Jeffrey B. Archie
Vice President, Nuclear Operations
803.345.4214

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January 19, 2007

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Ladies and Gentlemen:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS)
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
LICENSEE EVENT REPORT (LER 2006-004-00)
TURBINE TRIP DUE TO HIGH STEAM GENERATOR LEVEL P-14

Attached is Licensee Event Report (LER) No. 2006-004-00, for the Virgil C. Summer Nuclear Station (VCSNS). The report describes the sequence of actions that led to a turbine trip due to P-14 actuation. This report is submitted in accordance with 10CFR50.73(a)(2)(iv). Should you have any questions, please call Mr. Bruce Thompson at (803) 931-5042.

Very truly yours,

Jeffrey B. Archie

FWK/JT/JBA/dr
Attachment

c: K. B. Marsh
S. A. Byrne
N. S. Carns
J. H. Hamilton
R. J. White
W. D. Travers
R. E. Martin
NRC Resident Inspector
M. N. Browne
K. M. Sutton
D. L. Abstance
P. Ledbetter
EPIX Coordinator
INPO Records Center
J&H Marsh & McLennan
NSRC
RTS (C-06-4275)
File (818.07)
DMS (RC-07-0012)

IE22

NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 06/30/2007

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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4. TITLE

Turbine Trip Due To High Steam Generator Level P-14

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	22	2006	2006	- 4 -	0	01	19	2007		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

2

10. POWER LEVEL

1 - 3%

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☑ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
Virgil C. Summer Nuclear Station	(803) 931-5042

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
A	BJ								

14. SUPPLEMENTAL REPORT EXPECTED

○ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ◉ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On November 22, 2006 at approximately 0430 hours, during secondary plant startup, the "B" steam generator (SG) water level increased to the high level (P-14) setpoint. The P-14 signal isolated feedwater (FW), tripped the main FW pump turbines and the main turbine.

The cause of this event is attributed to an operator over feeding the SGs while transferring feed flow from emergency feedwater (EF) to main FW. This action caused the reactor coolant system (RCS) temperature to decrease. When the crew recognized the excessive feed to the SGs, feed flow was reduced and the crew restored RCS temperature. The RCS temperature increase and narrow range (NR) SGWL lagging actual level caused SG level indication to continue to rise. The "B" SG reached the high level (P-14) setpoint.

Following the turbine trip and FW isolation, the RCS temperature was stabilized and SG level control was reestablished on EF. As a result of this transient, the plant start up was delayed. The oncoming operations crew received simulator training on the startup evolution. The crew then assumed the watch, successfully raised power, and continued with the secondary plant startup.

Corrective actions to preclude recurrence include improving pre-job briefings and just-in-time (JIT) training for the startup evolution. Additionally, licensed operators will be provided training on the event during the next scheduled Licensed Operator Requalification training cycle and simulator training on this evolution will be added to the Licensed Operator Requalification Program. These actions will be completed by April 1, 2007.

LICENSEE EVENT REPORT (LER)

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NARRATIVE

PLANT IDENTIFICATION

Westinghouse – Pressurized Water Reactor

EQUIPMENT IDENTIFICATION

XSG0002A-RC Steam Generator A
XSG0002B-RC Steam Generator B
XSG0002C-RC Steam Generator C

IDENTIFICATION OF EVENT

On November 22, 2006 at approximately 0430, during secondary plant startup, the "B" steam generator (SG) water level increased to the high level (P-14) setpoint. The P-14 signal isolated feedwater (FW), tripped the FW pumps and the main turbine.

EVENT DATE

11/22/2006

REPORT DATE

01/19/2007

CONDITIONS PRIOR TO EVENT

Mode 2, Startup from Refueling

DESCRIPTION OF EVENT

On November 22, 2006, V. C. Summer Nuclear Station (VCSNS) was stable with reactor power being maintained between 1 to 3 % power. The Main Turbine was reset and was on the turning gear. Operators commenced secondary plant startup and power escalation in accordance with General Operating Procedure GOP-4A. The operators initiated a transfer of feedwater (FW) from emergency feedwater (EF) to main FW with the FW pump (FWP) Master Speed Controller and the bypass feedwater regulator valves (FRVs) in manual control. As the FW Operator opened the Bypass FRVs and throttled down on EF, he did not note positive SG level response. The operator raised demand on the Bypass FRVs and adjusted the FWP Master Speed Pump Controller in an attempt to increase FW flow to the SGs. The operator still did not note appropriate SG level response and informed the Shift Supervisor (SS). The SS observed that the FW flow to all three SGs was in excess of that required for the current power level, and directed that the FW flow be reduced. The Bypass FRVs were closed and the FWP Master Speed Controller setpoint were reduced to minimum.

As a result of the excessive FW flow, the SG levels started to increase and Reactor Coolant System (RCS) temperature started to decrease. The Reactor Operator adjusted rods to control RCS temperature. The increasing RCS temperature and narrow range (NR) SGWL lagging actual level caused SG level indication to continue to rise.

At approximately 0430, SG "B" level reached the P-14 setpoint causing FW isolation, FWP trip and Main Turbine trip.

Once it was recognized that excessive FW flow was present, the crew responded properly. During the transient, RCS temperature decreased below the minimum temperature for criticality for approximately one minute, letdown isolated on low pressurizer level, and pressurizer heaters tripped. After the transient, the crew established EF flow to the SGs, restored RCS temperature and pressure to normal, restored pressurizer heaters, and then restored letdown.

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NARRATIVE

CAUSE OF EVENT

The major issue was a failure of the operators to utilize all available indications and anticipate plant response. Contributing factors include: equipment issues with the FWP Master Speed Controller not being able to control speed in automatic during no or low FW flow conditions. FW flow indications are not accurate at low flow conditions. Narrow range (NR) SGWL lags actual level at low power. These factors contributed to the FW Operator not recognizing adequate flow to the SGs.

ANALYSIS OF EVENT

At the time of the event, the plant was at less than 3% reactor power. Operators were performing secondary plant startup. The FWP Master Speed Controller and the Bypass FRVs were in manual due to low flow conditions. All plant systems functioned as designed and remained operable. The P-14 signal isolated FW, tripped the main FWP turbines, and tripped the Main Turbine.

CORRECTIVE ACTIONS

After the transient, the crew established EF flow to the SGs, restored RCS temperature and pressure to normal, and then restored letdown. The oncoming operations crew received simulator training on the startup evolution. The crew then assumed the watch and successfully raised power, and continued with the secondary plant startup.

Condition Evaluation Report C-06-4275 was initiated to document actions and evaluations for this event.

Corrective actions to preclude recurrence include improving pre-job briefings and just-in-time (JIT) training for the startup evolution to include equipment issue awareness. Additionally, licensed operators will be provided training on the event during the next scheduled Licensed Operator Requalification training cycle and simulator training on this evolution will be added to the Licensed Operator Requalification Program. These actions will be completed by April 1, 2007.

PRIOR OCCURRENCES

There have been no similar events that have occurred at VCSNS during the last five years.