UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

Docket No. 50-387
50-388

15 JAN 1981

Pennsylvania Power & Light Company
ATTN: Mr. Norman W. Curtis
Vice President
Engineering and Construction - Nuclear
2 North Ninth Street
Allentown, Pennsylvania 18101

Gentlemen:

Subject: Improper Sloping of GE Piping and Tubing

Thank you for your letter, PLA-593, dated December 23, 1980, which forwarded a final report pursuant to 10 CFR 50.55(e) regarding the subject matter.

This matter will be reviewed during a subsequent inspection.

Your cooperation with us is appreciated.

Sincerely,

Robert T. Carlson, Chief
Reactor Construction and
Engineering Support Branch

cc:
A. R. Sabol, Manager, Nuclear Quality Assurance
W. E. Barberich, Licensing Engineer
H. W. Keiser, Superintendent of Plant

PP&L

TWO NORTH NINTH STREET, ALLENTOWN, PA. 18101 PHONE: (215) 821-5151

NORMAN W. CURTIS
Vice President - Engineering & Construction - Nuclear
821-5381

December 23, 1980

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

SUSQUEHANNA STEAM ELECTRIC STATION
REVISION TO THE FINAL REPORT OF A DEFICIENCY
IN IMPROPER SLOPING OF PIPING & TUBING LINES
FOR G.E. INSTRUMENTATION
ERs 100450/100508 FILE 840-4/900-10
PLA-593

Dear Mr. Grier:

This letter transmits a revised final report relative to a deficiency in the installation of instrumentation piping and tubing connected to G.E. instrumentation. The revised report supercedes information previously provided by PLA-512 which reported the deficient condition in accordance with the provisions of 10CFR50.55(e).

The revised report provides a table of acceptance criteria (Table I) for reworked lines. The acceptance criteria for future instrument line installations remains as originally stated (>½" per foot) in PLA-512.

We trust you will find this supplemental information to be sufficient.

Very truly yours,

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

Attachment
ARS:mcb

Dupe
8101050332

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

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

Mr. Robert M. Gallo
U. S. Nuclear Regulatory Commission
P. O. Box 52
Shickshinny, Pennsylvania 18655

MCAR 1-58

FINAL REPORT (REV 1)

Subject

The installed piping and tubing to GE equipment is lacking proper slope.

Description of Potential Problem

General Electric Piping and Tubing, Process Instrumentation Specification 22A4019, Paragraph 4.2.2.1.2, states: "Where slopes are indicated in the installation arrangement schematics or elsewhere, a minimum slope of 1/2" per foot shall be provided."
Contrary to the stated requirement, Bechtel Nonconformance Report 5807 lists 41 small pipe installations to General Electric equipment that do not meet the minimum 1/2" per foot slope requirement.

Cause

Three conditions may have contributed to the installation error.
They are:

1. Project engineering did not specify the required slope (i.e.1/2" per foot min) on some of the design drawings.

2. Construction failed to incorporate specified slope requirements on some of the field prepared fabrication isometric drawings.

3. Construction failed in some cases to install the small pipe to the slope specified on the Field fabrication isometric drawings.

Analysis of Safety Implications

Project Engineering has determined if the deficiency were to have gone uncorrected it could have adversely affected the safe operation of the plant, and it is therefore deemed reportable under 10CFR 50.55(e). This deficiency could produce an error in essential instrumentation in excess of design limits. Inaccurate instrument readings and delayed trips could result on lines which have differential instruments which function on low differential pressures. This would be the result of air entrapment in the lines caused by improper slope. However, lines with devices which operate on high differential pressure would not be as sensitive to slope variations and would not adversely affect the safe operation of the plant.

Corrective Action

Field quality control has documented on Nonconformance Reports 5807 and 6055 all lines that do not meet the requirements of the GE specification (i.e., 1/2" per foot minimum slope).

Project engineering has reviewed the problem with General Electric engineering and revised acceptance criteria have been developed for "installed" piping for the various categories of instrumentation involved. Engineering Memo for Construction 4992, dated June 16, 1980 forwarded this criteria to the field.

Rev 1 | Those lines which have not yet been installed shall be installed with a slope ½" per foot. Installed lines which require rework shall be sloped to the requirements of Table I as a minimum. Field construction is reworking identified lines which do not meet the revised acceptance criteria.

The Unit I as-built drawings will include the actual slope of installed lines. Project engineering will revise Unit II SKM's to include a note that the pipe and or tubing shall be installed to have a minimum slope of ½" per foot (Ref. GE Spec. 22A4019) and Unit II P&IDs to include the GE specification as a reference. Field engineering will revise the Unit II fabrication isometrics to reflect the above requirements.

Projected Completion of Corrective Action

All affected drawings are projected to be revised and Unit I as-builts are projected to be completed by December 30, 1980. In the interim, field construction was notified by Engineering Memo for Construction 5062 to take steps to insure that the subject pipe and tubing are installed in accordance with GE Specification 22A4019. Any exceptions are to be documented by a Nonconformance Report.

TABLE I

	Lines Listed in Note 2	Lines Listed in Note 3
From RPV or process line connection to penetration flued head	$\geq$ 5/16" per foot continuous slope	continuous positive slope (1)
From penetration flued head to excess flow check valves (only if length is less than 3 feet)	$\geq$ 3/16" per foot continuous slope	Zero slope OK

Notes:

1. A slope of $\geq$ 1/8" per foot is considered positive.

2. The following functions are included:
   (a) RPV level (except top head level sensing line)
   (b) Core Spray d p
   (c) Main Steam flow signal to feedwater control system

3. The following functions are included:
   (a) Top head level sensing line
   (b) Core dp
   (c) Main steam high flow isolation
   (d) Elbow taps (Recirc, RHR, RCIC, HPCI, RWCU Systems)
   (e) Jet pump instrumentation
   (f) Recirc pump dp
   (g) Recirc loop suction pressure
   (h) Head flange seal pressure
   (i) Recirc pump seal pressure
   (j) Below core plate pressure
   (k) RPV drain line pressure

4. Recirc loop sample line does not require slope