JAN 26 1978

Docket No. 50-338

Virginia Electric & Power Company
ATTN: Mr. W. L. Proffitt
Senior Vice President - Power
P. O. Box 26666
Richmond, Virginia 23261

Gentlemen:

SUBJECT: ISSUANCE OF AMENDMENT NO. 1 TO FACILITY OPERATING LICENSE NO. NPF-4 - NORTH ANNA POWER STATION, UNIT NO. 1

The Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 1 to Facility Operating License NPF-4 including page changes to Appendix A - Radiological Technical Specifications and to Appendix B - Environmental Technical Specifications. The page change to Appendix A is in accordance with the Atomic Safety and Licensing Board's Initial Decision dated December 13, 1977, concerning the monitoring of the steam generator supports. The page changes to Appendix B are editorial and do not impact the substance of the Appendix B Technical Specifications. Amendment No. 1 is effective as of the date of issuance. This amendment authorizes the Virginia Electric & Power Company to operate the North Anna Power Station, Unit No. 1 in a hot standby condition as defined in the amended license.

A copy of the Federal Register Notice of Issuance of Amendment No. 1 and the related Safety Evaluation supporting Amendment No. 1 to License No. NPF-4 are also enclosed.

Sincerely,

/s/

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 1 to Facility Operating License No. NPF-4 with page changes to Appendices A and B
2. Federal Register Notice
3. ~~Safety Evaluation Report~~

Conct 1
GD

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DATE➤	1/25/78	1/26/78	1/26/78	1/26/78	1/26/78	1/26/78

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Mr. A. D. Johnson, Chairman
Board of Supervisors of
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Chief, Energy Systems (3 encl)
Analyses Branch (AW-459)
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U.S. Environmental Protection
Agency
Region III Office
ATTN: EIS Coordinator
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6th and Walnut Streets
Philadelphia, Pennsylvania 19106

DISTRIBUTION FOR NORTH ANNA POWER STATION, UNIT NO. 1 OPERATING LICENSE AMENDMENT NO. 1 TO NPF-4, DATED MAY 1978

Docket File (50-338)
NRC PDR
Local PDR
LWR #3 File
D. Swanson, OELD
J. Rutberg, OELD
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O. Parr
A. Dromerick
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M. Rushbrook
F. J. Williams
H. Smith
B. Scott, DPM
IE (3)
N. Dube, MIPC
M. Jinks, ADM, w/4 encl.
W. Miller, ADM
I. Dinitz, AIG
H. Denton, DSE
V. Moore, LDSE
M. Ernst, DSE
W. Gammill, DSE
R. Mattson, DSS
J. Knight, DSS
D. Ross, DSS
R. Tedesco, DSS
B. Scharf, ADM, w/10 encl.
OELD Files
D. Skovholt, DPM
E. Hughes, DPM
P. Leech, DSE
F. Hebdon, DSE
P. Kreutzer, DSE
J. Saltzman, AIG
A. Toalston, AIG
W. Haass, DSS
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Project Manager, DOR:
Licensing Assistant, DOR:
ACRS (16)
B. McGuff

bcc: J. Buchanan
T. Abernathy
A. Rosenthal
J. Yore

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-338

NORTH ANNA POWER STATION, UNIT NO. 1

FACILITY OPERATING LICENSE

License No. NPF-4
Amendment No. 1

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

A. Construction of the North Anna Power Station, Unit No. 1 (facility) has been substantially completed in conformity with Construction Permit No. CPPR-77 and the application, as amended, the provisions of the Act and the rules and regulations of the Commission;

B. The facility will operate in conformity with the application, as amended, 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 operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission;

D. The licensee is technically and financially qualified to engage in the activities authorized by this operating license in accordance with the rules and regulations of the Commission;

E. The licensee has satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," of the Commission's regulations;

F. The issuance of this amended operating license will not be inimical to the common defense and security or to the health and safety of the public;

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G. After weighing the environmental, economic, technical, and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of Amendment No. 1 to Facility Operating License No. NPF-4 subject to the conditions for protection of the environment set forth herein is in accordance with Appendix D to 10 CFR Part 50 of the Commission's regulations and all applicable requirements have been satisfied; and

H. The receipt, possession, and use of source, byproduct and special nuclear material as authorized by this license will be in accordance with the Commission's regulations in 10 CFR Part 30, 40, and 70, including 10 CFR Section 30.33, 40.32, and 70.23 and 70.31.

2. Amendment No. 1 to Facility Operating License No. NPF-4 is hereby issued to the Virginia Electric and Power Company, in accordance with the Atomic Safety and Licensing Board's Initial Decision dated, December 13, 1977, as modified by the Board's Order dated, January 13, 1978. Operating License No. NPF-4 is hereby amended in its entirety to read as follows:

A. This amended license applies to the North Anna Power Station, Unit No. 1, a pressurized water reactor and associated equipment (the facility), owned by the Virginia Electric and Power Company. The facility is located near Mineral, in Louisa County, Virginia, and is described in the "Final Safety Analysis Report" as supplemented and amended (Amendments 17 through 64) and the Environmental Report as supplemented and amended (Supplements 1 through 4).

B. The licensee is authorized to perform steam generator moisture carryover studies at the North Anna Power Station. These studies involve the use of an aqueous tracer solution of two (2) curies of sodium-24. The licensee's personnel will be in charge of conducting these studies and be knowledgeable in the procedures. The licensee will impose personnel exposure limits, posting, and survey requirements in conformance with those in 10 CFR Part 20 to minimize personnel exposure and contamination during the studies. Radiological controls will be established in the areas of the chemical feed, feedwater, steam, condensate and sampling systems where the presence of the radioactive tracer is expected to warrant such controls. The licensee will take special precautions to minimize radiation exposure and contamination during both the handling of the radioactive tracer prior to injection and the taking of system samples following injection of the tracer. The licensee will insure that all regulatory requirements for liquid discharge are met during disposal of all sampling effluents and when reestablishing continuous blowdown from the steam generators after completion of the studies.

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C. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses the Virginia Electric and Power Company:

(1) Pursuant to Section 103 of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess, use, and operate the facility at the designated location in Louisa County, Virginia in accordance with the procedures and limitations set forth in this amended license;

(2) Pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;

(3) Pursuant to the Act and 10 CFR Parts 30, 40 and 70 to receive, possess and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

D. This amended license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to load fuel and maintain the unit in an operational Mode 5 condition (cold shutdown condition). The reactor shall be maintained at a K_{eff} of no greater than 0.90. The licensee is also authorized to operate the North Anna Power Station, Unit No. 1 in a hot standby mode under the following conditions:

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a. Average reactor coolant temperature at or above 350 degrees Fahrenheit with a K_{eff} of 0.90 or less and a reactor coolant system minimum boron concentration of 2000 parts per million. This mode of operation is a modification of Operational Mode 3 stated in the Technical Specifications, Appendix A.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B to the original NPF-4 North Anna Power Station, Unit No. 1 license are hereby incorporated in this license. In addition, Appendix A and Appendix B page changes are attached. The licensee shall operate the facility in accordance with the Technical Specifications except for the following specific exemptions:

a. The licensee shall be exempted from compliance with the following Appendix A Technical Specifications applying to charcoal testing until (1) the first regularly scheduled refueling outage, or (2) the currently installed charcoal is replaced, whichever occurs first:

4.6.4.3.c
4.7.7.1.c
4.7.8.1.c

b. The licensee shall be exempted from compliance with the following Appendix A Technical Specifications:

3.5.2.b
4.5.2.e.2.b
4.5.2.f.2
3.5.3.b
4.0.5.a.1 as applicable to inservice inspection and testing of the Low Head Safety Injection Pumps.

c. The following Appendix A Technical Specifications are modified, to read:

3.5.2.c: "An operable flow path capable of transferring fluid to the Reactor Coolant System when taking suction from the refueling water storage tank on a safety injection signal."

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4.5.2.a: "At least once per 12 hours by verifying that the following valves are in the indicated positions with power to the valve operators removed:

Valve Number	Valve Function	Valve Position
a. MOV-1836	a. Ch pump to cold leg	a. closed
b. MOV-1869A	b. Ch pump to hot leg	b. closed
c. MOV-1869B	c. Ch pump to hot leg	c. closed

3.5.3.c: "An operable flow path capable of transferring fluid to the reactor coolant system when taking suction from the refueling water storage tank upon being manually realigned."

(3) Additional Condition

a. If VEPCO plans to remove or to make significant changes in the normal operation of equipment that controls the amount of radioactivity in effluents from the North Anna Power Station, the Staff should be notified in writing regardless of whether the change affects the amount of radioactivity in the effluents.

E. The licensee shall maintain in effect and fully implement all provisions of the physical security plan approved by the Commission, including amendments and changes made pursuant to the authority of 10 CFR 50.54(p). The approved security plan consists of proprietary documents, collectively titled, "Security Program, North Anna Power Station, Units 1 and 2," as follows: Original submitted with letter, dated February 1974, as revised on July 15, 1975, and on September 15, 1977; and additional information provisions of the licensee's security plan, the licensee shall perform or shall obtain written confirmation of the performance by others of the personnel screening and background investigations, as specified in ANSI N18.17, for non-licensee employees prior to granting them un-escorted access to the protected area.

Pursuant to 10 CFR Section 2.790(d), the security plan is being withheld from public disclosure because it is deemed to be proprietary information within the meaning of 10 CFR Section 9.5(a)(4) and subject to disclosure only in accordance with 10 CFR Section 9.12.

F. This amended license is subject to the following additional conditions for the protection of the environment:

(1) Before engaging in additional construction or operational activities which may result in an environmental impact that was not evaluated by the Commission, the licensee will prepare and record an environmental evaluation of such activity. When the evaluation indicates that such activity may result in a significant adverse environmental impact that was not evaluated, or that is significantly greater than that evaluated, in the Final Environmental Statement or any addendum thereto, the licensee shall provide a written evaluation of such activities and obtain prior approval from the Director, Office of Nuclear Reactor Regulation.

G. In accordance with the requirement imposed by the October 8, 1976, order of the United States Court of Appeals for the District of Columbia Circuit in Natural Resources Defense Council vs. Nuclear Regulatory Commission, No. 74-1385 and 74-1586 (cert. granted sub nom Vermont Yankee Nuclear Power Corp. vs. Natural Resources Defense Council, 45 U.S.L.W. 3570, February 22, 1977) that the Nuclear Regulatory Commission "shall make any licenses granted between July 21, 1976 and such time when the mandate is issued subject to the outcome of the proceedings herein," this amended license shall be subject to the outcome of such proceedings.

H. This amended license is effective as of the date of issuance and shall expire six months from said date, unless extended for good cause shown, or upon earlier issuance or denial of a subsequent licensing action.

FOR THE NUCLEAR REGULATORY COMMISSION

/S/

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Attachments:
1. Appendix A Technical Specification page change
2. Appendix B Technical Specification page changes

*Previously concurred for full power license.

Date of Issuance: JAN 26 1978	*OAI JSaltzman 1/ /78	*DOR RClark 1/ /78	*DSE/EP-2 WRegan 1/ /78	*DSE/AD VMoore 1/ /78	*D/DSE HDenton 1/ /78
OFFICE ➤	LWR #3:LA	LWR/#3/DPM	LWR/AD	OELD	DD/DPM	D/DPM
SURNAME ➤	Rushbrook/Dromerick/Parr	DVassallo	Treby	RCDeYoung	RSBoyd
DATE ➤	1/26 /78	1/ /78 1/26 /78	1/26/78	1/26 /78	1/26 /78

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-338

VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA POWER STATION, UNIT NO. 1

NOTICE OF ISSUANCE OF AN AMENDMENT TO FACILITY OPERATING LICENSE

Notice is hereby given that pursuant to the Initial Decision of the Atomic Safety and Licensing Board, dated December 13, 1977, as modified by the Board Order dated January 13, 1978, the Nuclear Regulatory Commission (the Commission) has issued Amendment No. 1 to Facility Operating License No. NPF-4 to the Virginia Electric and Power Company authorizing operation of the North Anna Power Station, Unit No. 1 in a hot standby condition, in accordance with the provisions of the amended license and the Technical Specifications. The amended license is effective as of its date of issuance and shall expire on six months from said date, unless extended for good cause shown, or upon earlier issuance or denial of a subsequent licensing action. NPF-4 issued on November 26, 1977 authorized fuel loading and maintenance of the North Anna Power Station, Unit No. 1 in an operational Mode 5 condition (cold shutdown condition). The Technical Specifications were attached to the license as Appendix A - Radiological Technical Specifications and Appendix B - Environmental Technical Specifications. The North Anna Power Station, Unit No. 1 is a pressurized water nuclear reactor located at the licensee's site near Mineral in Louisa County, Virginia.

The Initial Decision as modified by the Board's Order will be subject to review by an Atomic Safety and Licensing Appeal Board prior to its becoming final. Any decision or action taken by an Atomic Safety and Licensing Appeal Board in connection with the Initial Decision as modified by the Board's Order may be reviewed by the Commission.

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DATE➤						

The Commission has made appropriate findings as required by the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the amended license. The application for the license complies with the standards and requirements of the Act and the Commission's rules and regulations.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR Section 51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action see a copy of (1) the Initial Decision, dated December 13, 1977 as modified by the Board's Order dated January 13, 1978; (2) Amendment No. 1 to NPF-4 with page changes to Appendix A - Radiological Technical Specifications and Appendix B - Environmental Technical Specifications; (3) Facility Operating License No. NPF-4, complete with Technical Specifications (Appendices "A" and "B"); (4) the report of the Advisory Committee on Reactor Safeguards, dated January 17, 1977; (5) the Office of Nuclear Reactor Regulation's Safety Evaluation Report dated June 4, 1976 and its eight supplements; (6) the Final Safety Analysis Report and amendments thereto; (7) the applicant's Environmental Report dated June 17, 1970 and supplements thereto; (8) the Draft Environmental Statement dated December 12, 1972; and (9) the Final Environmental Statement dated April 1973 and its Addendum, dated November 1976. These documents are available for public inspection

at the Commission's Public Document Room at 1717 H Street, N.W., Washington, D. C. 20555, at the County Administrator's Office, Louisa County Courthouse, P. O. Box 27, Louisa, Virginia 23093 and at the Alderman Library Manuscripts Department, University of Virginia, Charlottesville, Virginia 22901. A copy of the amended license may be obtained upon request addressed to the United States Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Project Management.

Copies of the Safety Evaluation and its supplements (Document No. NUREG-0053) and the addendum to the Final Environmental Statement (Document No. NUREG-0134) may be purchased, at current costs, from the National Technical Information Service, Springfield, Virginia 22161.

Dated at Bethesda, Maryland, this 26th day of January 1978.

FOR THE NUCLEAR REGULATORY COMMISSION

/s/

Olan D. Parr, Chief
Light Water Reactors Branch No. 3
Division of Project Management

OFFICE ➤	DPM/LWR #3	DPM/LWR #3	OELD	DPM/LWR #3		
SURNAME ➤	MRushbrook/LM	ADromerick	S Treby	ODParr		
DATE ➤	1/26/78	1/19/78	1/26/78	1/19/78		

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-338

VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA POWER STATION, UNIT NO. 1

NOTICE OF ISSUANCE OF AN AMENDMENT TO FACILITY OPERATING LICENSE

Notice is hereby given that pursuant to the Initial Decision of the Atomic Safety and Licensing Board, dated December 13, 1977, as modified by the Board Order dated January 13, 1978, the Nuclear Regulatory Commission (the Commission) has issued Amendment No. 1 to Facility Operating License No. NPF-4 to the Virginia Electric and Power Company authorizing operation of the North Anna Power Station, Unit No. 1 in a hot standby condition, in accordance with the provisions of the amended license and the Technical Specifications. The amended license is effective as of its date of issuance and shall expire on six months from said date, unless extended for good cause shown, or upon earlier issuance or denial of a subsequent licensing action. NPF-4 issued on November 26, 1977 authorized fuel loading and maintenance of the North Anna Power Station, Unit No. 1 in an operational Mode 5 condition (cold shutdown condition). The Technical Specifications were attached to the license as Appendix A - Radiological Technical Specifications and Appendix B - Environmental Technical Specifications. The North Anna Power Station, Unit No. 1 is a pressurized water nuclear reactor located at the licensee's site near Mineral in Louisa County, Virginia.

The Initial Decision as modified by the Board's Order will be subject to review by an Atomic Safety and Licensing Appeal Board prior to its becoming final. Any decision or action taken by an Atomic Safety and Licensing Appeal Board in connection with the Initial Decision as modified by the Board's Order may be reviewed by the Commission.

The Commission has made appropriate findings as required by the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the amended license. The application for the license complies with the standards and requirements of the Act and the Commission's rules and regulations.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR Section 51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action see a copy of (1) the Initial Decision, dated December 13, 1977 as modified by the Board's Order dated January 13, 1978; (2) Amendment No. 1 to NPF-4 with page changes to Appendix A - Radiological Technical Specifications and Appendix B - Environmental Technical Specifications; (3) Facility Operating License No. NPF-4, complete with Technical Specifications (Appendices "A" and "B"); (4) the report of the Advisory Committee on Reactor Safeguards, dated January 17, 1977; (5) the Office of Nuclear Reactor Regulation's Safety Evaluation Report dated June 4, 1976 and its eight supplements; (6) the Final Safety Analysis Report and amendments thereto; (7) the applicant's Environmental Report dated June 17, 1970 and supplements thereto; (8) the Draft Environmental Statement dated December 12, 1972; and (9) the Final Environmental Statement dated April 1973 and its Addendum, dated November 1976. These documents are available for public inspection

at the Commission's Public Document Room at 1717 H Street, N.W., Washington, D. C. 20555, at the County Administrator's Office, Louisa County Courthouse, P. O. Box 27, Louisa, Virginia 23093 and at the Alderman Library Manuscripts Department, University of Virginia, Charlottesville, Virginia 22901. A copy of the amended license may be obtained upon request addressed to the United States Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Project Management.

Copies of the Safety Evaluation and its supplements (Document No. NUREG-0053) and the addendum to the Final Environmental Statement (Document No. NUREG-0134) may be purchased, at current costs, from the National Technical Information Service, Springfield, Virginia 22161.

Dated at Bethesda, Maryland, this 26th day of January 1978.

FOR THE NUCLEAR REGULATORY COMMISSION

Olan D. Parr, Chief
Light Water Reactors Branch No. 3
Division of Project Management

STAFF EVALUATION FOR ISSUANCE OF A LICENSE TO OPERATE NORTH ANNA POWER STATION, UNIT 1 IN A HOT STANDBY CONDITION (MODIFIED OPERATIONAL MODE 3)

In letters dated December 9, 1977, and December 14, 1977, the Virginia Electric and Power Company requested that an operating license be issued to permit the North Anna Power Station, Unit 1 to be operated in a hot standby mode under the following conditions: average reactor coolant temperature at or below 550 degrees Fahrenheit with a K_{eff} of 0.90 or less and a reactor coolant system minimum boron concentration of 2000 parts per million. This condition is a modification of Operational Mode 3 stated in the plant Technical Specifications.

The purpose of this evaluation is in support of our conclusions regarding a decision for issuance of an operating license authorizing the Virginia Electric and Power Company to operate the North Anna Power Station, Unit 1 in a hot standby condition (modified Operational Mode 3).

In Supplement No. 8 to the Safety Evaluation Report we stated that the following two issues must be satisfactorily resolved prior to authorizing an operating license for power operation:

(1) Bearing wear on the low head safety injection pumps.

(2) Environmental qualification of seismic Category I instrumentation and the electrical equipment.

With respect to (1) bearing wear on the low head safety injection pumps and (2) environmental qualification of seismic Category I instrumentation and electrical equipment, our evaluation of these matters is not complete. A satisfactory resolution of these matters is required prior to authorizing an operating license for power operation. However, we have evaluated the low head safety injection pump and environmental qualification of seismic Category I instrumentation and electrical equipment requirements necessary to operate the North Anna Power Station, Unit 1 in a hot standby condition (modified Operational Mode 3). For reasons stated in the following paragraphs we have concluded that Unit 1 can be operated in a hot standby condition (modified Operational Mode 3).

The initial core loading of the North Anna Power Station, Unit 1 consists entirely of new fuel. In the highly unlikely event of a postulated loss-of-coolant accident, an inconsequential amount of fission or decay heat would result solely from the spontaneous natural decay of the fuel. No forced cooling of the fuel would be necessary to prevent exceeding the fuel clad temperature limits and other requirements of Section 50.46 and Appendix K to 10 CFR Part 50. Until the core is made critical and operated

at power, there will be no significant increase in the decay heat above that generated in the new fuel. The technical specifications contain restrictions during hot standby conditions which will prevent achieving criticality. Therefore, this postulated loss-of-coolant accident would not require operation of the low head safety injection pumps. In addition, any radioactive release would be insignificant and the resulting radiological doses to the environment will be a very small fraction of the guideline values of 10 CFR Part 100 even if all seismic Category I instrumentation and electrical equipment fails.

For such postulated accidents as the (1) rod ejection accident and (2) main steam line break accident inside containment, the resulting environment could have an effect on the seismic Category I instrumentation and electrical equipment. We have determined that in the event of these accidents, when the reactor is operating in the modified Operational Mode 3 condition, the reactor will not go critical because the reactivity condition will be maintained at a K_{eff} of 0.90 or less with a reactor coolant system minimum boron concentration of 2000 parts per million. Therefore, as stated above any radioactive release would be insignificant and the resulting radiological doses to the environment will be a very small fraction of the guideline values of 10 CFR Part 100 even if all seismic Category I instrumentation and electrical equipment fails.

For operation in the hot standby condition (modified Operational Mode 3), the plant operating restrictions for power operation related to the available net positive suction head for the recirculation spray pumps, discussed in Section 6.2.2 of Supplement No. 8 to the Safety Evaluation Report, are not of concern since this license prohibits the achievement of criticality. However, at such time as the license is amended to authorize power operation, it will be appropriately conditioned to restrict operation as discussed in Section 6.2.2 of Supplement No. 8 to the Safety Evaluation Report.

In a letter dated January 18, 1978, the Virginia Electric and Power Company presented a list of all potentially reportable items concerning the North Anna Power Station, Units 1 and 2. These items were previously reported to the Staff. Of a total of fifteen potentially reportable items on the list, eight were ultimately determined by the licensee to be non-reportable. On the basis of the licensee's review of these items, the licensee has concluded that none of these items preclude operating the North Anna Power Station, Unit 1 in a hot standby condition.

We have reviewed the information presented by the Virginia Electric and Power Company and concur with the licensee's conclusion that the matters discussed in their letter of January 18, 1978 would not preclude operation of the North Anna Power Station, Unit 1 in a hot standby condition.

On the basis of our evaluation we have concluded that the North Anna Power Station, Unit 1 can be operated in a hot standby condition (modified Operational Mode 3), and that the health and safety of the public will not be endangered.

We have also reviewed the recommendations of the Office of Inspection and Enforcement and have concluded that all items of construction and testing necessary for operation at hot standby conditions (modified Operational Mode 3) have been acceptably completed.

On the basis of our review of the matters stated above, we have concluded that the issuance of an operating license authorizing North Anna Power Station, Unit 1 to be operated in a hot standby condition (modified Operational Mode 3), will not be inimical to the common defense and security or to the health and safety of the public.

ATTACHMENT TO LICENSE AMENDMENT NO. 1

FACILITY OPERATING LICENSE NO. NPF-4

DOCKET NO. 50-338

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

Page
3/4 4-32

3.4.10 STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.4.10.1 The structural integrity of ASME Code Class 1, 2 and 3 components shall be maintained in accordance with Specification 4.4.10.1.

APPLICABILITY: ALL MODES.

ACTION:

a. With the structural integrity of any ASME Code Class 1 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature more than 50°F above the minimum temperature required by NDT considerations.

b. With the structural integrity of any ASME Code Class 2 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature above 200°F.

c. With the structural integrity of any ASME Code Class 3 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) from service.

d. The provisions of Specification 3.0.4 are not applicable.

SURVIELLANCE REQUIREMENTS

4.4.10.1 In addition to the requirements of Specification 4.0.5 the Reactor Coolant pump flywheels shall be inspected per the recommendations of Regulatory Position C.4.b of Regulatory Guide 1.14, Revision 1, August 1975.

REACTOR COOLANT SYSTEM

STRUCTURAL INTEGRITY

STEAM GENERATOR SUPPORTS

LIMITING CONDITION FOR OPERATION

3.4.10.2 The temperature of the steam generator supoorts shall be maintained:

a. > 225°F for A572 material monitored at a middle level corner during operation and at a top level corner during heatup of the supports.

b. < 355°F at the monitored top level corner.

c. > 85°F for A36 material monitored at a bottom level corner during heatup.

APPLICABILITY: With pressurizer pressure > 1000 psig.

ACTION: With the temperature of any steam generator support outside the above limits, restore the temperature to within the limit within 4 hours or be below 1000 psig within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.4.10.2.1 The steam generator support temperatures for A572 material shall be verified to be within the specified limits at least once per 12 hours.

4.4.10.2.2 The steam generator support temperatures for A36 material shall be verified to be within the specified limit prior to exceeding a pressurizer pressure of > 1000 psig.

4.4.10.2.3 In addition to the requirements of Specification 4.0.5, at least one third of the main member to main member welds, joining A572 material, in the steam generator support, shall be visually examined during each 40 month inspection interval.

ATTACHMENT TO NPF-4 AMENDMENT NO. 1

PAGE CHANGES TO TECHNICAL SPECIFICATIONS

APPENDIX B

g. The manual valve on the 4-inch-diameter LW-221-152 line shall be closed and locked whenever a release is in progress. The position of this valve shall be checked and recorded each shift unless otherwise secured in position (i.e., locked or sealed).

h. Samples shall be taken from the Liquid Waste Evaporator Test, Contaminated Drain and Low Level Waste Drain Tanks and from releases from the Steam Generator Blowdown System and analyzed at least weekly for principal gamma emitters. Samples shall be taken from the clarifier and analyzed at least daily for principal gamma emitters.

Bases

The release of radioactive materials in liquid waste effluents to unrestricted areas shall not exceed the concentration limits specified in 10 CFR Part 20 and should be as low as is reasonably achievable in accordance with the requirements of 10 CFR Part 50.34a. These specifications provide reasonable assurance that the resulting annual dose to the total body or any organ of an individual in an unrestricted area will not exceed 5 mrem. At the same time, these specifications permit the flexibility of operation, compatible with considerations of health and safety, to assure that the public is provided a dependable source of power under unusual operating conditions which may temporarily result in releases higher than the design objective levels but still within the concentration limits specified in 10 CFR Part 20. It is expected that by using this operational flexibility under unusual operating conditions, and exerting every effort to keep levels of radioactive material in liquid wastes as low as is reasonably achievable, the annual release will not exceed a small fraction of the concentration limits specified in 10 CFR Part 20.

The design objectives have been developed based on operating experience, taking into account a combination of variables including defective fuel, primary system leakage, primary to secondary leakage, steam generator blowdown and the performance of the various waste treatment systems, and are consistent with Appendix I to 10 CFR Part 50.

Specification 2.2.1.a requires the licensee to limit the concentration of radioactive materials in liquid waste effluents released from the site to levels specified in 10 CFR Part 20, Appendix B, Table II, Column 2, for unrestricted areas. This specification provides assurance that no member of the general public will be exposed to liquid containing radioactive materials in excess of limits considered permissible under the Commission's Regulations.

Specifications 2.2.1.b and 2.2.1.c establish the upper limits for the release of radioactive materials in liquid effluents. The interest of these Specifications is to permit the licensee the flexibility of operation to assure that the public is provided a dependable source of power under unusual operating conditions which may temporarily result in releases higher than the levels normally achievable when the plant

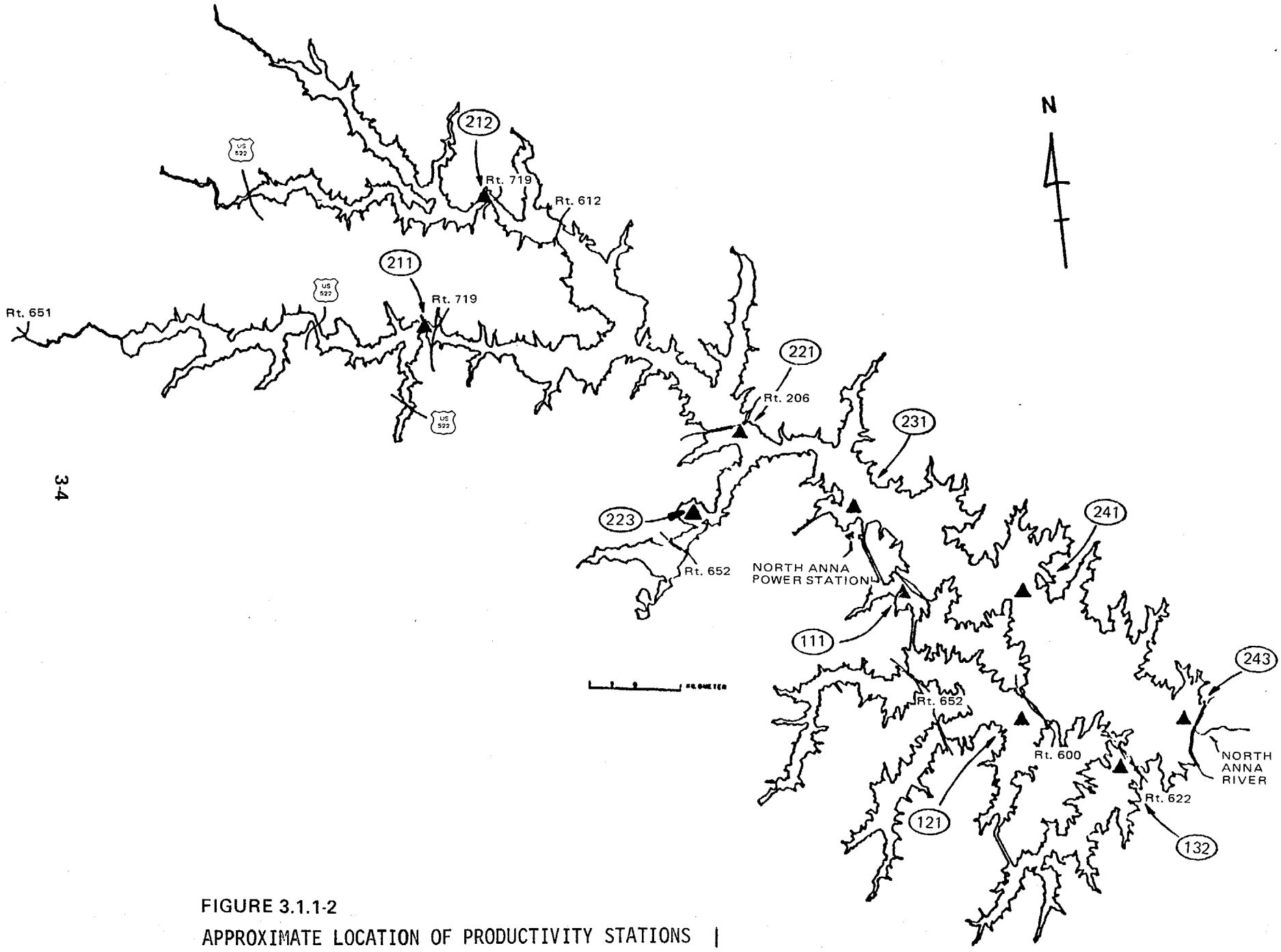

FIGURE 3.1.1-2
APPROXIMATE LOCATION OF PRODUCTIVITY STATIONS

will be replaced during September and no samples will be taken during October to allow time for recolonization.

d. Fishes in Lake Anna will be sampled at stations shown on Fig. 3.1.1-3 during the months of April, June, July, August, September, and October or November. A variety of collection techniques will be utilized including as a minimum, but not limited to, gill nets, hoop nets, seines, and electrofishing.

Reporting Requirements

Results shall be reported in accordance with Section 5.6.1.1.

Bases

The variety of fish collection techniques will be used due to the innate selectivity of single collecting techniques, and the knowledge that through variety a more representative characterization of the population can be made.

The ecological effects of power station operation center around the health of the aquatic ecosystem. Growth, development, population maintenance, food chains, and behavior patterns of individuals or groups are subject to change, both beneficial and detrimental, due to environmental perturbations.

The ecological monitoring program has been designed to detect changes in various components of the ecosystem and to assess the cause and effect of these changes.

3.1.2.2 Impingement of Organisms

Objective

The objective of the monitoring program is to determine the number, size, weight, and species of important aquatic organisms killed on the vertical traveling screens during circulating water pump operation.

Specification

a. The number and size of organisms collected on the vertical traveling screens during circulating water pump operation shall be determined. A sampling program shall be conducted throughout the year with each sample consisting of all organisms collected from the vertical traveling screens during a 24 hour period of normal operation of all screens through which water is being pumped. For each four week cycle, there shall be two 24 hour samples each week during three of the four weeks. No two samples

will be collected on consecutive days. During the fourth week one 24 hour sample will consist of all organisms collected during 12 continuous two hour sample periods. All screens in operation will be cleaned prior to each sample and will run continuously for the last 10 minutes of each sample period. (See Section 3.1.2.3)

b. Size, weight, and species determination shall be done in a manner consistent with accepted fishery methods.

c. Where individuals of one species number less than 50 per sample, all individuals of that species shall be measured by modal size range (20 mm increments total length) and then weighed to the nearest 0.5 gram. Where individuals of one species number more than 50 per sample, those greater in number than 50 shall be enumerated and bulk weighed to the nearest 1.0 gram.

d. This program will terminate after one full year of normal operation of both units unless the staff determines that additional sampling is required.

Reporting Requirement

Results shall be reported per Section 5.6.1.1.

Bases

The magnitude of loss and the potential impact to Lake Anna in the environs of North Anna Power Station resulting from the death of aquatic organisms due to impingement is not known nor is it determinable on a theoretical basis. Usually, a data base of several years is required before any impact due to impingement loss can be assessed. Sampling of organisms collected on the traveling screens will ensure a reasonable estimate of the impingement level. This information when combined with the results of the general surveillance program will provide the empirical basis on which to judge the impact of plant operation.

3.1.2.3 Entrainment of Ichthyoplankton

Objective

The objective of this monitoring program is to determine the relative number and species composition of fish eggs and larvae entrained by circulating water pump operation at the station.

Specification

a. One randomly selected intake forebay shall be sampled during the months March through July (See 3.1.2.2) to determine the relative number and species composition of entrained fish eggs and larvae.

Replicate ten-minute samples will be taken every six hours for 24 hours once each week. Samples will be taken at three depths (surface, mid-depth, and bottom) to determine spatial differences, if any, in abundance and species composition.

b. Ichthyoplankters shall be identified to the lowest taxon possible. Numbers of fish eggs and larvae shall be extrapolated to reflect estimated entrainment numbers for average station operating conditions during a given period.

c. This program will terminate after two years of normal operation of both units unless the staff determines that additional monitoring is required.

Reporting Requirements

Results will be reported in accordance with Section 5.6.1.1.

Bases

The entrainment of ichthyoplankton in large reservoirs is not generally anticipated to result in a significant impact since fish eggs and larvae in the area of the intake represent a very minor percentage of the total number in the reservoir. In addition, most important reservoir fishes such as members of the families Centrarchidae and Ictaluridae are nest builders, not broadcast spawners. Eggs, therefore, tend to stay in the nest during development and are not subject to widespread lateral movement. Larval fish, likewise, show a tendency to remain within a "home range". Consequently, few fish eggs and larvae are expected to be entrained during operation of Units 1 and 2. This program will provide information necessary to confirm the assessment of impacts.

The period of entrainment monitoring, March through July, covers those months when major spawning is expected to occur.

3.1.3 Abiotic - Terrestrial

3.1.3.1 Transmission Line Rights-of-Way Herbicide Management

Objective

The objective of the monitoring program is to determine impact of herbicide applications on the environment.

Specification

The use of herbicides to control undesirable vegetation in the transmission rights-of-way associated with North Anna Power Station will

Spent chemical reagents from the chemical laboratories are not to be included in the reporting requirement because of their small quantities and insignificant concentrations in the liquids released.

4.2 Vegetation Studies

Objective

The objective of this monitoring program is to evaluate the effects of power station operation on the vegetation types and vegetation production in two plots adjacent to the Waste Heat Treatment Facility, two plots adjacent to Lake Anna, and one plot downstream near the Lake Anna Dam.

Specifications

The initial vegetation surveys were conducted to determine plant

1) density
2) productivity
3) diversity

on both the community and species levels. Each of the five plots were sampled in the same manner using methods commonly employed in the ecological analysis of vegetation. The initial survey has been summarized and will be used as the base for studies to be conducted at the end of the growing seasons in 1979 and 1981.

This study will terminate after 1981. If an adverse environmental impact is identified, then approval from the NRC must be obtained before this study is terminated.

Reporting Requirements

Any adverse environmental impact identified by this study shall be reported in the annual operating report (Section 5.6.1.1).

Bases

The responses of the floral community to possible environmental alterations due to the impoundment of Lake Anna and the Waste Heat Treatment Facility will be monitored in the dominant oak-pine forest typical of the area. Growth, development and population structure may be modified due to the proximity of a water body having temperatures above the natural equilibrium level.

The monitoring program has been designed to detect changes in various components of the dominant vegetation types and to assess the cause and effect of the changes.

c. The licensee shall maintain records of changes in procedures and in facility design or operation made pursuant to this Subsection, to the extent that such changes constitute changes in procedures as described in the document developed in accordance with Section 5.5 or in the FES, FES Addendum and ER. The licensee shall also maintain records of tests and experiments carried out pursuant to paragraph "a" of this Subsection. These records shall include a written evaluation which provides the bases for the determination that the change, test, or experiment does not involve an unreviewed environmental question of substantive impact or constitute a change in the objectives of these ETS, or affect the requirements of Section 5.5.7 of these ETS. The licensee shall furnish to the Commission, annually or at such shorter intervals as may be specified in the license, a report containing descriptions, analyses, interpretations, and evaluations of such changes, tests and experiments.

d. Changes in the procedures developed in accordance with Subsection 5.5 which affect sampling frequency, location, gear, or replication shall be reported to the NRC within 30 days after their implementation. These reports shall describe the changes made, the reasons for making the changes, an evaluation of the environmental impact of these changes, and the statement required under the provisions of Subsection 5.5.7.

5.5.7 Consistency with Initially Approved Programs

Any modifications or changes of the procedures developed in accordance with Subsection 5.5 much be governed by the need to maintain consistency with previously used procedures so that direct comparisons of data are technically valid. Such modifications or changes must be justified and supported by adequate comparative sampling programs or studies demonstrating the comparability of results or which provide a basis for making adjustments that would permit direct comparisons.

These demonstrations of comparability shall be submitted to the NRC in accordance with the provision of Subsection 5.5.6 and 5.6.1 of these ETS.

5.6 Station Reporting Requirements

5.6.1 Routine Reports

5.6.1.1 Annual Environmental Operating Report

Part A: Nonradiological Report

A report on the nonradiological environmental surveillance programs for the previous calendar year shall be submitted to the Director of

listed addresses in 5.6.2.1.c within 30 days after confirmation.* This report shall include an evaluation of any release conditions, environmental factors, or other aspects necessary to explain the anomalous result.

b. Pathway Measurement Report. If pathway samples collected over a calendar quarter show average levels of radioactivity greater than 10 times the trend established by previous monitoring, a written report shall be included in the report required by Section 5.6.1.2.

c. Nonroutine Radioactive Effluent Reports

(1) PWR Liquid Radioactive Wastes Report. If the cumulative releases of radioactive materials in liquid effluents, excluding tritium and dissolved gases, should exceed one-half the design objective annual quantity during any calendar quarter, the licensee shall make an investigation to identify the causes of such releases and define and initiate a program of action to reduce such releases to the design objective levels. A written report of these actions shall be submitted to the NRC within 30 days from the end of the quarter during which the release occurred.

(2) PWR Gaseous Radioactive Wastes Report. See Section 2.2.4.

*A confirmatory reanalysis of the original, a duplicate or a new sample may be desirable, as appropriate. The results of the confirmatory analysis shall be completed at the earliest time consistent with the analysis, but in any case within 30 days. If the anomalous value is confirmed, the report to the NRC shall be submitted.

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

Original signed
copy by R.S. Boyd

JAN 2 0 1978

Docket No. 50-338

Virginia Electric & Power Company
ATTN: Mr. W. L. Proffitt
Senior Vice President - Power
P. O. Box 26666
Richmond, Virginia 23261

Gentlemen:

SUBJECT: ISSUANCE OF AMENDMENT NO. 1 TO FACILITY OPERATING LICENSE NO. NPF-4 - NORTH ANNA POWER STATION, UNIT NO. 1

The Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 1 to Facility Operating License NPF-4 including page changes to Appendix A - Radiological Technical Specifications and to Appendix B - Environmental Technical Specifications. The page change to Appendix A is in accordance with the Atomic Safety and Licensing Board's Initial Decision dated December 13, 1977, concerning the monitoring of the steam generator supports. The page changes to Appendix B are editorial and do not impact the substance of the Appendix B Technical Specifications. Amendment No. 1 is effective as of the date of issuance. This amendment authorizes the Virginia Electric & Power Company to operate the North Anna Power Station, Unit No. 1 in a hot standby condition as defined in the amended license.

A copy of the Federal Register Notice of Issuance of Amendment No. 1 and the related Safety Evaluation supporting Amendment No. 1 to License No. NPF-4 are also enclosed.

Sincerely,

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 1 to Facility Operating License No. NPF-4 with page changes to Appendices A and B
2. Federal Register Notice
3. Safety Evaluation Report

JAN 26 1978

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

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-338

NORTH ANNA POWER STATION, UNIT NO. 1

FACILITY OPERATING LICENSE

License No. NPF-4
Amendment No. 1

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

A. Construction of the North Anna Power Station, Unit No. 1 (facility) has been substantially completed in conformity with Construction Permit No. CPPR-77 and the application, as amended, the provisions of the Act and the rules and regulations of the Commission;

B. The facility will operate in conformity with the application, as amended, 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 operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission;

D. The licensee is technically and financially qualified to engage in the activities authorized by this operating license in accordance with the rules and regulations of the Commission;

E. The licensee has satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," of the Commission's regulations;

F. The issuance of this amended operating license will not be inimical to the common defense and security or to the health and safety of the public;

G. After weighing the environmental, economic, technical, and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of Amendment No. 1 to Facility Operating License No. NPF-4 subject to the conditions for protection of the environment set forth herein is in accordance with Appendix D to 10 CFR Part 50 of the Commission's regulations and all applicable requirements have been satisfied; and

H. The receipt, possession, and use of source, byproduct and special nuclear material as authorized by this license will be in accordance with the Commission's regulations in 10 CFR Part 30, 40, and 70, including 10 CFR Section 30.33, 40.32, and 70.23 and 70.31.

2. Amendment No. 1 to Facility Operating License No. NPF-4 is hereby issued to the Virginia Electric and Power Company, in accordance with the Atomic Safety and Licensing Board's Initial Decision dated, December 13, 1977, as modified by the Board's Order dated, January 13, 1978. Operating License No. NPF-4 is hereby amended in its entirety to read as follows:

A. This amended license applies to the North Anna Power Station, Unit No. 1, a pressurized water reactor and associated equipment (the facility), owned by the Virginia Electric and Power Company. The facility is located near Mineral, in Louisa County, Virginia, and is described in the "Final Safety Analysis Report" as supplemented and amended (Amendments 17 through 64) and the Environmental Report as supplemented and amended (Supplements 1 through 4).

B. The licensee is authorized to perform steam generator moisture carryover studies at the North Anna Power Station. These studies involve the use of an aqueous tracer solution of two (2) curies of sodium-24. The licensee's personnel will be in charge of conducting these studies and be knowledgeable in the procedures. The licensee will impose personnel exposure limits, posting, and survey requirements in conformance with those in 10 CFR Part 20 to minimize personnel exposure and contamination during the studies. Radiological controls will be established in the areas of the chemical feed, feedwater, steam, condensate and sampling systems where the presence of the radioactive tracer is expected to warrant such controls. The licensee will take special precautions to minimize radiation exposure and contamination during both the handling of the radioactive tracer prior to injection and the taking of system samples following injection of the tracer. The licensee will insure that all regulatory requirements for liquid discharge are met during disposal of all sampling effluents and when reestablishing continuous blowdown from the steam generators after completion of the studies.

C. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses the Virginia Electric and Power Company:

(1) Pursuant to Section 103 of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess, use, and operate the facility at the designated location in Louisa County, Virginia in accordance with the procedures and limitations set forth in this amended license;

(2) Pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;

(3) Pursuant to the Act and 10 CFR Parts 30, 40 and 70 to receive, possess and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

D. This amended license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to load fuel and maintain the unit in an operational Mode 5 condition (cold shutdown condition). The reactor shall be maintained at a K_{eff} of no greater than 0.90. The licensee is also authorized to operate the North Anna Power Station, Unit No. 1 in a hot standby mode under the following conditions:

a. Average reactor coolant temperature at or above 350 degrees Fahrenheit with a K_{eff} of 0.90 or less and a reactor coolant system minimum boron concentration of 2000 parts per million. This mode of operation is a modification of Operational Mode 3 stated in the Technical Specifications, Appendix A.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B to the original NPF-4 North Anna Power Station, Unit No. 1 license are hereby incorporated in this license. In addition, Appendix A and Appendix B page changes are attached. The licensee shall operate the facility in accordance with the Technical Specifications except for the following specific exemptions:

a. The licensee shall be exempted from compliance with the following Appendix A Technical Specifications applying to charcoal testing until (1) the first regularly scheduled refueling outage, or (2) the currently installed charcoal is replaced, whichever occurs first:

4.6.4.3.c
4.7.7.1.c
4.7.8.1.c

b. The licensee shall be exempted from compliance with the following Appendix A Technical Specifications:

3.5.2.b
4.5.2.e.2.b
4.5.2.f.2
3.5.3.b
4.0.5.a.1 as applicable to inservice inspection and testing of the Low Head Safety Injection Pumps.

c. The following Appendix A Technical Specifications are modified, to read:

3.5.2.c: "An operable flow path capable of transferring fluid to the Reactor Coolant System when taking suction from the refueling water storage tank on a safety injection signal."

4.5.2.a: "At least once per 12 hours by verifying that the following valves are in the indicated positions with power to the valve operators removed:

Valve Number	Valve Function	Valve Position
a. MOV-1836	a. Ch pump to cold leg	a. closed
b. MOV-1869A	b. Ch pump to hot leg	b. closed
c. MOV-1869B	c. Ch pump to hot leg	c. closed

3.5.3.c: "An operable flow path capable of transferring fluid to the reactor coolant system when taking suction from the refueling water storage tank upon being manually realigned."

(3) Additional Condition

a. If VEPCO plans to remove or to make significant changes in the normal operation of equipment that controls the amount of radioactivity in effluents from the North Anna Power Station, the Staff should be notified in writing regardless of whether the change affects the amount of radioactivity in the effluents.

E. The licensee shall maintain in effect and fully implement all provisions of the physical security plan approved by the Commission, including amendments and changes made pursuant to the authority of 10 CFR 50.54(p). The approved security plan consists of proprietary documents, collectively titled, "Security Program, North Anna Power Station, Units 1 and 2," as follows: Original submitted with letter, dated February 1974, as revised on July 15, 1975, and on September 15, 1977; and additional information provisions of the licensee's security plan, the licensee shall perform or shall obtain written confirmation of the performance by others of the personnel screening and background investigations, as specified in ANSI N18.17, for non-licensee employees prior to granting them un-escorted access to the protected area.

Pursuant to 10 CFR Section 2.790(d), the security plan is being withheld from public disclosure because it is deemed to be proprietary information within the meaning of 10 CFR Section 9.5(a)(4) and subject to disclosure only in accordance with 10 CFR Section 9.12.

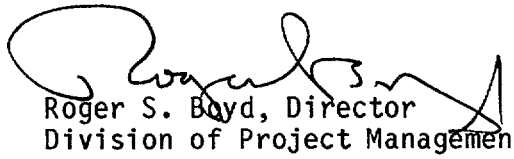
F. This amended license is subject to the following additional conditions for the protection of the environment:

(1) Before engaging in additional construction or operational activities which may result in an environmental impact that was not evaluated by the Commission, the licensee will prepare and record an environmental evaluation of such activity. When the evaluation indicates that such activity may result in a significant adverse environmental impact that was not evaluated, or that is significantly greater than that evaluated, in the Final Environmental Statement or any addendum thereto, the licensee shall provide a written evaluation of such activities and obtain prior approval from the Director, Office of Nuclear Reactor Regulation.

G. In accordance with the requirement imposed by the October 8, 1976, order of the United States Court of Appeals for the District of Columbia Circuit in Natural Resources Defense Council vs. Nuclear Regulatory Commission, No. 74-1385 and 74-1586 (cert. granted sub nom Vermont Yankee Nuclear Power Corp. vs. Natural Resources Defense Council, 45 U.S.L.W. 3570, February 22, 1977) that the Nuclear Regulatory Commission "shall make any licenses granted between July 21, 1976 and such time when the mandate is issued subject to the outcome of the proceedings herein," this amended license shall be subject to the outcome of such proceedings.

H. This amended license is effective as of the date of issuance and shall expire six months from said date, unless extended for good cause shown, or upon earlier issuance or denial of a subsequent licensing action.

FOR THE NUCLEAR REGULATORY COMMISSION



Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Attachments:
1. Appendix A Technical Specification page change
2. Appendix B Technical Specification page changes

Date of Issuance: JAN 26 1978

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-338

VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA POWER STATION, UNIT NO. 1

NOTICE OF ISSUANCE OF AN AMENDMENT TO FACILITY OPERATING LICENSE

Notice is hereby given that pursuant to the Initial Decision of the Atomic Safety and Licensing Board, dated December 13, 1977, as modified by the Board Order dated January 13, 1978, the Nuclear Regulatory Commission (the Commission) has issued Amendment No. 1 to Facility Operating License No. NPF-4 to the Virginia Electric and Power Company authorizing operation of the North Anna Power Station, Unit No. 1 in a hot standby condition, in accordance with the provisions of the amended license and the Technical Specifications. The amended license is effective as of its date of issuance and shall expire on six months from said date, unless extended for good cause shown, or upon earlier issuance or denial of a subsequent licensing action. NPF-4 issued on November 26, 1977 authorized fuel loading and maintenance of the North Anna Power Station, Unit No. 1 in an operational Mode 5 condition (cold shutdown condition). The Technical Specifications were attached to the license as Appendix A - Radiological Technical Specifications and Appendix B - Environmental Technical Specifications. The North Anna Power Station, Unit No. 1 is a pressurized water nuclear reactor located at the licensee's site near Mineral in Louisa County, Virginia.

The Initial Decision as modified by the Board's Order will be subject to review by an Atomic Safety and Licensing Appeal Board prior to its becoming final. Any decision or action taken by an Atomic Safety and Licensing Appeal Board in connection with the Initial Decision as modified by the Board's Order may be reviewed by the Commission.

The Commission has made appropriate findings as required by the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the amended license. The application for the license complies with the standards and requirements of the Act and the Commission's rules and regulations.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR Section 51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action see a copy of (1) the Initial Decision, dated December 13, 1977 as modified by the Board's Order dated January 13, 1978; (2) Amendment No. 1 to NPF-4 with page changes to Appendix A - Radiological Technical Specifications and Appendix B - Environmental Technical Specifications; (3) Facility Operating License No. NPF-4, complete with Technical Specifications (Appendices "A" and "B"); (4) the report of the Advisory Committee on Reactor Safeguards, dated January 17, 1977; (5) the Office of Nuclear Reactor Regulation's Safety Evaluation Report dated June 4, 1976 and its eight supplements; (6) the Final Safety Analysis Report and amendments thereto; (7) the applicant's Environmental Report dated June 17, 1970 and supplements thereto; (8) the Draft Environmental Statement dated December 12, 1972; and (9) the Final Environmental Statement dated April 1973 and its Addendum, dated November 1976. These documents are available for public inspection

at the Commission's Public Document Room at 1717 H Street, N.W., Washington, D. C. 20555, at the County Administrator's Office, Louisa County Courthouse, P. O. Box 27, Louisa, Virginia 23093 and at the Alderman Library Manuscripts Department, University of Virginia, Charlottesville, Virginia 22901. A copy of the amended license may be obtained upon request addressed to the United States Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Project Management.

Copies of the Safety Evaluation and its supplements (Document No. NUREG-0053) and the addendum to the Final Environmental Statement (Document No. NUREG-0134) may be purchased, at current costs, from the National Technical Information Service, Springfield, Virginia 22161.

Dated at Bethesda, Maryland, this 26th day of January 1978.

FOR THE NUCLEAR REGULATORY COMMISSION

Olan D. Parr, Chief
Light Water Reactors Branch No. 3
Division of Project Management

JAN 26 1978

STAFF EVALUATION FOR ISSUANCE OF A LICENSE TO OPERATE NORTH ANNA POWER STATION, UNIT 1 IN A HOT STANDBY CONDITION (MODIFIED OPERATIONAL MODE 3)

In letters dated December 9, 1977, and December 14, 1977, the Virginia Electric and Power Company requested that an operating license be issued to permit the North Anna Power Station, Unit 1 to be operated in a hot standby mode under the following conditions: average reactor coolant temperature at or below 550 degrees Fahrenheit with a K_{eff} of 0.90 or less and a reactor coolant system minimum boron concentration of 2000 parts per million. This condition is a modification of Operational Mode 3 stated in the plant Technical Specifications.

The purpose of this evaluation is in support of our conclusions regarding a decision for issuance of an operating license authorizing the Virginia Electric and Power Company to operate the North Anna Power Station, Unit 1 in a hot standby condition (modified Operational Mode 3).

In Supplement No. 8 to the Safety Evaluation Report we stated that the following two issues must be satisfactorily resolved prior to authorizing an operating license for power operation:

(1) Bearing wear on the low head safety injection pumps.

(2) Environmental qualification of seismic Category I instrumentation and the electrical equipment.

With respect to (1) bearing wear on the low head safety injection pumps and (2) environmental qualification of seismic Category I instrumentation and electrical equipment, our evaluation of these matters is not complete. A satisfactory resolution of these matters is required prior to authorizing an operating license for power operation. However, we have evaluated the low head safety injection pump and environmental qualification of seismic Category I instrumentation and electrical equipment requirements necessary to operate the North Anna Power Station, Unit 1 in a hot standby condition (modified Operational Mode 3). For reasons stated in the following paragraphs we have concluded that Unit 1 can be operated in a hot standby condition (modified Operational Mode 3).

The initial core loading of the North Anna Power Station, Unit 1 consists entirely of new fuel. In the highly unlikely event of a postulated loss-of-coolant accident, an inconsequential amount of fission or decay heat would result solely from the spontaneous natural decay of the fuel. No forced cooling of the fuel would be necessary to prevent exceeding the fuel clad temperature limits and other requirements of Section 50.46 and Appendix K to 10 CFR Part 50. Until the core is made critical and operated

at power, there will be no significant increase in the decay heat above that generated in the new fuel. The technical specifications contain restrictions during hot standby conditions which will prevent achieving criticality. Therefore, this postulated loss-of-coolant accident would not require operation of the low head safety injection pumps. In addition, any radioactive release would be insignificant and the resulting radiological doses to the environment will be a very small fraction of the guideline values of 10 CFR Part 100 even if all seismic Category I instrumentation and electrical equipment fails.

For such postulated accidents as the (1) rod ejection accident and (2) main steam line break accident inside containment, the resulting environment could have an effect on the seismic Category I instrumentation and electrical equipment. We have determined that in the event of these accidents, when the reactor is operating in the modified Operational Mode 3 condition, the reactor will not go critical because the reactivity condition will be maintained at a K_{eff} of 0.90 or less with a reactor coolant system minimum boron concentration of 2000 parts per million. Therefore, as stated above any radioactive release would be insignificant and the resulting radiological doses to the environment will be a very small fraction of the guideline values of 10 CFR Part 100 even if all seismic Category I instrumentation and electrical equipment fails.

For operation in the hot standby condition (modified Operational Mode 3), the plant operating restrictions for power operation related to the available net positive suction head for the recirculation spray pumps, discussed in Section 6.2.2 of Supplement No. 8 to the Safety Evaluation Report, are not of concern since this license prohibits the achievement of criticality. However, at such time as the license is amended to authorize power operation, it will be appropriately conditioned to restrict operation as discussed in Section 6.2.2 of Supplement No. 8 to the Safety Evaluation Report.

In a letter dated January 18, 1978, the Virginia Electric and Power Company presented a list of all potentially reportable items concerning the North Anna Power Station, Units 1 and 2. These items were previously reported to the Staff. Of a total of fifteen potentially reportable items on the list, eight were ultimately determined by the licensee to be non-reportable. On the basis of the licensee's review of these items, the licensee has concluded that none of these items preclude operating the North Anna Power Station, Unit 1 in a hot standby condition.

We have reviewed the information presented by the Virginia Electric and Power Company and concur with the licensee's conclusion that the matters discussed in their letter of January 18, 1978 would not preclude operation of the North Anna Power Station, Unit 1 in a hot standby condition.

On the basis of our evaluation we have concluded that the North Anna Power Station, Unit 1 can be operated in a hot standby condition (modified Operational Mode 3), and that the health and safety of the public will not be endangered.

We have also reviewed the recommendations of the Office of Inspection and Enforcement and have concluded that all items of construction and testing necessary for operation at hot standby conditions (modified Operational Mode 3) have been acceptably completed.

On the basis of our review of the matters stated above, we have concluded that the issuance of an operating license authorizing North Anna Power Station, Unit 1 to be operated in a hot standby condition (modified Operational Mode 3), will not be inimical to the common defense and security or to the health and safety of the public.

ATTACHMENT TO LICENSE AMENDMENT NO. 1

FACILITY OPERATING LICENSE NO. NPF-4

DOCKET NO. 50-338

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

Page
3/4 4-32

3.4.10 STRUCTURAL INTEGRITY

LIMITING CONDITION FOR OPERATION

3.4.10.1 The structural integrity of ASME Code Class 1, 2 and 3 components shall be maintained in accordance with Specification 4.4.10.1.

APPLICABILITY: ALL MODES.

ACTION:

a. With the structural integrity of any ASME Code Class 1 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature more than 50°F above the minimum temperature required by NDT considerations.

b. With the structural integrity of any ASME Code Class 2 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature above 200°F.

c. With the structural integrity of any ASME Code Class 3 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) from service.

d. The provisions of Specification 3.0.4 are not applicable.

SURVIELLANCE REQUIREMENTS

4.4.10.1 In addition to the requirements of Specification 4.0.5 the Reactor Coolant pump flywheels shall be inspected per the recommendations of Regulatory Position C.4.b of Regulatory Guide 1.14, Revision 1, August 1975.

REACTOR COOLANT SYSTEM

STRUCTURAL INTEGRITY

STEAM GENERATOR SUPPORTS

LIMITING CONDITION FOR OPERATION

3.4.10.2 The temperature of the steam generator supoorts shall be maintained:

a. > 225°F for A572 material monitored at a middle level corner during operation and at a top level corner during heatup of the supports.

b. < 355°F at the monitored top level corner.

c. > 85°F for A36 material monitored at a bottom level corner during heatup.

APPLICABILITY: With pressurizer pressure > 1000 psig.

ACTION: With the temperature of any steam generator support outside the above limits, restore the temperature to within the limit within 4 hours or be below 1000 psig within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.4.10.2.1 The steam generator support temperatures for A572 material shall be verified to be within the specified limits at least once per 12 hours.

4.4.10.2.2 The steam generator support temperatures for A36 material shall be verified to be within the specified limit prior to exceeding a pressurizer pressure of > 1000 psig.

4.4.10.2.3 In addition to the requirements of Specification 4.0.5, at least one third of the main member to main member welds, joining A572 material, in the steam generator support, shall be visually examined during each 40 month inspection interval.

ATTACHMENT TO NPF-4 AMENDMENT NO. 1

PAGE CHANGES TO TECHNICAL SPECIFICATIONS

APPENDIX B

g. The manual valve on the 4-inch-diameter LW-221-152 line shall be closed and locked whenever a release is in progress. The position of this valve shall be checked and recorded each shift unless otherwise secured in position (i.e., locked or sealed).

h. Samples shall be taken from the Liquid Waste Evaporator Test, Contaminated Drain and Low Level Waste Drain Tanks and from releases from the Steam Generator Blowdown System and analyzed at least weekly for principal gamma emitters. Samples shall be taken from the clarifier and analyzed at least daily for principal gamma emitters.

Bases

The release of radioactive materials in liquid waste effluents to unrestricted areas shall not exceed the concentration limits specified in 10 CFR Part 20 and should be as low as is reasonably achievable in accordance with the requirements of 10 CFR Part 50.34a. These specifications provide reasonable assurance that the resulting annual dose to the total body or any organ of an individual in an unrestricted area will not exceed 5 mrem. At the same time, these specifications permit the flexibility of operation, compatible with considerations of health and safety, to assure that the public is provided a dependable source of power under unusual operating conditions which may temporarily result in releases higher than the design objective levels but still within the concentration limits specified in 10 CFR Part 20. It is expected that by using this operational flexibility under unusual operating conditions, and exerting every effort to keep levels of radioactive material in liquid wastes as low as is reasonably achievable, the annual release will not exceed a small fraction of the concentration limits specified in 10 CFR Part 20.

The design objectives have been developed based on operating experience, taking into account a combination of variables including defective fuel, primary system leakage, primary to secondary leakage, steam generator blowdown and the performance of the various waste treatment systems, and are consistent with Appendix I to 10 CFR Part 50.

Specification 2.2.1.a requires the licensee to limit the concentration of radioactive materials in liquid waste effluents released from the site to levels specified in 10 CFR Part 20, Appendix B, Table II, Column 2, for unrestricted areas. This specification provides assurance that no member of the general public will be exposed to liquid containing radioactive materials in excess of limits considered permissible under the Commission's Regulations.

Specifications 2.2.1.b and 2.2.1.c establish the upper limits for the release of radioactive materials in liquid effluents. The interest of these Specifications is to permit the licensee the flexibility of operation to assure that the public is provided a dependable source of power under unusual operating conditions which may temporarily result in releases higher than the levels normally achievable when the plant

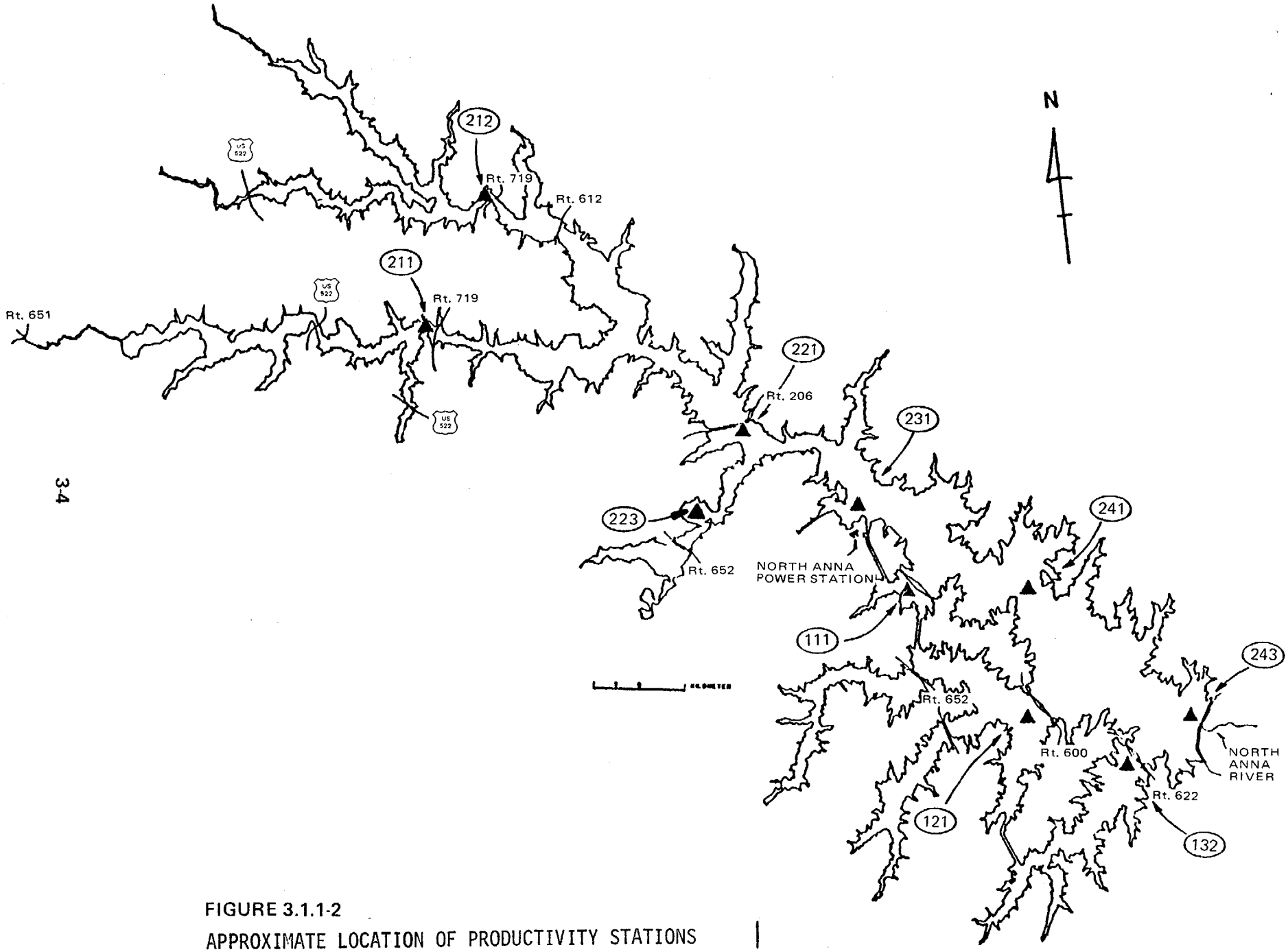


FIGURE 3.1.1-2
APPROXIMATE LOCATION OF PRODUCTIVITY STATIONS

will be replaced during September and no samples will be taken during October to allow time for recolonization.

d. Fishes in Lake Anna will be sampled at stations shown on Fig. 3.1.1-3 during the months of April, June, July, August, September, and October or November. A variety of collection techniques will be utilized including as a minimum, but not limited to, gill nets, hoop nets, seines, and electrofishing.

Reporting Requirements

Results shall be reported in accordance with Section 5.6.1.1.

Bases

The variety of fish collection techniques will be used due to the innate selectivity of single collecting techniques, and the knowledge that through variety a more representative characterization of the population can be made.

The ecological effects of power station operation center around the health of the aquatic ecosystem. Growth, development, population maintenance, food chains, and behavior patterns of individuals or groups are subject to change, both beneficial and detrimental, due to environmental perturbations.

The ecological monitoring program has been designed to detect changes in various components of the ecosystem and to assess the cause and effect of these changes.

3.1.2.2 Impingement of Organisms

Objective

The objective of the monitoring program is to determine the number, size, weight, and species of important aquatic organisms killed on the vertical traveling screens during circulating water pump operation.

Specification

a. The number and size of organisms collected on the vertical traveling screens during circulating water pump operation shall be determined. A sampling program shall be conducted throughout the year with each sample consisting of all organisms collected from the vertical traveling screens during a 24 hour period of normal operation of all screens through which water is being pumped. For each four week cycle, there shall be two 24 hour samples each week during three of the four weeks. No two samples

will be collected on consecutive days. During the fourth week one 24 hour sample will consist of all organisms collected during 12 continuous two hour sample periods. All screens in operation will be cleaned prior to each sample and will run continuously for the last 10 minutes of each sample period. (See Section 3.1.2.3)

b. Size, weight, and species determination shall be done in a manner consistent with accepted fishery methods.

c. Where individuals of one species number less than 50 per sample, all individuals of that species shall be measured by modal size range (20 mm increments total length) and then weighed to the nearest 0.5 gram. Where individuals of one species number more than 50 per sample, those greater in number than 50 shall be enumerated and bulk weighed to the nearest 1.0 gram.

d. This program will terminate after one full year of normal operation of both units unless the staff determines that additional sampling is required.

Reporting Requirement

Results shall be reported per Section 5.6.1.1.

Bases

The magnitude of loss and the potential impact to Lake Anna in the environs of North Anna Power Station resulting from the death of aquatic organisms due to impingement is not known nor is it determinable on a theoretical basis. Usually, a data base of several years is required before any impact due to impingement loss can be assessed. Sampling of organisms collected on the traveling screens will ensure a reasonable estimate of the impingement level. This information when combined with the results of the general surveillance program will provide the empirical basis on which to judge the impact of plant operation.

3.1.2.3 Entrainment of Ichthyoplankton

Objective

The objective of this monitoring program is to determine the relative number and species composition of fish eggs and larvae entrained by circulating water pump operation at the station.

Specification

a. One randomly selected intake forebay shall be sampled during the months March through July (See 3.1.2.2) to determine the relative number and species composition of entrained fish eggs and larvae.

Replicate ten-minute samples will be taken every six hours for 24 hours once each week. Samples will be taken at three depths (surface, mid-depth, and bottom) to determine spatial differences, if any, in abundance and species composition.

b. Ichthyoplankters shall be identified to the lowest taxon possible. Numbers of fish eggs and larvae shall be extrapolated to reflect estimated entrainment numbers for average station operating conditions during a given period.

c. This program will terminate after two years of normal operation of both units unless the staff determines that additional monitoring is required.

Reporting Requirements

Results will be reported in accordance with Section 5.6.1.1.

Bases

The entrainment of ichthyoplankton in large reservoirs is not generally anticipated to result in a significant impact since fish eggs and larvae in the area of the intake represent a very minor percentage of the total number in the reservoir. In addition, most important reservoir fishes such as members of the families Centrarchidae and Ictaluridae are nest builders, not broadcast spawners. Eggs, therefore, tend to stay in the nest during development and are not subject to widespread lateral movement. Larval fish, likewise, show a tendency to remain within a "home range". Consequently, few fish eggs and larvae are expected to be entrained during operation of Units 1 and 2. This program will provide information necessary to confirm the assessment of impacts.

The period of entrainment monitoring, March through July, covers those months when major spawning is expected to occur.

3.1.3 Abiotic - Terrestrial

3.1.3.1 Transmission Line Rights-of-Way Herbicide Management

Objective

The objective of the monitoring program is to determine impact of herbicide applications on the environment.

Specification

The use of herbicides to control undesirable vegetation in the transmission rights-of-way associated with North Anna Power Station will

Spent chemical reagents from the chemical laboratories are not to be included in the reporting requirement because of their small quantities and insignificant concentrations in the liquids released.

4.2 Vegetation Studies

Objective

The objective of this monitoring program is to evaluate the effects of power station operation on the vegetation types and vegetation production in two plots adjacent to the Waste Heat Treatment Facility, two plots adjacent to Lake Anna, and one plot downstream near the Lake Anna Dam.

Specifications

The initial vegetation surveys were conducted to determine plant

1) density
2) productivity
3) diversity

on both the community and species levels. Each of the five plots were sampled in the same manner using methods commonly employed in the ecological analysis of vegetation. The initial survey has been summarized and will be used as the base for studies to be conducted at the end of the growing seasons in 1979 and 1981.

This study will terminate after 1981. If an adverse environmental impact is identified, then approval from the NRC must be obtained before this study is terminated.

Reporting Requirements

Any adverse environmental impact identified by this study shall be reported in the annual operating report (Section 5.6.1.1).

Bases

The responses of the floral community to possible environmental alterations due to the impoundment of Lake Anna and the Waste Heat Treatment Facility will be monitored in the dominant oak-pine forest typical of the area. Growth, development and population structure may be modified due to the proximity of a water body having temperatures above the natural equilibrium level.

The monitoring program has been designed to detect changes in various components of the dominant vegetation types and to assess the cause and effect of the changes.

c. The licensee shall maintain records of changes in procedures and in facility design or operation made pursuant to this Subsection, to the extent that such changes constitute changes in procedures as described in the document developed in accordance with Section 5.5 or in the FES, FES Addendum and ER. The licensee shall also maintain records of tests and experiments carried out pursuant to paragraph "a" of this Subsection. These records shall include a written evaluation which provides the bases for the determination that the change, test, or experiment does not involve an unreviewed environmental question of substantive impact or constitute a change in the objectives of these ETS, or affect the requirements of Section 5.5.7 of these ETS. The licensee shall furnish to the Commission, annually or at such shorter intervals as may be specified in the license, a report containing descriptions, analyses, interpretations, and evaluations of such changes, tests and experiments.

d. Changes in the procedures developed in accordance with Subsection 5.5 which affect sampling frequency, location, gear, or replication shall be reported to the NRC within 30 days after their implementation. These reports shall describe the changes made, the reasons for making the changes, an evaluation of the environmental impact of these changes, and the statement required under the provisions of Subsection 5.5.7.

5.5.7 Consistency with Initially Approved Programs

Any modifications or changes of the procedures developed in accordance with Subsection 5.5 much be governed by the need to maintain consistency with previously used procedures so that direct comparisons of data are technically valid. Such modifications or changes must be justified and supported by adequate comparative sampling programs or studies demonstrating the comparability of results or which provide a basis for making adjustments that would permit direct comparisons.

These demonstrations of comparability shall be submitted to the NRC in accordance with the provision of Subsection 5.5.6 and 5.6.1 of these ETS.

5.6 Station Reporting Requirements

5.6.1 Routine Reports

5.6.1.1 Annual Environmental Operating Report

Part A: Nonradiological Report

A report on the nonradiological environmental surveillance programs for the previous calendar year shall be submitted to the Director of

listed addresses in 5.6.2.1.c within 30 days after confirmation.* This report shall include an evaluation of any release conditions, environmental factors, or other aspects necessary to explain the anomalous result.

b. Pathway Measurement Report. If pathway samples collected over a calendar quarter show average levels of radioactivity greater than 10 times the trend established by previous monitoring, a written report shall be included in the report required by Section 5.6.1.2.

c. Nonroutine Radioactive Effluent Reports

(1) PWR Liquid Radioactive Wastes Report. If the cumulative releases of radioactive materials in liquid effluents, excluding tritium and dissolved gases, should exceed one-half the design objective annual quantity during any calendar quarter, the licensee shall make an investigation to identify the causes of such releases and define and initiate a program of action to reduce such releases to the design objective levels. A written report of these actions shall be submitted to the NRC within 30 days from the end of the quarter during which the release occurred.

(2) PWR Gaseous Radioactive Wastes Report. See Section 2.2.4.

*A confirmatory reanalysis of the original, a duplicate or a new sample may be desirable, as appropriate. The results of the confirmatory analysis shall be completed at the earliest time consistent with the analysis, but in any case within 30 days. If the anomalous value is confirmed, the report to the NRC shall be submitted.