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NRC FORM 366A U.S. NUCLEAR REGULATORY COMMISSION APPROVED DMB ND. 3150-0104 EXPIRES 4/30/97 ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORCA. TION COLLECTION REQUEST SOD HRS. FORWARD COMMENTS REGARDING BUNDEN ESTIMATE TO THE RECORDS AND REFORTS MANAGLAENT SRANCH F630 U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON DC 20565. AND YO THE PARENWORK REDUCTION PROJECT (3156-0104). OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON DC 20503. LICENSEE EVENT REPORT (LER) **TEXT CONTINUATION** FACILITY NAME (1) DOCKET NUMBER 121 PAGE (3) NUMBER NUMBER YEAR 0 5 0 0 4 4 0 9 1 - 0 0 2 - 0 0 0 2 OF 0 3 Perry Nuclear Power Plant, Unit 1 TEXT IN many space is required, use sold

On January 1, 1991, at 2050, an inadvertent Turbine Stop Valve closure signal resulted in a full scram signal being generated. At the time of this event the plant was in Operational Condition 2 with all of the control rods inserted. The Reactor Pressure Vessel [RPV] was at atmospheric pressure with the reactor water temperature at 170 degrees Fahrenheit.

On January 1, 1991, Surveillance Instructions (SVI-N31-T1151) "Main Turbine Valve Exercise Test" and (SVI-C71-T0046) "Turbine Stop Valve Closure and Control Valve Fast Closure Channel Functional for 1C71-NO06A, B, C, D, E, F, G, H and 1C71-NO05A, B, C, D" were being performed concurrently. These SVIs demonstrate operability of Turbine Overspeed Protection and Reactor Scram functions, respectively. The test set-up portion of SVI-C71-T0046 had been completed by Instrument and Control (I&C) technicians and they were waiting for the SVI-N31-T1151 prerequisites to be completed prior to continuing. At this time, to satisfy the prerequisites of SVI-N31-T1151 and the test set-up section of SVI-C71-T0046, the turbine [TRB] was reset with the SPEED SET at 100 RPM, and the Turbine Stop Valves (TSV) [SHV] and Combined Intercept Valves (CIV) [PCV] open. 1&C technicians had simulated turbine power of greater than 40 percent and steam pressure of 125 psig. The Unit Supervisor was attempting to establish another prerequisite step requiring the Turbine Control Valves (TCV) [PCV] to be greater than fifteen percent open. SVI-N31-T1151 did not detail how to open the TCVs if they did not meet the greater than 15 percent open criteria. Therefore the Unit Supervisor attempted to open the TCV using the PRESSURE SETPOINT and LOAD SET buttons. At 2055, while increasing the Turbine LOAD SET, a TSV closure occurred and the SPEED SET/RPM indicating light changed from 100 RPM to CLOSE VALVES. It was later confirmed that the valves did not close as a result of a turbine trip signal. When the TSV position traveled below 95 percent open, the Reactor Protection System (RPS) Turbine Stop Valve Closure Scram signal initiated a full scram. The operators utilized the appropriate plant procedures to place the Mode switch in shutdown and to verify that all control rods had been inserted. The main turbine then tripped on a high Reactor Water Level (level eight) signal, as the Supervising Operator was about to perform a manual turbine trip. The scram signal was reset at 2105, and a walkdown of the TSV and associated piping was initiated, along with troubleshooting activities. At 2354 the NRC was notified via the Emergency Notification System. The surveillances were successfully performed independently of each other; SVI-N31-T1151 on January 1, 1991 at 1071 and SVI-C71-T0046 on January 4, at 1523. All Technical Specification requirements for system operability were satisfied.

Investigation of this event resulted in an indeterminate root cause. A possible electrical malfunction within the General Electric Mark II Electro-Hydraulic Control (EHC) system was investigated. Extensive troubleshooting of the speed control logic and a subsequent successful rerun of SVI-N31-T1151 revealed no abnormalities in the control logic. The troubleshooting activities, which included checking every input into the CLOSE VALVE circuitry, found no problems with any of the relays' response or timing. The problem could not be repeated during the attempts to recreate the event. Also no anomalous behavior of the EHC

LICENSEE EVENT REPOR TEXT CONTINUATION	PPROVED OME NO. 3150-0104 EXPIRES: 4/30/92 ESTIMATED BUF.DEN PER REI FONSE TO COMPLY WTH THIS INFORMATION COLLECTION FEQUEST SOD HRS. FORWARD COMMENTS REGARDING BURD IN ESTIMATE TO THE RECORDS AND REFORTS MANAGEMENT BRANCH (F-530), U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON DC 20605, AND TO THE PARERWORK REDUCT ON PFOLECT (3150-0164), OFFICE OF MANAGEMENT AND R ¹ -JGET WASHINGTON, DC 20603.							
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TTY Nuclear Power Plant Unit 1	0 15 10 10 10 14 14 10							
More species in required, use sections WHC Form 3054 2017 turbine control circuits ware obt turbine valve testing had been so SPEED SET at 100 RPM and every we power. Additionally, both surveillances	served during the su uccessfully performe eek during the previ	bsequent plant startup. The d the previous week with the ous operating cycle at rated						
considering both plant condition Scnsidered to be inadequate in t how to adjust the control valve however, the operator's chosen m There was no interaction between closure.	s and operator actio hat specific directi position to establis withod would not have the surveillances t	ns taken. SVI-N31-T1151 was ons were not provided as to h prerequisite conditions; initiated the RPS actuation. hat would have caused the TSV						
Control room and I&C personnel w through the exact actions perfor the individuals could distinctly or inadvertently touched, this a scram to occur. The CLOSE VALVE proximity to the LOAD SET button observed to be lit following the control circuit was involved due actuation.	ere interviewed and med prior to the scr remember the CLOSE action would have cau S control button is a. Furthermore, the scram, indicating t to either a malfunc	an attempt was made to walk am signal. Although none of VALVES button being depressed used the TSV to close and a located in reasonably close CLOSE VALVES light was that this part of the EHC ation or inadvertent						
The turbine overspeed protection speed control valves ensure the which could generate potentially safety related components, equip Closure the Reactor Protection S anticipation of the pressure, ne result from closure of the stop valve closure from full open, the adequate thermal margins are man function is automatically bypass equivalent to thermal power less event the RPS system reacted to above the bypass setpoint by in control system and the RPS syste successfully performed independen 1991 and SVI-C71-T0046 on Januar control rods were inserted, so the scram signal. Therefore the previous events found no simila	A system [JJ] instruc- turbine is protected of damaging missiles we oment or structures. System automatically eutron flux, and heat valves. With a trip he resultant increase intained during the of sed below the turbing s than 40 percent of the closure of the ' itiating a scram sig em performed as designed ently of each other, ry 4. At the time of there was no control is event is not safe r ones.	mentation and the turbine I from excessive overspeed, which could impact and damage Upon a Turbine Stop Valve initiates a reactor scram in t flux increases that would p setting of 5 percent of e in heat flux is such that worst case transient. This e first stage pressure value rated thermal power. In this TSV with a simulated power nal. Both the turbine speed gned. The surveillances were SVI=N31=T1151 on January 1, f this event, all of the rod movement in response to ty significant. A review of						
To prevent recurrence, SVI-N31- how to adjust the control valve conditions. Additionally, this regualification training.	Tl151 will be revise position to establi event will be discu	d to provide direction as to sh the prerequisite ssed during licensed operator						

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Energy Industry Identification System Codes are identified in the text as [XX].

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