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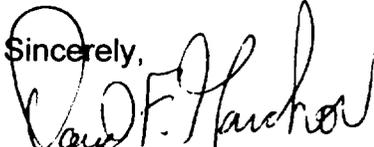


United States Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

**HOPE CREEK GENERATING STATION**  
**DOCKET NO. 50-354**  
**UNIT NO. 1**  
**LICENSEE EVENT REPORT NO. 00-010-00**

Dear Sir:

This Licensee Event Report entitled, "Reactor Recirculation Pump Motor Generator Set Scoop Tube Mechanical and Electrical Stop Overspeed Setpoints Found Outside of Technical Specification Limits," is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(i)(B).

Sincerely,  
  
David F. Garchow  
Vice President –  
Operations (Acting)

Attachment

JPP

C     Distribution  
      LER File

*IE22*

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**TITLE (4)**  
 Reactor Recirculation Pump Motor Generator Set Scoop Tube Mechanical and Electrical Stop Overspeed Setpoints Found Outside of Technical Specification Limits

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
10	8	00	00	-- 010 --	00	11	3	00	FACILITY NAME	DOCKET NUMBER
										05000
									FACILITY NAME	DOCKET NUMBER
										05000

<b>OPERATING MODE (9)</b>	1	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)</b>				
		20.2201(b)	20.2203(a)(2)(v)	x	50.73(a)(2)(i)	50.73(a)(2)(viii)
<b>POWER LEVEL (10)</b>	99%	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)(iii)		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)**

<b>NAME</b> Jim Priest, Licensing Engineer	<b>TELEPHONE NUMBER (Include Area Code)</b> 856-339-5434
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**COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

<b>SUPPLEMENTAL REPORT EXPECTED (14)</b>		<b>EXPECTED</b>	<b>MONTH</b>	<b>DAY</b>	<b>YEAR</b>
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 8, 2000, Hope Creek was in Operational Condition 1, Power Operation, with reactor power at approximately 99 percent. At approximately 1620 hours, testing required by Technical Specification Surveillance Requirement 4.4.1.1.3 was conducted to demonstrate adequacy of reactor recirculation pump motor-generator set scoop tube mechanical and electrical stop overspeed setpoints. While performing the surveillance on the "B" recirculation pump motor-generator set, the electrical stop and mechanical stops were determined to be non-conservatively higher than expected. Since the potential existed for the flow dependent minimum critical power ratio (MCPR) to have been exceeded in a recirculation pump runout transient, a four hour report was made for this event under the provisions of 10CFR50.72(b) (2)(iii). The apparent cause was attributed to out of calibration speed sensing instrumentation. At 1732 hours, the mechanical and electrical stops were lowered and readjusted to their proper settings and the Technical Specification requirements were satisfied. The process for determining and setting the mechanical and electrical stops for the recirculation pump motor-generator set and the calibration of recirculation pump speed indication devices are being evaluated for appropriate procedure revisions.

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**PLANT AND SYSTEM IDENTIFICATION**

General Electric - Boiling Water Reactor (BWR/4)  
Reactor Recirculation System, Motor Generator Set - EIIS Identifier  
{AD/MG}\*

\* Energy Industry Identification System (EIIS) codes and component function identifier codes appear as {SS/CC}

**IDENTIFICATION OF OCCURRENCE**

Event Date: October 8, 2000  
Discovery Date: October 8, 2000

**CONDITIONS PRIOR TO OCCURRENCE**

The plant was in OPERATIONAL CONDITION 1 (POWER OPERATION). No structures, systems, or components were inoperable at the time of the occurrence that contributed to the event.

**DESCRIPTION OF OCCURRENCE**

On October 8, 2000, Hope Creek was in Operational Condition 1, Power Operation, with reactor power at approximately 99 percent. At approximately 1620 hours, utility personnel (licensed operators) were conducting testing required by Technical Specification Surveillance Requirement 4.4.1.1.3, which states that each reactor recirculation pump motor-generator set (AD/MG) scoop tube mechanical and electrical stop shall be demonstrated OPERABLE with overspeed setpoints less than or equal to 109% and 107%, respectively, of rated core flow, at least once per 18 months. While performing procedure HC.IC-LC.BB-0004, Reactor Recirculation Pump Electrical and Mechanical Stop Adjustments, on the "B" recirculation pump motor-generator set (AD/MG), the utility personnel (licensed operators) observed that the electrical stop was not encountered at the expected motor-generator set (AD/MG) RPM while raising the speed of the "B" recirculation pump and determined that the as-found mechanical stop was also non-conservatively higher than expected.

At 1732 hours, the mechanical and electrical stops for the "B" recirculation pump motor-generator set (AD/MG) were readjusted to their proper settings in accordance with procedure HC.IC-LC.BB-0004, and the Technical Specification requirements were satisfied. The "A" recirculation pump motor-generator set (AD/MG) stops were found to be within the Technical Specification limits. Since the as-found mechanical stop

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**DESCRIPTION OF OCCURRENCE** (Continued)

settings would have resulted in higher core flows following a postulated reactor recirculation pump runout transient, the potential existed for the flow dependent minimum critical power ratio (MCPR) to have been exceeded, which could result in exceeding the safety limit MCPR under those postulated conditions. As a result, at 1811 hours, a four hour report was made for this event under the provisions of 10CFR50.72(b)(2)(iii) as a condition alone that could prevent the fulfillment of a safety function required to mitigate the consequences of an accident.

**APPARENT CAUSE OF OCCURRENCE**

The apparent cause of the improper reactor recirculation pump motor-generator set (AD/MG) scoop tube mechanical and electrical stop settings was attributed to out of calibration speed sensing instrumentation. The instrumentation relied upon to set the electrical and mechanical stops provided inaccurate information relative to recirculation pump speed, and as a result, the stops for the "B" motor-generator set (AD/MG) were set non-conservatively.

**SAFETY SIGNIFICANCE AND IMPLICATIONS**

The reactor recirculation pump motor-generator set (AD/MG) scoop tube mechanical and electrical stops are designed to limit the consequences of a failure (maximum demand) of one of the motor-generator set (AD/MG) speed controllers as described in Section 15.4.5 of the Hope Creek UFSAR. The purpose of the motor-generator set scoop tube mechanical stop is to limit the maximum flow reached during a postulated reactor recirculation pump flow runout transient which is not terminated by a reactor scram. This event stabilizes at a new core power level, corresponding to the maximum possible core flow along the limiting rod line, as limited by the motor-generator set scoop tube mechanical stop setting. The intended function of the motor-generator set scoop tube electrical stop is similar to that of the mechanical stop; however, the electrical stop is not credited for mitigating any accident or transient event, nor is it considered to be redundant to the mechanical stop. The mechanical stop protects the fuel cladding by limiting the reactor power increase which would result from a postulated increase in recirculation flow, such that neither the Linear Heat Generation Rate (LHGR), the Average Planar Linear Heat Generation Rate (APLHGR), nor the Safety Limit Minimum Critical Power Ratio (SLMCPR) are violated. The plant analyses assume that the core is being operated within the limits for Average Planar Linear Heat Generation Rate (APLHGR) and

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**SAFETY SIGNIFICANCE AND IMPLICATIONS** (Continued)

Minimum Critical Power Ratio (MCPR). These operating limits are specified in the Core Operating Limits Report (COLR) in terms of core flow and correspond to an assumed maximum motor-generator set mechanical stop setting of 109% core flow for the current fuel cycle.

Normally, procedure HC.IC-LC.BB-0004 would provide additional margin to the Technical Specification setpoints for the mechanical and electrical motor-generator set stops of 109% and 107% of rated core flow, respectively, by setting these stops conservatively at the pump speeds which are projected to produce 107% and 105% of rated core flow, respectively, at a test rod line which is lower than the limiting rod line. This conservative margin is intended to accommodate uncertainties in the methodology for setting the stops, and any potential non-conservativisms associated with carrying the stop settings from Cycle N-1 over to the beginning of Cycle N until the procedure can once again be performed. However, during the operating cycles that relied upon the inaccurate pump speed sensing instrumentation for setting the stops, the incorrect setting of the mechanical stop would have permitted worst case runout flows to exceed those assumed in the SLMCPR analyses if a speed controller failure were to occur.

Mitigating the consequences of the non-conservative motor-generator set stop settings, are the recirculation pumps flow runout transient event assumptions. These assume that the plant is initially operating at, or near, both the MCPR and the LHGR thermal limits. During the period that the non-conservative motor-generator set stop settings were in place, the reactor was actually conservatively operating within the flow dependent MCPR operating and the LHGR and APLHGR limits, thereby providing additional margin to help mitigate the non-conservative mechanical stop settings. Initial analyses for assumed worst case recirculation pump flows (117.5%) have concluded that the Safety Limit MCPR would not have been exceeded during the plant operating conditions when the mechanical stop was non-conservatively set. Although these analyses conclude that a safety function would not have been prevented, the non-conservative electrical and mechanical stop setting still represents a reportable condition under the provisions of 10CFR50.73(a)(2)(i)(B) since the appropriate Technical Specification actions delineated in LCO 3.4.1.1 were not taken within the required timeframe.

There was no threat to the public health or safety as a result of this condition.

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**PREVIOUS OCCURRENCES**

A review of previously reported events within the past two years identified no occurrences involving improperly set stops for the recirculation pump motor-generator sets or events with similar causes.

**CORRECTIVE ACTIONS**

1. On October 8, 2000, the mechanical and electrical stops for the "B" recirculation pump motor-generator set (AD/MG) were lowered and readjusted to their proper settings in accordance with procedure HC.IC-LC.BB-0004, and the Technical Specification requirements were satisfied.
2. The process for determining and setting the mechanical and electrical stops for the recirculation pump motor-generator set (AD/MG) and the method for calibration of recirculation pump speed indication devices are being evaluated to determine and implement appropriate procedure revisions.

**COMMITMENTS**

The corrective actions cited in this LER are voluntary enhancements and do not constitute commitments.