

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

April 9, 1998

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. 98-190
NL&OS/MAE R0
Docket Nos. 50-338
50-339
License Nos. NPF-4
NPF-7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNITS 1 AND 2
UPDATED FINAL SAFETY ANALYSIS REPORT
REVISION 33

Pursuant to 10 CFR 50.71(e), Virginia Electric and Power Company submits Revision 33 to the Updated Final Safety Analysis Report (UFSAR) for North Anna Power Station. This revision updates only Chapter 17 of the UFSAR which contains the Operational Quality Assurance (QA) Program and contains all changes to Chapter 17 since the last update. These changes to the program description do not reduce the commitments contained therein. This revision is being made at this time to support the licensing of the North Anna Independent Spent Fuel Storage Installation.

Two of the specific changes included are the use of optical disks for document storage and the clarification of the use of summary reports for inservice inspection quality assurance records. As discussed in the NRC counterparts meeting on March 12, 1998, Virginia Power has begun storing quality assurance records in electronic form on optical disks. This method of storage meets the intent of Generic Letter 88-18, dated October 20, 1988. Also, the summary report of the inspection of steam generator tubing during inservice inspections will be treated as the quality assurance record documenting the results of the inspection.

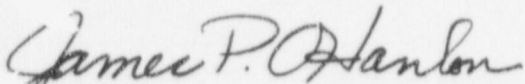
One signed original and ten copies of Revision 33 to the UFSAR are enclosed. Each revision package contains replacement instructions for existing pages.

As a duly authorized officer of the Virginia Electric and Power Company, I hereby certify that the information given in the enclosed Revision 33 of the UFSAR

A053
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accurately presents changes to Chapter 17 since the UFSAR was last updated.

Very truly yours,

A handwritten signature in dark ink, reading "James P. O'Hanlon". The signature is fluid and cursive, with the first name "James" being the most prominent.

James P. O'Hanlon
Senior Vice President - Nuclear

Enclosures

Commitments made by this letter: None

cc: U.S. Nuclear Regulatory Commission
Region II
Atlanta Federal Center
61 Forsyth Street, SW
Suite 23T85
Atlanta, Georgia 30303

Mr. M. J. Morgan
NRC Senior Resident Inspector
North Anna Power Station

Mr. J. W. Shea
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission, Mail Stop 14-H-22
Washington, D. C. 20555

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by J. P. O'Hanlon, who is Senior Vice President - Nuclear, of Virginia Electric and Power Company. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 9TH day of April, 1998.

My Commission Expires: May 31, 1998.

Vicki L. Hulse
Notary Public

(SEAL)

NORTH ANNA POWER STATION UNITS 1 AND 2 UFSAR REVISION 33 INSTRUCTIONS

These instructions apply for implementing Revision 33 of the North Anna Updated Final Safety Analysis Report (UFSAR). The UFSAR update package consists of:

- (1) Instruction Sheet
- (1) Revision Summary
- (1) List of Effective Pages
- (1) Section 17.2 Replacement Pages

UPDATE INSTRUCTIONS

1. In Volume I, remove and discard the *Revision Summary* (Revision 32—2/11/98).
2. Insert the enclosed *Revision Summary* (Revision 33—3/31/98) Replacement Pages.
3. In Volume I, remove and discard the entire *List of Effective Pages* (Revision 32—2/11/98).
4. Insert the enclosed *List of Effective Pages* (Revision 33—3/31/98).
5. In Volume IV, remove and discard the entire contents of *Section 17.2* (Revision 32—2/11/98) (i.e., all pages following Tab 17.2).
6. Insert the enclosed *Section 17.2* (Revision 33—3/31/98) Replacement Pages.
7. In Volume I, initial and date the *Record of Changes & Revision Summary* to reflect completion of these instructions.

Revision
Summary
Replacement
Pages

REVISION SUMMARY

Revision 33

Section	Changes
17.2, 17.2.1.2, 17.2.2.1, 17.2.3, 17.2.4, 17.2.5, Figure 17.2.1-1, and Table 17.2-0	Deleted reference to the Nuclear Operations Department Standards and replace with Nuclear Business Unit Standard. Added position of Project Manager (Configuration Management).
17.2.1.1 and 17.2.1.2	Clarified organizational position descriptions by noting responsibilities for the ISFSI as they already exist.
17.2.1.2, Figure 17.2.1-2, and Figure 17.2.1-3	Deleted the position of Supervisor Administrative Services in the Nuclear Management organization and assigned duties and responsibilities to other positions.
17.2.2.6 and 17.2.2.8	Provided clarification of Quality Inspection Coordinator qualifications.
17.2.17, Tables 17.2-2 and 17.2-3	Added Generic Letter 88-18 commitment regarding storage of quality assurance records on optical disk media.
Table 17.2.0	Added provision for storage of quality assurance records in an approved offsite facility.
Table 17.2-0	Provided an additional alternative to ANSI/ANS 3.1.
Tables 17.2-2 and 17.2-3	Clarified the description of onsite and offsite nuclear safety review committees.

Revision 32

Section	Changes
Foreword	Updated to reflect recent NRC initiatives regarding UFSAR submittal requirements, and adequacy and consistency of design basis information; and to note Virginia Power's adoption of electronic methods to enhance UFSAR maintenance, and UFSAR distribution in both hardcopy and electronic media.
Tables 3.9-1 & 3.9-2	Updated to reflect current plant configuration.
3.10.2 & 3.10.3	Deleted references to Virginia Power Engineering standards STD-CEN-0020, STD-CEN-0026, and STD-GN-0038

Revision 32 (continued)

Section	Changes
4.1	Revised to indicate that fuel assemblies may be used that differ from those described in the UFSAR—with an NRC-approved exemption or license condition.
4.2.3	Revised to reflect removal of secondary neutron sources starting with the Unit 1 Cycle 13 reload core; secondary source replacement in future reloads is optional.
5.2.4.1.1	Eliminated seismic qualification requirements for the Containment Gaseous and Particulate Radiation Monitoring System. Added procedural requirements for system operability verification after a seismic event.
6.2.1.2.18	New section to describe lead blanket shielding storage boxes, explain why they are not designated Seismic Category I, and provide references to drawings that depict storage box locations.
7.2.2.2.1.7	Revised reactor trip breaker test procedure.
7.2.2.3.5	Added discussion of IEEE-279 control and protection interaction criteria as they apply to steam generator low level/high steam-feed flow mismatch trip channels.
8.3.1.1	Clarified the “C” containment air recirculation cooler fans operating description.
9.3.4.2.2.3	Clarified that the mixed-bed demineralizer may be removed from service if primary coolant activity is within normal limits.
9.5.3	Added High Pressure Sodium among types of non-containment normal lighting.
9.5.4.2	Revised duration of full-load operation with minimum allowed day tank inventory.
13.7	Deleted references to Regulatory Guide 1.17 and Section 2.790. Added references to 10 CFR 73, Sections 21, 55, 56, 57, and Appendices B & C.
15.2.12	Revised to reflect reanalysis to support Virginia Power’s Accident Analysis Design Basis Document project.
15.2.14	Revised to reflect the results of an extended Virginia Power evaluation of the “Spurious Operation of the Safety Injection System at Power” event.
15.4.3.1	Deleted paragraphs that referred to the configuration of steam generators just before the repair project that included replacement of the tube bundles.
Table 17.2.0	Deleted reference to the Surry Training Center records vault.

Revision 32 (continued)

Section	Changes
Tables 17.2-2 & 17.2-3	Corrected typos. Clarified record retention requirements.
All (no change bars)	• Consolidated 17 volumes to 8 volumes • Referenced Station Drawings previously included in UFSAR; inserted simplified diagrams • Removed notations associated with previously deleted material and renumbered sequentially • Renumbered previously inserted items that had suffixes (e.g., 4A, 4B) • Applied consistent typeface and page layouts • Improved consistency of measurement notation (e.g., time, mass, velocity), including abbreviations

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***List of
Effective
Pages
Replacement
Pages***

LIST OF EFFECTIVE PAGES**— VOLUME I —****General Table of Contents**

(Note: Repeated in each volume)

First Page	Last Page	Revision
TOC-i	TOC-vi	Revision 32—2/11/98

Foreword

First Page	Last Page	Revision
1	6	Revision 32—2/11/98

List of Effective Pages

First Page	Last Page	Revision
LEP-1	LEP-8	Revision 33—3/31/98

Key Word Index

First Page	Last Page	Revision
KWI-1	KWI-90	Revision 32—2/11/98

Chapter 1

First Page	Last Page	Revision
1-i	1-iv	Revision 32—2/11/98
1.1-1	1.1-2	Revision 32—2/11/98
1.2-1	1.2-14	Revision 32—2/11/98
1.3-1	1.3-26	Revision 32—2/11/98
1.4-1	1.4-10	Revision 32—2/11/98
1.5-1	1.5-26	Revision 32—2/11/98
1.6-1	1.6-4	Revision 32—2/11/98

Chapter 2

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2-i	2-x	Revision 32—2/11/98
2.1-1	2.1-26	Revision 32—2/11/98
2.2-1	2.2-10	Revision 32—2/11/98
2.3-1	2.3-76	Revision 32—2/11/98
2.4-1	2.4-54	Revision 32—2/11/98
2.5-1	2.5-36	Revision 32—2/11/98

Chapter 2 (continued)

First Page	Last Page	Revision
2A-i	2A-vi	Revision 32—2/11/98
2A-1	2A-40	Revision 32—2/11/98
2A Att. 1-1	2A Att. 1-22	Revision 32—2/11/98
2A Att. 2-1	2A Att. 2-72	Revision 32—2/11/98
2A Att. 3-1	2A Att. 3-58	Revision 32—2/11/98
2A Att. 4-1	2A Att. 4-46	Revision 32—2/11/98
2B-1	2B-24	Revision 32—2/11/98

Seismic Survey of the North Anna Power Station, Virginia Electric and Power Company
Prepared for Stone & Webster Engineering Corporation by Weston Geophysical
Engineers, Inc.; UFSAR pagination does not appear on 22 pages that follow 2B-2, which
were taken from original report and are not subject to revision.

2C-1	2C-54	Revision 32—2/11/98
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*Report on Foundation Studies for the Proposed North Anna Power Station in Louisa
County, Virginia*: Prepared by Dames & Moore; UFSAR pagination does not appear on 52
pages that follow 2C-2, which were taken from original report and are not subject to
revision.

— VOLUME II —**Chapter 3**

First Page	Last Page	Revision
3-i	3-xiv	Revision 32—2/11/98
3.1-1	3.1-46	Revision 32—2/11/98
3.2-1	3.2-22	Revision 32—2/11/98
3.3-1	3.3-4	Revision 32—2/11/98
3.4-1	3.4-2	Revision 32—2/11/98
3.5-1	3.5-14	Revision 32—2/11/98
3.6-1	3.6-42	Revision 32—2/11/98
3.7-1	3.7-112	Revision 32—2/11/98
3.8-1	3.8-218	Revision 32—2/11/98
3.9-1	3.9-40	Revision 32—2/11/98
3.10-1	3.10-38	Revision 32—2/11/98
3.11-1	3.11-26	Revision 32—2/11/98

— VOLUME III —

Chapter 3 (continued)

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3	3-xiv	Revision 32—2/11/98
3A	3A-viii	Revision 32—2/11/98
3A-1	3A-30	Revision 32—2/11/98
3B-i	3B-iv	Revision 32—2/11/98
3B-1	3B-20	Revision 32—2/11/98
3C-i	3C-viii	Revision 32—2/11/98
3C-1	3C-142	Revision 32—2/11/98
3D-1	3D-234	Revision 32—2/11/98
<i>The Franklin Institute Research Laboratories Technical Report F-C3486, Testing of Protective Coatings under Design Basis Accident Environment</i>, dated April 1973; UFSAR pagination does not appear on 232 pages that follow 3D-2, which were taken from original report and are not subject to revision.		
3E-i	3E-vi	Revision 32—2/11/98
3E-1	3E-116	Revision 32—2/11/98
3E Att. 1-1	3E Att. 1-26	Revision 32—2/11/98
<i>Geotechnical Engineers Inc. Report on Cyclic Triaxial Tests on Soil Samples Service Water Reservoir</i>, dated December 5, 1975; UFSAR pagination does not appear on 23 pages between 3E Att. 1-2 and 3E Att. 1-26, which were taken from original report and are not subject to revision.		
3E Att. 2-1	3E Att 2-20	Revision 32—2/11/98
<i>Geotechnical Engineers Inc. Report on Cyclic Triaxial Tests on Soil Samples from the Service Water Reservoir</i>, dated December 31, 1975; UFSAR pagination does not appear on 16 pages that follow 3E Att. 2-4, which were taken from original report and are not subject to revision.		
3E Att. 3-1	3E Att. 3-60	Revision 32—2/11/98
<i>Geotechnical Engineers Inc. Report on Laboratory Soil Testing</i>, dated June 21, 1976; UFSAR pagination does not appear on 56 pages that follow 3E Att. 3-4, which were taken from original report and are not subject to revision.		
3E Att. 4-i	3E Att. 4-iv	Revision 32—2/11/98
3E Att. 4-1	3E Att. 4-68	Revision 32—2/11/98
3E Att. 5-i	3E Att. 5-iv	Revision 32—2/11/98
3E Att. 5-1	3E Att. 5-50	Revision 32—2/11/98
3E Att 6-1	3E Att. 6-10	Revision 32—2/11/98
3F-i	3F-vi	Revision 32—2/11/98
3F-1	3F-44	Revision 32—2/11/98

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4.1-1	4.1-14	Revision 32—2/11/98
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5.3-1	5.3-2	Revision 32—2/11/98
5.4-1	5.4-20	Revision 32—2/11/98
5.5-1	5.5-90	Revision 32—2/11/98
5.6-1	5.6-10	Revision 32—2/11/98
5A-1	5A-166	Revision 32—2/11/98

Discussion between the Nuclear Regulatory Commission and Virginia Electric & Power Company on Steam Generator Lower and Reactor Coolant Pump Supports for North Anna Units No. 1 and 2, Transcript, dated April 13, 1976; corrected copy of transcript, dated May 18, 1976; UFSAR pagination does not appear on 164 pages that follow 5A-2, which were taken from original report and are not subject to revision.

5A Att. 1-1	5A Att. 1-32	Revision 32—2/11/98
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Chapter 6

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6-i	6-xii	Revision 32—2/11/98
6.1-1	6.1-4	Revision 32—2/11/98
6.2-1	6.2-340	Revision 32—2/11/98
6.3-1	6.3-74	Revision 32—2/11/98
6.4-1	6.4-18	Revision 32—2/11/98
6A-i	6A-iv	Revision 32—2/11/98
6A-1	6A-6	Revision 32—2/11/98

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7.1-1	7.1-14	Revision 32—2/11/98
7.2-1	7.2-54	Revision 32—2/11/98
7.3-1	7.3-48	Revision 32—2/11/98
7.4-1	7.4-8	Revision 32—2/11/98
7.5-1	7.5-20	Revision 32—2/11/98
7.6-1	7.6-8	Revision 32—2/11/98
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9.1-1	9.1-50	Revision 32—2/11/98
9.2-1	9.2-62	Revision 32—2/11/98
9.3-1	9.3-116	Revision 32—2/11/98
9.4-1	9.4-34	Revision 32—2/11/98
9.5-1	9.5-82	Revision 32—2/11/98
9.6-1	9.6-10	Revision 32—2/11/98
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9A-1	9A-22	Revision 32—2/11/98
9B-i	9B-vi	Revision 32—2/11/98
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10.3-1	10.3-18	Revision 32—2/11/98
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11-1	11-2	Revision 32—2/11/98
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11.3-1	11.3-22	Revision 32—2/11/98
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11.5-1	11.5-14	Revision 32—2/11/98
11.6-1	11.6-8	Revision 32—2/11/98
11A-i	11A-iv	Revision 32—2/11/98
11A-1	11A-4	Revision 32—2/11/98
11B-i	11B-vi	Revision 32—2/11/98
11B-1	11B-32	Revision 32—2/11/98
11C-i	11C-vi	Revision 32—2/11/98
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Chapter 12

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12-i	12-iv	Revision 32—2/11/98
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12.3-1	12.3-4	Revision 32—2/11/98
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13-i	13-ii	Revision 32—2/11/98
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13.3-1	13.3-2	Revision 32—2/11/98
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13.5-1	13.5-2	Revision 32—2/11/98
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15.1-1	15.1-34	Revision 32—2/11/98
15.2-1	15.2-120	Revision 32—2/11/98
15.3-1	15.3-66	Revision 32—2/11/98
15.4-1	15.4-144	Revision 32—2/11/98
15A-i	15A-iv	Revision 32—2/11/98
15A-1	15A-2	Revision 32—2/11/98
15A Att. 1-1	15A Att. 1-54	Revision 32—2/11/98

Nuclear Energy Services, Inc. report on Spent Fuel Cask Drop Analysis for North Anna Power Station Units 1 & 2, NES 81A0478, dated August 23, 1976; UFSAR pagination not applied to 52 pages that follow 15A Att. 1-2, which were taken from original report and are not subject to revision.

Chapter 16

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16-i	16-ii	Revision 32—2/11/98
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17.2-1	17.2-104	Revision 33—3/31/98

17.2

**Replacement
Pages**