

P21 93206

DATE 5/4

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NUMBER OF PAGES (INCLUDING THIS COVER SHEET): 4

COMMENTS:

Nick - re-faxed as requested.
Can discuss with you Wed a.m.
if desired.

Thanks/
[Signature]


**WASHINGTON PUBLIC POWER
SUPPLY SYSTEM**
**PROBLEM EVALUATION
INFORMATION ONLY**

PER 100.

293-454

ORIGINATOR

Plant Problem Description/Impact

As a result of the Cycle 9 reload design review, two errors were found by Siemens:

- 1) Siemens discovered an input error in the WNP-2 COTRANSA2 transient analysis model. Although the total core height is correct, the height of the core is not correctly divided between nodes 3 and 4. Preliminary calculations indicate that correcting the error results in a small increase in the calculated Δ CPR. The preliminary calculations indicate the increase is less than 0.01 for the limiting transient.
- 2) Siemens establishes the full power MCPR operating limit by analyzing the limiting transient at 104% core power. Preliminary calculations indicate the transient can be more severe when initiated from 100% core power. The preliminary calculations indicate the increase in Δ CPR is less than 0.01. This nonlinear behavior with power is not unique to SPC methodology and is a evolving industrial issue. SPC is undertaking a detailed investigation on power level vs Δ CPR relationship. (Continued on Page 2)

Immediate Corrective Action(s) Taken

Siemens has performed preliminary calculations which demonstrate that WNP-2 Cycle 8 COLR limits remain supported and that no corrective actions need to be taken by the Supply System (Reference: Private Communication, J. G. Ingham, Siemens Power Corp., April 23, 1993).

Probable Cause(s)

Siemens analyst made an input error when specifying the height of one of the COTRANSA2 nodes. The limiting full power transient is a Load Rejection with No Bypass (LRNB). This transient is driven by the vessel pressurization which results from the rapid closure of the turbine control valve. This transient was believed to be more severe as power increases because the pressurization increases as the core power and steam flow increase. (Continued on Page 2).

Proposed Resolution

Follow up on the Siemens final resolution of these concerns and ensure that the corrections are included in the Cycle 9 analyses under preparation.

Industrial Safety and Fire Protection Related	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Continuation Sheets	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
MEL EPN	Continuation Sheets <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Originator Name (Print)/Mail Drop	S. H. Blan/PE16
Validator Signature/Date	<i>D.S. Whitcomb</i> 4/29/93	Originator Signature/Date	<i>S. H. Blan</i> 4/29/93
SHIFT MANAGER			
<input type="checkbox"/> Non-reportable <input checked="" type="checkbox"/> Potentially Reportable <input type="checkbox"/> Reportable	Requirement 10CFR <u>50.72</u> Other _____	PER Immediate Disposition Requested	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Action Statement Entered Tech. Spec. Violation TS No.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Emergency MWR No: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Shift Manager Signature/Date <i>S. H. Blan</i> 4/29/93
WORK CONTROL MANAGER			
Immediate Corrective Action(s) Taken			
Work Control Manager Signature/Date	Assigned Dept.	Assigned Manager	
<i>J. D. [Signature]</i>	<i>Tech</i>	<i>A. T. Kinison</i>	



WASHINGTON PUBLIC POWER
SUPPLY SYSTEM

PROBLEM EVALUATION REQUEST
INFORMATION ONLY

PER No. 293-454

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Comments

DISPOSITIONER

Although Siemens (SPC) discovered a COTRANSA2 nodalization error and the power level analyzed for the limiting transient of Load Rejection without Bypass being not bounding, SPC has performed preliminary calculations for actual Cycle 8 EOFP conditions and demonstrated that Cycle 8 COLR limits remain supported. This preliminary calculation will be verified by SPC to insure that final results support the above conclusion.

- Significant Condition Adverse to Quality
- Potential Condition Adverse to Quality
- Other Condition or Suggestion
- Trend Only

Continuation Sheets Yes No

Probable Cause

Siemens analyst made an input error when specifying the height of one of the COTRANSA2 nodes. The limiting full power transient is a Load Rejection with No Bypass (LRNB). This transient is driven by the vessel pressurization which results from the rapid closure of the turbine control valve. This transient was believed to be more severe as power increases because the pressurization increases as the core power and steam flow increase. However, Siemens recently performed preliminary calculations which indicate that other changes with power (Initial position of the turbine control valve, axial power profile and void coefficient) can cause the LRNB transient to become slightly more severe as power decreases.

ACT NO.	PPL NUMBER	RESP. ORG.	CORRECTIVE ACTION DESCRIPTION	SUPV. NAME - PRINTED SUPV. NAME - SIGNATURE/DATE	FCST DATE	RXGU	
						YES	NO
			Ensure with additional Cycle 9 design review that analysis error is corrected, and limiting power case analyzed and properly reflected in the COLR report. Also ensure Cycle 8 preliminary analysis is verified by SPC.	A. J. MOORE <i>[Signature]</i> 4/28/93	6/14/93 SMB		X ^{**}
			An evaluation of the PBRs recently issued on the SPC reload design issues is addressed on the PER Disposition for PER 293.409. <i>[Signature]</i>				

MRC Review Required Yes No

Comments

* The MCR correction will only impact the DL MCR for cycle burnup ≥ 4500 MWd/t in Cycle 9.

Dispositioner Signature/Date <i>S. H. B...</i> 4/28/93	Dept. Manager Signature/Date <i>[Signature]</i> 4/28/93	Issuing Initial/Date	Closeout Review Signature/Date
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