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March 30, 2000
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Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Gentlemen:

Subject: VIRGIL C. SUMMER NUCLEAR STATION
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
LICENSEE EVENT REPORT (LER 2000-004-00)
POTENTIALLY OUTSIDE DESIGN BASIS FOR BYPASSED INSTRUMENT CHANNELS

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Attached is Licensee Event Report No. 2000-004-00, for the Virgil C. Summer Nuclear Station (VCSNS). The report describes a condition that is potentially outside the design bases of the plant due an deficiency in the facility Technical Specifications. This issue is being reported per 10 CFR 50.73(a)(2)(ii)(B).

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Should you have any questions, please call Mrs. April Rice at (803) 345-4232.

Very truly yours,

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NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION
(6-1998)

LICENSEE EVENT REPORT (LER)

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50.0 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If 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.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Virgil C.Summer Nuclear Station	05000395	1 of 4

TITLE (4)

Potentially Outside Design Bases Due to a Deficiency in Facility Technical Specifications

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
03	01	00	2000	0004 --	00 --	03	30	00		05000
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	100		20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
			20.2203(a)(1)		20.2203(a)(3)(i)	X	50.73(a)(2)(ii)		50.73(a)(2)(x)
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC FORM 366A
			20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
A. R. Rice Manager, Nuclear Licensing & Operating Experience	(803) 345-4232

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
	JE								

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On March 1, 2000 at 12:15 hours, following evaluations performed in response to McGuire Station Notification (event # 36659), Virgil C. Summer Nuclear Station (VCSNS) concluded that there existed a single failure vulnerability which may have existed during past plant operation.

The specific condition is a deficiency in the current Limiting Condition for Operation (LCO) for Engineered Safety Feature Actuation System (ESFAS) instrumentation. For one inoperable channel in the Emergency Feedwater suction swap-over on low suction pressure, Refueling Water Storage Tank (RWST) to Reactor Building Sump Swap-over on lo-lo level, and Containment Spray actuation on Hi-3 building pressure, The Technical Specification (TS) requirement is to place the channel in bypass. There is no completion or restoration time specified.

During a design basis accident, a single failure involving a loss of power to the opposite train instrumentation, while one or more of these functions were in bypass would prevent the safety function from **automatically** occurring.

Currently all 4 channels for each function are operable. A preliminary PRA evaluation shows the change in Core Damage Frequency to be insignificant. Administrative controls are in place to limit the time a channel can be in bypass until a TS change request can be submitted and approved. This change is expected to be submitted by 12/2000.

TEXT *(If more space is required, use additional copies of NRC Form 366A)* **(17)**

PLANT IDENTIFICATION

Westinghouse - Pressurized Water Reactor

EQUIPMENT IDENTIFICATION

EIIS Code - JE
Engineered Safety Features Actuation System

IDENTIFICATION OF EVENT

This issue was discovered as a result of reviewing the McGuire Nuclear Station Notification of February 4, 2000, event number 36659.

EVENT DATE

March 1, 2000
This event has been documented on CER 00-0173.

REPORT DATE

March 30, 2000

CONDITIONS PRIOR TO EVENT

Mode 1 - 100% Reactor Power

DESCRIPTION OF EVENT

On March 1, 2000 while evaluating an issue that was reported by McGuire Nuclear Station (event number 36659), it was determined that a condition outside of plant design basis may have existed at the V. C. Summer Nuclear Station in the past. The specific condition is a deficiency in the Limiting Condition for Operation (LCO) for the Engineered Safety Feature Actuation System (ESFAS).

For one inoperable channel (in the Emergency Feedwater pump suction swap-over on low suction pressure, RWST swap-over to containment sump on lo-lo level, and/or Containment Spray actuation on Hi-3 pressure) the Technical Specification (TS) action is to place the channel in bypass. There is no expiration time for this channel to remain in bypass. With the channel in bypass, the actuation logic changes from 2 out of 4 to 2 out of 3 channels (energize to actuate).

Because of the indefinite amount of time that this condition is allowed to exist, this condition cannot be considered a single failure during a design basis accident (DBA). During a DBA, a single failure involving a loss of power to the opposite train instrumentation, while one or more of these functions were in bypass would de-energize two

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additional channels and prevent the automatic actuation of the safety function.

Currently all four channels for each of the identified functions are OPERABLE. Therefore, VCSNS is not operating with a single failure vulnerability at this time. A preliminary search of equipment history does not indicate that any channels were out of service for extended periods (greater than 20 hours) in the past five years.

CAUSE OF THE EVENT

The cause of this event is assumed to be an oversight of the personnel involved in reviewing the initial plant TS as well as the discovery of a single failure that was not considered at the time of initial plant design and licensing.

ANALYSIS OF EVENT

The following considerations demonstrate that this condition does not have a significant adverse impact on plant safety or operation and that there is reasonable assurance that all safety-related functions will occur as required following the design basis accident.

Normally, when a TS required component or system is inoperable, there is a specific time period that it is permitted to remain inoperable before other actions have to be performed. During this time, a licensee does not have to postulate a single failure with a DBA due to the limited amount of time that the system is inoperable. This philosophy follows the guidance of Generic Letter 80-30, IEEE 279-1979, and ANSI 58.9-1981. The concern for this event is that there is no TS required end time for this condition and therefore, this guidance may not apply.

The accident scenario is a Condition lV accident with a concurrent loss of offsite power. Additionally, one channel from one or all of the above identified "energize to actuate" functions is inoperable and in bypass (while in bypass the channel is not seen by the logic circuits; the actuation logic changes from 2/4 to 2/3). The postulated single failure is the loss of the opposite train direct current (DC) bus due to an output breaker spuriously opening. The loss of DC would prevent the Emergency Diesel Generator from loading and all sources of power to the inverters for that train would be unavailable(i.e., 2/3 channels would lose power). Since these functions are energize to actuate, the logic would not be satisfied and the automatic actuation would not occur.

Manual operator action will be utilized to mitigate the condition (e.g. manually initiate the action), the necessary actions are specified in the station Emergency Operating Procedures. When the required ESF equipment is not running or in the correct position, the operator is instructed to assure the equipment status is correct for the procedure step.

Westinghouse had performed a Failure Modes and Effects Analysis for VCS during pre-license activities but made the assumption that each channel had its own DC battery to supply emergency power. If this was true, then worst case, only one additional channel would be affected and sufficient redundancy exists to obtain the automatic function. VCS has one battery per train which allows two channels to be lost.

A Probabilistic Risk Assessment calculation performed to evaluate the probability and consequences of this condition concluded that this event has a very low probability of occurrence. The following independent assumptions were made:

TEXT (*If more space is required, use additional copies of NRC Form 366A*) (17)

- Condition IV DBA coincident with loss of offsite power
- One channel from each of the energize to actuate functions were bypassed for ≥ 1year
- Loss of opposite train DC power prior to the automatic start of the EDG

The PSA model used at VCS takes no credit for the EFW suction swap-over, meaning that this is not a contributor to core damage from a risk significance point of view. However, having one RB Spray actuation and one RWST-Sump swap-over actuation channel in bypass for an entire year results in a Core Damage Frequency (CDF) change of 2.4 E-8 and a Large Early Release Frequency (LERF) change of 1.7 E-10.

Additionally, Plant procedures used for surveillance tests on the ESFAS require that there are no channels in bypass when the test is performed. This means that, at worst case, these channels may be placed in bypass for no longer than 91 days or the surveillance test would be impacted.

IMMEDIATE CORRECTIVE ACTIONS:

Administrative controls were put in place to immediately contact the plant Management Duty Supervisor should any of the above identified channels require placing in bypass. Additionally, an administrative control was placed on the TS to limit the time a channel could be in this condition before the plant would have to start a controlled shut-down. The maximum time any of these channels may be in this condition is 72 hours. This time limit is based on WCAP-14333-P-A, Revision 1 and the plant specific PRA analysis.

ADDITIONAL CORRECTIVE ACTIONS

A TS change request will be processed and submitted to add a time limit to the TS action statement. There is no significant impact to the specification. This change is expected to be submitted to the NRC by 12/2000. This issue is being tracked via plant condition report, CER-00-0173.

PRIOR OCCURRENCES

None