VERMONT YANKEE
NUCLEAR POWER CORPORATION

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May 21, 1997
BVY 97-65

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Reference: (a) License No. DPR-28 (Docket No. 50-271)

Subject: Reportable Occurrence No. LER 97-009, Rev. 0

As defined by 10CFR50.73, we are reporting the attached Reportable Occurrence as LER 97-009, Rev. 0.

Sincerely,

Vermont Yankee Nuclear Power Corporation

Gregory A. Maret
Plant Manager

cc: USNRC Region I Administrator
USNRC Resident Inspector - VYNPS
USNRC Project Manager - VYNPS

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NRC Form 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION LICENSEE EVENT REPORT (LER)	APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98 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 INFORMATION AND 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.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
VERMONT YANKEE NUCLEAR POWER STATION	05000271	01 OF 04

TITLE (4) Lack of Specificity In Plant Technical Specifications results in operation of Plant Service Water Systems which was inconsistent with Prescribed Limiting Conditions for Operation and Testing Requirements.

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 NO.(S) 05000
04	23	97	97	-- 009 --	00	05	21	97	N/A	

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: CHECK ONE OR MORE (11)							
			20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)
POWER LEVEL (10)	100		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 366A)
			20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NO. (Include Area Code)
GREGORY A. MARET, PLANT MANAGER	802-257-7711

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
NA					NA				
NA					NA				

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MO	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 04/23/97, during preparations for an upcoming engineering inspection, VY determined that past practices for declaring Station Service Water (SSW) subsystems inoperable were inadequate. It was determined that the SSW System is single failure vulnerable whenever a single SSW pump becomes inoperable. Historically VY had considered both subsystems operable unless two SSW pumps were inoperable. VY recently recognized that the loss of any single pump made the SSW system vulnerable to a single failure (loss or failure of an Emergency Diesel Generator) preventing the successful performance of the SSW system safety function. The apparent cause of this event is inadequate detail in the SSW Technical Specifications (TS's), in that neither the LCO, the TS surveillance requirements, nor the TS bases clearly described the specific operability requirements for system pumps. The SSW TS level of detail and specificity is not consistent with that of other similar VY safety systems. The proper interpretation of SSW system TS's has been communicated to the operating staff, and operating procedures have been corrected. An historical review of SSW material records (1990 to present) was performed, which determined that the system had only been operated on 2 occasions where the TS LCO limit of 15 days was exceeded. Material histories prior to 1990 lack sufficient detail for such as assessment. In each case a single pump was inoperable for approximately 18 days. In no case were two pumps inoperable simultaneously. Because the time frames for inoperable subsystems were very near the LCO limit, there was no indication of redundant component/subsystem unavailability, and there were procedures in place prescribing appropriate actions for the postulated event. This event is not considered to have presented an increased threat to public health or safety.

DESCRIPTION OF EVENT

On 04/23/97, while operating at 100% power, during preparation for a pending engineering inspection, VY determined that past practice for controlling Station Service Water (SSW) subsystem (EIIS=BI) operability was inadequate. It was determined that the SSW System is single failure vulnerable whenever a single SSW pump (EIIS=BI,P) becomes inoperable. VY's operating procedure for the Service Water System had allowed a single SSW pump to be removed from service without declaring the affected subsystem inoperable. Historically VY had considered both subsystems operable unless two SSW pumps were inoperable.

The difficulty in determining the true licensing basis for the VY's SSW system had been previously recognized. In 1993 the NRC Staff identified the ambiguity of the licensing bases for VY SSW system operability requirements. Follow-up evaluations recognized that the current VY Improved Technical Specification (TS) implementation project was expected to resolve the issue.

VY recently concluded that the loss of any single pump made the SSW system vulnerable to a single failure (loss or failure of an Emergency Diesel Generator (EIIS=EK)), precluding the system's ability to provide adequate cooling water following a design basis LOCA. VY systems' automatic response to the LOCA condition would have met VY's "Safety Design Limits for Accidents" per the Final Safety Analysis Report (FSAR). The FSAR requires that "Proper initial response to accidents shall be automatic and require no decision or manipulation of controls by station personnel." While this requirement was met, the concern remained that post LOCA primary containment control requires SSW capacity beyond the initial accident heat loads. Considering the postulated single failure, conditions could have been created where a safety class power supply for SSW operation could not be assured.

During the root cause investigation for this event it was identified that the TS for SSW, does not clearly describe the specific operability requirements for system pumps. That is, there is no action prescribed for the loss of a single pump. Failure to clearly define the operable configuration resulted in the misconception that three out of four service pumps were adequate for unlimited operation. The SSW TS level of detail and specificity is not consistent with those of similar VY safety systems which state clearly the actions to be taken upon the loss of single pump and additional actions needed for further degradation. Because VY failed to identify that a SSW subsystem was inoperable whenever a single SSW pump was out of service, the associated TS surveillance requirements were not met.

Upon identifying this weakness VY communicated to all Operation's crew members that the affected SSW subsystem is to be declared inoperable when any single SSW pump is inoperable. This action was performed via Night Orders which are reviewed on every shift by all crew members prior to shift turn-over.

CAUSES OF EVENT

The apparent cause of this event is inadequate detail and specificity in the SSW TS, in that neither the LCO, the TS surveillance requirements, nor the TS bases clearly described the specific operability requirements for system pumps. This is inconsistent with the level of detail of TS's controlling similar VY safety systems.

Due to the age of this issue the root cause for the lack of detail and specificity cannot be determined.

ANALYSIS OF EVENT

Per the FSAR the safety objective of the Service Water System is to provide cooling water to systems and equipment required to operate under accident conditions. While the conditions presented by the Design Basis LOCA are adequately supported by a single SSW pump, post-LOCA operations require a second SSW pump be available within approximately 10 minutes. The four SSW pumps are powered from the two vital 4160 Volt buses, therefore one pump out for maintenance with a subsequent loss

of a single vital bus could result in only a single pump available to provide cooling to vital heat loads. A review of VY calculations revealed that relevant calculations credit two SSW pumps for post-Design Bases Accident conditions.

Interviews with Operations Department personnel, licensed in 1970's, were conducted as part of the root cause analysis to determine the standard interpretation of the SSW TS at that time. All of the individuals interviewed reported having interpreted an inoperable subsystem to mean dual pump unavailability. A review of the earliest written, and all subsequent procedures for the SSW reflected that same interpretation.

A review of Plant Operating Procedures for required actions in the event of a loss of normal power verifies that the operating crew would have preformed a rapid verification and restoration (if necessary) of vital bus power and SSW flow in the event of the postulated scenario.

SAFETY SIGNIFICANCE

An historical review of SSW material records (1990 to present) was performed, which determined that the system had only been operated on 2 occasions where the TS LCO limit of 15 days was exceeded. Material histories prior to 1990 lack sufficient detail for such as assessment. In one case a single pump was inoperable for 18 days, in another a single pump was inoperable for 18.25 days. In no case were two pumps inoperable simultaneously.

The issue of concern is the potential for inadequate SSW capacity following a Design Basis LOCA. While the proper initial response of VY systems design must be automatic, VY analysis does credit operator actions after 10 minutes.

During the failure postulated for this event, the following sequence of events would have been expected. During the Emergency Diesel Generator automatic start sequence an operator would verify proper startup of the unit. Upon failure of the automatic start, the operator would have attempted to manually start the Emergency Diesel Generator. Should we assume that the manual start attempt failed, the operator would then have connected the deenergized bus to an emergency backup tie-line powered from an adjacent hydroelectric station and/or an off site distribution system. This distribution system is physically separate from the normal source of VY's off site power. While this non-safety class power source is not formally creditable in VY's accident analysis, the tie line has been shown to have an availability in excess of 99 percent.

The cooling water load which demands that a second SSW pump be available is initiated by a manual action (the initiation of suppression pool cooling). The in-place operating procedure for the initiation of suppression pool cooling required that the operator verify adequate SSW supply. The expected operator response would be to establish adequate SSW flow as required.

Because the time frames for inoperable subsystems were very close to the TS LCO time limit, there was no indication of redundant component/subsystem unavailability, and there were reasonable, proceduralized actions available to the operating staff for coping with the postulated sequence of events post-LOCA. Therefore, this event is not considered to have presented an increased threat to public health or safety.

CORRECTIVE ACTIONS

Immediate Actions:

1. VY has communicated via night orders that a SSW subsystem is to be declared inoperable with a single pump out of service. This action is complete.

2. An event report was initiated to document this event and initiate a root cause analysis to determine the root cause and appropriate corrective action(s).

Long Term:

1. Operations Department has revised the procedure for Service Water/Alternate Cooling to enter an LCO when one service water pump is removed from service. This action is complete.

2. Vermont Yankee is currently implementing Improved Technical Specifications (ITS). This process systematically evaluates all sections of the Technical Specifications. It is expected that similar events/conditions will be adequately addressed as part of this process. (expected submittal date: per docketed correspondence)

ADDITIONAL INFORMATION:

Three similar events, relating to the interpretation of Technical Specifications was reported to the NRC as LER's 93-05, 94-06, and 95-05.

93-05 Control Rod Drive scram times greater than that required by Technical Specifications due to scram solenoid pilot valve components.

94-06 Missed reactor coolant conductivity samples due to a misinterpretation of the test method used to meet Technical Specifications.

95-05 Shutdown margin test not completed prior to conducting control rod drive maintenance due to a misinterpretation of Technical Specifications.