General Information (PAR) Event # 46230

Rep Org:	GE HITACHI NUCLEAR ENERGY	**Notification Date / Time:**	09/03/2010 15:23 (EST)
Supplier:	GE HITACHI NUCLEAR ENERGY	**Event Date / Time:**	09/03/2010 (EDT)
		Last Modification:	02/07/2012
Region:	1	**Docket #:**	
City:	WILMINGTON	**Agreement State:**	Yes
County:		**License #:**	
State:	NC		
NRC Notified by:	DALE E. PORTER	**Notifications:**	RICHARD CONTE R1DO
HQ Ops Officer:	ERIC SIMPSON		EUGENE GUTHRIE R2DO
Emergency Class:	NON EMERGENCY		TAMARA BLOOMER R3DO
10 CFR Section:			RICK DEESE R4DO
21.21	UNSPECIFIED PARAGRAPH		MIKE CHEOK NRR EO
			PART 21 GP via email

PART 21 - FAILURE TO INCLUDE SEISMIC INPUT IN REACTOR CONTROL BLADE CUSTOMER GUIDANCE

The following is text of a facsimile submitted by the vendor:

"GE Hitachi Nuclear Energy (GEH) has identified that engineering evaluations that support the guidance provided in SC 08-05, Revision 1, do not address the potential impact of a seismic event on the ability to scram as it relates to the channel-control blade interference issue. Note that the seismic loads are not a consideration in the scram timing, but rather the ability to insert the control blades. In other words, the control blades must be capable of inserting during the seismic event, but not to the timing requirements of the Technical Specifications. GEH is evaluating the impact of the seismic loads between the fuel channel and the control blade associated with an Operating Basis Earthquake (OBE), and a Safe Shutdown Earthquake (SSE) on BWR/2-5 plants. The scram capability is expected to be affected due to the added seismic loads at low reactor pressures in the BWR/2-5 plants. The ability to scram for the BWR/6 plants is not adversely affected by the seismic events. Additional evaluation is required to determine to what extent the maximum allowable friction limits specified for the BWR/2-5 plants in SC 08-05 Revision 1 is affected by the addition of seismic loads.

"GEH issues this 60-Day Interim Report in accordance with the requirements set forth in 10 CFR 21.21 (a)(2) to allow additional time to for this evaluation to be completed."

Affected US plants previously notified by vendor and recommended for surveillance program include: Nine Mile Point, Units 1 and 2; Fermi 2; Columbia; FitzPatrick; Pilgrim; Vermont Yankee; Grand Gulf; River Bend; Clinton; Oyster Creek; Dresden, Units 2 and 3; LaSalle, Units 1 and 2; Limerick, Units 1 and 2; Peach Bottom, Units 2 and 3; Quad Cities, Units 1 and 2; Perry, Unit 1; Duane Arnold; Cooper; Monticello; Brunswick, Units 1 and 2; Hope Creek; Hatch, Units 1 and 2; and Browns Ferry, Units 1and 2.

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Affected US plants previously notified by vendor and provided information include: Susquehanna, Units 1 and 2 and Browns Ferry, Unit 3.

* * * UPDATE FROM DALE PORTER TO ERIC SIMPSON AT 1556 ON 09/27/2010 * * *

The following update was received via fax:

"This letter provides a revision to the information transmitted on September 2, 2010 in MFN 10-245 concerning an evaluation being performed by GE Hitachi Nuclear Energy (GEH) regarding the failure to include seismic input in channel-control blade interference customer guidance. Two changes have been made in Revision 1:

"1) A statement was added regarding the applicability of this issue to the ABWR and ESBWR design certification documentation.

"2) The original MFN 10-245 referenced the Safety Communication SC 08-05 R1 that was transmitted to the US NRC via MFN 08-420. The references to SC 08-05 were changed to MFN 08-420 to prevent possible confusion.

"As stated herein, GEH has not concluded that this is a reportable condition in accordance with the requirements of 10CFR 21.21(d) and continued evaluation is required to determine the impact of a seismic event on the guidance contained in MFN 08-420."

Notified the R1DO (Gray), R2DO (Hopper), R3DO (Orth), R4DO (Farnholtz), NRR EO (Lee) and Part 21 Group (via email).

* * * UPDATE FROM DALE PORTER TO MARK ABRAMOVITZ AT 1723 ON 12/15/2010 * * *

The following update was received via fax:

"This letter provides information concerning an on-going evaluation being performed by GE Hitachi Nuclear Energy (GEH) regarding the failure to include seismic loads in the guidance provided in MFN 08-420. As stated herein, GEH has not concluded that this is a reportable condition in accordance with the requirements of 10CFR21.21(d) and continued evaluation is required to determine the impact of a seismic event on the guidance contained in MFN 08-420.

"GEH has not completed the evaluation of the impact of the seismic loads between the fuel channel and the control blade associated with an Operating Basis Earthquake (OBE), and a Safe Shutdown Earthquake (SSE) on BWR/2-5 plants."

GEH expects the task to be completed by August 15, 2011.

Notified the R1DO (Holody), R2DO (Henson), R3DO (Kozak), R4DO (Werner), NRR EO (Evans) and Part 21 Group (via email).

* * * UPDATE AT 1808 EDT ON 08/11/11 FROM DALE PORTER TO JOE O'HARA * * *

The following was received via fax:

"GE Hitachi Nuclear Energy (GEH) identified, in July 2010, that engineering evaluations did not address the potential impact of a seismic event on the ability to scram as it relates to the channel-control blade interference issue. GEH provided status of the on-going evaluation in [December 2010]. GEH has not completed the evaluation of the impact of the seismic loads between the fuel channel and the control blade associated with a bounding Safe Shutdown Earthquake (SSE) on BWR/2-5 plants. The scram capability is expected to be affected due to the added seismic loads at low reactor pressures [less than 1000 psig] in the BWR/2-5 plants. Additional

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evaluations are required to determine to what extent the maximum allowable friction limits specified for the BWR/2-5 plants are affected by the addition of SSE seismic loads at low reactor pressures.

"GEH issues this 60-Day Interim Report in accordance with the requirements set forth in 10CFR 21.21 (a)(2) to allow additional time for this evaluation to be completed."

The following sites are noted as having channel-control blade concerns:
Region 1: Nine Mile Point, Fitzpatrick, Pilgrim, Vermont Yankee, Oyster Creek, Limerick, Peach Bottom, Susquehanna, and Hope Creek
Region 2: Browns Ferry, Brunswick, Hatch,
Region 3: Fermi, Clinton, Dresden, LaSalle, Quad Cities, Perry, Duane Arnold, Monticello
Region 4: Columbia, Grand Gulf, River Bend, Cooper.

Notified R1DO (Powell), R2DO (Hopper), R3DO (Dickson), R4DO (Farnholtz) and NRR Part 21 Grp via email.

* * * UPDATE AT 0037 EDT ON 9/27/11 FROM PORTER TO HUFFMAN VIA E-MAIL * * *

The following is a summary of information received from GE Hitachi Nuclear Energy via e-mail of a letter, Reference MFN 10-245 R4, addressed to the NRC and dated September 26, 2011:

"GE Hitachi (GEH) has determined that the scram capability of the control rod drive mechanism in BWR/2-5 plants may not be sufficient to ensure the control rod will fully insert in a cell with channel-control rod friction at or below the friction limits specified in MFN 08-420 with a concurrent Safe Shutdown Earthquake (SSE). The plant condition for which incomplete control rod insertion might occur is when the reactor is below normal operating pressure (<900 psig) and a scram occurs concurrent with the SSE, for Mark I containment plants, and for the SSE with concurrent Loss-of-Coolant Accident (LOCA) and Safety Relief Valve (SRV) events for Mark II containment plants. In this scenario a Substantial Safety Hazard results because the affected control rods might not fully insert to perform the required safety function.

"GEH has determined that when channel-control blade interference is present at reduced reactor pressure and at friction levels considered acceptable in MFN 08-420, a simultaneously occurring Safe Shutdown Earthquake (SSE) may result in control rod friction that inhibits the full insertion of the affected control rods during a reactor scram from these conditions. This scenario was not explicitly considered in MFN 08-420.

"GEH has also quantified maximum allowable control rod friction for channel-control blade interference during the SSE with reactor system pressure greater than or equal to 900 psig. The previous conclusion regarding the scram capability for the BWR/2-5 plants, last communicated in MFN 10-245 R2, was based upon a reactor system pressure of 1000 psig. The updated evaluation at 900 psig has resulted in modifications to the guidance specified in MFN 08-420.

"The GE Hitachi Letter recommends testing with new allowable friction limits that will ensure control rods fully insert at low reactor pressure concurrent with an SSE (for Mark I containment plants) and SSE with concurrent LOCA (for Mark II containment plants). The enclosure in the GEH letter provides a description of the evaluation, with surveillance recommendations for BWR/2-5 plants. The recommended surveillance is intended to augment the surveillance requirements in the plant Technical Specifications and define populations of control rods to be tested, and the method for testing, until other actions that mitigate or limit the potential for channel control blade interference can be identified and implemented.

"Based upon the evaluation, GEH has concluded that a Reportable Condition under 10CFR Part 21 exists for BWR/2-5 plants. This determination does not apply to BWR/6 or ABWR plants or the ABWR/ESBWR Design Control Document's (DCD). The information contained in this document informs the NRC of the conclusions and recommendations derived from GEH's evaluation of this issue."

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The list of potentially affected plants has previously been noted in this Part 21 notification and have been previously notified by GE Hitachi of the concern.

Notified R1DO (Doerflein), R2DO (Lesser), R3DO (Passehl), R4DO (Werner) and NRR Part 21 Grp via email.

* * * UPDATE AT 1205 EDT ON 2/7/12 FROM LISA SCHICHLEIN TO CHARLES TEAL VIA E-MAIL * * *

GE Hitachi Nuclear Energy (GEH) provided an update to its guidance and supporting evaluations that were reported in MFN 10-245 R4 on September 26, 2011.

Notified R1DO (Burritt), R2DO (Calle), R3DO (Giessner), R4DO (Camplbell) and Part 21 Group via email.

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