NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1): Perry Nuclear Power Plant, Unit 1

DOCKET NUMBER (2): 0 5 0 0 0 4 4 0

PAGE (3): 1 OF 0 3

TITLE (4): RPS Bus de-energization and shutdown cooling isolation due to personnel error during surveillance testing.

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(S)
0 9	0 7	9 0	9 0	0 2 3	0 0	1 0	0 8	9 0		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): 3

POWER LEVEL (10): 0 1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

	20.402(b)		20.405(c)	X	50.73(a)(2)(iv)
	20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)
	20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)
	20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)
	20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)
	20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)

	73.71(b)
	73.71(c)
	OTHER (Specify in Abstract below and in Text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME: Henry L. negrat, Compliance Engineer, Extension 6855

TELEPHONE NUMBER — AREA CODE: 2 1 1 6 2 5 9 - 3 7 3 7

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	

SUPPLEMENTAL REPORT EXPECTED (14)

		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On September 7, 1990 at 2017 while performing a surveillance test, an operator inadvertently deenergized the Reactor Protection System (RPS) distribution bus A, resulting in Nuclear Steam Supply Shutoff System Balance of Plant Residual Heat Removal A Shutdown Cooling and Reactor Water Cleanup isolations. The operators responded in accordance with plant procedures to restore these systems.

The causes of this events were personnel errors, inattention to detail and failure to follow procedure. The operator and Instrument and Control (I&C) technician performing a Surveillance Instruction (SVI) failed to identify the correct Electrical Protection Assembly (EPA) which was being tested. Additionally the operator did not recognize a problem when the circuit breaker he was to "reset and then close" was already in the closed position. A plant administrative procedure directs the performer to notify supervision for further instruction if an instruction cannot be performed as written. Supervision was not notified, and when testing proceeded the incorrect EPA was tripped and the RPS Bus was inadvertently deenergized.

In order to prevent recurrence, the operator and I&C technician have been involved in the investigation of this event and have been made aware of the ramifications of inattention to detail when performing a SVI. To increase the awareness of personnel working on this equipment, new equipment labels have been made and the SVI involved will be revised to include a descriptive title of the equipment. Additionally, this event will be discussed during Operator and I&C technician continuing training programs.

On September 7, 1990 at 2017 an operator inadvertently deenergized the Reactor Protection System (RPS) [JC] distribution bus A, resulting in Nuclear Steam Supply Shutoff System (NSSSS) [JM] Balance of Plant (BOP) isolation, along with Residual Heat Removal A (RHR) [BC] shutdown cooling and Reactor Water Cleanup (RWCU) [CE] isolations. At the time of the event, the plant was in Operational Condition 3 (Hot Shutdown) with reactor coolant temperature approximately 237 degrees and Reactor Pressure Vessel [RPV] pressure at 10 psig.

On September 7, 1990 a plant operator was directed to the Division I Motor Generator [MG] Set room to support Surveillance Instruction (SVI-C71-T5230), "Reactor Protection System - Electrical Power Monitoring Calibration/Functional for 1C71S003A and 1C71S003C. Prior to this, the Instrument and Control (I&C) technician had confirmed that the RPS A bus was being supplied power through the RPS Alternate A power source. In accordance with the SVI, the operator was required to reset, then close the Electrical Protection Assembly (EPA) circuit breaker, 1C71S003C, confirm the indication of two power status lights, then place the keylock test switch in the CAL/TEST position, and confirm that the 1C71S003C EPA circuit breaker trips. The operator erroneously confirmed the EPA to be tested by pointing to the 1C71S003G EPA and asking the I&C technician if that was the appropriate component. At 2017, the operator found that this EPA was already closed, so he checked the indicating lights and put the keylock switch to the CAL/TEST position. Without a test signal input, the 1C71S003G circuit breaker tripped. With this circuit breaker tripped, continuity was lost to the RPS Alternate A power supply. Because the RPS Bus A was being powered by the Alternate A power supply, performing these actions on the alternate EPA instead of on the motor generator EPA caused the system to experience a loss of RPS Bus A. This resulted in NSSSS BOP, RHR A shutdown cooling and RWCU isolations. The operators reacted correctly by entering Off-Normal Instruction (ONI-C71-2) "Loss of One RPS BUS" and Off-Normal Instruction (ONI-E12-2) "Loss of Shutdown Cooling." The alternate EPAs for RPS Bus A were reset at 2033, and restoration of the BOP isolation allowed exiting ONI-C71-2 at 2115. RHR A was started in the shutdown cooling mode and ONI-E12-2 was exited by 2200.

The causes of this event were personnel errors, inattention to detail and failure to follow procedure. The performers did not read the equipment number designation (MPL number) carefully enough to distinguish between the C and G. The operator assumed it was the correct EPA because of verbal confirmation from the I&C technician and because the I&C test equipment was located in front of this circuit breaker. It had actually been left there from performance of the previous section of SVI-C71T5230. The MPL number on the tag was small and at a distance the G was mistaken for a C. A large red and white label with the descriptive equipment title, e.g. "2nd Alt. EPA", is on all of the EPAs. However, neither party knew the descriptive title of the equipment they were working on and this title is not included in the SVI. The operator did not consider problems with the fact that the circuit breaker he was to "reset and then close" was already in the closed position. In accordance with Plant Administrative Procedure (PAP-0201) "Conduct of Operations", if an instruction

cannot be performed as written, the performer is directed to notify supervision in order to determine the appropriate actions. In this event, the performer proceeded with the next step, which inadvertently tripped the EPA deenergizing the RPS Bus.

There are two EPAs associated with each source of power, a motor generator [MG] set and an alternate power transformer [XFMR], to the RPS buses. These EPAs are in series with each other and will automatically trip to the open position in the event of an electrical malfunction in the electrical power supply system. Each EPA senses voltage and frequency immediately upstream of the individual EPA. If voltage or frequency deviates beyond set limits, the EPA will trip open causing a loss of power to the respective bus. In this case, the EPA was in the CAL/TEST position with the EPA no longer sensing system power but looking for a test signal. With no input signal the EPA tripped as expected, resulting in a loss of power to the RPS Bus A. When this Bus lost power the system functioned as designed, with NSSSS BOP, RWCU and RHR A isolations. The systems were out of service for a short time and the operators acted correctly to restore the systems. Therefore, this event is considered to have no safety significance. A similar event occurred on June 6, 1988 while securing the RPS motor/generator A and was documented by LER 88-021.

In order to prevent recurrence, the operator and I&C technician have been involved in the investigation of this event and have been made aware of the ramifications of inattention to detail when performing a SVI. Operations management has evaluated if this event was a symptom of large scale inattention to detail problems. They did not find that to be the case and corrective actions were confined to the individual involved. The SVI-C71-T5230, and related surveillances, will be revised to include a descriptive title of the equipment in addition to the MPL number. New labels have been made and installed to enhance the readability of these MPL numbers. Additionally, this event will be reviewed with licensed and nonlicensed operators during operator requalification training, and with I&C technicians in the I&C continuing training program.

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