Met-Ed GPU

Metropolitan Edison Company
Post Office Box 480
Middletown, Pennsylvania 17057

Writer's Direct Dial Number

September 8, 1980
TLL 431

Office of Inspection and Enforcement
Attn: Mr. Boyce H. Grier, Director
Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Sir:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
License No. 50-320
Licensee Event Report 80-033/01L-0

Attached please find Licensee Event Report 80-033/01L-0, concerning the problems experienced with and information received about a pneumatic timing device, type J20T3, manufactured by Gould-ITE.

This report is submitted under Section 6.9.1.8(i) of the Interim Recovery Technical Specifications.

Sincerely,

/s/ G. K. Hovey

G. K. Hovey
Director, TMI-2

GKH:SDC:dad

Attachments

cc: John T. Collins
Bernard J. Snyder

A002
S 1/1

8009120450

Attachment 1
TLL 431

NRC FORM 366 (7-77)

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

CONTROL BLOCK: (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

Line	Field	Entry
01	LICENSEE CODE (2)	P A T M I 2
01	LICENSE NUMBER (3)	0 0 - 0 0 0 0 0 - 0 0
01	LICENSE TYPE (4)	4 1 1 1 1
01	CAT (5)	
CON'T 01	REPORT SOURCE (6)	L
01	DOCKET NUMBER (7)	0 5 0 0 0 3 2 0
01	EVENT DATE (8)	0 7 3 0 8 0
01	REPORT DATE (9)	0 9 0 8 8 0

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

02 On July 29, 1980, Met-Ed received a failure mode report from Gould-ITE on a relay
03 pneumatic timing device, model J20T3. This report, suggesting such failure could re-
04 sult from age and deterioration, coupled with two failures of such timers on Unit 2
05 generators and excessive need for recalibration is considered reportable ~~under Tech.~~
06 ~~Spec. 6.9.1.8(i)~~ as failure of some of the timers on the generators could be
07 safety-related.
08

Line	Field	Entry
09	SYSTEM CODE (11)	E E
09	CAUSE CODE (12)	X
09	CAUSE SUBCODE (13)	Z
09	COMPONENT CODE (14)	R E L A Y X
09	COMP. SUBCODE (15)	H
09	VALVE SUBCODE (16)	Z
(17) LER/RO REPORT NUMBER	EVENT YEAR	8 0
	SEQUENTIAL REPORT NO.	0 3 3
		/
	OCCURRENCE CODE	0 1
	REPORT TYPE	L
		—
	REVISION NO.	0
	ACTION TAKEN (18)	X
	FUTURE ACTION (19)	X
	EFFECT ON PLANT (20)	Z
	SHUTDOWN METHOD (21)	Z
	HOURS (22)	0 0 0 0
	ATTACHMENT SUBMITTED (23)	Y
	NPRD-4 FORM SUB. (24)	N
	PRIME COMP. SUPPLIER (25)	A
	COMPONENT MANUFACTURER (26)	I 0 0 5

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 The two J20T3 timers which failed on the Emergency Diesel Generators were replaced.
11 By October 31, 1980, an engineering evaluation will be completed of 1) the ITE
12 failure report, 2) the timers' tolerance vs that required for the service, and
13 3) the timers' environment, all in relation to each of the timers' safety function
14 with necessary replacements made based on availability of replacement devices.

Line	Field	Entry
15	FACILITY STATUS (28)	X
15	% POWER (29)	0 0 0
15	OTHER STATUS (30)	Recovery Mode
15	METHOD OF DISCOVERY (31)	Z
15	DISCOVERY DESCRIPTION (32)	N/A
16	ACTIVITY RELEASED (33)	Z
16	CONTENT OF RELEASE (34)	Z
16	AMOUNT OF ACTIVITY (35)	N/A
16	LOCATION OF RELEASE (36)	N/A
17	PERSONNEL EXPOSURES NUMBER (37)	0 0 0
17	TYPE (38)	Z
17	DESCRIPTION (39)	N/A
18	PERSONNEL INJURIES NUMBER (40)	0 0 0
18	DESCRIPTION (41)	N/A
19	LOSS OF OR DAMAGE TO FACILITY TYPE (42)	Z
19	DESCRIPTION (43)	N/A
20	PUBLICITY ISSUED (44)	N
20	DESCRIPTION (45)	N/A
20	NRC USE ONLY	

NAME OF PREPARER Steven D. Chaplin PHONE: (717) 948-8461

8009120...

LICENSEE EVENT REPORT
NARRATIVE REPORT

TMI-2

LER 80-033/01L-0
EVENT DATE - July 30, 1980

I. EXPLANATION OF OCCURRENCE

On July 29, 1980, Met-Ed received a failure mode report from Gould-ITE on a relay pneumatic timing device, model J20T3. The report was in response to our returning a failed timer unit to them for determination of the failure mode. The report suggested that the failure was in part due to age and subsequent deterioration. A copy of the report is enclosed as Attachment 3.

The failed unit, a component of Relay T3A, was designed to perform a trip delay function during Emergency Diesel Generator (EDG) startup. Specifically, it inhibits the low lube oil pressure trip and the high crankcase pressure trip for 20 seconds during startup. The failed timing unit for the relay cycled in 7 seconds instead of the preset 20 seconds. Calibration checks of the timing unit showed that the time delay for any setpoint of the unit was not repeatable.

This timer unit failure, in January, 1980, was the subject of Special Report 80-003/99X-0.

II. CAUSE OF THE OCCURRENCE

The receipt of the Gould-ITE failure mode report, citing component age and subsequent deterioration as a contributing factor in the failure, coupled with the second failure in July and the results of the calibration check made in February generated substantial potential for the necessity of remedial action of the nature described in Section 6.9.1.8(i) of the Interim Recovery Technical Specifications.

III. CIRCUMSTANCES SURROUNDING THE OCCURRENCE

The reason for submission of this information is that substantial potential of a generic problem with the pneumatic timing unit exists. As stated in Section II above, the determination to report this information was based on three factors: the January, 1980 timer failure and subsequent failure mode report, a calibration check in February, 1980 of the EDG's timing units, and a July, 1980 timer failure.

The first of the three factors was discussed in Section I above.

In February, 1980, subsequent to the annual maintenance of the EDG's, a calibration check was made of all timers in the diesel generator control logic. It was determined that 12 of the 18 timers on the two EDG's required recalibration. On August 4 and 5, 1980, the EDG timers were checked again, and again 12 of the 18 timers required recalibration. Among these were 5 Gould-ITE units, which required recalibration in both instances.

Presently, it is not known if this necessity for recalibration has any bearing on the failure mode. However, it suggests that the Gould-ITE timers may not have a tight enough tolerance for this application.

The final factor was the July, 1980, timer failure.

On July 17, 1980, the EDG DF-X-1B was started to certify operability. When the Control Room Operator attempted to shutdown the EDG from the Control Room, the EDG failed to shutdown. The problem was determined to be a failed pneumatic timer for the relay in the diesel shutdown circuit. The timer exhibited short cycling and could not be re-calibrated to give repeated timing. This second relay was of the same type as the failed relay of January 31, 1980, and was returned to the vendor for determination of the failure mode.

On August 21, 1980, we were informed by the manufacturer that no failure mode could be determined for failure of the shutdown relay. Furthermore, the manufacturer informed us that the timer functioned properly when tested at their facility.

The proper functioning of the timer at Gould's facilities and not while installed in the EDG's, suggests an environmental factor affecting the performance.

IV. CORRECTIVE ACTIONS TAKEN OR TO BE TAKEN

IMMEDIATE

The two failed timers were replaced and the EDG was subsequently tested to show operability in each case.

LONG TERM

An engineering evaluation is being performed relative to the application of pneumatic timing units used in the EDG control circuits which will address the following concerns:

1) The environment in the Diesel Generator Rooms

2) The diesel manufacturer's setpoint tolerance relative to the relay manufacturer's published tolerance.

3) The ITE failure report.

Based on this evaluation, all or selected timing units will be replaced with acceptable units for the operating conditions. The use of ITE time devices, model J20T3, elsewhere in the unit will be evaluated, where these devices may affect devices important to safety. This evaluation will be completed by the end of October, 1980, with recommended replacements being accomplished, based on the availability of replacement devices.

V. COMPONENT FAILURE DATA

Pneumatic Timing Unit:

Manufacturer	---	ITE
Catalog No.	---	J20T3; 398; 76311286
Design Function	---	Adjustable from 0-180 seconds

Attachment 3 (TLL 431)

JUL 2 9 1980

GOULD

To Gabe Kish 7211-R From R. P. Wathen 8400 Dept. No. QA/DCD

Date July 10, 1980 Location Finksburg, Md.

Subject 84-86585 - RGA 7211R-00171
Met Ed. Co. - TMI Project
J20T3 Timing Head Rejection - Report

Copies to M. Fenneteau
L. Gigeous

Please convey the following failure analysis report to Mr. Jack Laughton at the TMI Project Office (717-948-8139).

The J20T3 Timing head returned to Gould on RGA R7211R-00171, and received 3/19/80 was inspected by the Finksburg Operation, then shipped to the Allied Relay Division for further analysis.

The initial inspection indicated that operation in the "On Delay" position was instantaneous because the range selector was turned all the way down. When the time range was moved to the maximum position, the unit functioned in both the "On" and "Off" delay positions, but the timing was erratic (20 to 112 sec. for the 180 second timing range). This item was manufactured in 1975/6 and could be subject to some deterioration. Also, if the timer is turned down too far in this older type relay the seat and valve may be damaged, causing a wider variation in timing.

The Allied inspector verified the poor synchronization and high contact resistance, suggesting the problem as caused by age as well as possible timer valve damage. We suggest use of later type or a different style timing device for this application. Parts from current stock have been verified to be accurate within the catalog tolerance and the user should replace this old timer at no charge with a new stock item.

It is our contention that this type of device is reliable for proper application.

Please contact this office if there are further questions.

R. P. Wathen, P.E.
Manager Quality Assurance

RPW/dg