

Docket Nos. 50-348
and 50-364

Mr. F. L. Clayton
Senior Vice President
Alabama Power Company
Post Office Box 2641
Birmingham, Alabama 35291

DISTRIBUTION

Docket File
TBarnhart (8)
HDenton
DEisenhut
DBrinkman
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RDiggs

ORB#1 Rdg
WJones
NRC PDR
LHarmon
CParrish
ACRS (10)
Gray Files (4)

CMiles
EReeves (2)
L PDR
EJordan
AUngaro
JTaylor

JAN 27 1984

Dear Mr. Clayton:

The Commission has issued the enclosed Amendment No. 41 to Facility Operating License No. NPF-2 and Amendment No. 32 to NPF-8 for the Joseph M. Farley Nuclear Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications in response to your application transmitted by letter dated October 6, 1983, supplemented November 28, 1983.

The amendments consist of changes to the Technical Specifications relating to turbine valve testing. The amendment for Unit No. 2 modifies existing surveillance requirements for the Turbine Overspeed Protection System to substitute the Farley Nuclear Plant "Turbine Overspeed Reliability Assurance Program (TORAP)". The amendment for Unit No. 1 adds a limiting condition for operation and adds the identical surveillance requirements as in Unit No. 2.

This letter completes action on requests initiated by your letter dated October 8, 1982, as discussed during appeal meetings held on March 23 and August 16, 1983. The form of the amendment request submitted with an extensive footnote on the TORAP indicating internal procedures for approving changes is not appropriate for a Technical Specification document. The footnote has been deleted as agreed to during discussions with your staff.

The description of the TORAP, as well as the other safety information submitted as part of your application for amendment, update the information contained in the facility Final Safety Analysis Report (FSAR). Changes to this information, including in particular changes to the TORAP, may be made only in accordance with the provisions of 10 CFR 50.59 and Section 6 of your Technical Specifications. In addition, you should assure that this information is included as part of your annual FSAR update pursuant to 10 CFR 50.71(e).

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and 50-364

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The amendments consist of changes to the Technical Specifications relating to turbine valve testing. The amendment for Unit No. 2 modifies existing surveillance requirements for the Turbine Overspeed Protection System to substitute the Farley Nuclear Plant "Turbine Overspeed Reliability Assurance Program". The amendment for Unit No. 1 adds a limiting condition for operation and adds the identical surveillance requirements as the Unit No. 2 Turbine Overspeed Protection System.

This letter completes action on requests initiated by your letter dated October 8, 1982, as discussed during appeal meetings held on March 23 and August 16, 1983. Minor changes were made to your proposed Technical Specifications to assure that subsequent changes to the turbine program are reviewed as required by 10 CFR 50.59. Your staff agreed to the changes.

A copy of our Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular monthly Federal Register notice.

Sincerely,

Edward A. Reeves, Project Manager
Operating Reactors Branch #1
Division of Licensing

Enclosures:

1. Amendment No. to NPF-2
2. Amendment No. to NPF-8
3. Safety Evaluation

cc: w/enclosures

See next page

ORB#1:DL

CParrish

1/26/84

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EReeves;ps

1/26/84

C-ORB#1:DL

SVarga

1/26/84

OELD

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AD:OR:DL

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1/ /84

*Not
Acceptable*

cp

[Signature]

Mr. F. L. Clayton

- 2 -

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Sincerely,

ORIGINAL SIGNED BY

Edward A. Reeves, Project Manager
Operating Reactors Branch #1
Division of Licensing

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- 3. Safety Evaluation

cc: w/enclosures
See next page

*Telephone concurrence
from J. S. Varga received
by J. S. Varga*

*See other white for concurrence

ORB#1:DL
CParrish
1/21/84

ORB#1:DL
EReeves;ps
1/27/84

ORB#1:DL
SVarga
1/27/84

OELD
1/27/84

AD/OR:DL
GLainas
1/27/84

AD:EPB
LRubenstein
1/27/84

AD:MCET
WJohnson
1/27/84



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

January 27, 1984

Docket Nos. 50-348
and 50-364

Mr. F. L. Clayton
Senior Vice President
Alabama Power Company
Post Office Box 2641
Birmingham, Alabama 35291

Dear Mr. Clayton:

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This letter completes action on requests initiated by your letter dated October 8, 1982, as discussed during appeal meetings held on March 23 and August 16, 1983. The form of the amendment request submitted with an extensive footnote on the TORAP indicating internal procedures for approving changes is not appropriate for a Technical Specification document. The footnote has been deleted as agreed to during discussions with your staff.

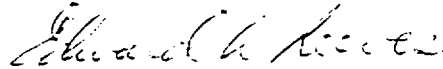
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Mr. F. L. Clayton

- 2 -

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Operating Reactors Branch #1
Division of Licensing

Enclosures:

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3. Safety Evaluation

cc: w/enclosures
See next page

Mr. F. L. Clayton
Alabama Power Company

Joseph M. Farley Nuclear Plant
Units 1 and 2

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

ALABAMA POWER COMPANY

DOCKET NO. 50-348

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.41
License No. NPF-2

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Alabama Power Company (the licensee) dated October 6, 1983, supplemented November 28, 1983, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, 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;
 - D. The issuance of this license 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.
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 Facility Operating License No. NPF-2 is hereby amended to read as follows:

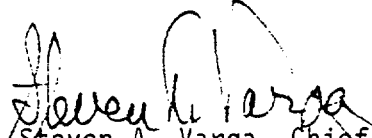
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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 41, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 27, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 41

AMENDMENT NO. 41 FACILITY OPERATING LICENSE NO. NPF-2

DOCKET NO. 50-348

Revised Appendix A as follows:

Remove Pages

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Insert Pages

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INSTRUMENTATION

3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

3.3.4 At least one turbine overspeed protection system shall be OPERABLE.

APPLICABILITY: MODES 1, 2* and 3*.

ACTION:

- a. With one stop valve or one governor valve per high pressure turbine steam line inoperable and/or with one reheat stop valve or one reheat intercept valve per low pressure turbine steam line inoperable, restore the inoperable valve(s) to OPERABLE status within 72 hours, or close at least one valve in the affected steam line(s) or isolate the turbine from the steam supply within the next 6 hours.
- b. With the above required turbine overspeed protection system otherwise inoperable, within 6 hours isolate the turbine from the steam supply.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.4.1 The provisions of Specification 4.0.4 are not applicable.

*Specification not applicable with all main steam isolation valves and associated bypass valves in the closed position and all other steam flow paths to the turbine isolated.

INSTRUMENTATION

BASES

3/4.3.4 TURBINE OVERSPEED PROTECTION

This specification is provided to ensure that the turbine overspeed protection instrumentation and the turbine speed control valves are OPERABLE and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generate potentially damaging missiles which could impact and damage safety related components, equipment or structures.



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

ALABAMA POWER COMPANY

DOCKET NO. 50-364

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.32
License No. NPF-8

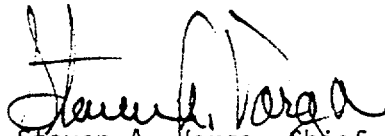
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Alabama Power Company (the licensee) dated October 6, 1983, supplemented November 28, 1983, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, 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;
 - D. The issuance of this license 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.
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 Facility Operating License No. NPF-2 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No.32, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 27, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 32

AMENDMENT NO. 32 FACILITY OPERATING LICENSE NO. NPF-8

DOCKET NO. 50-364

Revised Appendix A as follows:

Remove Pages

3/4 3-72

3/4 3-73

Insert Pages

3/4 3-72

INSTRUMENTATION

3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

3.3.4 At least one turbine overspeed protection system shall be OPERABLE.

APPLICABILITY: MODES 1, 2* and 3* .

ACTION:

- a. With one stop valve or one governor valve per high pressure turbine steam line inoperable and/or with one reheat stop valve or one reheat intercept valve per low pressure turbine steam line inoperable, restore the inoperable valve(s) to OPERABLE status within 72 hours, or close at least one valve in the affected steam line(s) or isolate the turbine from the steam supply within the next 6 hours.
- b. With the above required turbine overspeed protection system otherwise inoperable, within 6 hours isolate the turbine from the steam supply.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.4.1 The provisions of Specification 4.0.4 are not applicable.

*Specification not applicable with all main steam isolation valves and associated bypass valves in the closed position and all other steam flow paths to the turbine isolated.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 41 TO FACILITY OPERATING LICENSE NO. NPF-2
AND AMENDMENT NO. 32 TO FACILITY OPERATING LICENSE NO. NPF-8

ALABAMA POWER COMPANY

JOSEPH M. FARLEY NUCLEAR PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-348 AND 50-364

INTRODUCTION

In letters dated October 8, 1982 (with attachment) and January 18, 1983 Alabama Power Company (APCo) requested a license amendment to delete, in its entirety, that portion of the Standard Technical Specification (STS) 3/4.3.4 "Turbine Overspeed Protection," that requires testing of turbine valves from Farley Nuclear Plant Unit 2 Technical Specifications.

Subsequent discussions and correspondence with the staff resulted in two appeal meetings one in March 23, 1983 and the other on August 16, 1983. The conclusion of the August 16, 1983 appeal meeting resulted in a staff agreement to consider deletion of turbine valve testing requirements from the Unit 2 turbine overspeed protection technical specifications provided that APCo submit a detailed description of the comprehensive turbine valve maintenance, calibration, test and inspection program discussed at the two appeal meetings for staff review and concurrence and a technical specification change to reference this program. The description of their proprietary comprehensive turbine valve testing program entitled "Turbine Overspeed Reliability Assurance Program" and the revised technical specifications were submitted with the APCo letter dated October 6, 1983. In this submittal APCo also provided revised Technical Specifications to implement this program on Farley Unit 1.

APCo management requested an Assistant Director Level Appeal Meeting for March 23, 1983. At this meeting representatives of APCo and Westinghouse's Nuclear Energy Systems and Steam Turbine Design Divisions made presentations to the staff to support the APCo requested STS deletion. Westinghouse presented results of a study WCAP-10162 "Evaluation of Reduced Testing of Turbine Valves" on the generation of turbine missiles prepared specifically for the Farley Turbines and preliminary results of an ongoing generic study on the generation of turbine missiles being conducted on behalf of some licensees and applicants. Both of these studies include consideration of the testing requirements for the turbine overspeed protection valves on turbine valve arrangements as installed at Farley Unit 2. Although the results of the generic study were not final, both studies indicate that turbine

valve operability and reliability would not be significantly affected by increasing the periodic valve testing from the present weekly to a much longer interval. In Westinghouse's judgement, lack of significant number of valve failures, good operating experience, and a well planned maintenance calibration test and inspection program provide reasonable bases to increase the periodic test interval for turbine with steam chest and valve arrangements as installed at Farley Unit 2 from weekly to a substantially greater interval. However, Westinghouse stated that although both studies indicate that turbine valve testing can be extended (up to several months) with minimal effect on the probability of turbine missile generation, for various other reasons and for protection of equipment and personnel, it is their recommendation to extend testing of turbine valves from weekly to monthly on nuclear turbines of the type installed at Farley. Westinghouse was to make a formal recommendation to their customers who have turbines employing turbine valves and steam chest arrangements as installed at Farley Unit 2, to change from periodic weekly to monthly valve testing. Since the March 23, 1983 meeting Westinghouse has issued this formal recommendation to their customers who have these types of turbines. At this meeting APCo also presented their arguments for totally deleting turbine valve testing and inspection requirements from the plant Technical Specifications for Farley Unit 2. APCo believes their turbine valve maintenance, calibration, testing and inspection program, carried out at some specified interval (greater than one month) is sufficient to provide assurance of valve operation on demand. Their program encompasses an intensive and effective turbine valve maintenance program to preempt valve failures coupled with a periodic testing, calibration and a thorough inspection of valve internals by valve disassembly on alternate refuelling outages. The internal inspection would cover one of each valve type installed on the Farley Unit 2 turbine. In the event a valve problem is discovered, all turbine valves of that type would be disassembled and the problem corrected.

DISCUSSION AND EVALUATION

The staff's current position which requires weekly testing of turbine valves as stated in Standard Review Plan Section 10.2 "Steam Turbines" was established several years ago only after extensive discussions with major steam turbine manufacturers, and was based largely on operating experience at fossil fueled plants, engineering judgement and the recommendations of these manufacturers.

Considering the status of the information presented by APCo and Westinghouse at the March 23, 1983 meeting, and the staff's original basis for the STS, the staff concluded, at the time, that there was insufficient basis for deleting the turbine valve testing and maintenance requirements from the plant technical specifications. However, based on the information presented by Westinghouse and the comprehensive turbine valve testing program discussed by APCo, the staff concurs that the interval between periodic turbine valve testing could be increased without materially affecting the probability of turbine missile generation. The staff proposed an increase in the periodic turbine valves test interval for Farley Unit 2 from weekly to monthly, on an interim basis, pending completion of a staff review of the Westinghouse generic report on the subject, without significantly affecting the capability of the turbine valves to function on demand.

Ensuing discussions with the staff on the subject resulted in APCo requesting a director level appeal meeting that was held on August 16, 1983. At this meeting APCo presented further detailed information of their comprehensive turbine valve maintenance, calibration, testing and inspection program and Westinghouse discussed in further detail the conclusion of their generic study on the impact of reduced testing of turbine valves on the probability of turbine missile generation. Westinghouse reiterated that the study shows that reduced turbine valve testing on the type of turbine installed at Farley 1 and 2 has little or no effect on the probability of turbine missile generation.

On the basis of the additional information and data presented to the directors, the staff agreed to consider deletion of the turbine valve testing requirement for the Farley Unit 2 from the plant technical specifications provided that APCo submit a detailed description of their comprehensive turbine valve maintenance and inspection program for review by the staff and a technical specification change referencing this program described at the two appeal meetings. Revised technical specifications for Farley 1 and 2 and a copy of their proprietary comprehensive program entitled "Turbine Overspeed Reliability Assurance Program" (TORAP) were submitted as enclosures to the APCo letter dated October 6, 1983, and supplemented by letter dated November 28, 1983.

The APCo TORAP includes a comprehensive program of maintenance, calibration and testing of the turbine overspeed protection system. This program is designed to provide assurance that flaws or component failures in the overspeed sensing and tripping subsystems, in the main steam throttle, governor, reheat stop, intercept, and extraction steam nonreturn valves that might lead to an overspeed condition above the design overspeed will be detected.

The program is based on recommendations by Westinghouse regarding valve maintenance and on operating experience at the Farley Nuclear Plant. The overall objective of this program is to maintain the high reliability of the turbine overspeed protection system.

The maintenance program includes inspection and maintenance of the throttle, governor, reheat stop, intercept valves and nonreturn extraction steam valves.

The calibration program includes calibration of the turbine overspeed protection system. Calibration is performed during each refueling outage or following major maintenance on the turbine generator or the overspeed protection system.

The testing program includes testing of the turbine valves and the turbine overspeed protection system. Testing is performed during each turbine startup, unless tested within the previous seven (7) days, including startup after each refueling outage. The testing program includes a complete test of all turbine valves on an approximate interval of four (4) months.

In the October 6, 1983 submittal APCo states that the proposed revision to the Technical Specification 3/4.3.4 "Turbine Overspeed Protection" for Units 1 and 2 does not involve a significant hazards consideration as defined in 10 CFR 50.92. The proposed change may result in some increase to the probability of a previously analyzed accident but the results of the change are clearly within all acceptable criteria specified in the Standard Review Plan. (10.2.3, "Turbine Disk Integrity"). The staff concurs with the licensee in the above statements.

In addition APCo has committed to add the governor, throttle, intercept, and reheat stop valves to the Nuclear Plant Reliability Data System (NPRDS). Deficiencies will be reported and included in the data bank, and reviewed so that appropriate changes may be made in the Farley Nuclear Plant program based on reliability information.

In summary, the basis for deleting the testing requirements for all turbine valves from the Technical Specification at Farley Unit 2 was:

1. Up to now the test frequency of nuclear service turbine valves has been largely based on experience with turbine generators installed in fossil plants. The requirement to test and inspect nuclear turbine valves on a weekly basis was originally included in the Standard Technical Specifications (STS) based on this experience and to assure functional operability on demand to avert a potential turbine overspeed condition that could result in the generation of turbine missiles. The objective of the valve testing was to assure high valve operability and reliability in order to minimize the probability of generating destructive missiles that could damage safety related equipment and thereby prevent safe shutdown of the plant. The turbine control and overspeed protection system is designed to control turbine action under all normal and abnormal conditions to assure that a turbine trip from full load will not cause the turbine to overspeed beyond acceptable limits, thus minimizing the probability of generating turbine missiles. Although the turbine control and overspeed protection system is not relied on to perform a safety function, it controls a plant process that has potential to impact plant safety. The results of WCAP-10162 analysis as submitted by APCo for the Farley 1 and 2 turbine units and the Westinghouse generic turbine missile study show that reduced turbine valve testing frequency on nuclear units of the type installed at Farley has minimal effect on the probability of turbine missile generation.
2. Nuclear turbine valves have proven to be extremely reliable in service as evidenced by the lack of failures over the many years of nuclear plant operation. This proven reliability can also be attributed to the all volatile chemical treatment of feedwater which minimizes steam generator carry over and essentially eliminates valve failure due to scale buildup on the valve moving parts.

3. The APCo turbine valves and turbine overspeed protection system maintenance, calibration, test and inspection program described at the March 23 and August 16, 1983 meetings and detailed in their proprietary TORAP document is satisfactory to the staff.
4. The data and rationale presented by APCo and Westinghouse at the March 23 and August 16, 1983 and other previous meetings with the staff and the staff's understanding of the data presented.
5. Testing of turbine control valves on base loaded machines necessitates reduction of generator output for a period of several hours. The valve testing sequence during turbine operation requires placing the turbine on manual control and repositioning all turbine control valves in the steam chest to permit individual full valve stroking. All valves are aligned to equal position. Repositioning of the control valves (on a base load machine) results in reduced steam flow to the turbine with a consequent reduction in generator output of about 5%. Testing of all turbine control valves is accomplished in a relatively short time (about 35 to 40 minutes). The bulk of the time consumed (approximately 2 1/2 to 3 hours) is in slowly lowering reactor output to correspond with the reduced turbine generator output to permit control valve testing. On completion of valve tests a similar time period is consumed in slowly increasing reactor power to permit full load operation of the turbine generator. The lowering and increasing of reactor output must be accomplished slowly to minimize xenon spiking. The potential for xenon spiking exists when subjecting the nuclear steam supply system to cyclical power transients and this was factored in the staff action.
6. The proposed revision to Technical Specification 3/4.3.4, "Turbine Overspeed Protection," does not involve a significant hazards consideration.
7. The proposed APCO turbine valve maintenance and inspection program coupled with installed turbine generator protective features and an inplace inspection program of the low pressure turbine discs provides reasonable assurance of a low design overspeed missile generation probability.
8. Farley Units 1 and 2 employ redundant MSIVs on each steam generator steam line. This added protection further decreases the probability for turbine missile generation.
9. APCo has proposed to add the same technical specification requirements for testing all turbine valves on Unit 1 for which none such requirements now exist. The staff believes that an increase in overall plant operating safety will result from the addition of the APCo TORAP to Unit 1.

SAFETY SUMMARY

On the basis of the above, the staff concludes that deletion of the turbine valve testing requirements from the Farley Unit 2 Technical Specifications is acceptable subject to incorporation of the following conditions:

1. All turbine valves and turbine overspeed protection system for Farley Unit 2 shall be maintained, calibrated, tested and inspected as presently stated in the proprietary APCo TORAP document submitted with their letter of October 6, 1983, as supplemented by letter dated November 28, 1983. This program is also approved for Farley Unit 1.
2. Subsequent changes to the program as presently described in the TORAP document in scope and/or schedule resulting from the on-going review by APCo shall be reviewed and approved per 10 CFR 50.59.

ENVIRONMENTAL CONSIDERATION

We have determined that the amendments do not authorize changes in effluent types or total amounts, nor increases in power levels, and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve actions which are insignificant from the standpoint of environmental impact and, pursuant to 10 CFR 51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

CONCLUSION

We have concluded, based on the consideration 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: January 27, 1984

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