50.55(e)

PP&L

TWO NORTH NINTH STREET, ALLENTOWN, PA. 18101 PHONE: (215) 770-5151

NORMAN W. CURTIS
Vice President-Engineering & Construction-Nuclear
770-5381

July 14, 1981

Mr. Boyce H. Grier
Director, Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

SUSQUEHANNA STEAM ELECTRIC STATION
FINAL REPORT OF A DEFICIENCY RELATING TO
AGASTAT TIMING RELAYS
ERs 100450/100503 FILE 840-4/900-10
PLA-874

References: PLA-616 (2/11/81)
PLA-508 (7/11/80)

Dear Mr. Grier:

This letter serves to provide the Commission with a final report of a deficiency relating to the use of Agastat pneumatic timing relays. As reported in PLA-508, these relays were determined to exhibit premature time out and drifting set points.

The problem involving Agastat relay set point drift has been determined to be not reportable under 10 CFR 50.55(e). NRC Region I Reactor Inspector, Mr. L. Narrow, was advised of this conclusion in a telephone conversation with Mr. A. Sabol of PP&L on April 28, 1981.

The problem involving the premature time out of the Agastat relay is still considered reportable under 50.55(e). The attached final report contains a description of this deficiency, its cause, safety implications and the corrective action taken and planned.

We trust the Commission will find the information provided by this report to be satisfactory.

Very truly yours,

N. W. Curtis
Vice President-Engineering & Construction-Nuclear

FLW:sab

IE27 S
1/1

Attachment

cc: Mr. Victor Stello (15)
Director-Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. G. McDonald, Director (1)
Office of Management Information & Program Control
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. Gary Rhoads
U. S. Nuclear Regulatory Commission
P.O. Box 52
Shickshinny, PA 18655

SUBJECT

Agastat pneumatic timing relays, premature time-out.

DESCRIPTION OF PROBLEM

The Agastat pneumatic time delay relay has been identified as having a premature time-out condition. Two (2) Agastat Model 7012AD timers in circuits turned over to PP&L exhibited this time-out condition. Subsequently, 37 additional timers in the Unit I and common equipment were tested (26 are installed in "Q" listed equipment), with 21 timers exhibiting the premature time-out condition.

CAUSE

The first two (2) Agastat timers identified were returned to the Control Products Division of the Amerace Corporation for investigation. The Control Products Division stated that the condition was due to a small amount of compressor oil deposited on the diaphram coupler, which was the result of one of the vendors using unfiltered air at one station of a blow-off operation. The Control Products Division noted that this condition, which could not be detected in their inspection operations, existed on a very small percentage of units shipped during the last few months of 1977. The affected relays were manufactured between the 45th week of 1977 to the 12th week of 1978 (date coded serial numbers 7745 to 7812). However, not all relays manufactured with a date code of 7745 to 7812 exhibit the premature time-out condition.

ANALYSIS OF SAFETY IMPLICATIONS

Upon investigation, it has been determined that Agastat pneumatic timing relays manufactured within the date code period of 7745 to 7812 are used in the Control Structure Cooling Systems. The time delay relays are used to override a temporary loss or low flow in the Common Air Duct. The premature time-out of a time delay relay could de-energize a complete Control Structure Cooling System. Since the Agastat time delay relays, used in the A and B fan circuits, were manufactured during the same time period (7745 to 7812), a common mode failure and subsequent loss of both Control Structure Cooling Systems is considered possible.

Project Engineering has determined that, if the condition had gone uncorrected, it would have adversely affected the safe operation of the plant, and therefore, is reportable under the requirements of 10CFR 50.55(e).

CORRECTIVE ACTION

The Control Products Division of the Amerace Corporation has determined the deficiency in the relays to be a manufacturing problem, and have instituted the following:

1) Written procedures have been revised to use only filtered air at the stations for blow-off operations.
2) All compressors furnishing air to the stations for blow-off operations now have air filters.
3) An ultrasonic degreasing operation has been added to clean the parts after the blow-off operation.
4) A process inspection has been added before and after the ultrasonic degreasing operation to check for an oil film on the parts.

An inspection of all safety related and non safety related Agastat pneumatic timing relays is being performed. All relays class 1E and non-class 1E, which were manufactured during the time period of 7745 to 7812, will be returned to the Control Products Division of the Amerace Corporation for cleaning and adjusting. The relays returned by the Control Products Division will be classified as non-class 1E and will be used as needed in non-class 1E circuits. All relays removed from a class 1E circuit will be replaced with qualified Agastat pneumatic timing relays (Agastat E7000 Series timing relays).

The qualifications for the Agastat E7000 Series timing relays are currently being reviewed by Bechtel Project Engineering to determine if they meet the Susquehanna requirements. If any of the relays do not meet the qualification requirements for Susquehanna, they will be tracked and recorded on Bechtel NCR 7287. Each E7000 relay installed by Bechtel will remain tagged under this NCR until Project Engineering approves the qualification documentation. PP&L/ISG will track and record the installation location for relays released to them.

CONCLUSION

The premature time-out of the Agastat pneumatic timing relay was a manufacturing problem, which has been identified as occurring during a specific time interval (date codes 7745 to 7812). The replacement or cleaning and adjusting of the Agastat pneumatic timing relays will resolve the premature time-out condition for SSES.