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Nuclear Business Unit

OCT 30 1995

LR-N95190

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

Attn: Document Control Desk

HOPE CREEK GENERATING STATION
DOCKET NO. 50-354
LICENSEE EVENT REPORT NO. 95-023-00

This Licensee Event Report entitled "Unplanned Entry Into TS 3.0.3 Due To Not Demonstrating Operability of EDGs In Accordance With TS 3.8.1.1 Action b" is being submitted pursuant to the requirements of the Code of Federal Regulations 10CFR50.73 (a)(2)(i).

Sincerely,

Mark E. Reddemann
General Manager -
Hope Creek Operations

SORC Mtg. 95-100

DVH

C Distribution
LER File

020000

IX22
11

EXPIRES 04/30/98

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: 50.0 HRS.
REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE
LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD
COMMENTS REGARDING BURDEN ESTIMATE TO THE
INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33),
U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC
20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT

FACILITY NAME (1)

HOPE CREEK GENERATING STATION

DOCKET NUMBER (2)

05000354

PAGE (3)

1 OF 6

TITLE (4)

UNPLANNED ENTRY INTO TS 3.0.3 DUE TO NOT DEMONSTRATING OPERABILITY OF EDGs
IN ACCORDANCE WITH TS 3.8.1.1 ACTION b

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
09	30	95	95	-- 023	-- 00	10	30	95	FACILITY NAME	DOCKET NUMBER
										05000
OPERATING MODE (9)		1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		099	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

Mr. J. Clancy, Technical Manager - Hope Creek

TELEPHONE NUMBER (Include Area Code)

609-339-3144

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On September 29, 1995, the 24 hour endurance run was commenced for the "D" Emergency Diesel Generator (EDG). The "D" EDG was started, timed for frequency and voltage satisfactorily and loaded. The "D" EDG was declared inoperable at 1545 hours due to load swings. As a result, TS 3.8.1.1 ACTION b was entered to test the three remaining EDG's within 16 hours. Preparation to perform the monthly surveillance of the "B" EDG to demonstrate operability in accordance with TS 3.8.1.1 ACTION b, was commenced at 1735 hours. Upon review of the "B" EDG test results, it was determined that the timing test for frequency attainment had exceeded TS limits. The "B" EDG was declared inoperable at 2045 hours. With two EDGs inoperable, the TS require the remaining EDGs to be tested within eight hours. The "C" EDG test was completed satisfactorily at 0210 hours on September 20, 1995. The "A" EDG was not completed within the eight hour time limit. With testing of "A" EDG not yet completed, TS 3.0.3 was entered at 0445. Testing of the "A" EDG was completed and TS 3.0.3 was exited at 0530. Corrective actions included a procedure revision based on a License Change Request and discussions with the NRC. This event is reportable in accordance with 10 CFR.50.73(a)(2)(B), any condition prohibited by the plant's Technical Specifications, entry into TS 3.0.3.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
HOPE CREEK GENERATING STATION	05000354	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 6
		95	-- 023	-- 00	

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

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor (BWR/4)
Emergency Diesel Generators {EK/DG}

* Energy Industry Identification System (EIIS) codes and component function identifier codes appear in the text as {ss/ccc}.

CONDITIONS PRIOR TO OCCURRENCE

Plant in OPERATIONAL CONDITION 1 (Power Operation)
Reactor Power 99% of rated power

There were no structures, components, or systems that were inoperable at the start of the event that contributed to the event. However, the "B" Safety Auxiliaries Cooling System (SACS) pump was out of service and the "C" Filtration Recirculation and Ventilation System (FRVS) was out of service for corrective maintenance at the start of the EDG testing.

DESCRIPTION OF OCCURRENCE

On September 29, 1995, the 24 hour endurance run was commenced for the "D" Emergency Diesel Generator (EDG) (Ref License Amendment No. 72). The "D" EDG was started, timed for frequency and voltage satisfactorily and loaded. Several hours into the loaded run, a minor load swing was observed. This load swing became more pronounced and the "D" EDG was declared inoperable at 1545 hours. At 1548 hours the requisite offsite power distribution lineup was commenced in accordance with TS SURVEILLANCE REQUIREMENT (SR) 4.8.1.1.a and completed by 1606 hours. In addition, as a result of this "D" EDG failure, Technical Specification 3.8.1.1 ACTION b was entered to test the three remaining EDG's within 16 hours.

Preparation to perform the monthly SR of the "B" EDG to demonstrate operability in accordance with TS 3.8.1.1 ACTION b, was commenced at 1735 hours and the EDG was placed in service at 1842 hours. Upon review of the "B" EDG test results, it was determined that the timing test for frequency attainment after the unloaded overshoot/undershoot had exceeded ten seconds (Ref SR 354/95-002-00). This determination was validated and the "B" EDG was declared inoperable at 2045 hours. The emphasis at this point was to restore the "B" EDG to operable status because with two EDGs inoperable, TS 3.8.1.1 ACTION c requires: demonstrating operability of the remaining two EDGs within eight hours, the restoration of one of the inoperable EDGs to OPERABLE within two hours or be within hot shutdown within 12 hours.

Efforts continued with the "B" EDG while testing of the "A" and "C" EDGs was continued. The "C" EDG test was completed satisfactorily at 0210 hours on September 30, 1995. Due to the concentrated efforts for "B" EDG and the

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
HOPE CREEK GENERATING STATION	05000354	95	-- 023	-- 00	3 OF 6

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

DESCRIPTION OF OCCURRENCE (cont'd)

time to test the "C" EDG, the testing of the "A" EDG was not completed within the eight hour time limit (required to be completed by 0445 hours). Consequently with testing of "A" EDG not yet completed, TS 3.0.3 was entered at 0445. Testing of the "A" EDG was accomplished satisfactorily and 3.0.3 was exited at 0530.

ANALYSIS OF OCCURRENCE

As described in LER 354/95-022-00, a revised intent of the TS surveillance was in place at the start of this event that required the EDG to start and settle into the acceptance band following frequency overshoot (and undershoot) within ten seconds. This was a new requirement and was first implemented only one week prior to this event (September 22, 1995). In the test on September 22, 1995, the "B" EDG had initially failed the ten second timing requirement for frequency. The remaining three EDGs were tested at that time (only for the initial ten second start requirement) satisfactorily. EDG "B" was subsequently tested satisfactorily within the allowable TS allowed outage time limit.

With the failure of the "D" EDG on September 29, 1995, TS 3.8.1.1, ACTION b became applicable. TS 3.8.1.1 ACTION b specifies actions to verify the operability of the offsite sources and to demonstrate the operability of the other three EDGs. When the "B" EDG SR was performed, it was determined that the timing test for frequency attainment within ten seconds was not met. The "B" EDG was then declared inoperable and TS 3.8.1.1 ACTION e became applicable. This requires: demonstrating operability of the remaining two EDGs within eight hours, the restoration of one of the two inoperable EDGs within two hours, or be in at least HOT SHUTDOWN within the next 12 hours. At this point the efforts were concentrated on restoring the "B" EDG. After discussions with management and the vendor, minor tuning adjustments were made to the electronic portion of the mechanical governor to increase system response time. It was believed that following minor adjustments, the retest of the "B" EDG would meet the ten second frequency timing requirement. However, the "B" EDG again failed the ten second timing test. Efforts continued on the "B" EDG while preparation started for testing of "A" and "C" EDGs.

There was only one instrument (recorder) available to record the frequency and voltage during the initial start. Salem Station was contacted to obtain a second recorder but one could not be located in time to support this testing. Consequently, the recorder had to be removed from one EDG and reinstalled on the next EDG before the next test could be run. Reasonable contingency was employed by changing the procedure to allow recorder movement after the initial ten second timing requirement was determined to be satisfactory.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
HOPE CREEK GENERATING STATION	05000354	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 6
		95	-- 023	-- 00	

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

APPARENT CAUSE OF OCCURRENCE

The apparent root cause of entry into TS 3.0.3 was human error in the areas of misjudgment, underestimating task complexity and inadequate supervisory planning. The principal contributing factors were the overall complexity of the task and the job distractions due to this task complexity.

The principal human error of misjudgment involved wrong assumptions leading to a decision making error. It was assumed that the "B" EDG could be restored to an operable condition with only minor adjustments making restoration a straightforward task. Additionally, the dayshift support personnel remained onsite past their normal work hours to support the EDG testing and their fatigue was not fully factored into the decision early on. Overconfidence played a role in exceeding the time requirement to test the remaining EDGs in that those involved underestimated the complexity of both tuning the governor and testing the remaining EDGS with the relatively new testing criteria and equipment.

Inadequate supervisory planning was involved in that multiple sets of testing equipment were not available to pre-stage at each EDG to shorten the turnaround time to re-instrument the EDG control panels. Reasonable contingency was employed by changing the procedure to allow recorder movement after the initial ten second timing requirement was ascertained to be satisfactory.

The complexity of the new methodology and the resultant governor adjustments were not fully factored into the decision making process before the "D" EDG endurance test was begun. Once the TS actions were entered, there were numerous concurrent tasks contributing to task complexity. A formal time line was not established to optimize available resources to ensure satisfactory completion of the various tests and troubleshooting.

SAFETY SIGNIFICANCE

The safety significance of this event was low since the functionality of the remaining EDGs was not in question. It was known that satisfaction of the EDG output breaker closure permissives had been satisfied on the inoperable "B" EDG (Ref License Amendment No. 72). The "B" EDG was inoperable with regard to compliance with the surveillance procedure and TS (Ref LER 354/95-022-00) but remained capable of fulfilling its intended safety function. Common mode failure due to this timing problem was not a concern since it had just been ruled out one week earlier through the same timing test performed on all EDGs.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
HOPE CREEK GENERATING STATION	05000354	95	-- 023	-- 00	5 OF 6

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

SAFETY SIGNIFICANCE (cont'd)

As discussed previously, the "C" FRVS recirculation unit was inoperable prior to the start of this event. In addition, the "B" SACS pump was also inoperable. The following describes the impact of this inoperable equipment.

The FRVS consists of six recirculation units and two ventilation units. The function of the FRVS is similar to the Standby Gas Treatment System installed in a typical BWR plant. In spite of the "B" EDG being inoperable (but remaining capable of performing its intended safety function), a minimum complement of FRVS units (four recirculation and one ventilation unit) remained operable to fulfill their safety function.

The Safety Auxiliary Cooling System (SACS) consists of two subsystems (two loops, two pumps/loop) with each subsystem supplying cooling to two EDGs. SACS loop "A" is normally aligned to the "A" and "C" EDGs and SACS loop "B" is normally aligned to the "B" and "D" EDGs. These loops provide cooling to the EDG lube oil and jacket water. At the start of the event, the "B" SACS pump was inoperable. With the subsequent failure of the "D" EDG, the entire "B" SACS loop was inoperable. With one of the SACS subsystems inoperable, the TS require action to realign at least one of the affected EDGs (i.e. "B" or "D" EDG) to the operable SACS loop. This realignment for the "P" EDG was performed within the TS required time. Based on this realignment, the "B" SACS loop being inoperable had no impact on the safety significance of this event.

PRIOR SIMILAR OCCURRENCES

A review of past LERs for events similar to this event, (i.e. events involving EDGs, TS 3.0.3 entry, and human error) determined there were no previous reportable occurrences similar to the event described in this LER. As previously noted, LER 354/95-022-00 identified the timing problem on initial EDG starts. Although there have been past reportable events for entry into TS 3.0.3, the circumstances of those events were determined not to be similar to this LER event. Past LERs involving human error as the apparent cause were also determined not to be similar to this event.

CORRECTIVE ACTIONS

The operability of the remaining three EDGs was demonstrated before a plant shutdown was required or commenced.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)		PAGE (3)
HOPE CREEK GENERATING STATION	05000354	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
		95	-- 023	-- 00
				6 OF 6

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

CORRECTIVE ACTIONS (cont'd)

A License Change Request to clarify the actual intent of the EDG start timing tests for frequency and voltage was submitted to the NRC on October 7, 1995. This clarification removes the necessity to wait for unloaded overshoot/undershoot phenomena to clear by simply ensuring the EDG generator output breaker closure permissives are satisfied within ten seconds.

The EDG monthly surveillance tests procedures have been revised to reflect the appropriate testing criteria.

Additional testing equipment will be made available for EDG testing evolutions to support testing requirements.

The human errors associated with this event will be shared with appropriate System Engineering, Planning, Maintenance, and Operations personnel in tailgate sessions, and OEF training as appropriate.