failure. Consequently, the technician did not initiate a review of the procedure until he returned to work on Tuesday, September 19. After determining that no procedure error existed, I&C personnel promptly notified the Control Room that an equipment problem did exist. Following notification that there was a problem with equipment in the "A" train, Control Room personnel initiated an evaluation of the condition and initiated actions to expedite restoration of equipment to service.

In order to re-emphasize Wolf Creek Generating Station management philosophy relative to a conservative approach to problem solving, this Licensee Event Report will be incorporated into Required Reading for all licensed personnel. In addition, a letter clarifying the test performer's responsibilities upon discovery of a test deficiency has been issued as required reading for I&C personnel. The letter highlights the importance of making conservative assumptions when a test deficiency is encountered and when notifying the Shift Supervisor that a deficiency has been identified.

The faulty relay was found to be sticking in its energized position with no power to the coil. While removing the relay, it cycled to its de-energized (correct) position. The relay was then cycled several times with no further problems encountered. A new relay was installed, and the faulty relay was taken to the I&C shop for further root cause analysis. The faulty relay was manufactured by Potter & Brumfield, Model No TY93-MDR-4103-1.

ADDITIONAL INFORMATION

During the time of this event, the unit was operating in Mode 1, Power Operation, at approximately 100 percent Rated Thermal Power. Centrifugal Charging Pump "B" was available to provide high head injection flow, although it was technically inoperable because its associated emergency power supply was inoperable. Centrifugal Charging Pump "A" was also capable of delivering flow to the Reactor Coolant System. The Wolf Creek Steamline break and LOCA analyses have been examined to determine the impact of a reduction in safety injection flow from CCP "A" due to the failure of the auto-closure function of the centrifugal charging pump minimum flow recirculation valve. It is concluded that there is no adverse effect on the steamline break analysis due to the case in which a CCP minimum flow isolation valve fails in an open position. No penalty was noted for the large break LOCA analysis while a penalty of 68 degrees Fahrenheit was calculated for the small break LOCA analysis. The Peak Clad Temperature (PCT) for the limiting small break case with a reduction in safety injection flow as described above is 1858 degrees Fahrenheit. This resultant PCT for the small break LOCA case maintains considerable margin to the 2200 degrees Fahrenheit limit of 10CFR50.46 and continues to be bounded by the large break LOCA result of 2111.5 degrees Fahrenheit.

There have been no previous similar reportable occurrences.