

NON-PUBLIC?: N
ACCESSION #: 8809130324

LICENSEE EVENT REPORT (LER)

FACILITY NAME: Three Mile Island - Unit 2 PAGE: 1 of 7

DOCKET NUMBER: 05000320

TITLE: Failure to Comply With the Action Statement of Technical Specification 3.8.1.1
EVENT DATE: 08/07/88 LER #: 88-011-00 REPORT DATE: 09/06/88

OTHER FACILITIES INVOLVED:
FACILITY NAME: TMI Unit 1 DOCKET #: 05000289

OPERATING MODE: N POWER LEVEL: 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION 50.36(c)(2)

LICENSEE CONTACT FOR THIS LER:
NAME: Russell D. Wells, TMI-2 Licensing Engineer
TELEPHONE #: 717-948-8461

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: On August 7, 1988, the Lebanon Relay Department was performing a functional trip test of the TMI-1 Auxiliary Transformer 1A Protective Relays in accordance with TMI-1 Procedure 1450-020. At 0230 hours on August 7, 1988, Switching Order (SO) 1096 was initiated per this procedure to transfer TMI-2 plant loads from the 2B Auxiliary Transformer to the 2A Auxiliary Transformer. This SO was completed at 0255 hours on August 7, 1988, placing the unit into the Action Statement of Technical Specification (Tech. Spec.) 3.8.1.1 since only one (1) of the two (2) physically independent circuits between the off-site transmission network and the on-site Class 1E distribution system were operable. However, Control Room personnel did not recognize the requirement to enter the referenced Action Statement due to a misunderstanding of the requirements of this Tech. Spec. At 0655 hours, the four (4) hour timeclock of the referenced Action Statement expired; thus, this event is reportable per 10 CFR 50.73(a)(2)(i)(B). At 0937, the manual disconnect between the 230 KV substation Bus 8 and Auxiliary Transformer 2B was opened. This action should have annunciated an alarm in the Control Room alerting operators to enter the Action Statement. However, it currently cannot be determined

whether the alarm failed to annunciate or whether operators failed to respond properly to the alarm. At 1445 hours on August 7, 1988, a Control Room Operator recognized the need to enter the referenced Action Statement. The requirements of the Action Statement were satisfied. At 2053 hours on August 7, 1988, testing of the TMI-1 Auxiliary Transformer was completed and the TMI-2 Auxiliary Transformer 2B was restored to service. The root causes of this event were an inadequate procedure, poor communications, and a misunderstanding of the requirements of Tech. Spec. 3.8.1.1. Corrective actions include discussing this event with all Control Room and Senior Reactor Operators, and investigating the operability of the low voltage alarm for Auxiliary Transformer 2B.

(End of Abstract)

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I. PLANT OPERATING CONDITIONS BEFORE THE EVENT

The TMI-2 facility was in a long-term cold shutdown state; the defueling evolution was in progress. The reactor decay heat was being removed via loss to ambient. Throughout this event there was no affect on the Reactor Coolant System or the core.

II. STATUS OF STRUCTURES, COMPONENTS, OR SYSTEMS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO THE EVENT

N/A

III. EVENT DESCRIPTION

The Limiting Condition for Operation (LCO) of TMI-2 Technical Specification (Tech. Spec.) 3.8.1.1, "A. C. Sources," requires that two (2) physically independent circuits between the off-site transmission network and the on-site Class 1E distribution system shall be operable. In this event, the off-site transmission network in question is the 230 KV substation which provides auxiliary power (IEEE 805 Codes-EA and EB) to TMI-2 via two (2) independent buses (i.e., Bus No. 8 and bus No. 4) through two (2) auxiliary transformers (i.e., 2B and 2A, respectively). Additionally, the 230 KV substation is connected to TMI-1 Auxiliary Transformers 1A and 1B.

On August 2, 1988, the Lebanon Relay Department issued an "Application for Apparatus or Line To Be Taken Out of Service," No. 001930, for functional trip testing of the TMI-1 Auxiliary Transformer 1A Protective Relays. The referenced application requires that "TMI-2

will transfer their load to 2A Auxiliary Transformer then isolate 2B
A
xiliary Transformer from bus 8 by opening disconnect switch S2B-08."
This action is taken as a precautionary measure since trip testing of
the TMI-1 Auxiliary Transformer 1A requires lowering the voltage of
the 230 KV substation bus No. 8 which could potentially result in a
trip of the TMI-2 Auxiliary Transformer 2B (IEEE 803A Code-XFMR).

This activity was being coordinated by Lebanon Relay Department
personnel in accordance with TMI-1 Corrective Maintenance Procedure
1450-020, "Lebanon Relay Procedure for Functional Trip Testing of 1A
Auxiliary Transformer Protective Relays." Per this procedure, on
August 2, 1988, a Lebanon Relay dispatcher contacted TMI-1 and TMI-2
Control Room personnel to notify them of the scope of activity to be
performed and it was agreed by all parties that this activity would
commence on August 7, 1988.

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At 0230 hours on August 7, 1988, the dispatcher called the TMI-2
Control Room to initiate Switching Order (SO) 1096 which required
TMI-2 plant loads to be transferred from Auxiliary Transformer 2B
to Auxiliary Transformer 2A. Additionally, this SO required the
opening or verifying open of the breakers (IEEE 803 Code-BKR) for the
2B Auxiliary Transformer which feed the 6900 volt and 4160 volt
electrical busses (i.e., breakers 2B12, 2B22, 2B52, 2B32, 2B42, 2B-1E2,
and 2B-2E2). It is noteworthy that breakers 2B-1E2, 2B-2E2, 2A-1E2,
and 2A-2E2 connect the Auxiliary Transformers to the 4160 Volt
Engineered Safety Features (ESF) Busses (i.e., the Class 1E
distribution system). This SO was completed at 0255 hours on August 7,
1988. At that time, Action Statement (a) of Tech. Spec. 3.8.1.1
should have been entered based on a post-event review of TMI-2
Surveillance Procedure 4210-SUR-3700.01, "On/Off-Site Power Supply
Check," which verifies compliance with the LCO of Tech. Spec. 3.8.1.1.
The referenced Action Statement states:

"With one off-site circuit of the above required A.C. electrical
power sources inoperable, verify the OPERABILITY of the remaining
off-site circuit and demonstrate the OPERABILITY of the D.C. bus
trains by performing Surveillance Requirements in the Recovery
Operations Plan Sections 4.8.2.2.1 and 4.8.2.2.2.a.4 within 4
hours. Restore the full complement of off-site A.C. electrical
power sources to OPERABLE status within 7 days."

The rationale for entering the referenced Tech. Spec. Action Statement
is that the on-site Class 1E distribution system was connected to the

off-site transmission network by one (1) circuit (i.e., 230 KV substation Bus No. 4 via Auxiliary Transformer 2A) upon completion of the referenced SO. Thus, this condition was in noncompliance with the LCO of Tech. Spec. 3.8.1.1. The failure to enter the referenced Tech. Spec. Action Statement upon completion of the SO was due to a misunderstanding by the duty Control Room personnel of the application of the requirements of Tech. Spec. 3.8.1.1. At 0655 hours on August 7, 1988, the four (4) hour timeclock of the referenced Tech. Spec. Action Statement expired. Thus, the event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) due to a condition prohibited by the plant's Tech. Specs.

At approximately 0700 hours on August 7, 1988, shift turnover occurred; however, the oncoming shift also failed to recognize that the condition of the plant required compliance with the Action Statement of Tech. Spec. 3.8.1.1. As a further precautionary measure during the testing of TMI-1 Auxiliary Transformer 1A, the dispatcher contacted the TMI-1 and TMI-2 Control Room at approximately 0800 hours on August 7, 1988, to request that manual disconnect (IEEE 803A Code-DISC) S2B-08 be opened to de-energize the TMI-2 Auxiliary Transformer 2B from the 230 KV substation Bus No. 8. Both Control Rooms informed the dispatcher that plant personnel do not normally

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perform this activity; thus, the dispatcher instructed personnel from the Lebanon Relay Department to open manual disconnect S2B-08. This action was performed at 0937 hours on August 7, 1988. The opening of the manual disconnect should have resulted in the annunciation of the 2B Auxiliary Transformer Voltage Loss Alarm (i.e., 18.F6) located on Panel 18 in the TMI-2 Control Room. TMI-2 Alarm Response Procedure 4210-RAP-3700.01, "Station Electric Auxiliary Monitors Panel (Panel 18)," requires a response to an annunciation of Alarm 18.F6 to "ensure the requirements of Tech. Spec. 3.8.1.1 or 3.8.1.2 are met as required." However, the Action Statement of Tech. Spec. 3.8.1.1 was not entered at this time. It is not positively known at this time whether the alarm failed to annunciate or whether operators failed to properly respond to the alarm. This matter is being further investigated and has been identified as a long-term corrective action (reference Section V of this report.)

At 1445 hours on August 7, 1988, an oncoming Control Room Operator observed zero voltage on the indicator for Bus No. 8 and that the Auxiliary Transformer 2B Voltage Loss Alarm (i.e., 18.F6) was energized. The Control Room Operator questioned why the Action Statement of Tech. Spec. 3.8.1.1 had not been entered. Control Room

personnel immediately entered the referenced Action Statement. This action required verifying the operability of the remaining off-site circuits and the D.C. bus trains by performing Recovery Operations Plan Section 4.8.2.2.1 and 4.8.2.2.2.a.4. Control Room personnel satisfied the Action Statement requirements by performing the applicable portions of Surveillance Procedure 4210-SUR-3700.01, "On/Off-Site Power Supply Checks," at 1505 hours on August 7, 1988. However, an administrative discrepancy has been identified in that this surveillance procedure does not recognize that performance of the procedural requirements satisfies Recovery Operations Plan Section 4.8.2.2.2.a.4.

At 2105 hours on August 7, 1988, the TMI-2 Control Room was informed by a Lebanon dispatcher that testing of TMI-1 Auxiliary Transformer 1A was completed and that TMI-2 Auxiliary Transformer 2B had been returned to service. Plant loads were restored to their normal configuration. Surveillance Procedure 4210-SUR-3700.01 was performed satisfactorily at 2137 hours on August 27, 1988, verifying compliance with the LCO of Tech. Spec. 3.8.1.1.

IV. ROOT CAUSE OF THE EVENT

The root causes of this event are an inadequate procedure, inadequate communication between TMI-2 and off-site personnel, and a misunderstanding of the requirement of the LCO of Tech. Spec. 3.8.1.1, "A. C. Sources." This Tech. Spec. LCO requires the operability of two (2) physically independent circuits between the off-site transmission network (i.e., 230 KV substation Bus Nos. 4 and 8) and the on-site Class 1E distribution. Upon completion

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of SO 1096, the requirement of the Tech. Spec. LCO was not satisfied since the on-site Class 1E distribution was connected to the off-site transmission network by one (1) circuit (i.e., 230 KV substation Bus No. 4 via Auxiliary Transformer 2A).

The lack of proper coordination and communication between TMI-2 Control Room personnel and Lebanon Relay Department personnel is explained further. Lebanon Relay Department personnel contacted the TMI-1 and TMI-2 Control Room on August 2, 1988, to inform them of the planned testing of TMI-1 Auxiliary Transformer 1A and all parties agreed to perform the activity on August 7, 1988. However, on August 7, 1988, Control Room personnel did not have full knowledge of the scope of activity being performed by Lebanon Relay Department personnel (e.g., Control Room Operators on the 2300-0700 shift were unaware that testing

of TMI-1 Auxiliary Transformer 1A would require opening of the manual disconnect). Actions such as conducting a proper pre-job briefing or having a copy of the procedure used to direct this event (i.e., 1450-020) available to Control Room personnel during the event may have resulted in earlier detection. Additionally, the referenced procedure did not receive TMI-1 or TMI-2 Site review. Further, upon being informed that Lebanon Relay Department personnel planned to open manual disconnect S2B-08, TMI-2 Control Room personnel should have taken more positive actions to ensure that they were notified when the disconnect was opened and to understand the action, if any, required to be performed by them. This action may have also resulted in this event being detected earlier.

A contributing cause to this event was that opening of the manual disconnect should have caused annunciation of Alarm 18.F6 in Panel 18 of the TMI-2 Control Room. Per Procedure 4210-RAP-3700.01, this alarm would have alerted operators to enter the Action Statement of Tech. Spec. 3.8.1.1. It is not positively known at this time whether this alarm failed to annunciate or whether Control Room personnel failed to properly respond to the alarm. Annunciation of this alarm along with its proper response would have resulted in earlier detection of the event.

V. CORRECTIVE ACTIONS

Immediate - Upon the discovery of this event at 1445 hours on August 7, 1988, Control Room personnel entered the Action Statement of Tech. Spec. 3.8.1.1 and satisfied the required surveillances. Testing of TMI-1 Auxiliary Transformer 1A was completed at 2053 hours on August 7, 1988, and TMI-2 Auxiliary Transformer 2B was returned to service. Surveillance Procedure 4210-SUR-3700.01 was performed satisfactorily at 2137 hours on August 7, 1987, verifying compliance with Tech. Spec. 3.8.1.1.

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Long-Term - A Human Performance Evaluation System (HPES) review is being performed on this event. The root causes of this event and the following corrective actions are consistent with the preliminary results of that review:

- o This event will be discussed with TMI-2 Control Room Operators and Senior Reactor Operators with emphasis on the application of the requirements of Tech. Spec. 3.8.1.1 to the event described in this report. Specific emphasis will be placed on the basis for this Tech. Spec. Operators will be encouraged to refer to the

appropriate surveillance procedure when conducting activities which may affect Tech. Spec. equipment in order to determine whether the planned activities could affect Tech. Spec. Action Statements. Additionally, this discussion will further emphasize the need to take aggressive actions to ensure proper coordination and communication with personnel performing activities that have the potential to affect TMI-2 Tech. Spec. equipment/systems.

- o The Lebanon Relay Department has agreed to revise Procedure 1450-020 to provide confirmation that TMI-1 and TMI-2 Control Room personnel acknowledge the scope of testing involved. TMI-2 personnel will review and approve this procedure revision.

- o An evaluation of the operability of Panel 18 Alarm 18.F6, "2B Auxiliary Transformer Voltage Loss Alarm," is being performed. If it is determined that this alarm properly annunciated, action will be initiated to assess the failure of Control Room personnel to properly respond to the alarm and to identify further corrective actions, as necessary.

- o The Site Operations Department will evaluate the methodology of performing switching and tagging in the 230 KV switchgear to determine whether this activity can be performed by plant personnel.

- o Surveillance Procedure 4210-SUR-3700.01 will be revised to ensure consistency with current Tech. Spec. requirements.

VI. COMPONENT FAILURE DATA

N/A

VII. AUTOMATIC OR MANUALLY INITIATED SAFETY SYSTEM RESPONSES

N/A

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VIII. ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

If a loss of power to the 230 KV Substation Bus No. 4 had occurred during this event, operators would have been able to manually restore off-site power to the Class 1E distribution system by restoring Auxiliary Transformer 2B to service. It is noteworthy that no active components are required to maintain the safe-shutdown condition of

TMI-2. This was recognized by the NRC in their letter of February 9, 1987, which granted GPU Nuclear an exemption from the requirements of 10 CFR 50 Appendix A, General Design Criteria (GDC), 17, "Electric Power Systems," and GDC 19, "Control Room." The referenced NRC letter also states, "As discussed in the enclosed Exemption, TMI-2 is in a long-term cold shutdown and is precluded from power operation. In this mode and because of the current condition of the facility, no actions on part of control room personnel are required to maintain the facility in a safe shutdown condition." Thus, this event did not jeopardize the health and safety of the public.

ATTACHMENT # 1 TO ANO # 8809130324 PAGE: 1 of 1

GPU Nuclear GPU Nuclear Corporation
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September 6, 1988
4410-88-L-0141/0417P

US Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Dear Sirs:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Licensee Event Report 88-11

Attached is Licensee Event Report 88-11 concerning the failure to comply with the Action Statement of Technical Specification 3.8.1.1. on August 7, 1988.

This event is considered reportable pursuant to Title 10 of the Code of Federal Regulations, Section 50.73(a)(2)(i)(B).

Sincerely,
/s/ F. R. Standerfer
F. R. Standerfer

Director, TMI-2

RDW/emf
Attachment

cc: Senior Resident Inspector, TMI - R. J. Conte
Regional Administrator, Region 1 - W. T. Russell
Director, Plant Directorate IV - J. F. Stolz
Systems Engineer, TMI Site - L. H. Thonus

*** END OF DOCUMENT ***
