



**Boston Edison**

Pilgrim Nuclear Power Station  
Rocky Hill Road  
Plymouth, Massachusetts 02360

**E. T. Boulette, PhD**

Senior Vice President — Nuclear

October 31, 1994  
BECO Ltr. #94-118

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555

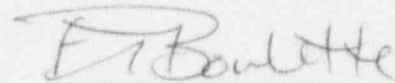
Docket No. 50-293  
License No. DPR-35

**10 CFR Part 21--30 Day Report**

Enclosed with this letter is a 30 day report to the NRC required by 10 CFR 21.21(c)(3)(ii) regarding incorrect trip units (i.e.; long time/short time/instantaneous (LSIT1) vs. long time/short time (LST1)) installed in safety related electrical feeder breakers, General Electric (GE) Type AK-50.

The breakers were supplied to Boston Edison Company (BECO) at Pilgrim Nuclear Power Station(PNPS) by the General Electric Company, King of Prussia, PA.

The Significant Safety Hazards determination was made on September 30, 1994. The NRC was notified by fax on October 7, 1994.

  
E. T. Boulette, PhD

Enclosure: 10 CFR Part 21--30 Day Report

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## 10 CFR Part 21-30 Day Report

The format of the report follows the requirements found in 10 CFR Part 21.21(c)(4), paragraphs (i) through(viii). The Part 21 requirement is quoted in **CAPITALIZED BOLD** print followed by the BECo response.

**"10 CFR PART 21.21(C)(4):"**

**"THE WRITTEN REPORT REQUIRED BY THIS PARAGRAPH SHALL INCLUDE, BUT NEED NOT BE LIMITED TO, THE FOLLOWING INFORMATION, TO THE EXTENT KNOWN:"**

**"(I) NAME AND ADDRESS OF THE INDIVIDUAL OR INDIVIDUALS INFORMING THE COMMISSION. "**

E. T. Boulette, Ph.D., Senior Vice-President, Nuclear  
Boston Edison Company,  
Pilgrim Nuclear Power Station  
600 Rocky Hill Road  
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**"(II) IDENTIFICATION OF THE FACILITY, THE ACTIVITY, OR THE BASIC COMPONENT SUPPLIED FOR SUCH FACILITY OR SUCH ACTIVITY WITHIN THE UNITED STATES WHICH FAILS TO COMPLY OR CONTAINS A DEFECT."**

The facility is Pilgrim Nuclear Power Station (PNPS),  
Docket No. 50-293,  
Facility Operating License No. DPR-35

**"(III) IDENTIFICATION OF THE FIRM CONSTRUCTING THE FACILITY OR SUPPLYING THE BASIC COMPONENT WHICH FAILS TO COMPLY OR CONTAINS A DEFECT."**

The defective electrical feeder breakers were supplied to PNPS by the General Electric Company, NPSD, King of Prussia, PA.

**"(IV) 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."**

### Background:

Spare PNPS 480V circuit breakers were sent to the General Electric Company (GE), King of Prussia, PA, for overhaul and upgrade (dedication) for safety related applications. This was specified in BECo PO # RRR001864, items 3 & 4.

During shop work testing by PNPS, conducted during pre-installation testing but prior to final acceptance, it was noted that the trip units installed in the upgraded safety related breakers were of the "long time/short time/instantaneous" (LSIT1) type rather than the specified "long time/short time" (LST1) type.

Although the deviations from the technical requirements of the purchase order were properly identified prior to installation, the PNPS guidelines for conforming to 10 CFR Part 21 require that a Substantial Safety Hazard Evaluation (SSH) be performed, assuming the deviation remains undetected and is subsequently installed in the plant.

### **Substantial Safety Hazards (SSH) Determination:**

On September 30, 1994, the following Substantial Safety Hazards determination was made after discovery of the incorrect trip units during pre-installation testing and prior to final acceptance.

The worst case random single failure of a safety related component would be the loss of the "A" Emergency Diesel Generator (EDG). Because of the deviation contained in the upgraded 480 volt feeder breakers, a loss of breaker trip coordination would occur from Load Center B2 to Load Center B6. Therefore, an electrical fault in a non-safety related load on B6 could cause the "B" train feeder breakers to trip before the load breaker. Consequently, a loss of the "A" EDG would leave B6 de-energized.

The following is a hypothetical sequence of events relating to the subject breakers:

- DBA LOCA Inside Containment coincident with loss of offsite power
- EDG "A" fails to start
- A non-safety related load on B6 faults causing the B2 feeder breakers to trip

The above events would leave B6 and the "A" train ECCS de-energized. This means only "B" core spray would be available for makeup because the LPCI loop selection components are powered from B6. The availability of only one core spray pump during a DBA LOCA is an unanalyzed condition.

Using the definition of defect contained in Part 21, the evaluated deviation could cause a Substantial Safety Hazard and is, therefore, reportable to the NRC.

### **"(V) THE DATE ON WHICH THE INFORMATION OF SUCH DEFECT OR FAILURE TO COMPLY WAS OBTAINED."**

The determination of a substantial safety hazard regarding the incorrect trip units was made on September 30, 1994.

### **"(VI) IN THE 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."**

The two (2) breakers supplied to PNPS by GE with incorrect trip units were spare PNPS breakers sent to GE for upgrading for use in "dedication" for safety related applications. The breakers were specified for the application described in the above SSH evaluation. We know of no other instance of this event at any other nuclear power plant. Such information would be available from GE, if at all.

### **"(VII) 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."**

Within days of the discovery of the defects, the defective breakers were returned to GE for rework to supply the correct type of trip unit as specified on the original purchase order. The corrected breakers were returned to PNPS and are now installed after successfully passing the required bench and load testing.

• "(VIII) 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."

• Continued diligent receipt inspection and very specific instructions on purchase orders would be the only advice offered by PNPS to other licensees or purchasers of safety related components.