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December 3, 2007

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

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS)
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
LICENSEE EVENT REPORT (LER 2007-003-00)
CLOGGED REACTOR BUILDING COOLING UNIT DRAIN LINE
RESULTS IN VIOLATION OF LCO 3.4.6.1

Attached is Licensee Event Report (LER) No. 2007-003-00, for the Virgil C. Summer Nuclear Station (VCSNS). The report describes the sequence of actions that led to a violation of VCSNS Technical Specification LCO 3.4.6.1. This report is submitted in accordance with 10 CFR 50.73(a)(2)(i)(B).

Should you have any questions, please call Mr. Bruce Thompson at (803) 931-5042.

Very truly yours,

Dan Doatt for JA

Jeffrey B. Archie

JW/JT/JBA/cjm
Attachment

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NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2010

Estimated burden per response to comply with this mandatory collection request: 80 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

Clogged Reactor Building Cooling Unit Drain Line Results in Violation of LCO 3.4.6.1

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 05000
10	04	2007	2007	- 3 -	0	12	03	2007	FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE: Mode 1

10. POWER LEVEL: 100%

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
X	BD	DRN		Y					

14. SUPPLEMENTAL REPORT EXPECTED

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

15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
	03	01	2008

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

On October 4, 2007, during an as-found functional flow test of Reactor Building Cooling Unit (RBCU) drain flow switch, IFS01900A, the required alarm failed to initiate. RBCU drain flow switch IFS01900A was declared inoperable. IFS01900B was assumed to be in the same condition as IFS01900A and was declared inoperable also. Boroscope investigation of the bottom of the 6 inch P-trap of the RBCU drain line revealed debris plugging the 1 inch line tapping off the P-trap. IFS01900A was cleared of the blockage via a 6 inch blind flange downstream of the P-trap and was declared operable on October 11, 2007. Preliminary investigation has determined that this condition existed for a significant period of time. An evaluation was conducted to determine if the condition existed for a time longer than permitted by Technical Specifications. An engineering review of plant operating records completed on November 14, 2007, found multiple occasions over the last three years where the more restrictive six hour portion of Technical Specification 3.4.6.1 Action Statement should have been entered due to other leakage detection systems being declared inoperable.

The cause of this condition is attributed to plant personnel not being aware of the inoperable RBCU drain flow switches. Current plant procedures have been determined to be inadequate for testing the drain flow path through the P-trap. While Surveillance Test Procedure STP-342.003 verifies the switch is calibrated using an external source of demineralized water, it does not perform a functional check to ensure water draining from the RBCU actuates the switch. Additionally, there is no method of performing a channel check.

This event is still under investigation. Upon completion of the investigation, further corrective actions will be identified in a supplement to this report. A revised report is projected to be submitted by March 1, 2008.

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NARRATIVE

PLANT IDENTIFICATION

Westinghouse - Pressurized Water Reactor

EQUIPMENT IDENTIFICATION

IFS01900A RBCU Drain Flow Switch
IFS01900B RBCU Drain Flow Switch

IDENTIFICATION OF EVENT

On October 4, 2007, during an as-found functional flow test of the V. C. Summer Nuclear Station (VCSNS) Reactor Building Cooling Unit (RBCU) drain flow switch IFS01900A, the required alarm failed to initiate. IFS01900A was declared inoperable. Boroscope investigation of the bottom of the 6 inch P-trap of the RBCU drain line revealed debris plugging the 1 inch line tapping off the P-trap. An engineering review of plant operating records completed on November 14, 2007, found multiple occasions over the last three years where the more restrictive six hour portion of Technical Specification 3.4.6.1 Action Statement should have been entered due to other leakage detection systems being declared inoperable.

Condition Reports CR-07-02167 and CR-07-03332 were initiated to address this event.

EVENT DATE

10/04/2007

REPORT DATE

12/03/2007

CONDITIONS PRIOR TO EVENT

Mode 1, 100% Power

DESCRIPTION OF EVENT

A concern was raised regarding the adequacy of testing and maintenance of the RBCU drain flow switches. The surveillance test procedure did not flow water from the RBCU to the flow switch; instead, the procedure utilized a tap near the flow switch and thus bypassed the 6 inch drain piping, the P-trap and the inlet point to the sensor piping. As a result of this test configuration, there is no assurance that the P-trap or the inlet pipe is not blocked with trash or debris.

On 10/4/07 during a Reactor Building entry at power, an as-found functional flow test that included the previously bypassed drain piping was conducted on RBCU drain flow switch IFS01900A. During the test, IFS01900A failed to alarm. Visual inspection revealed a small trickle of flow through the 1 inch piping for the flow switch. Based on the similarity of design and previous testing, VCSNS conservatively declared both trains (IFS01900A and B) of RBCU drain flow switches inoperable.

NARRATIVE

DESCRIPTION OF EVENT (CONTINUED)

Boroscope inspection of the 6 inch P-trap was evaluated as clean. Further inspection revealed that the 1 inch line tapping off the bottom of the P-trap was plugged. Various cleaning techniques were employed until all debris was removed. IFS01900A was tested satisfactorily and declared operable on October 11, 2007.

IFS01900B will remain inoperable until plant conditions allow for inspection and testing.

Technical Specification 3.4.6.1 requires the following Reactor Coolant System leakage detection systems to be operable: reactor building atmosphere particulate radioactivity monitoring system, a reactor building sump level, and either the reactor building cooling unit condensate flow rate or a reactor building atmosphere gaseous radioactivity monitoring system. With only two of the above required leakage detection systems operable, operation may continue for up to thirty days provided grab samples are periodically obtained and analyzed when the radioactivity monitoring system is inoperable, otherwise the plant must be placed in hot shutdown within six hours and cold shutdown within the following 30 hours.

An engineering evaluation was conducted to determine past operability and TS compliance for the Leakage Detection System as identified in TS 3.4.6.1. The evaluation, completed on November 14, 2007, reviewed plant records over the last three years. The evaluation determined that while the reactor building sump level leakage detection systems remained operable in Modes 1 through 4 during the last three years, there were multiple times when reactor building atmosphere particulate and gaseous radioactivity monitoring system was unavailable while in Modes 1 through 4 for a period greater than six hours. Had the station known the RBCU drain flow switches were inoperable, the plant would have entered the more restrictive six hour portion of Technical Specification 3.4.6.1 Action Statement requiring a plant shutdown. In addition on November 30, 2006, the reactor building atmospheric gaseous radioactivity monitoring system was declared inoperable for this LCO only, since it may not have been able to detect Reactor Coolant System (RCS) leakage due to low RCS activity levels. Had the station known the RBCU drain flow switches were inoperable, the plant would have entered a 30-day action and would have either restored the switch to operable status or would have conducted a plant shutdown.

With the RBCU leak detection switches inoperable, VCSNS failed to comply with TS 3.4.6.1 action statements on multiple occasions. The failure to comply with the plant's Technical Specifications is reportable to the NRC in accordance with the requirements of 10CFR50.73(a)(2)(i)(B).

CAUSE OF EVENT

The cause of this condition is attributed to plant personnel not being aware that the RBCU Drain flow switches were inoperable. Additionally, current plant procedures have been determined to be inadequate for testing the drain flow path through the P-trap in that the demineralized water test connection on the 1 inch drain lines bypass the flow path that would be used in the event of an actual leak. Although this test procedure verifies the operability of the flow switches, it does not perform a functional check to ensure water draining from the RBCU actuates the switch. Additionally, there is no method of performing a channel check.

ANALYSIS OF EVENT

As discussed in bases of TS 3.4.6.1, the RCS Leakage Detection System monitors and detects leakage from the Reactor Coolant Pressure Boundary. With the RBCU drain flow alarms inoperable, detection of RCS leakage was provided by the reactor building sump level leakage detection system and the reactor building atmosphere particulate and gaseous radioactivity monitoring system. During the last three years the reactor building atmosphere particulate and gaseous radioactivity monitoring system was unavailable while in Modes 1 through 4 for a period greater than six hours, 14 times for a total time of approximately 500 hours. During these episodes, reactor building sump level leakage detection system remained operable to detect leakage from the Reactor Coolant Pressure Boundary.

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NARRATIVE

CORRECTIVE ACTIONS

IFS01900A was cleared of the blockage via a 6 inch blind flange downstream of the P-trap, was functionally checked to ensure water draining from the RBCU would actuate the switch, and was declared operable. IFS01900B will remain inoperable until plant conditions allow for inspection and testing. This event is still under investigation. Upon completion of the investigation, further corrective actions will be identified in a supplement to this report. A revised report is projected to be submitted by March 1, 2008.

PRIOR OCCURRENCES

There have been no other instances of Technical Specification violations related to leak detection systems in containment in the past three years.