

NRC Form 308
19-83

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO 3150-0104
EXPIRES 8/31/86

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) VERMONT YANKEE NUCLEAR POWER STATION	DOCKET NUMBER (2) 0 5 0 0 0 2 7 1 1	PAGE 18 1 OF 0 3
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TITLE (4)
MAIN STEAM RELIEF VALVE ABOVE SETPOINT AND SAFETY VALVE BINDS DUE TO MISALIGNMENT

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 NAMES		DOCKET NUMBER (8)																																													
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="2">OPERATING MODE (9)</td> <td colspan="10">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)</td> </tr> <tr> <td colspan="2">N</td> <td>30.402(b)</td> <td>30.405(a)</td> <td>30.73a(2)(iv)</td> <td>73.71(b)</td> </tr> <tr> <td colspan="2">POWER LEVEL (10) 1 0 0</td> <td>30.405(a)(1)(ii)</td> <td>30.39(a)(1)</td> <td>30.73a(2)(v)</td> <td>73.71(a)</td> </tr> <tr> <td colspan="2"></td> <td>30.405(a)(1)(iii)</td> <td>30.39(a)(2)</td> <td>30.73a(2)(vi)</td> <td rowspan="4">OTHER (Specify in Abstract below and in Text, NRC Form 306A)</td> </tr> <tr> <td colspan="2"></td> <td>30.405(a)(1)(iv)</td> <td>X 30.73a(2)(i)</td> <td>30.73a(2)(vii)(A)</td> </tr> <tr> <td colspan="2"></td> <td>30.405(a)(1)(v)</td> <td>30.73a(2)(ii)</td> <td>30.73a(2)(vii)(B)</td> </tr> <tr> <td colspan="2"></td> <td>30.405(a)(1)(vi)</td> <td>30.73a(2)(iii)</td> <td>30.73a(2)(viii)</td> </tr> </table>												OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)										N		30.402(b)	30.405(a)	30.73a(2)(iv)	73.71(b)	POWER LEVEL (10) 1 0 0		30.405(a)(1)(ii)	30.39(a)(1)	30.73a(2)(v)	73.71(a)			30.405(a)(1)(iii)	30.39(a)(2)	30.73a(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 306A)			30.405(a)(1)(iv)	X 30.73a(2)(i)	30.73a(2)(vii)(A)			30.405(a)(1)(v)	30.73a(2)(ii)	30.73a(2)(vii)(B)			30.405(a)(1)(vi)	30.73a(2)(iii)	30.73a(2)(viii)
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LICENSEE CONTACT FOR THIS LER (12)

NAME JAMES P. PELLETIER, PLANT MANAGER	TELEPHONE NUMBER AREA CODE 8 0 2 2 5 7 7 7 1 1
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
X	SB	RV	T 0 2 0	Y					
X	SB	FV	D 2 4 3	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

Y/N (If yes, complete EXPECTED SUBMISSION DATE)	X NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e. approximately 17000 single-space typewritten lines) (16)

ABSTRACT

During 100% power operation, on 02-25-88 and 02-26-88, two Main Steam (EIIS=SB) relief valves, removed during the 1987 outage and two Main Steam safety valves, one removed during the 1985/86 outage and one removed during the 1987 outage, were tested as required by Technical Specification Section 4.6.D.2.

One of the relief valves, serial number 11, activated above the setpoint pressure specified in Technical specification Section 2.2.b. The other relief valve, Serial Number 13, satisfied all of the testing requirements. After evaluation, this event was determined reportable by the Shift Supervisor on 03-01-88.

Initially, the root cause of the relief valve failure was thought to be leakage that resulted in steam cuts on the pilot disc and pilot seat. Further evaluation of the pretest leakage and post test internal inspection results revealed no significant seat damage. The valve was reassembled and on 03-03-88 was successfully retested. Based on this, the root cause is not yet known. Vermont Yankee will continue to monitor the performance of the relief valves based on past performance.

During the tests of the Main Steam (EIIS=SB) safety valves, one of the valves, Serial Number B11137, failed to obtain full test lift. The valve apparently bound. Upon disassembly and inspection no evidence of the cause of the binding was discovered. After evaluation, this event was determined reportable by the Shift Supervisor on 03-15-88.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

PLANT NAME (1) Vermont Yankee Nuclear Power Station	DOCKET NUMBER (2) 0 5 0 0 0 2 7 1	LER NUMBER (3)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 8	- 0 0 2	- 0 2	0 2	OF 0 3

TEXT IF MORE SPACE IS REQUIRED, USE ADDITIONAL NRC Form 2054 (1/77)

DESCRIPTION OF EVENTS

During 100% power operation, on 02-25-88 and 02-26-88, two Main Steam (EIIS=SB) relief valves, removed during the 1987 outage and two Main Steam safety valves, one removed during the 1985/86 outage and one removed during the 1987 outage, were tested as required by Technical Specification Section 4.6.D.2.

Technical Specifications require that at least half of all relief valves and safety valves be tested (or replaced with a tested valve) every refueling outage and that all relief valves and safety valves be tested (or replaced) every two refueling outages. Vermont Yankee has four, three stage, Target Rock relief valves and two Dresser, Model Number 3707R, safety valves.

One of the two relief valves tested, S/N (Serial Number) 11, actuated above the setpoint pressure specified in Technical Specification Section 2.2.8 and the 1% variation allowed by the Tech. Spec. bases and ASME Section III, Division 1, Subsection NB7524.3. Valve S/N 11 had a setpoint of 1080 PSIG and actuated at 1133 PSIG (a 4.9% deviation). The other relief valve tested, S/N 13, satisfied all of the testing requirements. This event was determined reportable by the Shift Supervisor on 03-01-88.

During the tests of the Main Steam (EIIS=SB) safety valves, on 02-25-88, one of the valves, S/N BL1137, failed to obtain full test lift. The valve apparently bound at 0.003 inches (normal test rig. requires a full 0.100 inches of lift). This event was determined reportable by the Shift Supervisor on 03-15-88.

CAUSE OF EVENT

Initially, the root cause of the relief valve failure was thought to be leakage that resulted in steam cuts on the pilot disc and pilot seat. Further evaluation of the pretest leakage and post test inspection results revealed no significant seat damage that could have caused the setpoint drift. Based on this, the root cause is not yet known.

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The cause of the safety valve failure is a misalignment of the valves internals. The root cause of the misalignment is not known. When the safety valve was disassembled and inspected no indication of the cause of the binding was found.

ANALYSIS OF EVENT

Technical Specifications requires Vermont Yankee to have four relief valves: one to relieve at ≤ 1080 PSIG, two to relieve at ≤ 1090 , and one to relieve at ≤ 1100 PSIG. In addition, Vermont Yankee is required to have two safety valves that actuate at ≤ 1240 PSIG and a reactor high pressure scram set at 1055 PSIG.

The relief valves are part of the Automatic Depressurization System (ADS) (EIIS=JE) which is an emergency system capable of relieving pressure in the reactor vessel so that Low Pressure Core Cooling Systems (EIIS=BM,BO) can initiate. Each relief valve is sized for 33 1/3% capacity. Based on this only three valves are necessary to perform the ADS function.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

PLANT NAME (1) Vermont Yankee Nuclear Power Station	DOCKET NUMBER (2) 0500027188	LER NUMBER (3)			PAGE (3) 03 OF 03
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		88	002	0	

TEXT IF MORE SPACE IS REQUIRED, USE ADDITIONAL FORMS (NRC Form 288A) (17)

ANALYSIS OF EVENTS (Cont.)

For this event, with the exception of one relief valve being out of tolerance high for pressure actuation only, all other functions (including manual actuation and actuation on ADS signal) were available.

The safety valves work in conjunction with the relief valves to ensure that, during an MSIV closure transient with no MSIV position scram, the reactor vessel does not exceed the Technical Specification safety limit of 1335 psig.

For this event, reactor overpressurization protection was provided in that;

1. Per the VY FSAR, during this transient, approximately 3.6×10^6 pounds per hour is released through the relief valves and safety valves. Considering the capacities of the valves, this can be accomplished with 4 relief valves and one safety valve. The effect of the one relief valve that actuated high is negligible given the rate of pressure increase during the transient.
2. The setting of the Reactor High Pressure Scram is 1055 psig. This is below the Relief Valve and Safety Valve setpoints and prevents power operation above 1055 psig. In addition to preventing power operation above 1055 psig, the pressure scram backs up the APRM Neutron Flux Scram for steam line isolation type transients.
3. The Main Steam Line Isolation Valves include a 10% valve closure position scram which limits pressure transients.

CORRECTIVE ACTIONS

No immediate operator actions were necessary as a result of these events. Relief valve S/N 11 and safety BL1137 were successfully retested.

A Nuclear Plant Reliability Data System (NPRDS) inquiry revealed that similar events have occurred at other nuclear plants with the three stage Target Rock relief valves. No similar events were identified for the Dresser 3707R series safety valve failure.

Two events have been submitted to the commission, on the relief valves, in the last five years, as LER 86-03 and LER 83-31. For both these events the root cause of the setpoint drift was determined to be due to steam cuts on the pilot disc and pilot seat. Vermont Yankee will continue to track/evaluate the performance of the relief valves based on the NPRDS findings and past history. Also, Vermont Yankee will review the adequacy of the setpoint tolerances specified in the Technical Specifications.

No similar events have been reported to the commission on the safety valves in the last five years.

Rev.
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VERMONT YANKEE NUCLEAR POWER CORPORATION

P. O. BOX 157
GOVERNOR HUNT ROAD
VERNON, VERMONT 05354

July 25, 1988
VYV 88-160

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

REFERENCE: Operating License DPR-28
Docket No. 50-271
Reportable Occurrence No. LER 88-02, Supplement 2

Dear Sirs:

As defined by 10CFR50.73, we are reporting the attached Reportable Occurrence as LER 88-02, Supplement 2.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

for *R. J. Wanczyk*
James P. Pelletier
Plant Manager

cc: Regional Administrator
USNRC Office of Inspection and Enforcement
Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406

LER 88-02
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