UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 3, 1996

50-387/388

Mr. Robert G. Byram
Senior Vice President-Nuclear
Pennsylvania Power and Light
Company
2 North Ninth Street
Allentown, PA 18101

SUBJECT: AMENDMENT TO THE TECHNICAL SPECIFICATIONS FOR SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 (TAC NOS. 91998 and 91999)

Dear Mr. Byram:

The Commission has issued the enclosed Amendment No. 156 to Facility Operating License No. NPF-14 and Amendment No. 127 to Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station, Units 1 and 2. These amendments are in response to your letter dated March 31, 1995.

The amendments incorporate a change in the Station Technical Specifications (TSs) for both units that modifies the requirement in TS 4.4.4.3.a to have the pH of the reactor coolant measured every 72 hours. The amendments add the clarification that the pH measurement will be performed only when the coolant conductivity is greater than 1.0 μmho/cm at 25°C (77°F).

It should be noted that the surveillance requirement in TS 4.4.4.3.b, which is not being changed by these amendments, requires that the pH be measured every 8 hours whenever the conductivity is greater than the conductivity limit in TS Table 3.4.4-1. For Operational Condition 1, the limit in TS Table 3.4.4-1 is also 1.0 μmho/cm and the TS 4.4.4.b.3.b would take precedent over TS 4.4.4.b.3.a (i.e., at a conductivity greater than 1.0 μmho/cm at 25°C the pH would be measured at 8-hour intervals, not 72-hour intervals, until the conductivity was reduced below the limit). For other operational conditions, the conductivity limit in TS Table 3.4.4-1 is above 1.0 μmho/cm and the two TS requirements would not conflict.

NRC FILE CENTER COPY

9601160176 960103
PDR ADOCK 05000387
P PDR

DF01

A copy of our Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Biweekly Federal Register Notice.

Sincerely,

original signed by J.Stolz for

Chester Poslusny, Senior Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-387/50-388

Enclosures: 1. Amendment No. 156 to License No. NPF-14
2. Amendment No. 127 to License No. NPF-22
3. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:
Docket File
PUBLIC
PDI-2 Reading
SVarga
JStolz
MO'Brien
CPoslusny
OGC
GHill(4)
JDonohew
CGrimes
JStrosnider
ACRS
WPasciak, RGN-I

OFC	:PDI-2/LA	:ADP:PM	:PDI-2/PM	:EMCB	:OGC	:PDI-2/D
NAME	:MO'Brien	:JDonohew	:CPoslusny:mw	:JStrosnider:	:GHoller	:JStolz
DATE	:11/29/95	:11/29/95	:11/21/95	:11/6/95	:12/13/95	:12/29/95

OFFICIAL RECORD COPY FILENAME: SU91998.AMD

A copy of our Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Biweekly Federal Register Notice.

Sincerely,

Chester Poslusny, Senior Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-387/50-388

Enclosures: 1. Amendment No. 156 to License No. NPF-14
2. Amendment No.127 to License No. NPF-22
3. Safety Evaluation

cc w/encls: See next page

Mr. Robert G. Byram
Pennsylvania Power & Light Company

Susquehanna Steam Electric Station,
Units 1 & 2

cc:

Jay Silberg, Esq.
Shaw, Pittman, Potts & Trowbridge
2300 N Street N.W.
Washington, D.C. 20037

Bryan A. Snapp, Esq.
Assistant Corporate Counsel
Pennsylvania Power & Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Mr. J. M. Kenny
Licensing Group Supervisor
Pennsylvania Power & Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Mrs. Maitri Banerjee
Senior Resident Inspector
U. S. Nuclear Regulatory Commission
P.O. Box 35
Berwick, Pennsylvania 18603-0035

Mr. William P. Dornsife, Director
Bureau of Radiation Protection
Pennsylvania Department of
Environmental Resources
P. O. Box 8469
Harrisburg, Pennsylvania 17105-8469

Mr. Jesse C. Tilton, III
Allegheny Elec. Cooperative, Inc.
212 Locust Street
P.O. Box 1266
Harrisburg, Pennsylvania 17108-1266

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406

Mr. Harold G. Stanley
Vice President-Nuclear Operations
Susquehanna Steam Electric Station
Pennsylvania Power and Light Company
Box 467
Berwick, Pennsylvania 18603

Mr. Herbert D. Woodeshick
Special Office of the President
Pennsylvania Power and Light Company
Rural Route 1, Box 1797
Berwick, Pennsylvania 18603

George T. Jones
Vice President-Nuclear Engineering
Pennsylvania Power and Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Dr. Judith Johnsrud
National Energy Committee
Sierra Club
433 Orlando Avenue
State College, PA 16803

Chairman
Board of Supervisors
738 East Third Street
Berwick, PA 18603

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-387

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 156
License No. NPF-14

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:

   A. The application for the amendment filed by the Pennsylvania Power & Light Company, dated March 31, 1995, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;

   C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

9601160183 960103
PDR ADOCK 05000387
P PDR

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-14 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 156 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PP&L shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and is to be implemented within 30 days after its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz

John F. Stolz, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 3, 1996

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 127
License No. NPF-22

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:

   A. The application for the amendment filed by the Pennsylvania Power & Light Company, dated March 31, 1995, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;

   C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

SURVEILLANCE REQUIREMENTS

4.4.4 The reactor coolant shall be determined to be within the specified chemistry limit by:

a. Measurement prior to pressurizing the reactor during each startup, if not performed within the previous 72 hours.

b. Analyzing a sample of the reactor coolant:

1. Chlorides at least once per:

a) 72 hours, and

b) 8 hours whenever conductivity is greater than the limit in Table 3.4.4-1.

2. Conductivity at least once per 72 hours.

3. pH at least once per:

a) 72 hours whenever reactor coolant conductivity exceeds 1.0 μ mho/cm, and

b) 8 hours whenever conductivity is greater than the limit in Table 3.4.4-1.

c. Continuously recording the conductivity of the reactor coolant, or, when the continuous recording conductivity monitor is inoperable, obtaining an in-line conductivity measurement at least once per:

1. 4 hours in OPERATIONAL CONDITIONS 1, 2 and 3, and

2. 24 hours at all other times.

d. Performance of a CHANNEL CHECK of the continuous conductivity monitor with an in-line flow cell at least once per:

1. 7 days, and

2. 24 hours whenever conductivity is greater than the limit in Table 3.4.4-1.

ATTACHMENT TO LICENSE AMENDMENT NO. 156

FACILITY OPERATING LICENSE NO. NPF-14

DOCKET NO. 50-387

Replace the following page of the Appendix A Technical Specifications with enclosed page. The revised page is identified by Amendment number and contains vertical lines indicating the area of change.

REMOVE	INSERT
3/4 4-11	3/4 4-11

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-22 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 127 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PP&L shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and is to be implemented within 30 days after its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz

John F. Stolz, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 3, 1996

ATTACHMENT TO LICENSE AMENDMENT NO. 127

FACILITY OPERATING LICENSE NO. NPF-22

DOCKET NO. 50-388

Replace the following page of the Appendix A Technical Specifications with enclosed page. The revised page is identified by Amendment number and contains vertical lines indicating the area of change.

REMOVE	INSERT
3/4 4-11	3/4 4-11

SURVEILLANCE REQUIREMENTS

4.4.4 The reactor coolant shall be determined to be within the specified chemistry limit by:

a. Measurement prior to pressurizing the reactor during each startup, if not performed within the previous 72 hours.

b. Analyzing a sample of the reactor coolant:

1. Chlorides at least once per:

a) 72 hours, and

b) 8 hours whenever conductivity is greater than the limit in Table 3.4.4-1.

2. Conductivity at least once per 72 hours.

3. pH at least once per:

a) 72 hours whenever reactor coolant conductivity exceeds 1.0 μ mho/cm, and

b) 8 hours whenever conductivity is greater than the limit in Table 3.4.4-1.

c. Continuously recording the conductivity of the reactor coolant, or, when the continuous recording conductivity monitor is inoperable, obtaining an in-line conductivity measurement at least once per:

1. 4 hours in OPERATIONAL CONDITIONS 1, 2 and 3, and

2. 24 hours at all other times.

d. Performance of a CHANNEL CHECK of the continuous conductivity monitor with an in-line flow cell at least once per:

1. 7 days, and

2. 24 hours whenever conductivity is greater than the limit in Table 3.4.4-1.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 156 TO FACILITY OPERATING LICENSE NO. NPF-14

AMENDMENT NO. 127 TO FACILITY OPERATING LICENSE NO. NPF-22

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2

DOCKET NOS. 50-387 AND 388

1.0 INTRODUCTION

By letter dated March 31, 1995, the Pennsylvania Power and Light Company (the licensee) submitted a request to change Surveillance Requirement 4.4.4.b.3.a, Reactor Coolant System Chemistry, in the Technical Specifications (TSs) for Susquehanna Steam Electric Station, Units 1 and 2 (the Station). The licensee requested that the current surveillance requirement, to measure the pH of the reactor coolant every 72 hours for all reactor modes of operation (i.e., at all times), be amended. The licensee proposed to add the clarification that the pH measurement will be performed only when the coolant conductivity (or specific conductance) is greater than 1.0 μmho/cm at 25°C (77°F).

The measurements for chlorides in and conductivity of the reactor coolant, and the channel check for the recording conductivity monitor in the other surveillance requirements for the reactor coolant chemistry are not being changed by this request.

2.0 EVALUATION

2.1 Background

The periodic measurement of the pH and conductivity of the reactor coolant is part of the maintenance of the water quality in the reactor coolant by the licensee to minimize the probability of corrosion-induced failure of the reactor coolant pressure boundary. For boiling water reactor (BWR) plants, the staff has issued Regulatory Guide (RG) 1.56, "Maintenance of Water Purity in Boiling Water Reactors," dated July 1978, to provide guidance on acceptable water quality for BWRs. It applies to the Station. The RG provides a table of acceptable reactor water chemistry limits for BWRs. The range of acceptable pH values for BWR reactor coolant in the table is the following:

9601160185 960103
PDR ADOCK 05000387
P PDR

Steaming rates greater than 1% of rated steam flow	pH not less than 5.6 nor greater than 8.6
Reactor is not pressurized (i.e., at or below 212°F(100°C))	pH not less than 5.3 nor greater than 8.6

The above range of pH values are for the minimum pH and maximum pH around a pH value of 7, of a neutral solution (i.e., neither acidic or basic).

The limits for the maximum conductivity of the reactor coolant in the table are from 1.0 to 10 μmho/cm at 25°C (77°F).

The pH and conductivity limits in Table 3.4.4-1 of the Station TSs are the same as the values above and in the table of acceptable values in the RG.

The TS 3.6.B.c for Peach Bottom Atomic Power Station, also a BWR plant, for the measurement of the pH of the reactor coolant states that the pH shall be measured during power operation only if the conductivity is greater than 1.0 μmho/cm at 25°C (77°F). Therefore, the staff has previously approved the same restriction for when the pH would be measured that the licensee has proposed for the Station. The basis for the restricted surveillance on pH measurements for Peach Bottom is stated in the Peach Bottom TSs. The basis of these TSs indicate that when conductivity is in its proper range the pH of the reactor coolant must also be within its normal range. In BWRs, where no additives are used and where neutral pH is maintained, the conductivity provides a very good indicator of the quality of the reactor coolant. Conductivity measurements are required on a continual basis because changes in this parameter are an indication of abnormal conditions in the reactor coolant.

2.1 Evaluation

The conductivity, or specific conductance, of a solution, in this case the reactor coolant, is a measure of the ability of the solution to conduct electric charge. The greater the ability or higher the conductivity, the more ions in the solution. Because both the negative and positive ionic species in the solution will conduct, the specific conductance of the solution is the sum of the equivalent conductance for each ionic species in the solution times the concentration of that species:

$$C = \text{Sum}\ (G(i) \times Con(i))/1000 \qquad (1)$$

where C = specific conductance in μmho/cm at 25°C (77°F)
Sum () = Sum of all the ionic species i
G(i) = equivalent conductance in μmho-cm^2 at 25°C (77°F) of ionic species i in solution
Con(i) = Concentration in equivalents/liter of ionic species i.

The units for the concentrations is equivalents/liter which is moles/liter times the number of units of charge of the ionic species (e.g., Cl- is one unit and SO4-- is two units).

Because the solution is always neutral in charge, the sum of positive charged ionic species is equal to the sum of the negative charged ionic species:

$$\text{Sum (Con(+i))} = \text{Sum (Con(-i))}. \tag{2}$$

One of the positive charged ionic species in the solution is the hydrogen ion (H+), which is related to the pH by the following equation:

$$pH = -\log(Con(H+)). \tag{3}$$

The pH is also measured at 25°C. The hydrogen ion concentration is related to the hydroxyl ion (OH-) concentration by the following equation:

$$Con(H+) \times Con(OH-) = Kw = 10^{-14} \tag{4}$$

at 25°C, and the concentrations for the hydrogen and hydroxyl ions are in moles, or equivalents, per liter because both ions have single charges.

Therefore, the pH of the reactor coolant is related to the conductivity of the coolant.

Figure 2 of RG 1.56 shows the conductivity and pH of simple aqueous solutions containing different amounts of hydrochloric acid (HCl) and sodium hydroxide (NaOH), which are commonly in the reactor coolant. This figure is attached to this safety evaluation report.

The figure represents the following equations for conductivity and pH:

$$1000xC = G(H+)xCon(H+) + G(Na+)xCon(Na+) + G(OH-)xCon(OH-) + G(Cl-)xCon(Cl-) \tag{5}$$

and $$pH = -\log(Con(H+)). \tag{3}$$

As the concentrations of the chlorine and sodium ions are varied, the specific conductance and the pH of the solution follows the solid V-shaped curve in the attached figure.

When the coolant pH is close to the limits of the range of acceptable pH values recommended in RG 1.56, the coolant ion concentration will be essentially the hydrogen and chlorine ions if the pH is close to 5.6:

$$1000xC = G(H+)xCon(H+) + G(Cl-)xCon(Cl-) \tag{6}$$

and essentially the hydroxyl and sodium ions if the pH is close to 8.6:

$$1000xC = G(H+)xKw/Con(H+) + G(Na+)xCon(Na+) \tag{7}$$

through the application of equations (3) and (4). For example, at a pH value of 5.6, the hydroxyl ion concentration is less than 1 percent of the hydrogen ion concentration and the solution is essentially only the hydrogen and chlorine ions. Using the conservation of charge in equation (2), the equations for the conductivity and hydrogen ion concentration are the following:

$$1000xC = [G(H+) + G(Cl-)]xCon(H+)] \quad \text{for pH about 5.6} \quad (8)$$

$$1000xC = [G(H+)xKw/Con(H+) + G(Na+)xCon(H+)] \quad \text{for pH about 8.6.} \quad (9)$$

Therefore, the pH, or hydrogen ion concentration, can be easily determined from the conductivity of the solution.

The curve of conductivity versus pH is V-shaped because the conductivity increases with increasing concentrations of either the hydrogen or hydroxyl ion concentration, but the pH decreases with increasing hydrogen ion concentration and increases with increasing concentrations of hydroxyl ion concentration. Therefore, for pH less than 7, the pH decreases and conductivity increases with the hydrogen ion concentration. For a pH greater than 7, both the pH and the conductivity increase with the hydroxyl ion concentration. The minimum conductivity versus pH is at approximately 7.1 because of the difference in equivalent conductance for the hydrogen and hydroxyl ions. The equivalent conductance for the hydrogen ion is about twice that for the hydroxyl ion.

If a horizontal line is drawn on the attached figure for a measured specific conductance at 25°C (77°F), the line will cross the pH-conductance curve at two pH values. These two values are the maximum and minimum pH values for that conductivity and mark the ranges of possible pH values for that conductivity of the HCl/NaOH solution. The possible pH values will lie between the maximum and minimum pH values based on the different HCl/NaOH solutions that have the same measured specific conductance.

Because the reactor coolant is not a simple HCl/NaOH solution, the coolant conductivity would have additional terms for the additional ion species in the coolant solution. However, if these other ion species are disregarded (or assumed to be included in the hydrogen ion concentration), the attached figure for HCl/NaOH specific conductance will provide the range of maximum and minimum values of pH for the coolant sample that is greater than is actually true for the coolant. This is to say that the range of possible pH values from the attached figure for the measured conductivity will be greater than the true pH values for actual coolant samples.

However, the attached figure does not represent the greatest range of pH values for the conductivity of a reactor coolant sample because the chlorine and sodium ions do not have the lowest equivalent conductance values for

possible ion species in the coolant. For example, if the sulfate ion is present instead of the chlorine ion, the range of pH values would be slightly greater because the sulfate ion equivalent conductance is lower than the chlorine ion equivalent conductance.

The licensee has proposed to use the attached figure to determine from the coolant conductivity if it is necessary to measure the pH of the sample. To do this, the measured conductivity must indicate the maximum range of pH for the sample (i.e., the actual pH can not be outside the range indicated by the conductivity and the attached figure). If the range of pH indicated by the conductivity is within acceptable values for the reactor coolant, then the pH does not have to be separately measured. Therefore, the conductivity would have indicated that all the possible pH values for the coolant are within acceptable values and the pH of the coolant does not have to be separately measured.

The error in using the V-shaped curve in the attached HCl/NaOH figure for the maximum range of pH values in the coolant is from the following: (1) the equivalent conductance for the chlorine and sodium ions are not the lowest values for possible ionic species in the coolant and (2) the error in the conductivity measurement for the coolant sample is not being taken into consideration. The error in equivalent conductance values is less than 80/350 (equivalent conductance of chlorine ions to hydrogen ions) for acidic solutions (pH about 5.6) and less than 50/200 (equivalent conductance of sodium ions to hydroxyl ions) for basic solutions (pH about 8.6). The 80 and 50 are the equivalent conductance values for chlorine and sodium ions, respectively. This is an error of about 25 percent. The error in the conductivity measurement is about 5 percent. The total error would be about 30 percent.

An error of 30 percent in hydrogen ion concentration is about an error of 0.11 units in the pH. This is about the error in the measurement of pH. The attached curve is not sufficiently detailed to show differences as small as 0.1 pH units. Therefore, the error in using the V-shaped curve in the attached figure to determine the maximum range of pH values in the coolant is not significant.

The licensee has proposed to use a conductivity value of 1.0 μmho/cm at 25°C (77°F) as the limit at or below which the pH measurement of the reactor coolant does not have to be performed. From the attached figure, the range of pH values of the coolant would be between 5.6 and 8.6 (i.e., $5.6 < pH > 8.6$). This range of pH values for the reactor coolant is in accordance with the table of allowable values in RG 1.56 and the pH measurement of the coolant would not be necessary. As discussed above, the error in the pH values at this limit will be about 0.1 units and this error is sufficiently small to not be significant.

Therefore, the conductivity limit of 1.0 μmho/cm at 25°C (77°F) proposed by the licensee is acceptable to determine if pH measurements of the reactor

coolant need to be made. This conductivity limit is the same value as the conductivity limit for performing pH measurements for the reactor coolant in the Peach Bottom TSs.

2.3 Trip to Susquehanna Plant Site

In its application, the licensee stated that it had difficulty in measuring pH values of the coolant when the conductivity was below 1.0 μmho/cm and that large errors occurred in grab samples because of the adsorption of carbon dioxide from the atmosphere into the sample. On October 4, 1995, the staff visited the site to discuss the methods used by the licensee to measure the pH of the reactor coolant and the difficulties encountered in these measurements.

The staff also observed the measurement of pH. The representatives of the licensee that participated in the visit were the following: Drew Maron, Bruce Roads, Patrick Treier, and Ray Dulton. During the visit, the licensee stated that the error in measuring the conductivity of the reactor coolant was 5 percent.

2.4 Conclusion

Based on its evaluation, the staff concludes that the proposed qualification on the surveillance requirement in TS 4.4.4.b.3.a, to limit pH measurements of the reactor coolant to when the measured conductivity values of the coolant are greater than 1.0 μmho/cm at 25°C (77°F), is acceptable.

It should be noted that the surveillance requirement in TS 4.4.4.3.b, which is not being changed by these amendments, requires that the pH is measured every 8 hours whenever the conductivity is greater than the conductivity limit in TS Table 3.4.4-1. For Operational Condition 1, the limit in TS Table 3.4.4-1 is also 1.0 μmho/cm and the TS 4.4.4.b.3.b would take precedent over TS 4.4.4.b.3.a (i.e., at a conductivity greater than 1.0 μmho/cm at 25°C the pH would be measured at 8-hour intervals, not 72-hour intervals, until the conductivity was reduced below the limit). For other operational conditions, the conductivity limit in TS Table 3.4.4-1 is above 1.0 μmho/cm and the two surveillance requirements would not conflict.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined

that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (60 FR 20522). Accordingly, the amendments meet eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Attachment: Figure

Principal Contributor: Jack Donohew

Date: January 3, 1996

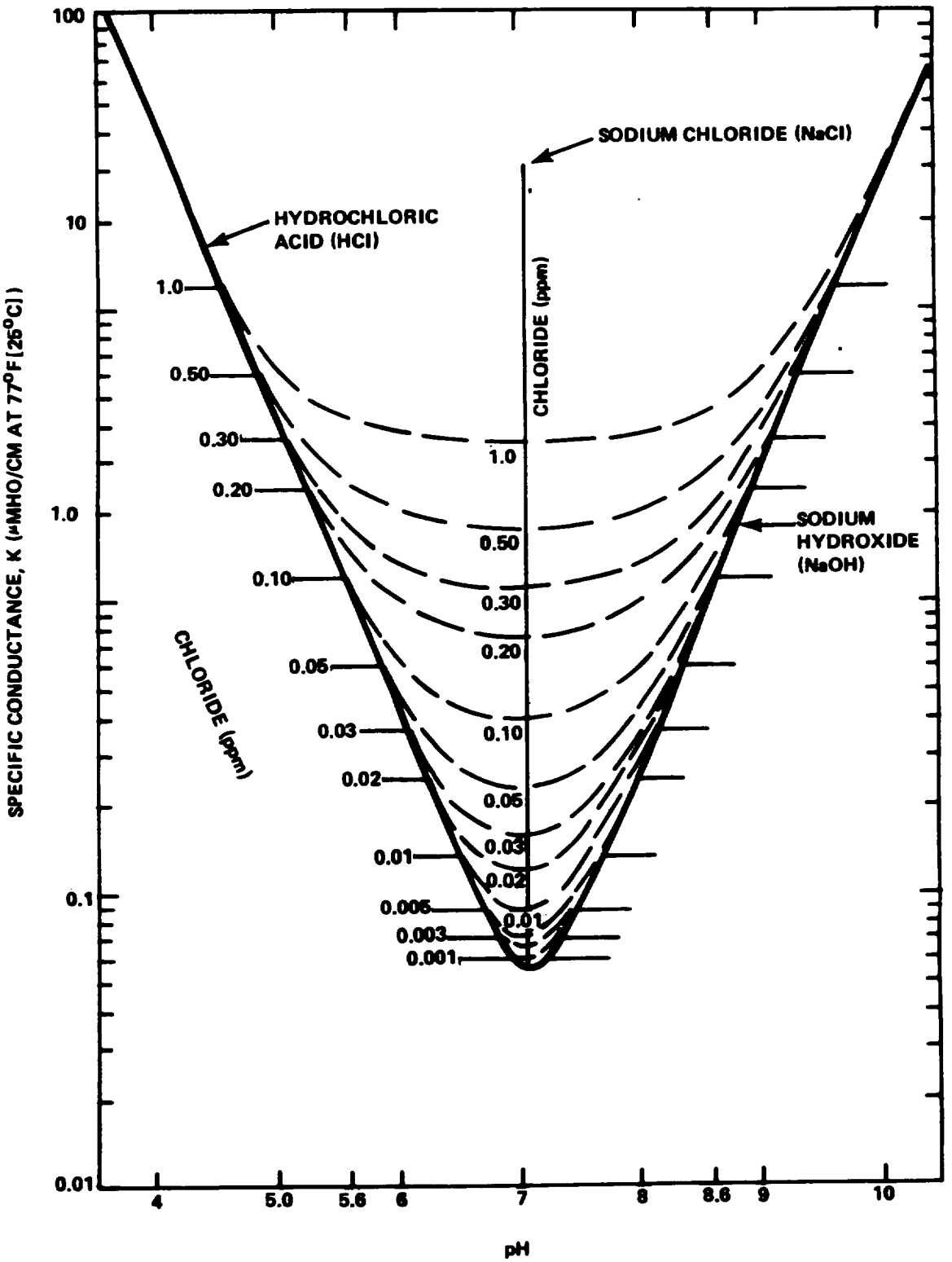

Figure
CONDUCTIVITY, pH, AND CHLORIDE CONCENTRATION OF AQUEOUS SOLUTIONS AT 77°F (25°C)

Attachment