HITACHI

GE Hitachi Nuclear Energy

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MFN 10-343

Attn: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Part 21 Reportable Condition Notification: Reverse Polarity on HPCI Turbine EG-R Hydraulic Actuators

GE Hitachi Nuclear Energy (GEH) has completed an evaluation of the "Reverse Polarity on HPCI EG-R Hydraulic Actuators", and has concluded that this is a **Reportable Condition** in accordance with the requirements of 10CFR 21.21(d).

Discussion

GEH provided a refurbished HPCI turbine EG-R Hydraulic Actuator, (GEH Part number DD213A8527P003), as a safety related component, to a domestic BWR/4. When the customer installed the EG-R Hydraulic Actuator at the plant, calibration and post maintenance testing found that the turbine governor valves went to the full open position when the proper response was a fully closed position. Troubleshooting of the newly installed component revealed that the polarity of the component was reversed. An improperly configured EG-R Hydraulic Actuator cannot be utilized in the system because the reversed polarity causes the turbine governor control valves to operate in a manner opposite to the expected response, and calibration of the component by plant personnel cannot be completed.

GEH contracted Engine Systems Incorporated (ESI) to perform the repair/refurbishment of this EG-R Hydraulic Actuator. This particular EG-R Hydraulic Actuator is identified as GEH part number DD213A8527P003. The specific EG-R Hydraulic Actuator that was identified with this defective condition was identified as serial number 2288717.

Conclusion

This condition would change the operational characteristics of the HPCI system and would create a Substantial Safety Hazard or a violation of a Technical Specification Safety Limit. As such this condition has been determined to be a **Reportable Condition** within the context of 10CFR Part 21.21(d).

ABWR and ESBWR Design Certification Documentation Applicability

The issues described above have been reviewed for applicability to documentation associated with 10CFR 52 and it has been determined that there is no affect on the technical information contained in either the ABWR certified design or the ESBWR design in certification.

Recommended Action

GEH recommends that sites that have received EG-R Hydraulic Actuator(s) (GEH Part number DD213A8527P003), as identified in Attachment 1 and 2, check warehouse inventory. If the EG-R Hydraulic Actuator remains "in stock", the potential exists that incorrect internal wiring could exist resulting in the EG-R Hydraulic Actuator not responding as expected. GEH recommends that if an EG-R Hydraulic Actuator (GEH Part number DD213A8527P003) is in warehouse stock, that the component be returned to GEH for verification of the internal wiring configuration.

Additional information as required by §21.21(d)(4) is provided in Attachment 2.

If you have any questions, please call me at (910) 819-4491.

Sincerely,

Dale E. Porter
Safety Evaluation Program Manager
GE-Hitachi Nuclear Energy Americas LLC

Attachments:

1. US Plants With Potentially Affected HPCI EG-R Actuators
2. Reportable Condition Notification Information per §21.21(d)(4)

cc: S. S. Philpott, USNRC
S. J. Pannier, USNRC
O. Tabatabai-Yazdi, USNRC
J. G. Head, GEH
P. L. Campbell, GEH Washington
PRC 10-10 File
eDRF 0000-0125-3972

Attachment 1

US Plants With Potentially Affected HPCI EG-R Actuators

	Utility	Plant
X	Exelon Generation Co.	Peach Bottom 2 &3
X	PSEG Services Corp.	Hope Creek
X	Southern Nuclear Operating Co.	Hatch 1 & 2

Attachment 2

Reportable Condition Notification Information per §21.21(d)(4)

(i) Name and address of the individual or individuals informing the Commission:

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Safety Evaluation Program Manager,
GE Hitachi Nuclear Energy
3901 Castle Hayne Road, Wilmington, NC 28401

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect:

The basic component that failed is an EG-R Hydraulic Actuator that is part of the HPCI turbine speed control system. This component is identified as GE Hitachi Nuclear Energy Part Number DD213A8527P003.

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect:

The EG–R Hydraulic Actuator is rebuilt by GEH supplier Engine Systems Incorporated (ESI) and supplied by GEH to the plants listed in item vi below.

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such a defect or failure to comply:

The defect is reversed #1 and #4 wires internal to the EG-R Hydraulic Actuator. The reversed wires result in a reversed polarity, which controls the null setting. This setting results in the HPCI turbine governor control valves moving in the opposite direction than expected and ultimately closing and preventing HPCI turbine operation. If present, this defect will be identified during initial post maintenance testing and calibration of the governor system associated with its installation.

(v) The date on which the information of such defect or failure to comply was obtained:

A Potential Reportable Condition evaluation was initiated by GEH in accordance with 10CFR Part 21 and GEH procedures on October 7, 2010.

(vi) In the case of a basic component which contains a defect or failure to comply, the number and the locations of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part:

GEH has determined that the EG-R Hydraulic Actuator DD213A8527P003 has been supplied to the following customers:

Part Number	Plant	EGR Serial #	GEH PO #	Customer PO #	Ship Date
DD213A8527P003	Hatch	2431079	01022750	6048020	6/11/01
DD213A8527P003	Hatch	11920471	01024821	6049829	10/09/01
DD213A8527P003	Hatch	11920473	437003332 (Item 2)	6072891 (Item 2)	4/7/08
DD213A8527P003	Hatch	2288717	437003332 (Item 1)	6072891 (Item 1)	4/14/08
DD213A8527P003	Hope Creek	2431080	31003977	4500282564	3/30/06
DD213A8527P003	Peach Bottom	11412667	01026215	90 187581	1/14/02

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action:

GEH contacted ESI to determine the cause of the reversed wiring. ESI stated that they had previously identified the potential for reversed wiring that controls the null setting. ESI revised Dedication Report GA-WOOD-GOV-RR-1 Rev 2 on December 4, 2008 to visually inspect wiring and ensure it is connected correctly to verify that the HPCI governor control valves operate as expected.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees:

If the EG-R Hydraulic Actuator has been installed and functional testing completed successfully, the functional testing provides complete verification and assurance that the EG-R Hydraulic Actuator contains the correct wiring configuration. GEH recommends that sites that have received EG-R Hydraulic Actuator(s) (GEH Part number DD213A8527P003) check warehouse inventory to determine if that EG-R Hydraulic Actuator is “in stock”. The potential exists that incorrect internal wiring could exist resulting in the EG-R Hydraulic Actuator not responding as expected. GEH recommends that if an EG-R Hydraulic Actuator (GEH Part number DD213A8527P003) is in warehouse stock, that the component be returned to GEH for verification of the internal wiring configuration.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

There are no early site permit concerns.