

General Information or Other (PAR)

Event # 40982

Rep Org: GENERAL ELECTRIC COMPANY	Notification Date / Time: 08/24/2004 17:36 (EDT)
Supplier: GENERAL ELECTRIC COMPANY	Event Date / Time: 08/24/2004 (EDT)
	Last Modification: 09/30/2004
Region: 1	Docket #:
City: WILMINGTON	Agreement State: Yes
County:	License #:
State: NC	
NRC Notified by: JASON S. POST	Notifications: EUGENE COBEY R1
HQ Ops Officer: MIKE RIPLEY	JOEL MUNDAY R2
Emergency Class: NON EMERGENCY	ERIC DUNCAN R3
10 CFR Section:	WILLIAM JOHNSON R4
21.21 UNSPECIFIED PARAGRAPH	VERN HODGE NRR

PART 21 REPORTABLE CONDITION AND 60-DAY INTERIM REPORT NOTIFICATION: NON-CONSERVATIVE SAFETY LIMIT MINIMUM CRITICAL POWER RATIO

Global Nuclear Fuel (GNF) and GE Nuclear Energy (GENE) have determined that the current GNF process for determination of the Safety Limit Minimum Critical Power Ratio (SLMCPR) can result in a non-conservative SLMCPR. GENE has historically used a non-conservative SLMCPR impact of 0.01 as the threshold for reportability under 10CFR21. A preliminary screening evaluation has been completed for all plants operating with a SLMCPR calculated by GNF to determine those that have a nonconservative impact of 0.01 or greater. Verification has been completed for those plants that the screen showed to have a non-conservative SLMCPR impact of 0.01 or greater. Verification has not been completed for the plants that the screen showed had an impact of less than 0.01 or were unaffected, thus requiring a 60-Day Interim Report notification pending verification completion.

The plants for which GNF calculates the SLMCPR are identified [below]. Those plants for which the preliminary screen indicated that the current SLMCPR is unaffected are identified as a 60-Day Interim Report. Upon completion of verification (assuming the results of the screen are confirmed) the status of these plants will be changed to Not Reportable. GENE will provide a follow-up report to the NRC by September 29, 2004. The plants for which the current SLMCPR is non-conservative by 0.01 or greater are identified as a Reportable Condition under 10CFR21.21(d). These plants will take action to address the Reportable Condition.

GNF has notified all plants that have been confirmed to be affected. The plants that have a non-conservative SLMCPR for current plant operation will take action to mitigate the potential impact. Depending on the specific circumstances, mitigating actions to protect the SLMCPR may include increasing the OLMCPR to assure compliance with the low flow calculated SLMCPR. In some cases sufficient conservatism may exist in the OLMCPR at low flow to bound the increased SLMCPR. Each affected plant will notify the NRC and take appropriate action if their Technical Specifications are affected.

There are no actions necessary for the plants that are unaffected pending completion of verification. If, in the course of verification, GNF determines that there is an impact, the affected utility will be notified immediately. GNF

IEZO

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will complete the verification and GENE, will provide a follow-up letter to the NRC by September 29, 2004.

Affected and 60-Day Interim Notification Plants:

60-Day Interim Report: Clinton, Oyster Creek, Brunswick 1, Brunswick 2, Nine Mile Point 2, Fitzpatrick (60-Day interim report for current operation, Reportable Condition for SLMCPR licensing submittal), Pilgrim, Vermont Yankee, Dresden 2, Dresden 3, LaSalle 1, LaSalle 2, Limerick 1, Limerick 2, Peach Bottom 2, Peach Bottom 3, Quad Cities 1, Quad Cities 2, Perry 1, Duane Arnold, Monticello, Hope Creek, Hatch 1, Hatch 2, Browns Ferry 2

Reportable Condition: Nine Mile Point 1, Fermi 2, Fitzpatrick (60-Day interim report for current operation, Reportable Condition for SLMCPR licensing submittal), Cooper.

*** UPDATE FROM JASON POST (VIA FAX) TO CROUCH @ 2354 HRS. EST ON 09/29/04 ***

In part, the update reads:

"The evaluation for the potentially unaffected plants has now been completed. The results of the screening calculation have been confirmed: this is not a reportable condition for the plants that were previously identified as a 60-Day Interim Report notification in MFN 04-081" (See above).

Notified R1DO(Rogge), R2DO(Lesser), R3DO(Kozak), R4DO(Howell) and NRREO(Hodges).

FAX

Fuel Engineering Services



Global Nuclear Fuel

A Joint Venture of GE, Toshiba, & Hitachi

Global Nuclear Fuel - Americas, LLC
P.O. Box 780, Castle Hayne Road
Wilmington, NC 28401

To: U.S. Nuclear Regulatory Commission

Attention: Chief, Information Management Branch

Phone #: _____

FAX #: 301-816-5151

From: Mark Colby for Jason Post

Phone #: (910) 675-6615 or 8*292-6615

FAX #: (910) 675-6614 or 8*292-6614

Remarks:

- Urgent
- For your review
- Reply ASAP
- Please comment

**GE Nuclear Energy**

General Electric Company
3901 Castle Hayne Road, Wilmington, NC 28401

September 29, 2004
MFN 04-108

U.S. Nuclear Regulatory Commission
Document Control Desk
Rockville, Maryland 20852-2738

Attention: Chief, Information Management Branch
Program Management
Policy Development and Analysis Staff

Subject: **Part 21 Final Report: Non-conservative SLMCPR**

Reference: GENE letter, "Part 21 Reportable Condition and 60-Day Interim Report Notification: Non-conservative SLMCPR," MFN 04-081, August 24, 2004

Global Nuclear Fuel (GNF) and GE Nuclear Energy (GENE) previously notified the NRC in the reference letter that the current GNF process for determination of the Safety Limit Minimum Critical Power Ratio (SLMCPR) can result in a non-conservative SLMCPR. A preliminary screening calculation had been completed to identify the plants that were potentially affected. The evaluation was completed for the plants that had been determined to be potentially affected and these plants were identified as a reportable condition under 10CFR21.21(d) in MFN 04-081. The evaluation was not completed for the plants that had been determined to be potentially unaffected and these plants were identified as a 60-Day Interim Report notification under 10CFR21.21(a)(2) in MFN 04-081.

The evaluation for the potentially unaffected plants has now been completed. The results of the screening calculation have been confirmed: this is not a reportable condition for the plants that were previously identified as a 60-Day Interim Report notification in MFN 04-081.

GENE has historically used a non-conservative SLMCPR impact of 0.01 as the threshold for reportability under 10CFR21. The identified non-conservative SLMCPR change only slightly exceeded the threshold for a Reportable Condition and would not lead to a substantial safety hazard due to the large margin to fuel failure associated with the SLMCPR and the multiple automatic and passive protection features of a BWR.

The plants for which GNF calculates the SLMCPR are identified in Attachment 1. Those plants for which the current SLMCPR is conservative are identified as Not Reportable.

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The plants for which the current SLMCPR is non-conservative by 0.01 or greater were previously identified as a Reportable Condition under 10CFR21.21(d) in MFN 04-081.

Discussion

During performance of SLMCPR calculations for an extended operating domain condition, GNF discovered an apparent flow impact where a lower flow condition at rated power had a more limiting SLMCPR than the rated flow condition. Current procedures specify that the SLMCPR be calculated on the upper boundary of the power/flow operating map only at 100% power/100% flow (rated P/rated F). The SLMCPR is calculated at 3 operating points in the cycle: (1) Beginning of Cycle (BOC), (2) Peak Hot Excess (PHE), and (3) End of Cycle (EOC) at rated P/rated F conditions. The SLMCPR calculation is dependent upon many fuel and cycle parameters and the most limiting SLMCPR may occur at any of the analyzed points. The SLMCPR is the most limiting bundle MCPR from these calculations that corresponds to 0.1% of fuel rods in the core being susceptible to boiling transition due to the postulated occurrence of the limiting Abnormal Operating Occurrence (AOO) event.

In the instances where this concern was discovered, the control rod patterns used at the off-rated flow/rated power condition created a more limiting bundle-by-bundle MCPR distribution than the control rod patterns used at rated power/rated flow, even though both control rod patterns met the criterion defined in the SLMCPR calculation process, and it produced a more limiting SLMCPR.

GENE/GNF previously notified the affected plants as identified in MFN 04-081, August 24, 2004. There are no actions necessary for the plants that are confirmed to be unaffected as identified in Attachment 1.

If you have any questions, please call me at (910) 675-6608.

Sincerely,



Jason S. Post, Manager
Engineering Quality & Safety Evaluations

cc: S. D. Alexander (NRC-NRR/DIPM/IPSB) Mail Stop 6 F2
M. B. Fields (NRC-NRR/DLPM/LPD4) Mail Stop 7 E1
C. V. Hodge (NRC-NRR/DIPM/TROB) Mail Stop 12 H2
J. F. Klapproth (GENE)
H. J. Neems (GENE)
L. M. Quintana (GENE)
T. Rumsey (GENE)
PRC File

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Attachment 1 – Plants Previously Identified in MFN04-081

<u>Not Reportable</u>	<u>Reportable Condition (per MFN04-081)</u>	<u>Utility</u>	<u>Plant</u>
X		AmerGen Energy Co.	Clinton
X		AmerGen Energy Co.	Oyster Creek
X		Carolina Power & Light Co.	Brunswick 1
X		Carolina Power & Light Co.	Brunswick 2
	X	Constellation Nuclear	Nine Mile Point 1
X		Constellation Nuclear	Nine Mile Point 2
	X	Detroit Edison Co.	Ferri 2
		Dominion Generation	Millstone 1 ⁽¹⁾
		Energy Northwest	Columbia
X ⁽²⁾	X ⁽²⁾	Entergy Nuclear Northeast	FitzPatrick
X		Entergy Nuclear Northeast	Pilgrim
		Entergy Operations, Inc.	Grand Gulf
		Entergy Operations, Inc.	River Bend
X		Entergy Nuclear Northeast	Vermont Yankee
		Exelon Generation Co.	CRIT Facility
X		Exelon Generation Co.	Dresden 2
X		Exelon Generation Co.	Dresden 3
X		Exelon Generation Co.	LaSalle 1
X		Exelon Generation Co.	LaSalle 2
X		Exelon Generation Co.	Limerick 1
X		Exelon Generation Co.	Limerick 2
X		Exelon Generation Co.	Peach Bottom 2
X		Exelon Generation Co.	Peach Bottom 3
X		Exelon Generation Co.	Quad Cities 1
X		Exelon Generation Co.	Quad Cities 2
X		FirstEnergy Nuclear Operating Co.	Perry 1
	X	Nebraska Public Power District	Cooper
X		Nuclear Management Co.	Duane Arnold
X		Nuclear Management Co.	Monticello
		Pooled Equipment Inventory Co.	PIM
		PPL Susquehanna LLC.	Susquehanna 1
		PPL Susquehanna LLC	Susquehanna 2
X		PSEG Nuclear	Hope Creek
X		Southern Nuclear Operating Co.	Hatch 1
X		Southern Nuclear Operating Co.	Hatch 2
		Tennessee Valley Authority	Browns Ferry 1 ⁽¹⁾
X		Tennessee Valley Authority	Browns Ferry 2
		Tennessee Valley Authority	Browns Ferry 3

Notes:

1. Plant is in an extended shutdown
2. Not reportable for current operation, Reportable Condition for SLMCPR licensing submittal