NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98

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 (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
HOPE CREEK GENERATING STATION	05000354	1 OF 5

TITLE (4)

Inadequate Testing of Emergency Bus Undervoltage Logic Circuitry - Missed Surveillance Test, Diesel Generators Inoperable

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
07	13	95	95	-- 017 --	00	08	09	95	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
POWER LEVEL (10)	0	20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)
		20.2203(a)(1)	20.2203(a)(3)(i)	X 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	TELEPHONE NUMBER (Include Area Code)
W. O'Malley, Operations Manager	(609)-339-3478

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

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 July 13, 1995 a review of surveillance testing was performed in response to the discovery of drawing discrepancies regarding loss of power (LOP) logic configuration. This review revealed testing to verify Technical Specifications 4.8.1.1.2.h.4a and 6a was incomplete. The testing did not adequately test all segments of the circuits associated with vital bus load shedding initiated in response to a LOP signal. As a result, the required Technical Specification surveillance testing was discovered to have been missed and the four diesel generators were declared inoperable. Failure to adequately test these circuits is attributed to procedural inadequacy. Test procedures were prepared and performance of the test showed the previously untested segments of the circuits to be operable. In addition, a Technical Specification surveillance procedure adequacy review program is being developed.

This condition is reportable under 10 CFR 50.73(a)(2)(ii).

PLANT AND SYSTEM IDENTIFICATION
General Electric - Boiling Water Reactor (BWR/4)
Emergency Diesel Generators (KJ), EIIS Identifier EK

IDENTIFICATION OF OCCURRENCE
TITLE (4): Inadequate Testing of Emergency Bus Undervoltage Logic
- Missed Surveillance Test, Diesel Generators Inoperable

Discovery Date: July 13, 1995

CONDITIONS PRIOR TO OCCURRENCE
Plant in OPERATIONAL CONDITION 4 (Cold Shutdown)
Reactor Power 0% of rated, 0 MWe

DESCRIPTION OF OCCURRENCE
On July 13, 1995, with the plant in Operational Condition 4 (Cold Shutdown), a review of surveillance testing was performed in response to the discovery of drawing discrepancies regarding loss of power (LOP) logic configuration. This review revealed that the testing performed to verify Technical Specifications 4.8.1.1.2.h.4a and 6a was incomplete. Surveillance testing did not adequately test all segments of the circuits associated with vital bus load shedding initiated in response to a LOP signal. As a result, at 2100 hours on July 13, 1995 the four diesel generators were declared inoperable since operability of the load shedding feature had not been demonstrated.

Operating shift personnel did not immediately identify the governing Technical Specification. When the correct governing Technical Specification was identified, positive controls to ensure compliance with required actions were not implemented.

ANALYSIS OF OCCURRENCE
On a LOP or sustained undervoltage to the 4.16-kV Class 1E buses, loads are shed from the buses to prevent overloading the diesel generators on the subsequent diesel generator start. Undervoltage relays monitoring the voltage on the Class 1E buses trip all the breakers on their respective buses except the two breakers on each bus which supply power to the 480-V unit substations. The bus undervoltage relays energize auxiliary relays which trip the 4.16-kV load circuit breakers. Discrepancies regarding the logic of these LOP circuits were discovered on plant drawings during routine work.

In response to the discovery of the drawing discrepancies, a review of surveillance testing was performed. This review revealed that the testing performed to verify Technical Specifications 4.8.1.1.2.h.4a and 6a was incomplete. These Technical Specifications address diesel generator

ANALYSIS OF OCCURRENCE (Cont'd)
testing and require the simulation of a LOP, and a LOP in conjunction with an ECCS actuation test signal. The tests are intended to verify that the loss of power is detected, the emergency buses are de-energized, and the loads are shed from the emergency buses. The overlap in the surveillance testing did not adequately test all segments of the circuits associated with load shedding in response to a LOP signal. The untested segment of circuit involved contacts on the auxiliary relays. While all the relays in the circuits were cycled during testing, a small number of the relay contacts and their associated functions were not fully tested. Since operability of the load shedding feature had not been demonstrated, the four diesel generators were declared inoperable in accordance with Technical Specifications at 2100 hours on July 13, 1995. Upon declaring the diesel generators inoperable, operating shift personnel reviewed and discussed Technical Specification 3.8.1.2 and 4.0.3. At this time, the operating shift personnel considered Technical Specification 4.0.3 to be governing, with Technical Specification 3.8.1.2 to be invoked following the twenty-four hour grace period allowed by 4.0.3. Both Specifications were entered on the LCO log.

Following discussions among operating shift personnel and various department representatives, at approximately 0830 hours on July 14, 1995, it was determined that the governing Technical Specification was 3.8.1.2, not 4.0.3. With four diesel generators inoperable, the minimum A.C. power sources required to be operable by Technical Specification 3.8.1.2 were considered to be functional but not operable in accordance with Technical Specifications. The associated action statement requires, in part, the suspension of core alterations, suspension of handling of irradiated fuel in the secondary containment, suspension of operations with a potential for draining the reactor vessel, and suspension of crane operations over the spent fuel storage pool when fuel assemblies are stored therein. When the LCO form was updated to reflect the correct governing Technical Specification, the required actions were not captured. However, compliance with the required actions was verified although controls were not established.

The "C" diesel generator was declared operable at 1300 hours on July 16, 1995. The "A" diesel generator was declared operable at 1130 hours on July 17, 1995. The return of the "A" diesel to operable condition restored the required minimum A.C. power sources of two as required by Technical Specifications in Operational Condition 4.

APPARENT CAUSE OF OCCURRENCE
The cause of this event is procedural inadequacy. A contributing cause is inadequate operating experience reviews of previous similar occurrences at other facilities.

APPARENT CAUSE OF OCCURRENCE (Cont'd)
The test procedures did not provide sufficient overlap to ensure that Technical Specification requirements were met for the complete circuit. Failure to test segments of these circuits is attributed to inadequate technical input and review during the development of these test procedures. The error was not identified during subsequent reviews of the procedures since those reviews focused on the specific changes in that revision.

SAFETY SIGNIFICANCE
This event posed no safety significance.

While several relay contact functions may not have had adequate overlap testing to fully comply with the Technical Specification channel and functional requirements, the results of testing performed following discovery of this condition were satisfactory. The tests did not reveal any undervoltage relay initiation or functional failures. Based on these test results it is concluded that the undervoltage logic for the Class 1E buses was capable of performing its intended design function. These findings indicate that the inadequate testing did not degrade the associated ECCS logic initiation functions originating from the bus undervoltage relays. The Emergency Diesel Generators were fully functional and verified operable throughout the event.

Although positive controls were not implemented to assure compliance with the actions required by Technical Specification 3.8.1.2, reviews of operator logs and interviews with personnel confirmed compliance with the action statement.

PREVIOUS OCCURRENCES
There have been several previous occurrences of procedural inadequacies, but none have been related to problems with inadequate overlap testing in Technical Specification surveillances. Reports related to procedural inadequacies include LER 94-004, 94-003, 92-010, 92-008, 90-010, and 89-005.

CORRECTIVE ACTION
Immediate corrective actions included preparation and issuance of test procedures, and testing of the previously untested segments of the circuits.

In addition, a Technical Specification surveillance procedure adequacy review program is being developed. This program will include a review of selected Technical Specification surveillance tests to ensure they include adequate overlap testing to fully comply with Technical Specification channel and functional requirements. The scope of this review will be expanded to include all Technical Specification surveillance tests if

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

CORRECTIVE ACTION (Cont'd)
significant deficiencies are found.

This event will be reviewed with licensed operating personnel as an industry event with focus on the applicability of Technical Specification 4.0.3 and the requirement to implement positive controls when directed by Technical Specifications.

The existing process for operating experience reviews for applicability to Hope Creek will be evaluated for its overall effectiveness.