NRC FORM 366
(7-77)

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

CONTROL BLOCK: [- | | | | | |] (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

[0 1] [P A T M I 1] (2) [0 0 - 0 0 0 0 0 - 0 0] (3) [4 1 1 1 1] (4) [ ] (5)
7 8 9 LICENSEE CODE 14 15 LICENSE NUMBER 25 26 LICENSE TYPE 30 57 CAT 58

CON'T
[0 1] REPORT SOURCE [L] (6) [0 5 0 0 0 2 8 9] (7) [1 0 1 7 8 0] (8) [1 1 0 4 8 0] (9)
7 8 60 61 DOCKET NUMBER 68 69 EVENT DATE 74 75 REPORT DATE 80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

[0 2] While replacing coils for ASCO solenoid valves per Bulletin 79-01A, it was
[0 3] determined the coils had an operating range of 102 to 126v whereas the station
[0 4] voltage ranges from 107 to 137v. Additionally, ASCO solenoid valves for pilot
[0 5] operators have a maximum safe working pressure of 75 psi but the instrument air
[0 6] supply ranges from 85 to 95 psi. These items are considered reportable per section
[0 7] 6.9.2.A(9).
[0 8] 7 8 9 80

[0 9] 7 8
SYSTEM CODE [Z Z] (11) 9 10 | CAUSE CODE [A] (12) 11 | CAUSE SUBCODE [X] (13) 12 | COMPONENT CODE [V A L V O P] (14) 13 18 | COMP SUBCODE [F] (15) 19 | VALVE SUBCODE [Z] (16) 20

(17) LER/RO REPORT NUMBER: EVENT YEAR [8 0] 21 22 | [—] 23 | SEQUENTIAL REPORT NO. [0 1 8] 24 26 | [/] 27 | OCCURRENCE CODE [0 1] 28 29 | REPORT TYPE [T] 30 | [—] 31 | REVISION NO. [0] 32

ACTION TAKEN [Z] (18) 33 | FUTURE ACTION [A] (19) 34 | EFFECT ON PLANT [Z] (20) 35 | SHUTDOWN METHOD [Z] (21) 36 | HOURS (22) [0 0 0 0] 37 40 | ATTACHMENT SUBMITTED [Y] (23) 41 | NPRD-4 FORM SUB. [N] (24) 42 | PRIME COMP. SUPPLIER [L] (25) 43 | COMPONENT MANUFACTURER [A 4 9 9] (26) 44 47

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

[1 0] The purchase order for the replacement coils was incorrect. The discontinuation
[1 1] of installing replacement coil was the immediate corrective action. Long term
[1 2] corrective action will be to replace the coils with other coils with an operating
[1 3] range of 90 to 140v and to replace the valves or reduce the air pressure.
[1 4] 7 8 9 80

[1 5] 7 8
FACILITY STATUS [X] (28) 9 | % POWER [0 0 0] (29) 10 12 | OTHER STATUS (30) [NRC Order] 13 44 | METHOD OF DISCOVERY [B] (31) 45 46 | DISCOVERY DESCRIPTION (32) [Replacement of ASCO solenoids] 46 80

[1 6] 7 8
ACTIVITY RELEASED [Z] (33) 9 | CONTENT OF RELEASE [Z] (34) 10 | AMOUNT OF ACTIVITY (35) [NA] 11 44 | LOCATION OF RELEASE (36) [NA] 45 80

[1 7] 7 8
PERSONNEL EXPOSURES: NUMBER [0 0 0] (37) 9 11 | TYPE [Z] (38) 12 | DESCRIPTION (39) [NA] 13 80

[1 8] 7 8
PERSONNEL INJURIES: NUMBER [0 0 0] (40) 9 11 | DESCRIPTION (41) [NA] 12 80

[1 9] 7 8
LOSS OF OR DAMAGE TO FACILITY: TYPE [Z] (42) 9 10 | DESCRIPTION (43) [NA] 10 80

[2 0] 7 8
PUBLICITY: ISSUED [N] (44) 9 | DESCRIPTION (45) [NA] 10 68 | NRC USE ONLY [ ] 69 80

8011070426

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NARRATIVE REPORT
TMI-1
LER 80-018/01T-0

Event Description and Probable Consequences

It has been determined that the replacement coils for ASCO Solenoid Valves being installed in response to IE Bulletin 79-01A are rated at 120v DC with a normal operating range of 102 to 126 volts. The station battery voltage ranges from 107 to 137 volts. The coils could potentially fail if they were maintained at voltages above their normal operating range. Attachment 3 is a list of thirty (30) air operated valves that use ASCO DC Solenoid Valves for pilot operators that are having their present coils replaced by the 120v DC coils. Of the thirty (30) valves listed, it was determined that in case of coil failure, eight (8) valves would be in a less conservative position than required by the engineered safeguard design.

In addition it was determined eleven (11) outside containment isolation valves (see Attachment 4) use ASCO Solenoid Valves for pilot operators with a maximum safe working pressure of 75 psi. The instrument air which supplies the ASCO solenoid valves is 85 to 95 psi. This overpressurization could affect the solenoid valves' performance, potentially preventing the containment isolation valve from performing as designed. These problems are considered reportable per Technical Specification paragraph 6.9.2.A(9).

As of October 27, 1980, no valve malfunctions have been experienced at TMI-1 because of these deviations.

Unit 1 was in cold shutdown when it was discovered that 120v DC coils were being installed and that the maximum working pressure of the installed ASCO solenoid valves was 75 psi.

Cause Description and Corrective Action

The purchase order for the replacement coils incorrectly ordered the wrong voltage coils. At least one valve, AH-V1D, had an incorrect coil originally. The cause of the problem with the maximum working pressure was due to original design error.

The immediate corrective action has been to discontinue the installation of the 120v DC coils. Long term corrective action concerning the coils will be to replace all 120v DC coils with 125v DC coils that have a normal operating range of 90 to 140 volts.

Long term corrective action concerning the maximum working pressure will be to replace the solenoid valves with valves that have a maximum working pressure equal to or greater than the instrument air supply, or to provide air line regulators to reduce the air pressure.

The schedule for completion of the corrective action is prior to restart or upon availability. This schedule is justified because valve failure during cold shutdown would not adversely affect public health and safety.

The remaining valves with safety functions will be inspected to assure that the coil voltage is correct and that the valves have the correct pressure rating.

As stated, no valves have failed to this date. However, the following information exists concerning the above equipment:

Replacement Coils: ASCO 120v DC

Model No.		
	103-A33-1D	(12)
	74-073-1D	(11)
	103-A34-1D	(4)
	97-617-1D	(2)
	96-671-1D	(1)

Air Solenoid Valves: ASCO, 3-Way, Model No. - HT8300 B7 RF

Attachment 3
TLL 562

VALVE NO.	FUNCTION OF THE VALVE	CONTROL DRAWING	POSITION OF MAIN VALVE IN CASE OF COIL FAILURE	REQUIRED SAFEGUARD POSITION OF MAIN VALVE
MUV3	Letdown isolation at Containment Vessel	209-022	Open	Closed
MUV26	RCP Seal letdown isolation at Containment Vessel	209-025	Open	Closed
CMV1	Containment Monitoring	209-051	Closed	Closed
CMV2	Containment Monitoring	209-052	Closed	Closed
CMV3	Containment Monitoring	209-053	Closed	Closed
CMV4	Containment Monitoring	209-054	Closed	Closed
WDLV534	R.B. Sump Outlet Isolation Valve	209-306	Closed	Closed
WDLV535	R.B. Sump Outlet Isolation Valve	209-306	Closed	Closed
WDLV304	R.C. Drain Pump Outlet Valve	209-302	Closed	Closed
ICV3	I.C. return outside containment penetration isolation	209-077	Open	Closed
ICV4	I.C. supply outside containment penetration isolation	209-078	Open	Closed
ICV6	C.R.D. Cool. Penetration isolation	209-079	Open	Closed
AHV1A	RB Purge Outlet	209-038	Closed	Closed
AHV1D	RB Purge Inlet	209-039	Closed	Closed
RB-V7	Reactor Building air cooling Coils Ret. Penetration Isolation	209-055	Open	Closed
CFV19A	C.V. Isolation Valves for MU to C.F. Tanks P=650 PSIFC	209-024	Closed	Closed
CFV19B	C.V. Isolation Valves for MU to C.F. Tanks P=650 PSIFC	209-024	Closed	Closed
CFV20A	C.F. tanks sample/Isolation Valves P=650 PSIFC	209-023	Closed	Closed
CPV20B	C.F. tanks sample/Isolation Valves P=650 PSIFC	209-044	Closed	Closed

VALVE NO.	FUNCTION OF THE VALVE	CONTROL B WING	POSITION OF MAIN VALVE IN CASE OF COIL FAILURE	REQUIRED SAFEGUARD POSITION OF MAIN VALVE
WDGV4	RB Vent Header Outside Isolation	209-317	Closed	Closed
CAV 189	Demineralized water R.B. Isolation Valve Fluid Blocked Spring-to Close	209-377	Closed	Closed
CAV 5A	OTSG "A" Feedwater Sample Containment Isolation	209-358	Open	Closed
CAV 5B	OTSG "B" Feedwater Sample Containment Isolation	209-359	Open	Closed
CAV2	R.C. Sample Containment Isolation	209-354	Closed	Closed
NSV52A	R.B. Cooling Units fan Motor Cooler Inlet Isolation	209-083	Open	Open
NSV52B	R.B. Cooling Units fan Motor Cooler Inlet Isolation	209-084	Open	Open
NSV52C	R.B. Cooling Units fan Motor Cooler Inlet Isolation	209-085	Open	Open
NSV53A	R.B. Cooling Units fan Motor Cooler Inlet Isolation	209-083	Open	Open
NSV53B	R.B. Cooling Units fan Motor Cooler Inlet Isolation	209-084	Open	Open
NSV53C	R.B. Cooling Units fan Motor Cooler Inlet Isolation	209-085	Open	Open

Attachment 4
TLL 562

	VALVE TAG NO.	ASCO MODEL NO.
1.	CFV 19A	HT 8300 B7 RF
2.	CFV 19B	HT 8300 B7 RF
3.	CFV 20A	HT 8300 B7 RF
4.	CFV 20B	HT 8300 B7 RF
5.	WDG V 4	HT 8300 B7 RF
6.	NS V 52A	HT 8300 B7 RF
7.	NS V 52B	HT 8300 B7 RF
8.	NS V 52C	HT 8300 B7 RF
9.	NS V 53A	HT 8300 B7 RF
10.	NS V 53B	HT 8300 B7 RF
11.	NS V 53C	HT 8300 B7 RF