



**HITACHI**

**GE Hitachi Nuclear Energy**

**Dale E. Porter**

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MFN 10-152

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

**Subject: Part 21 Reportable Condition Notification:  
Bent Fuel Spacer Flow Wing – GNF2 Fuel**

This letter provides information concerning an evaluation performed by Global Nuclear Fuel (GNF) and GE Hitachi Nuclear Energy (GEH) regarding a bent spacer flow wing adjacent to the corner rod in a GNF2 fuel bundle. As stated herein, GEH has concluded that this is a reportable condition in accordance with the requirements of 10CFR 21.21(d).

Global Nuclear Fuel (GNF) and GE Hitachi Nuclear Energy (GEH) have determined that the Operating Limit (OL) Minimum Critical Power Ratio (MCP) for GNF2 fuel in FitzPatrick Cycle 19, Pilgrim Cycle 18, Vermont Yankee Cycle 28 and Grand Gulf Cycle 18 are non-conservative by 0.01. This non-conservatism could contribute to exceeding a Technical Specification Safety Limit, which makes it a Reportable Condition under 10CFR21.21(d).

### **Discussion**

During inspection of GNF2 reload fuel, a spacer flow wing on the corner rod position was discovered to be deformed (bent). A review of this condition and the associated root cause evaluation has determined that it could be present in previously manufactured GNF2 fuel that has been shipped for FitzPatrick Cycle 19, Pilgrim Cycle 18, Vermont Yankee Cycle 28, Vermont Yankee GNF2 Lead Use Assemblies and Grand Gulf Cycle 18. It is not known that this condition exists in the GNF2 fuel for these plants, but it cannot be ruled out. A conservative assessment of the thermal hydraulic impact of this condition resulted in a 0.01 OLMCP impact for these plants. An OLMCP impact of 0.01 is at the threshold for reportability.

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,

A handwritten signature in black ink, appearing to read "Dale E. Porter", with a long horizontal flourish extending to the right.

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

Attachments:

1. US Plants With Affected GNF2 Fuel
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  
K. C. Walsh, GNF  
A. A. Lingenfelter, GNF  
PRC File

**Attachment 1**  
**US Plants With Affected GNF2 Fuel**

	<b><u>Utility</u></b>	<b><u>Plant</u></b>
<u>X</u>	Entergy Nuclear Northeast	FitzPatrick
<u>X</u>	Entergy Nuclear Northeast	Pilgrim
<u>X</u>	Entergy Operations, Inc	Grand Gulf
<u>X</u>	Entergy Nuclear Northeast	Vermont Yankee

**Attachment 2**  
**Reportable Condition Notification Information per §21.21(d)(4)**

- (i) Name and address of the individual or individuals informing the Commission:
- Dale E. Porter  
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:
- GE Hitachi and GNF have determined that it is a Reportable Condition for GNF2 fuel supplied to Entergy for Vermont Yankee Cycle 28, Vermont Yankee Lead Use Assemblies, Grand Gulf Cycle 18, FitzPatrick Cycle 19, and Pilgrim Cycle 18.
- (iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect:
- GNF2 fuel is manufactured by Global Nuclear Fuel (GNF).
- (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 condition is a bent flow wing on a fuel bundle spacer adjacent to the corner rod in a GNF2 fuel bundle. It was discovered during an inspection of a GNF2 fuel bundle in the GNF manufacturing facility. A conservative assessment of the thermal hydraulic impact of this defect condition resulted in a 0.01 OLMCPR impact, which could contribute to exceeding a Technical Specification Safety Limit.
- (v) The date on which the information of such defect or failure to comply was obtained:
- This concern was identified in the GE Hitachi safety evaluation program on April 15, 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:
- It is not known if the condition is present in GNF2 fuel that has been supplied to licensees. However, a review of this condition found in the GNF2 bundle assembly and the associated root cause evaluation determined that it could be present in reload GNF2 fuel that has been shipped for FitzPatrick Cycle 19, Pilgrim Cycle 18, Vermont Yankee Cycle 28, Vermont Yankee GNF2 Lead Use Assemblies and Grand

Gulf Cycle 18. It is conservatively assumed that the defect condition found in the GNF manufacturing facility exists for the GNF2 fuel supplied for these reloads.

- (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:

GNF has notified the plants that potentially have this defect condition as identified above. It is recommended that each plant take an appropriate compensatory action to mitigate the impact of this potential condition for the cycle identified. Depending on the specific circumstances, mitigating actions to protect the SLMCPR may include increasing the OLMCPR to assure compliance.

Each affected plant will notify the NRC and take appropriate action if their Technical Specifications are affected.

GNF has taken action to minimize the potential for this condition to occur in the manufacturing and assembly of GNF2 fuel.

- (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:

Affected licensees should take appropriate compensatory measures to mitigate the impact of the bent flow wing condition in GNF2 fuel which may contain the defect.

- (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.