General Information or Other (PAR) Event # 42880

Rep Org:	SOUTHERN TESTING SERVICES	**Notification Date / Time:**	10/05/2006 19:20 (EDT)
Supplier:	OTEK CORPORATION	**Event Date / Time:**	10/05/2006 (EDT)
		Last Modification:	10/05/2006
Region:	1	**Docket #:**	
City:	KNOXVILLE	**Agreement State:**	Yes
County:		**License #:**	
State:	TN		
NRC Notified by:	WILLIAM R. WILLIS	**Notifications:**	PAUL KROHN R1
HQ Ops Officer:	PETE SNYDER		THOMAS DECKER R2
Emergency Class:	NON EMERGENCY		VERNE HODGE - email
10 CFR Section:			
21.21	UNSPECIFIED PARAGRAPH		

POTENTIAL DEFECT IN OTEK PANEL METERS

Southern Testing Services (STS) provided information on a potential defect in OTEK Panel Meters. The information applies to 90-265 Volt AC / 10- 32 Volt DC, OTEK Part Numbers: HI-Q114, HI-Q116, HI-Q117, HIQ118, and HI-Q119.

"STS has identified a potential failure cause for the HI-Q class meters that would result in a frozen indicator with no indication that the failure has occurred. The specific failure mode is a failure of the main processor (only) that freezes the display processor. The frozen display inhibits the detection of the main processor failure except by cycling power to the Panel Meter. This failure mode was previously addressed in the Failure Mode Effects Analysis (FMEA) conducted by STS in Test Report S4000-RP-03; however, no credible causes for the failure beyond infant mortality were postulated or had been experienced at the time. Infant mortality failures are minimized by the dedication process that verifies operation of the units prior to shipment to the client.

"STS has just learned from OTEK that of one (1) OTEK Panel Meter had experienced a main processor failure which resulted in a frozen display indicator. This Panel Meter was reportedly in a non-nuclear application. OTEK determined that the likely cause of this failure was a high frequency spike on the power lines caused by running the meter off of a DC generator.

"The STS EMI/RFI qualification program for the OTEK meters qualified them with an anomaly, limiting the surge protection to 500 [Volts peak to peak] for DC powered units. Additionally, high frequency susceptibility testing was successfully completed with a continuous signal of 3.5 [Volts RMS] on the power lines (both AC and DC powered units) from 10 kHz to 200 MHz. Additional testing was done on AC powered units at 7 [Volts RMS]. Testing was conducted in accordance with EPRI TR-102323 to the methods specified in EN 61000-46. The units passed the susceptibility testing at the limits specified, as reported in Test Report S4000-RP-03.

IE19

General Information or Other (PAR) Event # 42880

"Based on the successful surge and high frequency susceptibility testing conducted by STS, it is concluded that the single known failure noted by OTEK was related to operating outside of the parameters tested during qualification of these OTEK meters. The likelihood of such a failure in a nuclear safety related application is considered to be remote."

STS determined that 294 units were provided to nuclear plants in potentially safety related applications where EMI/RFI requirements were imposed. The following plants were effected purchasers: Vermont Yankee, Pilgrim, St. Lucie, and Brown's Ferry.

"OTEK is currently in the process of updating the display board processor programming to detect a failure of the main processor, and provide an indication on the display that a main processor failure has occurred. STS will coordinate with the above utilities when this update becomes available."

****

October 5, 2006

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555
Phone: (301) 816-5100
Fax: (301) 816-5151

Subject: **Notification of Existence of a Potential Defect in OTEK Panel Meters**

Dear Sir/Madam:

In accordance with the requirements set forth in the Code of Federal Regulations Title 10, Part 21 (10CFR21), the following information is submitted:

1. Name and address of the individual or individuals informing the Commission:

   Southern Testing Services (STS)
   10627 Lexington Drive
   Knoxville, TN 37932
   President: Mr. Allen Davidson

   Telephone: (865) 966-5330
   Fax" (865) 675-5399

2. Identification of the facility, the activity, or the basic component supplied for such facility or such activity with the United States which fails to comply or contains a defect:

   Panel Meter, 90-265 VAC/10-32 VDC, Otek Part Numbers HI-Q114, HI-Q116, HI-Q117, HI-Q118, HI-Q119.

3. Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect:

   Original Equipment Manufacturer: **OTEK Corporation**
   Contact: **Dr. Otto Fest**
   Tel: (520) 748-7900

   Dedicating Entity: **Southern Testing Services**
   (See Contact Information in Item 1, above)

4. Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply:

STS has identified a potential failure cause for the HI-Q class meters that would result in a frozen indicator with no indication that the failure has occurred. The specific failure mode is a failure of the *main processor* (only) that freezes the *display processor*. The frozen display inhibits the detection of the main processor failure except by cycling power to the Panel Meter. This failure mode was previously addressed in the Failure Mode Effects Analysis (FMEA) conducted by STS in Test Report S4000-RP-03; however, no credible causes for the failure beyond infant mortality were postulated or had been experienced at the time. Infant mortality failures are minimized by the dedication process that verifies operation of the units prior to shipment to the client.

STS has just learned from OTEK that of one (1) OTEK Panel Meter had experienced a *main processor* failure which resulted in a frozen *display indicator*. This Panel Meter was reportedly in a non-nuclear application. OTEK determined that the likely cause of this failure was a high frequency spike on the power lines caused by running the meter off of a DC generator.

The STS EMI/RFI qualification program for the OTEK meters qualified them with an anomaly, limiting the surge protection to 500 V_{P-P} for DC powered units. Additionally, high frequency susceptibility testing was successfully completed with a continuous signal of 3.5 V_{RMS} on the power lines (both AC and DC powered units) from 10 kHz to 200 MHz. Additional testing was done on AC powered units at 7 V_{RMS}. Testing was conducted in accordance with EPRI TR-102323 to the methods specified in EN 61000-4-6. The units passed the susceptibility testing at the limits specified, as reported in Test Report S4000-RP-03.

Based on the successful surge and high frequency susceptibility testing conducted by STS, it is concluded that the single known failure noted by OTEK was related to operating outside of the parameters tested during qualification of these OTEK meters. The likelihood of such a failure in a nuclear safety related application is considered to be remote.

5. The date on which the information of such defect or failure to comply was obtained:

OTEK notified STS via email on September 18, 2006 following in-person conversations on September 12, 2006 with Southern Testing Services and TVA personnel.

6. In case of a basic component which contains a defect or fails to comply, the number and location of all such components in use at, supplied for, or being supplied for one or more facilities or activities subject to the regulations in this part:

A total of 294 units have been provided to Nuclear Plants in potentially safety-related applications where EMI/RFI requirements were imposed. The following Effected Purchasers have been identified.

Vermont Yankee
Pilgrim
St. Lucie
Brown's Ferry

7. The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action, and the length of time that has been or will be taken to complete the action.

   OTEK is currently in the process of updating the display board processor programming to detect a failure of the main processor, and provide an indication on the display that a main processor failure has occurred. STS will coordinate with the above utilities when this update becomes available.

8. Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees:

   None beyond that discussed above.

If there are any further questions, please don't hesitate to contact us.

Very truly yours,

William R. Willis
Vice President, QA
Utility Services Division of ATC
Phone: (518) 382-0056
Fax: (518) 382-0283
e-mail: wwillis@argoturbo.com