May 15, 1992

Docket Nos. 50-338
and 50-339

Posted
Amdt. 160 to NPF-4

Mr. W. L. Stewart
Senior Vice President - Nuclear
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, Virginia 23060

Dear Mr. Stewart:

SUBJECT: NORTH ANNA UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: MONITORING OF GROUNDWATER LEVEL FOR SERVICE WATER RESERVOIR (TAC NOS. M82145 AND M82146)

The Commission has issued the enclosed Amendment Nos. 160 and 141 to Facility Operating License Nos. NPF-4 and NPF-7 for the North Anna Power Station, Units No. 1 and No. 2 (NA-1&2). The amendments revise the Technical Specifications (TS) in response to your letter dated November 7, 1991.

The amendments revise the current NA-1&2 TS to ensure adequate monitoring of groundwater levels for the service water reservoir.

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

Sincerely,

(Original Signed By)

Leon B. Engle, Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 160 to NPF-4
2. Amendment No. 141 to NPF-7
3. Safety Evaluation

cc w/enclosures:
See next page

OFC	:LA:PDII-2	:PM:PDII-2	:D:PDII-2	:OGC	:ESGB	:
NAME	:D. Miller	:L. Engle	:H. Berkow	:MZobler	:G. Bagchi	:
DATE	:4/17/92	:4/17/92	:4/27/92	:4/28/92	:4/24/92	:

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Document Name: NA82145.AMD

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

VIRGINIA ELECTRIC AND POWER COMPANY

OLD DOMINION ELECTRIC COOPERATIVE

DOCKET NO. 50-338

NORTH ANNA POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 160
License No. NPF-4

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Virginia Electric and Power Company et al., (the licensee) dated November 7, 1991, 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, the provisions of the Act, and the rules and 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 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.D.(2) of Facility Operating License No. NPF-4 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 160, 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 and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 15, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 160

TO FACILITY OPERATING LICENSE NO. NPF-4

DOCKET NO. 50-338

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages as indicated. The revised pages are identified by amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

Remove Pages	Insert Pages
3/4 7-73	3/4 7-73
3/4 7-74	3/4 7-74
B3/4 7-9	B3/4 7-9

PLANT SYSTEMS

3/4.7.13 GROUNDWATER LEVEL - SERVICE WATER RESERVOIR

LIMITING CONDITION FOR OPERATION

3.7.13 The groundwater level of the service water reservoir (shared by Units 1 and 2) shall not exceed the elevation at the locations listed in Table 3.7-6. The flow of groundwater from the drains beneath the pumphouse shall not exceed the values given in Table 3.7-6.

APPLICABILITY: ALL MODES.

ACTION:

a. With the groundwater level of the service water reservoir or the groundwater flow rate exceeding any of the limits of Table 3.7-6 , an engineering evaluation shall be performed by a Licensed Civil Engineer to determine the cause of the high ground water or flow rates and the influence on the stability of the service water reservoir and pumphouse. A Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days, containing the results of the evaluation and any corrective action determined to be necessary.

b. With the inability to obtain at least one measurement from each of the locations listed in SR 4.7.13.1, an engineering evaluation shall be performed by a Licensed Civil Engineer to determine the consequences of not meeting SR 4.7.13.1. A Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days, containing the results of the evaluation and any corrective action determined to be necessary.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.13.1 At least once per six months verify the groundwater level within the dike of the service water reservoir does not exceed the value established in Table 3.7-6. The groundwater level shall be determined by measurement from each zone. At a minimum, at least one measurement shall be made at each zone listed below and the measurement shall be within the limits presented in Table 3.7-6:

- service water pump house (Nos. 11, 14 or 20), and
- south east end of the reservoir (Nos. 10, 15, 21 or 22), and
- service water valve house (Nos. 18 or 19)

4.7.13.2 At least once per six months verify that the groundwater flow rate does not exceed the value established in Table 3.7-6. The groundwater flow rate shall be determined by measurements at the drain outlet gallery. A visual inspection of the clarity of the outflow from each drain shall be performed in conjunction with the flow monitoring effort.

TABLE 3.7-6

ALLOWABLE GROUNDWATER LEVELS - SERVICE WATER RESERVOIR

DEVICE NO.	MEASUREMENT LOCATION	ALLOWABLE GROUNDWATER ELEVATION, Mean sea level (feet)
10	SE, toe	277
11	SWPH, (Units 1 & 2) crest	280
14	SWPH, (UNITS 1 &2) crest	280
15	SE, crest	280
18	SWVH, (Units 1 & 2)	295
19	SWVH, crest	295
20	SWPH, crest	280
21	SE, crest	280
22	SE, crest	280

DRAIN OUTLETS	LOCATION	ALLOWABLE DRAIN FLOW RATE (gallons per minute)
1 through 6	Drainage Gallery	FLOW RATE SHALL NOT EXCEED 8.5 GALLONS PER MINUTE (gpm)

Amendment No. 12,87,97,160,

3/4.7.13 GROUNDWATER LEVEL – SERVICE WATER RESERVOIR

A program to monitor groundwater levels in the area of the service water reservoir has been established to ensure that the integrity of the service water reservoir embankments and pumphouse is maintained.

Groundwater threshold levels have been established based on historical groundwater data available in 1977. These levels are sufficiently conservative to ensure that the service water reservoir and pumphouse will perform their intended function. An engineering evaluation will be performed if these threshold values are exceeded, to determine if there is any substantive cause to believe that any aspect of the service water reservoir, dike, or pumphouse will not perform its intended function. A conclusion to this effect, and the appropriate corrective actions to be performed, will be reported to the Commission.

A minimum of one measurement device in each of the three zones is required to be OPERABLE in order to monitor the groundwater levels. The groundwater levels are periodically reviewed to determine whether a changing groundwater environment warrants a change in threshold levels.

DELETED

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

VIRGINIA ELECTRIC AND POWER COMPANY

OLD DOMINION ELECTRIC COOPERATIVE

DOCKET NO. 50-339

NORTH ANNA POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 141
License No. NPF-7

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Virginia Electric and Power Company et al., (the licensee) dated November 7, 1991, 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, the provisions of the Act, and the rules and 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 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-7 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 141, 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 and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 15, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 141

TO FACILITY OPERATING LICENSE NO. NPF-7

DOCKET NO. 50-339

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages as indicated. The revised pages are identified by amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

Remove Pages	Insert Pages
3/4 7-57	3/4 7-57
3/4 7-58	3/4 7-58
B3/4 7-9	B3/4 7-9

3/4.7.13 GROUNDWATER LEVEL - SERVICE WATER RESERVOIR

LIMITING CONDITION FOR OPERATION

3.7.13 The groundwater level of the service water reservoir (shared by Units 1 and 2) shall not exceed the elevation at the locations listed in Table 3.7-6. The flow of groundwater from the drains beneath the pumphouse shall not exceed the values given in Table 3.7-6.

APPLICABILITY: ALL MODES.

ACTION:

a. With the groundwater level of the service water reservoir or the groundwater flow rate exceeding any of the limits of Table 3.7-6, an engineering evaluation shall be performed by a Licensed Civil Engineer to determine the cause of the high ground water or flow rates and the influence on the stability of the service water reservoir and pumphouse. A Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days, containing the results of the evaluation and any corrective action determined to be necessary.

b. With the inability to obtain at least one measurement from each of the locations listed in SR 4.7.13.1, an engineering evaluation shall be performed by a Licensed Civil Engineer to determine the consequences of not meeting SR 4.7.13.1. A Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 90 days, containing the results of the evaluation and any corrective action determined to be necessary.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.13.1 At least once per six months verify the groundwater level within the dike of the service water reservoir does not exceed the value established in Table 3.7-6. The groundwater level shall be determined by measurement from each zone. At a minimum, at least one measurement shall be made at each zone listed below and the measurement shall be within the limits presented in Table 3.7-6:

- service water pump house (Nos. 11, 14 or 20), and
- south east end of the reservoir (Nos. 10, 15, 21 or 22), and
- service water valve house (Nos. 18 or 19)

4.7.13.2 At least once per six months verify that the groundwater flow rate does not exceed the value established in Table 3.7-6. The groundwater flow rate shall be determined by measurements at the drain outlet gallery. A visual inspection of the clarity of the outflow from each drain shall be performed in conjunction with the flow monitoring effort.

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DRAIN OUTLETS	LOCATION	ALLOWABLE DRAIN FLOW RATE (gallons per minute)
1 through 6	Drainage Gallery	FLOW RATE SHALL NOT EXCEED 8.5 GALLONS PER MINUTE (gpm)

3/4.7.13 GROUNDWATER LEVEL – SERVICE WATER RESERVOIR

A program to monitor groundwater levels in the area of the service water reservoir has been established to ensure that the integrity of the service water reservoir embankments and pumphouse is maintained.

Groundwater threshold levels have been established based on historical groundwater data available in 1977. These levels are sufficiently conservative to ensure that the service water reservoir and pumphouse will perform their intended function. An engineering evaluation will be performed if these threshold values are exceeded, to determine if there is any substantive cause to believe that any aspect of the service water reservoir, dike, or pumphouse will not perform its intended function. A conclusion to this effect, and the appropriate corrective actions to be performed, will be reported to the Commission.

A minimum of one measurement device in each of the three zones is required to be OPERABLE in order to monitor the groundwater levels. The groundwater levels are periodically reviewed to determine whether a changing groundwater environment warrants a change in threshold levels.

DELETED

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 160 AND 141 TO

FACILITY OPERATING LICENSE NOS. NPF-4 AND NPF-7

VIRGINIA ELECTRIC AND POWER COMPANY

OLD DOMINION ELECTRIC COOPERATIVE

NORTH ANNA POWER STATION, UNITS NO. 1 AND NO. 2

DOCKET NOS. 50-338 AND 50-339

1.0 INTRODUCTION

By letter dated November 7, 1991, the Virginia Electric and Power Company (the licensee) proposed changes to the Technical Specifications (TS) for the North Anna Power Station, Units No. 1 and No. 2 (NA-1&2). Specifically, the proposed changes would revise the current TS to ensure adequate monitoring of groundwater levels for the service water reservoir (SWR).

The SWR is sized to provide a 30-day supply of cooling water for the safe shutdown and cooldown of the NA-1&2 reactor units. In determining the required capacity of the SWR, seepage losses were reflected in the mass balance of water in the SWR. The purpose of TS 3/4.7.13, "Groundwater Level-Service Water Reservoir," is to identify either an abnormally high groundwater level that might indicate increased seepage from the SWR, which could diminish the supply of cooling water, or a decrease in the efficiency of either of the two drainage systems installed to remove accumulated subterranean groundwater.

2.0 DISCUSSION

The proposed changes are being made as a result of replacing four piezometers with open tube devices that use a conductivity cell. These devices were installed under the licensee's design change package DCP 90-001-3, "Service Water Reservoir Addition." The replacement devices are of an open tube design which responds more slowly to changing water levels than the original pneumatic piezometers which have been removed. The pneumatic-type piezometers can more readily measure rapidly changing groundwater levels. However, groundwater levels at NA-1&2 have historically fluctuated slowly in response to seasonal variation in rainfall since the installation of horizontal drains beneath the pump house and the trench drain located at the southeastern toe of the SWR dike. These slow fluctuations can be more readily monitored with open tube devices. Outflow from the drainage galleries drain outlets, which may not exceed the NA-1&2 TS Table 3.7-6 limit of 8.5 gallons per minute, can still detect a rapidly increasing leakage event.

3.0 TS CHANGES

For TS 3.7.13, the phrase "(shared by Units 1 and 2)" would be added to the Limiting Condition for Operation for Unit 1. The phrase "(common to Units 1 and 2)" in the Unit 2 TS would be modified to reflect the same proposed wording as Unit 1. This change is administrative in nature and provides consistency and clarification between the NA-1&2 TS. The applicability portion of TS 3.7.13 would remain unchanged.

Action statement 3.7.13 would be separated into 3.7.13a and 3.7.13b and changed to explicitly state that if at least one measurement from each of the zones listed in surveillance requirement (SR) 4.7.13.1 cannot be obtained, then a special report should be prepared and submitted to the Commission within 90 days.

Because action 3.7.13.b specifically addresses not being able to complete SR 4.7.13.1 and does not require a reduction in modes, action statement 3.7.13.c would be added to specify that the provisions of TS 3.0.4 are not applicable.

TS SR 4.7.13 would be divided into two parts, 4.7.13.1 for groundwater level determination, and 4.7.13.2 to measure the outflow of groundwater from the drainage galleries. Both of these requirements are currently present in TS 4.7.13.1. These changes would enhance clarity and would provide flexibility in the SR. It is not necessary to monitor all of the measurement locations in order to detect an increasing rate of seepage from the reservoir. Engineering evaluation DCP 90-001-3 indicated that a reliable reading from one location in each of the three zones of the dike (the pump house, valve house and the southeast side of the reservoir) is sufficient for detecting leakage from the reservoir. However, the periodic test procedure would continue to require that all operable measurement locations be monitored in order to obtain as much information as possible.

In TS Table 3.7-6, the piezometers that were removed under DCP 90-001-3 would be deleted and the replacement measurement devices that were installed under the same design change package would be added.

4.0 EVALUATION

The proposed changes, in part, are administrative in nature and provide clarity and consistency to the affected TS. The proposed changes do not involve any changes to plant design and sufficient means for detecting high water levels within the SWR dike would still be required by the TS. Also, the proposed changes require that at least one piezometer or open tube device must be operable in each of the three main zones of the dike and would specify that measurement from each of the three main dike zones be obtained for determining that groundwater levels within the dike are below allowable elevations. Finally, periodic test procedures would continue to require that all operable

measurement locations be monitored to obtain all available information. Therefore, based on the above, the staff finds the proposed changes to be acceptable.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Virginia State official was notified of the proposed issuance of the amendment. The State official had no comment.

6.0 ENVIRONMENTAL CONSIDERATION

These 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. 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 these amendments involve no significant hazards consideration and there has been no pubic comment on such finding (56 FR 64664). Accordingly, the amendments meet the 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.

7.0 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.

Principal Contributor: L. Engle

Date: May 15, 1992