

NON-PUBLIC?: N
ACCESSION #: 8909280197
LICENSEE EVENT REPORT (LER)

FACILITY NAME: THREE MILE ISLAND UNIT 2 PAGE: 1 OF 04

DOCKET NUMBER: 05000320

TITLE: Failure to Comply With Tech. Spec. 3.8.2.2.1 Due To Low Battery Voltage

EVENT DATE: 08/30/89 LER #: 89-0

5-00 REPORT DATE: 09/22/89

OPERATING MODE: N POWER LEVEL: 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION

50.73(a)(2)(i)

LICENSEE CONTACT FOR THIS LER:

NAME: Russell D. Wells, TMI-2 Licensing TELEPHONE: (717) 948-8461
Engineer

COMPONENT FAILURE DESCRIPTION:

CAUSE: X SYSTEM: EI COMPONENT: BTRY MANUFACTURER: G191
REPORTABLE NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On Wednesday, August 30, 1989, Operations personnel observed that the voltage of cell #71 of Station Storage Battery 2-25B had decreased more than 0.1 volts below the baseline voltage (i.e., 2.265 volts) required by Recovery Operations Plan Section 4.8.2.2.2.b 1. This cell was observed to have had a similar voltage drop on August 9, 1989, during the performance of quarterly Technical Specification (Tech. Spec.) Surveillance Procedure 4223-SUR-3734.01; the battery was recharged at that time. Thus, Operations personnel declared battery bank 2-25B out of service at 1100 hours on August 30, 1989, in order to replace cell #71. This declaration placed the unit in the Action Statement of Tech. Spec. 3.8.2.2.1, which has a 2-hour timeclock. At 1300 hours on August 30, 1989, the timeclock was exceeded. Thus, this event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(b). Station Storage Battery Bank 2-25B was declared operable at 1530 hours on August 30, 1989, following the replacement of cell #71 with a spare cell and performance of the

applicable Tech. Spec. surveillance procedures. The root cause of this event was normal degradation of cell #71 over the life cycle of the battery cell. Trend analysis of the voltage of battery cells will continue to be performed. No further corrective actions are considered necessary.

END OF ABSTRACT

TEXT PAGE 2 OF 04

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

There are two (2) station battery banks (i.e., 2-15B and 2-25B). Each battery bank (IEEE 805 Code-EI) consists of 116 lead calcium cells connected in series. Additionally, six (6) cells are maintained as spares on a separate charger rack. On Wednesday, August 9, 1989, Technical Specification (Tech. Spec.) Surveillance Procedure 4223-SUR-3734.01, "Station Storage Battery Quarterly Checks," was performed. Pursuant to Recovery Operations (ROP) Section 4.8.2.2.2.b.1, the acceptance criteria of this surveillance procedure specified that the voltage of each cell must be greater than or equal to 2.13 volts and must not have decreased more than 0.1 volts from the original (baseline) value. The voltage of cell #71 of Station Storage Battery Bank 2-25B was observed to have decreased more than 0.1 volts from its baseline value of 2.265 volts. Thus, the action statement of Tech. Spec. 3.8.2.2.1, "D.C. Distribution," which specifies a 2-hour timeclock for restoring the inoperable battery to operable status, was entered. Cell #71 was recharged and restored to operable status within the referenced timeclock. On August 30, 1989, operations personnel decided to recheck the voltage of cell #71 as part of the weekly Tech. Spec. surveillance.

III. EVENT DESCRIPTION

On Wednesday, August 30, 1989, the weekly Tech. Spec. surveillance of the Station Storage Battery was performed. Though not required

by this surveillance, Operations personnel conducted an unscheduled performance of Surveillance Procedure 4223-SUR-3734.01 and observed that the voltage of cell #71 had decreased to 2.15 volts. The observed drop in voltage exceeded the acceptance criteria of 0.1 volts below the baseline voltage (i.e., 2.265 volts). The TMI-2 Control Room was notified; battery bank 2-25B was declared inoperable; and the Action Statement of Tech. Spec. 3.8.2.2.1 was entered at 1100 hours on August 30, 1989. Since the cell had experienced a low voltage problem previously (see Section II), it was decided to replace cell #71 with an available spare cell.

TEXT PAGE 3 OF 04

Maintenance personnel were unable to replace the defective cell within the 2-hour timeclock. Thus, at 1300 hours on August 30, 1989, the Action Statement of Tech. Spec. 3.8.2.2.1 was exceeded. Therefore, this event is reportable pursuant to 10 CFR 50.73(a)(2)(i)(b) due to existence of a condition prohibited by the plant's Tech. Specs.

A replacement cell was obtained and installed. Following satisfactory completion of the applicable Tech. Spec. surveillance procedures, battery bank 2-25B was restored to operable status at 1530 hours on August 30, 1989.

IV. ROOT CAUSE OF THE EVENT

This event was caused by excessive voltage decrease in one (1) cell (i.e., #71) of Station Storage Battery Bank 2-25B. The root cause of this event (i.e., the cause of the low voltage in cell #71) has been attributed to normal degradation over the life cycle of the battery cell (i.e., the cell has been used for approximately 13 years).

V. CORRECTIVE ACTIONS

Upon discovery of this event, inoperable cell #71 was replaced with an available spare cell. Cell #71 was placed in the charger rack and tagged as "not to be used as a spare." During the period that battery bank 2-25B was out-of-service due to the replacement of cell #71 (i.e., approximately 6.5 hours), power was supplied to the 2-25B loads via Bus 2-22E.

The cell voltage data from the quarterly Tech. Spec. Surveillance Procedure 4223-SUR-3734.01 was reviewed and it was determined that no other cells were experiencing a similar problem. Further,

continued performance of weekly Tech. Spec. Surveillance Procedure 4223-SUR-3734.01 has continued to verify that the inoperability of cell #71 was an isolated event. Thus, no further corrective actions are considered necessary.

VI. COMPONENT FAILURE DATA

The station storage batteries, including their cells, are manufactured by Gould, Inc. Model #FTCS-29SELLS, Part No. M01-20142.

VII. AUTOMATIC OR MANUALLY INITIATED SAFETY SYSTEM RESPONSES

N/A

TEXT PAGE 4 OF 04

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

The inoperable cell #71 is one (1) of 116 cells comprising Station Storage Battery Bank 2-25B. During this event, the other bank (i.e., 2-15B) remained operable. The Station Storage Batteries provide D.C. power to switch gear controls for breaker trip functions, fire system smoke detectors, inverters for vital power (120 volt A.C.), and miscellaneous pump and valve controls. The majority of the D.C. operated pumps and valve controls are no longer in use. Power was supplied to the 2-25B loads via Bus 2-22E through the rectifier during the battery cell replacement. A single battery bank is designed to supply power to all essential loads for up to two (2) hours per FSAR Section 8.3. However, the safety evaluation attached to TMI-2 Tech. Spec. Change Request No. 51 (reference GPU Nuclear letter 4410-85-L-0135) and approved by NRC License Amendment No. 27, states that due to the current safe-shutdown condition of TMI-2, the present TMI-2 batteries are large enough to handle the essential plant loads for at least eight (8) hours. Considering the decreased loads on the D.C. busses, the powering of D.C. bus loads via Bus 2-22E and battery bank 2-15B, it can be concluded that during the period when battery bank 2-25B was out-of-service, sufficient D.C. power was available to all remaining loads in the event that a loss of off-site power had occurred. Thus, this event did not jeopardize the health and safety of the public.

ATTACHMENT 1 TO 8909280197 PAGE 1 OF 1

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September 22, 1989
4410-89-L-0101/0501P

US Nuclear Regulatory Commission
Washington, DC 20555

Attention: Document Control Desk

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Licensee Event Report 89-05

Dear Sirs:

Attached is Licensee Event Report 89-05 concerning the inoperability of Station Storage Battery Bank 2-25B on August 30, 1989.

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

Sincerely,

M. B. Roche
Director, TMI-2

RDW/emf

Attachment

cc: W. T. Russell - Regional Administrator, Region I
J. F. Stolz - Director, Plant Directorate I-4
L. H. Thonus - Project Manager, TMI Site
F. I. Young - Senior Resident Inspector, TMI

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