



November 15, 2000
RC-00-0355

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 2000-009-00)
TECHNICAL SPECIFICATION PROHIBITED OPERATION –
FUEL HANDLING BUILDING VENTILATION OUTSIDE
REQUIRED PRESSURE RANGE

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803.345.4622

Attached is Licensee Event Report No. 2000-009-00, for the Virgil C. Summer Nuclear Station (VCSNS). This issue is being reported per 10 CFR 50.73(a)(2)(i).

South Carolina Electric & Gas Co.
Virgil C. Summer Nuclear Station
P. O. Box 88
Jenkinsville, South Carolina
29065

Should you have any questions, please call Mr. Philip Rose at (803) 345-4052.

Very truly yours,

Stephen A. Byrne

PAR/SAB/dr
Attachment

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IED2

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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Virgil C. Summer Nuclear Station	DOCKET NUMBER (2) 05000395	PAGE (3) 1 of 4
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TITLE (4)
Technical Specification Prohibited Operation – Fuel Handling Building Ventilation Outside Required Range

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
10	16	2000	2000	009	00	11	15	2000		05000
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) 6	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
POWER LEVEL (10) 0%	20.2201(b)	20.2203(a)(2)(v)	<input checked="" type="checkbox"/>	50.73(a)(2)(i)	50.73(a)(2)(viii)					
	20.2203(a)(1)	20.2203(a)(3)(i)		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 368A					
20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vii)							

LICENSEE CONTACT FOR THIS LER (12)	
NAME M. N. Browne Manager, Nuclear Licensing & Operating Experience	TELEPHONE NUMBER (Include Area Code) (803) 345-4141

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	
X	AA	DPA	JO73	NO						

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/>	NO					

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

The V. C. Summer Nuclear Station shut down for its 12th refueling outage on October 7, 2000. Fuel transfer from the reactor building to the Spent Fuel Pool commenced on October 15th. On October 16th, a plant operator questioned the Fuel Handling Building (FHB) differential pressure (ΔP). Per plant design and TS Surveillance Requirement 4.9.11.d.3, the spent fuel pool area should be maintained at a negative pressure of greater than or equal to one eighth (1/8) inch water gauge relative to the outside atmosphere during Spent Fuel Pool Ventilation system operation. The system is required to be operable whenever irradiated fuel is being moved in the spent fuel pool and during crane operation with loads over the pool.

The building negative pressure with the existing configuration of running fans was between 0.09 and 0.10 inches water column as indicated on local instrument IPS 09688. Maintenance personnel utilizing a field standard test instrument confirmed this condition. The remote alarm per the Annunciator Response Procedure (ARP-016) should have been set to alarm at -0.185 inches with a minimum of -0.125 inches for fuel handling evolutions.

All fuel-handling activities were immediately suspended upon discovery while a more effective ventilation configuration was established and tested. The alarm was found to be out of calibration and was recalibrated prior to resumption of fuel movement. The reduced negative pressure was attributed to reduced flow at the FHB exhaust plenum due to the Auxiliary Building and FHB ventilation systems configuration and characteristics.

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V.C.Summer Nuclear Station	05000395	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 of 4
		2000	009	00	

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

PLANT IDENTIFICATION

Westinghouse - Pressurized Water Reactor

EQUIPMENT IDENTIFICATION

IPS 09688-AH

IDENTIFICATION OF EVENT

This event was identified by condition evaluation report (CER) 00-01455, written on October 16, 2000. The event reportability was determined on October 17, 2000.

EVENT DATE

October 16, 2000

REPORT DATE

November 15, 2000

CONDITIONS PRIOR TO EVENT

Mode 6 – Refueling, 0% power

DESCRIPTION OF EVENT

The V. C. Summer Nuclear Station shut down for its 12th refueling outage on October 7, 2000. Fuel transfer from the reactor building to the spent fuel pool commenced on October 15th. On October 16th, a plant operator questioned the Fuel Handling Building (FHB) differential pressure (ΔP) after looking at the local area differential pressure gauge (IPS 09688). Per plant design and Technical Specification Surveillance Requirement 4.9.11.d.3, the spent fuel pool area should be maintained at a negative pressure of greater than or equal to one eighth (1/8) inch water gauge relative to the outside atmosphere during Spent Fuel Pool Ventilation System operation. This system is required to be operable whenever irradiated fuel is being moved in the spent fuel pool and during crane operation with loads over the pool.

The building negative pressure with the ventilation configuration existing at the time was between 0.09 and 0.10 inches water column. Maintenance personnel confirmed this condition utilizing a field standard test instrument. The remote alarm, per the Annunciator Response Procedure (ARP-016), should have been received at -0.185 inches with a minimum pressure of -0.125 inches required by TS 3/4.9.11 for fuel handling evolutions. No alarm was received and there is no way to determine how many fuel assemblies were moved with the system out of specification.

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CAUSE OF EVENT

The cause of the alarm failure is unknown, however it is suspected that the alarm function setpoint drifted outside its acceptable range. IPS09688 is not a Technical Specification instrument and is classified as non-safety related. The recommended calibration frequency for this component is once per three years and was last calibrated in 1996. At that time the alarm setpoint was verified and the alarm circuitry was verified to work correctly. The investigation into the cause of the building pressure determined that the condition was the result of an abnormal configuration due to the Reactor Building personnel airlock and equipment hatch being open. The additional infiltration of air into the Auxiliary Building established a backpressure that affected the performance of the Fuel Handling Building ventilation.

This performance reduction was manifested in reduced flow out of the Fuel Handling Building exhaust, which raises the pressure in the building. Once operating at this reduced flow, a subsequent change in system resistance of minor magnitude (closing the Reactor Building hatches) will not generate additional flow. Indication of the degraded negative pressure was available at the installed differential pressure indicator (IPS09688).

ANALYSIS OF EVENT

The Fuel Handling Building is maintained at a slight negative pressure to minimize the potential for an uncontrolled release of radiation in the event of a fuel handling accident. This requirement is only necessary while moving fuel or moving a load over the top of the spent fuel pool. The ventilation system is designed to assure that the released inventory is processed through the high efficiency particulate air (HEPA) filters and charcoal adsorber bed before releasing to the atmosphere. The negative pressure assures that the released inventory does not escape from the building prior to being processed.

At the time of discovery, no heavy loads were being transported above the spent fuel pool, although spent fuel was being moved into the pool from the reactor vessel. Strict procedural compliance is in effect during fuel movement with specific direction to halt all fuel movement if anything unusual or not understood occurs.

A slight negative pressure existed in the building (~ 0.1 inch) and the spent fuel pool ventilation system which sweeps the surface of the pool towards the filter plenums was in operation. The combination of these two systems would prevent the majority of any release from escaping unmonitored and unfiltered. While the Fuel handling building is not an airtight structure, it has been demonstrated to be capable of minimizing exfiltration. An exfiltration analysis of the FHB has been performed to verify that offsite doses resulting from a fuel handling accident inside the FHB do not exceed 10 CFR 100 guidelines. This analysis assumes that there is no FHB ventilation operating at the time of the accident.

A previous evaluation associated with Non-Conformance Notice 00-0711 concluded that the FHB exhaust system would provide the necessary flow and pressures to sustain design basis requirements during a Loss of Station Power and potential maximum flow configuration. The event documented in this LER would not have negated this evaluation.

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INTERIM CORRECTIVE ACTION

Fuel movement was halted until the required negative pressure was restored. The fuel assembly being transported was stored in a safe location as soon as possible once the question of operating in a condition prohibited by Technical Specifications was raised.

The pressure switch was calibrated and tested prior to resumption of fuel movement.

The ventilation system was reconfigured into a more effective system line-up.

ADDITIONAL CORRECTIVE ACTION

Operations is adding the verification of FHB pool area differential pressure to the Technical Specification Logs which are performed every 12 hours. This requirement to record the building ΔP will be for all modes. This change to OAP 106.1 has already been completed.

The procedure that verifies the prerequisites for Spent Fuel Pool evolutions, GTP 702, Attachment IIIB, will be revised by December 15, 2000, to include verification of the Spent Fuel Pool Area differential pressure with respect to outside prior to moving fuel in the pool or moving heavy loads above the pool.

I&C is scheduling a pre-outage preventative maintenance task to verify the alarm setpoint. This repetitive task will be entered into the tracking system by December 31, 2000.

The calibration frequency of the differential pressure instrument will be addressed and corrected via our corrective action program

PREVIOUS OCCURRENCES

None