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10CFR50.73
John L. Skolds
Vice President
Nuclear Operations

MAY 17 1991

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
LER 91-002 (ONO 910022)

Attached is Licensee Event Report No. 91-002 for the Virgil C. Summer Nuclear Station. This report is submitted pursuant to the requirements of 10CFR50.73(a)(2)(1).

Should there be any questions, please call us at your convenience.

Very truly yours,

John L. Skolds

CJM:JLS:lcd
Attachment

- | | | |
|----|----------------------------------|------------------------|
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) **Virgil C. Summer Nuclear Station** DOCKET NUMBER (2) **0 5 0 0 0 3 9 5** PAGE 1 OF 0 5

TITLE (3) **Technical Specification Noncompliance for Turbine Building Sump Radiation Monitor**

EVENT DATE (4)			LER NUMBER (5)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (6)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME(S)	DOCKET NUMBER(S)	
0 4	1 3	9 1	9 1	0 0 2	0 0	0 5	1 7	9 1		0 5 0 0 0 0	
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OPERATING MODE (8) **3** THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 2. (Check one or more of the following: (1))

20 402(a)	20 406(a)	30 734(2)(iv)	33 711(a)
30 408(a)(1)(iii)	30 406(a)(ii)	30 734(2)(v)	33 711(a)
20 408(a)(1)(ii)	30 406(a)(i)	30 734(2)(vi)	OTHER (Specify in Appendix below and in Text, NRC Form 305A)
20 408(a)(1)(i)	X 30 734(2)(iii)	30 734(2)(vii)(A)	
20 408(a)(1)(iv)	30 734(2)(iv)	30 734(2)(vii)(B)	
20 408(a)(1)(v)	30 734(2)(v)	30 734(2)(viii)	

LICENSEE CONTACT FOR THIS LER (12) **W. R. Higgins, Supervisor, Regulatory Compliance** TELEPHONE NUMBER **8 0 3 3 4 5 - 4 0 4 2**

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

CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFAC TURE	REPORTABLE TO NRC
A	I	L		N					

SUPPLEMENTAL REPORT EXPECTED (14) YES (Y) / NO (N) **Y** EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR

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

Technical Specification 3.3.3.8, "Radioactive Liquid Effluent Monitoring Instrumentation," requires that effluent monitoring instrumentation shall be operable with established setpoints that ensure compliance with the limits of Specification 3.11.1.1, "Liquid Effluents." The Specification further requires that the alarm/trip setpoints for the channels be determined in accordance with the Offsite Dose Calculation Manual (ODCM) for the Virgil C. Summer Nuclear Station (VCSNS).

On April 17, 1991, South Carolina Electric & Gas Company (SCE&G) identified a noncompliance with the portion of this Limiting Condition for Operation which requires that the setpoints for the Turbine Building Sump (TBS) Radiation Monitor (RM-L8) be established in accordance with the ODCM. A default condition in the computer software utilized to calculate setpoints along with inadequate procedural guidance resulted in higher setpoints than allowed by the ODCM for releases which occurred on April 13 and 16, 1991.

SCE&G has determined that the instantaneous release limits specified in Technical Specification 3.11.1.1 were not exceeded during the event due to the dilution from other wastewater discharge flows and the circulating water discharge of the facility. Further review of the setpoint guidance has also concluded that the ODCM contains undue conservatism and is therefore overly restrictive with regard to releases from the TBS.

To insure compliance with Technical Specification 3.3.3.8 and its intent to prevent releases from VCSNS in excess of the limits addressed in Technical Specification 3.11.1.1, SCE&G is revising station procedures, providing additional training for personnel, and clarifying the ODCM guidance. These actions will be complete by September, 1991.

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TEXT (if more space is required, use additional NRC Form 306A 2/177)

PLANT IDENTIFICATION:

Westinghouse - Pressurized Water Reactor

EQUIPMENT IDENTIFICATION:

Radiation Monitoring System - E11S-1L

IDENTIFICATION OF EVENT:

Technical Specification 3.3.3.8, "Radioactive Liquid Effluent Monitoring Instrumentation," requires that effluent monitoring instrumentation shall be operable with established setpoints that ensure compliance with the limits (10 CFR Part 20, Appendix B, Table 11, Column 2) of Specification 3.11.1.1, "Liquid Effluents." The Specification further requires that the alarm/trip setpoints for the channels be determined in accordance with the Offsite Dose Calculation Manual (ODCM) for the Virgil C. Summer Nuclear Station (VCSNS).

On April 17, 1991, South Carolina Electric & Gas Company (SCE&G) identified a noncompliance with the portion of this Limiting Condition for Operation (LCO) which requires that the setpoints for the Turbine Building Sump (TBS) Radiation Monitor (RM-LB) be established in accordance with the ODCM. A default condition in the computer software utilized to calculate setpoints along with inadequate procedural guidance resulted in higher setpoints than allowed by the ODCM for releases which occurred on April 13 and 16, 1991.

EVENT DATE AND TIME:

April 13, 1991 at 0455 and 1530 hours; April 16, 1991 at 0805 hours

REPORT DATE:

May 17, 1991

This report was initiated by Off-Normal Occurrence Report 91-022.

CONDITIONS PRIOR TO EVENT:

Mode 3, 0% power

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT IF more space is required, use additional NRC Form 365A 2/ (17)

DESCRIPTION OF EVENT:

On April 17, 1991, SCE&G determined that on April 13, 1991, and again on April 16, 1991, liquid effluent from the TBS was released to the Plant Waste Surge Basin (PWSB) with radioactive waste concentrations which exceeded 0.5 Maximum Permissible Concentration (MPC). The ODCM requires the setpoint of this monitor to be established as close to background as possible without frequent spurious alarms when no activity is present in the effluent or a release is not in progress. However, with releases containing gamma emitting activity, a setpoint equivalent to 0.5 MPC or less is required.

A detailed description of each of the releases which were in non-compliance with the criteria of the ODCM follows:

Release Permit TB 91-19 - This release was authorized on April 13 at 0455 hours with RM-L3 background of 450 cpm and a setpoint of 450 cpm above background (900 cpm). The release was terminated at 0810 hours when the monitor tripped at 900 cpm. Grab sample results of the sump indicated presence of 1.87 MPC.

Using the ODCM methodology with the isotopic mix present in the initial grab sample (which included I-131) the setpoint should have been 116 cpm above background. The error was due to a computer software default which establishes setpoints at twice background when the calculated setpoint is less than background. The software default prevents spurious alarms at low background levels.

Release Permit TB 91-20 - This release was authorized on April 13 at 1530 hours with a background of 1500 cpm and a setpoint of 1500 cpm above background (3000 cpm). The release terminated at 2015 hours when the RM-L3 setpoint was reached. The effluent in the sump was diluted, and authorization to continue the release was given at 2345 hours after a comparison between grab samples (prerelease and post termination) indicated that there was less than a 20 percent variance between gross activities. Although the isotopic mixture had changed significantly since the sample obtained for the 1530 release (I-131 was at a concentration of 1.68 MPC), a lack of procedural guidance on terminated releases allowed the continuance of the release.

Release Permit TB 91-23 - This release was authorized on April 16 at 0805 hours with a background of 300 cpm and a setpoint of 200 cpm above background (500 cpm). The presence of I-131 (.24 MPC) in the sample should have resulted in a setpoint of 47 cpm above background to ensure compliance with the ODCM; however, the default designed into the computer software again established a setpoint for the monitor at twice background.

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TEXT (if more space is required, use additional NRC Form 3664's) (17)

CAUSE OF EVENT:

There were two (2) causes of the Technical Specification noncompliance:

1. Inadequate computer software - The computer software "LWRAP" establishes a setpoint for RM-L8 at twice background if the calculated setpoint is less than the background level currently being seen by the monitor. Even though this default condition is standard practice to prevent spurious alarms it is currently not allowed by Health Physics Procedure (HPP) 710, "Release of Radioactive Liquid Effluents," or the ODCM.
2. Inadequate procedural guidance - Procedure HPP-710 does not provide guidance regarding setpoint determination when the calculated setpoint is less than background or when releases are terminated by high alarms on RM-L8.

ANALYSIS OF EVENT:

Investigating personnel have determined that the instantaneous release limits specified in Technical Specification 3.11.1.1 were not exceeded during these events or during any previous releases from the TBS. The release path for effluent from the TBS is through the PWSB where it is combined with other wastewater discharge flows from the Industrial and Sanitary Waste System prior to being mixed with the circulating water discharge of the facility. For the events detailed in this report, the maximum concentration at the plant boundary resulting from discharge of the TBS with the circulating water dilution allowed by Technical Specification 3.11.1.1 was conservatively estimated to be .01 MPC.

The ODCM, as presently written, contains undue conservatism and is therefore overly restrictive with regard to releases from the TBS. The ODCM currently allows the setpoint of this monitor to be established as close to background as possible without frequent spurious alarms when no activity is present in the effluent or a release is not in progress. However, a setpoint equivalent to 0.5 MPC is required whenever gamma emitting activity is detected. When I-131 is the predominant isotope, an RM-L8 setpoint of 0.5 MPC is impractical since the resulting count rate (0.5 MPC of I-131 = 47 cpm) is so low that it cannot be utilized without frequent spurious alarms even with low background rates of 200 to 300 cpm.

Limiting instantaneous release rates from the TBS to <0.5 MPC is also considered to be overly conservative since no credit is taken for dilution in the Industrial and Sanitary Waste System or the Circulating Water Discharge Canal. A concentration of <0.5 MPC should be an operational objective to ensure compliance with Technical Specification 3.11.1.1 in the event dilution is lost. Temporary excursions above 0.5 MPC should be acceptable provided compliance with Technical Specification 3.11.1.1 can be demonstrated.

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TEXT IF more space is required, use additional NRC Form 306A's (17)

IMMEDIATE CORRECTIVE ACTIONS:

The Health Physics Count Room personnel have been directed to administratively override the twice background default value for setpoints generated by LWRAP for TBS releases. On recognition of conditions which could result in exceeding the 0.5 MPC ODCM limitations, the sump will be diluted to an acceptable concentration or diverted to the excess liquid waste system for additional processing.

ADDITIONAL CORRECTIVE ACTIONS:

1. HPP-710 will be revised by May 24, 1991, to ensure the setpoint calculation guidelines in the ODCM are accurately reflected. This procedure will also be expanded to provide guidance for response to either high alarms and/or release terminations of RM-LB.
2. HPP-904, "Use of the Radiation Monitoring System," will be revised by May 24, 1991, to include a reference to the ODCM. Additionally, the revision will provide guidelines for the maximum allowable background count rates for RM-LB.
3. A specialized training module will be developed and implemented by June 1, 1991, for the Count Room personnel on liquid effluent release limits, calculation of projected dose, and monitor setpoint.
4. Clarification will be added to the ODCM by September 1991, to state that limiting settling pond liquid concentrations to <0.5 MPC is an operational objective that ensures compliance with Technical Specification 3.11.1.1 in the event dilution is lost. Pond liquid concentrations in excess of 0.5 MPC will not be considered in excess of Technical Specification limits, provided adequate dilution is available. Criteria for releases from the Turbine Building sump will be established consistent with this objective. The ODCM will recognize that RM-LB setpoints are in compliance with Technical Specification 3.3.3.8, provided the setpoints are adequate to prevent releases in excess of Technical Specification 3.11.1.1.

PRIOR OCCURRENCES:

LER 90-003 dated May 7, 1990.