SURRY POWER STATION

UPDATED FINAL SAFETY ANALYSIS REPORT

Revision 52—Updated Online 09/30/20

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REVISION SUMMARY

Revision 52---Updated Online 09/30/20

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Section 7.4.2.5 [SPS-UCR-2017-012]	Instrumentation equipment design modification CA3041565, TSCR 450-3.7
Section 8.3, Figure 8.3-1 [SPS-UCR-2020-007]	Hopewell 212 Transmission line Name Change SU-20-00107
Sections 11.2.5.1, 15.2, 15.2.3, 15.6.1 and Table 15.2-1 [SPS-UCR-2020-002]	SPS Response to RIS 2015-06, "Tornado Missile Protection" ETE-CCE-2018-0002
Section 15.2.3, References 15.2, Table 15.2-1 [SPS-UCR-2019-010]	Surry Tornado Missile Risk Evaluator Implementation ETE-SU-2019-0065
Section 9.10.2.1 [SPS-UCR-2017-011]	Unit 1 and Unit 2 Fire Protection Upgrades. SU-17-00132
Section 9.3.2.2, Table 9.3-2 [SPS-UCR-2020-003]	Correction to Table 9.3-2 CA7434130
Tables 4.1-14, 4.1-15, 4.3-3, 4.3-4 [SPS-UCR-2015-019]	Update to Unit 1 and Unit 2 Reactor Pressure Vessel Toughness Data (Unirradiated) PA3007476
14.2, 14.3, 14.4, 14.5, 6.2, 6.3, 9.6, Tables 14.2-2 through 14.2-4, 14.3-7 through 14.3-16, 14.4-1 through 14.4-3, 14.4-5, 14.4-6, 14.5-7, 14.5-8, 14.5-10, 14.5-11, 6.2-6, 6.3-22 [SPS-UCR-2017-014]	Updated Alternate Source Term Analysis LBDCR/TSCR 405, CR474351, CR1053122
15.2.5 [SPS-UCR-2018-010]	SPS Units 1 and 2 UFSAR Updates for Beyond Design Basis (BDB) Flooding Mods – Roof Parapets SU-18-00114

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Revision 51—09/30/19

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
2.2.1.2, 7.7.1, 9.10.1, 9.10.2.2.5, 9.10.2.2.9, 9.13.1, 9.13.3.10, 11.3.4.7, 12.3, Table 2.2-10, Table 11.3-7 [SPS-UCR-2017-010]	Consolidated Emergency Operations Facility LAR 17-325
8.5 [SPS-UCR-2015-012]	Open phase Condition Detection and Protection Systems. SU-15-01023
10.3.5.2 [SPS-UCR-2018-003]	Auxiliary Feedwater MOV Hot Short Resolution Unit 2. SU-16-00108
4.1 Refs, Table, 4.1-12, Table 4.1-13 [SPS-UCR-2017-006]	Surveillance Capsule Schedule NRC letter 17-243 (draft), ETE-CEP-2017-001; LA3062568
Figure 6.1-2 [SPS-UCR-2017-013]	U2 Hot Short Resolution Charging Cross-tie Relocation SU-17-00135
18.2.16, 18.5 [SPS-UCR-2018-005]	Steam Generator Program reference update PA3063167
8.3, Figure 8.3-1 [SPS-UCR-2014-022]	500kV Switchyard Circuit Breaker CB58202 Tie-in bounding package. SU-14-01148
7.7.1, 9.10.2.6 [SPS-UCR-2016-002]	Update reflects modification to the trunked radio communications system.
8.3 [SPS-UCR-2018-004]	Modified to correct an approved change that was not properly incorporated.

Revision 50—09/27/18

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
18.3.2.4, 18.5 Refs [SPS-UCR-2017-008]	Update reflects license renewal inspection frequency of pressurizer surge lines.

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Revision 50—09/27/18 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
10.3.5.2 [SPS-UCR-2017-002]	Update reflects auxiliary feedwater motor operated valves fire-rated cables for Appendix R.
Figure 6.1-1 [SPS-UCR-2017-004]	Update reflects Unit 1 Charging Cross-tie for Appendix R.
2.3.1.2.2 [SPS-UCR-2018-002]	Modified description of the exhaust dampers to correct an error made during UFSAR conversion to electronic.
4.1.4, 7.2.1.2, 7.2.1.8.3, 7.2.2.3, 7.2.3.2.1, 7.2.3.2.2, Table 7.2-3, Table 7.2-4, 7.3.1, 7.3.2, 7.3.2.2.1, 7.3.2.2.3, 7.3.3.2, 7.3.3.3, Figure 7.3-1, 7.4.3.4, 7.4.3.6, 14.1, 14.2.4.1, 14.2.5.4, 14.2.7.2, 14.2.8.1 [SPS-UCR-2016-012]	Update reflects automatic rod withdrawal capability being disabled.
9C.1.1 [SPS-UCR-2017-016]	Update adds description of MER 5 flood dike features.
3.3.3.2.1, 3.3 Refs, 3.5 Refs [SPS-UCR-2017-015]	Update reflects Reload Nuclear Design and CMS5 Methodologies

Revision 49—09/28/17

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Table 14.3-16 [SPS-UCR-2017-009]	Modified table to correct orientation and restore original isotopes and concentration values.
9.10.4.18 and 10.3.7.1 [SPS-FS-2006-013]	Update reflects Turbine Oil Conditioner System Replacement.
14.2.5, 14.2, and 9.1.3.5 [SPS-UCR-2017-003]	Update reflects Boron Dilution Safety Analysis Revision
10.3.1.4, 10.3.5, and Figure 10.3.8 [SPS-FS-2006-028]	Update reflects installation of Unit 1 condensate air in-leakage subsystem.

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Revision 49—09/28/17 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Table 11.3-5 and Table 11.3-6 [SPS-UCR-2016-009]	Update reflects replacement of the Surry Radwaste Facility ventilation particulate and noble gas monitors.
3.5.2.1 [SPS-UCR-2016-008]	Modified to add description of use of demonstration or lead fuel assemblies.
9.1.3.1, Table 9.1-2, Figure 9.1-1, 9.10.1, 9.10.3.2 [SPS-UCR-2016-007]	Updated to reflect isolation of reactor coolant pump seal cooling and the charging cross-connect during fire events.
14.5.1.4, 14.5.1.7, Table 14.5-1, Table 14.5-6 [SPS-UCR-2016-010]	Updated peak cladding temperatures.
14B.5.1.6.1 [SPS-UCR-2016-011]	Modified high energy line inspection for consistency with technical requirements manual.

Revision 48—09/29/16

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9.10.1, 9.10.2.1, 9.10.2.2.5, 9.10.2.2.8, 9.10.2.2.9, 9.10.2.8 [SPS-UCR-2016-005]	Update reflects code evaluations completed to address code deficiencies are included in the Appendix R report.
7.4.3.2 [SPS-UCR-2015-008]	Corrected source range pre-amplifier self test frequencies.
Figure 15.1-2 [SPS-UCR-2016-006]	Added note to Figure that refers the reader to the referenced drawing.
3.5.2.6.1 [SPS-UCR-2015-020]	Update reflects ASME revised stress criterion for optimized Zirlo^{TM} high performance fuel cladding
14.1, 14.2.7.2, 14.2.9.1.1, 14.4.1.2 [SPS-UCR-2016-003]	Update reflects increased statistical/deterministic Fdelta H limits
Table 4.1-5, 9.1.2.1 [SPS-UCR-2015-001]	Update reflects reactor coolant pump abeyance seal upgrade

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Revision 48—09/29/16 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9.10.4.8 [SPS-UCR-2015-009]	Update clarifies component cooling pump classification.
Table 5.2-1, Table 5.2-2, 6.2.2.1.4, 6.3.1.3.4, 9.1.2.1, 10.3.5.2 [SPS-UCR-2012-011]	Update reflects addition of FLEX mechanical connections to the AFW, CH, CS & SI systems to mitigate effects of a Beyond Design Basis Event.
9.10.2.6, 7.7.1 [SPS-UCR-2014-014]	Update reflects addition of communication equipment for offsite communication to mitigate effects of a Beyond Design Basis Event.
7.7.2, 7.10.2, 8.4.3, 9.1.2.1, 10.3.1.2, 14.3.1.5 [SPS-UCR-2015-010]	Update reflects addition of electrical and mechanical connections to the remote monitoring panels, CH, and backup IA systems to mitigate effects of a Beyond Design Basis Event.
8.4.5 [SPS-UCR-2015-017]	Reflects using LEDs for emergency lighting systems.
8.4.6 [FS-2008-005]	Updated to reflect the TSC Alternate Power Source - Final Package
6.2.2.2.4, 9.3.2.2.3 [SPS-UCR-2010-027]	Updated to reflect MOVs with the pressure locking modification
Table 14.5-6 [SPS-UCR-2015-011]	Reflects the Westinghouse LBLOCA error
10.3.3.1, 14b.5.1.6.1, 18.2.1 [SPS-UCR-2015-016]	Update reflects Relocation of TS augmented inspection requirements (except RCP flywheel) to the TRM
2.2.1.2, Table 2.2-8, Table 2.2-9, Table 11A-4, Table 11A-5, Table 11A-6, Table 11A-7 [SPS-UCR-2015-018]	Revised the Primary Met Tower Instrument Height

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Revision 47—09/30/15

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
6.2.2.2.4 [SPS-UCR-2011-001]	Reflects additional MOV pressure locking valve modifications.
3.5.2.1, 3.5.2.1.2, Table 3.5-3, Figure 3.5-9 [SPS-UCR-2015-006]	Reflects implementation of the Westinghouse integral nozzle design
9.8.1, 9.8.2, Table 9,8-1, 9.10.1, 10.3.9.3, Table 10.3-4, Figure 10.3-11 [SPS-UCR-2010-010]	Reflects the Compressed Air System Upgrade
9.10.1 [SPS-UCR-2013-014]	Update to include the Beyond Design Basis Storage Building
3.5.2.3 [SPS-UCR-2014-001]	Reflects Re-Insertion of Secondary Source Assemblies – Bounding Configuration
14.5.3.4.1, References 55, 56, 57, 58, 59, and 60, Table 14.5-18, 15.6.2.1, 15.6.2.2.1 [SPS-UCR-2015-014]	Update to include Beyond Design Basis Offsite Communications
3.6.1.1 [SPS-UCR-2015-005]	Revised Direct Power Distribution Measurements for Start-Up to be made at 50% RTP rather than 30% RTP
Figure 8.3-1 [SPS-UCR-2015-013]	Update to include the 500kV Switchyard Circuit Breaker CB58202 Tie-in Interim Package
8.3, Figure 8.3-1 [SPS-UCR-2014-003]	Reflects Removal of the 1G/2G 34.5KV Overhead Feeders
14.2 Refs, 14.3 Refs, 14B Refs [SPS-UCR-2015-003]	Incorporates Topical Report VEP-FRD-41, Rev. 02.
4.2.2.4, 9.1.2.6.9, 9.1.2.6.12, 9.1.2.6.13 [SPS-UCR-2015-004]	Reflects removal of the RCP Floating Ring Seal.
Table 5.4-17, Table 6.2-12, Figures 6.3-6 through 6.3-13, 8.5 [SPS-UCR-2015-002]	Update reflects the revised Surry Recirculation Spray Pump NPSH.
18.2.9 [SPS-UCR-2014-024]	License Renewal - update clarifies the responsibilities for General Condition Monitoring.

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Revision 47—09/30/15 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9.10.1, 9.10.4.14 [SPS-UCR-2014-010]	Update reflects Beyond Design Basis installation of spent fuel pool external make-up water source.
3.2.1, 3.5.2.6.2.1, 3.5 Refs [SPS-UCR-2014-019]	Update reflects Westinghouse revised clad corrosion model for ZIRLO and Optimized ZIRLO.
3.2.3.3, 3.2 Refs, Table 3.2-1, 3.3.2.3, 3.4.2.3, 3.4.3.2, 3.4 Refs, 4.2.9, 14.1, 14.1 Refs, 14.3.2.1, 14.3.2.3 [SPS-UCR-2014-021]	Update reflects discussion of the W-3 Alternate DNB correlations approved in Appendix D to DOM-NAF-2-P-A and increase to technical specification minimum temperature for criticality.
9.5.1 [SPS-UCR-2013-007]	Update reflects installation of wide range spent fuel pool instrumentation.
18.2.19, Table 18-1 [SPS-UCR-2014-012]	Update reflects that work control inspections for license renewal are required to be performed by a VT qualified individual.
5.5.3, 5.5.4, 5.5.6, 5.5.7 [SPS-UCR-2014-017]	Update replaces reference to Regulatory Guide 1.163 with NEI 94-01, Revision 3-A.
Figure 9.12-1 [SPS-UCR-2014-018]	Updated figure for Fuel Transfer System.
18.2.16, 18.5 Refs [SPS-UCR-2014-020]	Modify reflects program name change from Secondary Piping and Component Inspection program to Flow Accelerated Corrosion program.

Revision 46—Updated Online 09/30/14

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Table 9.10-1 [SPS-UCR-2009-009]	Update corrects horsepower value for the replacement diesel-driven fire pump.
9.10.2.2.2, Table 9.10-1 [FS-2008-010]	Update reflects replacement of the diesel-driven fire pump.

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Revision 46—Updated Online 09/30/14 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9.10.2.6, 9.10.4.5, 9.10.4.6 [SPS-UCR-2014-008]	Clarified description of the Appendix R equipment located in Normal Switchgear and Cable Tray Rooms.
9.10.2.2.2, 9.10.4.24, Table 9.10-1 [SPS-UCR-2014-011]	Update reflects replacement of the diesel-driven fire pump fuel tank.
3.5.2.3, 9.1.2.3.1, 9.1.2.3.2.5 [SPS-UCR-2014-009]	Update reflects the re-insertion of secondary source assemblies for Unit 2.
11.2.3, 11.3.2.10, 11.3 Refs [SPS-UCR-2014-006]	Radiation protection description updated to include the Steam Generator Storage Facility.
Table 14.5-6 [SPS-UCR-2014-007]	Table updated to reflect a post analysis of record evaluation performed to assess the effect of an error in the HOTSPOT burst strain model on peak cladding temperature for the large break loss of coolant accident.
5.1, Table 5.4-11, Table 5.4-12, Table 5.4-13, Table 5.4-17, Figure 5.4-3, Figure 5.4-4, Figure 5.4-5, Table 6.2-4, Table 6.2-13, Figure 6.3-6, Figure 6.3-10 [SPS-UCR-2014-004]	Update implements revised LOCA containment safety analysis.
9.10.2.2.1 [SPS-UCR-2014-002]	Updated the Fire Protection System description to reflect backup water supply.
10.3.5.2 [SPS-UCR-2014-005]	Updated the Condensate System description to reflect use as backup water for the Fire Protection System in an emergency.
4.1.7.3, 4.1 Refs [SPS-UCR-2013-017]	Update reflects the Westinghouse documents related to MUR Uprate Fluence Evaluations.
Table 9.7-1 [SPS-UCR-2012-003]	Update reflects replacement of the last (4 of 4) containment sump pump.
Figure 8.3-1 [SPS-UCR-2013-013]	Update reflects final configuration of 34.5 kV switchyard modifications.

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Revision 46—Updated Online 09/30/14 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Table 14.5-6 [SPS-UCR-2013-011]	Update reflects post analysis of record evaluation performed to assess the effects of revised heat transfer coefficient multiplier distributions on peak cladding temperature for the large break loss of coolant accident.
9.10.2.1 [FS-2007-007]	Update reflects Fire Detection System replacement - final configuration.
14.5.1.6, 14.5.3.2, 14.5, 15A.3.3, 15.A.6, 15A, Table 15A-5, Table 15A-6, Table 15A-7, Table 15A-8, Table 15A-9 [SPS-UCR-2013-009]	Update reflects the updated reactor vessel lower radial key stiffness value.
3.5.2.1, 3.5.2.1.4, 3.5, Figure 3.5-10 [SPS-UCR-2013-010]	Update reflects incorporation of the Robust Protective Grid and modified Debris Filter Bottom Nozzle to the 15 x 15 upgrade fuel assemblies.
15.5.1.11.2 [SPS-UCR-2013-015]	Modify corrected the tornado missile velocity requirement.

Revision 45—09/30/13

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
14.3.3.2.3.1, 14.3.3.2.3.2, 14.3.3.2.3.3, 14.3.3.2.3.4, Table 14.3-6, Figure 14.3-25, Figure 14.3-27 [SPS-UCR-2013-008]	Reflects implementation of a revised rod ejection analysis (ETE-NAF-2013-0052, Rev. 0).
9.10.4.12 [SPS-UCR-2013-004]	Update reflects removal of the stator cooler oil collection trays from the reactor coolant pump oil collection system.
Table 9.7-1 [SPS-UCR-2013-001]	Update reflects replacement of 3 of 4 containment sump pumps.
9.8.1, 9.8.2, 9.8.3, Table 9.8-1, Figure 9.8-1, 9.10.1 [SPS-UCR-2013-002]	Update reflects interim configuration of the compressed air system upgrade.

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Revision 45—09/30/13 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Table 4.1-5, 9.1.2.1 [SPS-UCR-2011-026]	Update reflects all reactor coolant pumps now using Flowserve N-9000 seal.
10.3.1.4, 10.3.5.2, Figure 10.3-8 [SPS-UCR-2013-005]	Condensate System description updated to reflect installation of Unit 2 air in-leakage subsystem.
11.3.3, 11.3.3.14 [SPS-UCR-2011-009]	Updated description for new monitors on main steam lines and turbine driven auxiliary feedwater pump.
7.2.2.1.1, 8.2 [SPS-UCR-2011-019]	Station service transformers description updated to reflect replacement cables.
18.2.7 [SPS-UCR-2011-020]	License renewal section updated to correctly identify damper housings inspection requirements.
18.2.9, 18.2.19 [SPS-UCR-2011-032]	License renewal section updated to clarify commitments associated with general condition monitoring and work control process.
18.1.2, Table 18-1 [SPS-UCR-2012-006]	License renewal section updated to indicate commitment 9 is now complete.
18.2.15, Table 18-1 [SPS-UCR-2012-007]	License renewal section updated to indicate commitment 14 is now complete.
Figure 9.9-1 [SPS-UCR-2012-013]	Service Water System figure updated to reflect Unit 1 flash evaporation demineralizer assembly demolition.
2.5.3.1, Table 2.5-2 [SPS-UCR-2012-012]	Additional information clarifies earthquake history is based on a specific timeframe.
Table 14.5-6 [SPS-UCR-2012-005]	Table updated to reflect post analysis of record evaluation performed to assess the effects of fuel thermal conductivity degradation on peak cladding temperature for the large break loss of coolant accident.
Figure 3.5-9 [SPS-UCR-2012-010]	Figure modified to add fuel type descriptor that was previously omitted.

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Revision 44—09/27/12

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9.10.2.1 [SPS-UCR-2012-008]	Fire Detection System updated to reflect replacement of some of the Robertshaw panels with SimplexGrinnell panels.
Table 9.5-3 [SPS-UCR-2010-028]	Table updated to reflect alternate power sources for the spent fuel pool pump motor.
10.3.1.2 [SPS-UCR-2012-001]	Steam generator blowdown discussion updated to reflect rerouting of piping.
Table 9.13-1 [SPS-UCR-2011-029]	Main control room and emergency switchgear and relay room ventilation data updated to reflect minimum air flow required to maintain design ambient conditions following a bounding event.
18.2.15 [SPS-UCR-2011-031]	License Renewal commitment on reactor vessel internals guide cards updated.
14.5.1.7, Table 14.5-5, Table 14.5-6 [SPS-UCR-2012-002]	Best estimate large break loss of coolant accident analysis description updated to reflect change to containment heat sink surface areas.
10.3.5.2, Figure 10.3-9 [SPS-UCR-2009-001]	Update reflects installation of the ultrasonic flowmeters in the feedwater lines.
9.1.2.6.5 [SPS-UCR-2010-024]	Deborating demineralizer discussion updated to reflect use of deborating vessel as cation demineralizer.
14.2.9.2.4.2, Table 14.2-2, Table 14.2-4, 14.4.1.2.1, 14.4.1.2.2, 14.4.1.3.1, 14.4.1.3.2, 14.4, Table 14.4-1, Table 14.4-2, Table 14.4-5 [SPS-UCR-2011-008]	Updated design basis accident radiological analyses for the fuel handling accident and locked rotor analysis.
11.1 [SPS-UCR-2011-023]	Updated radiation protection description to reflect an upgrade to the Station’s self contained breathing apparatus.
10.3.5.2 [SPS-UCR-2010-026]	Auxiliary feedwater discussion updated for use of Carbohydrazide for startup of Unit 1.

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Revision 44—09/27/12 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
10.3.5.2 [SPS-UCR-2011-006]	Auxiliary feedwater discussion updated for use of Carbohydrazide for startup.
18.1.3, Table 18-1 [SPS-UCR-2011-014]	License Renewal commitment on tank inspections updated.
18.1.4 [SPS-UCR-2011-028]	License Renewal commitment on non-EQ cable inspections updated.
18.2.19 [SPS-UCR-2011-030]	License Renewal completion of work control audit commitment updated.
1.2.7, Figure 10.2-3, Figure 10.2-4, 10.3.3.1, 10.3 Refs, Figure 10.3-1, 14.2.13, 14.2.13.1, 14.2.13.2, 14.2.13.3, 14.2 Refs, Figure 14.2-72, Figure 14.2-73, Figure 14.2-74, Figure 14.2-75, Figure 14.2-76, Figure 14.2-77, Figure 14.2-78 [SPS-UCR-2009-017]	Updated descriptions and associated analyses to reflect Unit 1 turbine retrofit.

Revision 43—09/29/11

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
4.1.7.1, 4.1 Refs, Table 4.1-14, Table 4.1-15, 4.2.5, 4.3.3.2, 4.3.4, 4.3 Refs, Table 4.3-3, Table 4.3-4 [SPS-UCR-2010-007]	Update reflects increase to the cumulative core burnup applicability limit (effective full power years) for reactor coolant system pressure/temperature limits, low temperature overpressure protection system setpoints and low temperature overpressure protection system enabling temperature, to 48 effective full power years.
Table 3.2-1 [SPS-UCR-2011-025]	Modification reflects correction of departure from nucleate boiling ratio limit type on DNBR Limits Table.
6.2.2.2.4 [SPS-UCR-2010-017]	Update reflects current listing of motor operated valves that incorporate a pressure locking modification.

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Revision 43—09/29/11 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
18.1.2, 18.2.6, Table 18-1 [SPS-UCR-2011-010]	License Renewal completion of concrete aging commitment updated.
18.3.5.3, Table 18-1 [SPS-UCR-2011-011]	License Renewal implementation of Alloy Management Program commitment updated.
18.2.7, Table 18-1 [SPS-UCR-2011-012]	License Renewal completion of fire protection piping aging effects commitment updated.
18.2.19 [SPS-UCR-2011-016]	License Renewal Work Control Process audits commitment updated.
18.2.7, Table 18-1 [SPS-UCR-2011-017]	License Renewal completion of fire protection sprinkler commitment updated.
18.3.2.4 [SPS-UCR-2011-021]	License Renewal added dates the inspection of the pressurizer surge lines was completed.
Table 18-1 [SPS-UCR-2011-022]	License Renewal completion of worker qualification commitment updated.
6.2.2.2.3, 9.1.2.6.21 [SPS-UCR-2010-015]	Globe valve description updated.
9.10.4.12 [SPS-UCR-2010-031]	Fire protection description updated to reflect addition of an oil collection assembly on each reactor coolant pump stator cooler.
8.2, 10.3.3.2, Table 10.3-4, Figure 10.3-11 [SPS-UCR-2010-032]	Update reflects upgrading the isolated phase bus duct for both Units.
3.5.2.2 [SPS-UCR-2010-014]	Updated section to reflect a replacement batch of enhanced performance control rod assemblies will be placed in service for cycle 24 operation.
4.1.7.1, 4.1 Refs, Table 4.1-12, Table 4.1-13 [SPS-UCR-2011-007]	Updated the reactor vessel surveillance capsule withdrawal schedule for 60-year operation.
2.3.1.2.2 [SPS-UCR-2010-008]	Updated emergency service water pump house discussion to reflect addition of missile shield.

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Revision 43—09/29/11 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9C.2 [SPS-UCR-2011-003]	Appendix on flooding updated to reflect the high level stop log roller removal.
14.2.9.2.4.3 [SPS-UCR-2011-005]	Modified locked rotor accident discussion to make it consistent with other sections.
1.1.5, 1.1.6, 3.2.2.1, 3.2.2.7, 3.2.3.3, 3.2 Refs, Table 3.2-1, Table 3.2-2, Table 3.2-3, 3.3.3.2.2, 3.4.1, 3.4.1.1.2, 3.4.1.1.4, 3.4.1.2, 3.4.1.3, 3.4.2, 3.4.2.1, 3.4.2.2, 3.4.2.3, 3.4.3.1, 3.4.3.2, 3.4.3.3, 3.4.3.4, 3.4.3.5, 3.4.3.6 (new), 3.4 Refs, Table 3.4-1, 3.5, 3.5.2.1, 3.5.2.1.2, 3.5.2.1.3, 3.5.2.1.4, 3.5.2.1.5, 3.5.2.6.1, 3.5 Refs, Table 3.5-3, Figure 3.5-9, Figure 3.5-17 (new), Table 4.3-1, Table 4.3-2, 9.1.2.3.2.1, 9.1.3.6, 9.1 Refs, 14.1, 14.1 Refs, 14.2.1.1, 14.2.1.2, 14.2.2.1, 14.2.2.2, 14.2.4.1, 14.2.7.2, 14.2.7.3.2, 14.2.7.4, 14.2.8.1, 14.2.9.1.1, 14.2.9.1.2, 14.2.9.1.7, 14.2.9.2.1, 14.2.9.2.2.2, 14.2.10.2, 14.2.10.3, 14.2 Refs, 14.3.2.1, 14.3.2.3, 14.3.3.2.1, 14.3 Refs, 14.4.1.1, 14.4 Refs, 14.5.1.5, 14.5.1.6, 14.5.1.7, 14.5.2.4.2, 14.5.2.5, 14.5.2.6, 14.5.3.4.1, 14.5.3.4.2, Table 14.5-1, Table 14.5-2, Table 14.5-3, Table 14.5-5, Table 14.5-6, Table 14.5-7, Table 14.5-13, Table 14.5-17, Table 14.5-18 (new), Figure 14.5-1, Figure 14.5-2, Figure 14.5-3, Figure 14.5-4, Figure 14.5-5, Figure 14.5-6, Figure 14.5-7, Figure 14.5-8, Figure 14.5-9, Figure 14.5-10, Figure 14.5-11, Figure 14.5-12, Figure 14.5-13, Figure 14.5-14, Figure 14.5-76, 15A.5, 15A.5.2.5, 15A.6 (new), 15A Refs, Table 15A-8 (new), Table 15A-9 (new) [SPS-UCR-2009-023]	Updated descriptions and associated analyses to reflect implementation of the Westinghouse 15 x 15 upgrade fuel design.

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Revision 43—09/29/11 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
1.2.7, Figure 10.2-1, 10.3.1.1, 10.3.3.1, 10.3 Refs, Figure 10.3-1, 14.2.13.1 (new), 14.2.13.2, 14.2.13.3, 14.2 Refs, Figure 14.2-81, Figure 14.2-82, Figure 14.2-83 (new), Figure 14.2-84 (new), Figure 14.2-85 (new), Figure 14.2-86 (new), Figure 14.2-87 (new) [SPS-UCR-2009-012]	Updated descriptions and associated analyses to reflect Unit 1 turbine retrofit.
1.1.6, 3.5 Refs [SPS-UCR-2011-004]	Discussion corrected to state that mid-grids are made of ZIRLO and NOT Optimized ZIRLO.
Table 9.7-1 [SPS-UCR-2009-024]	Updated pump data for Unit 1 containment sump pump replacements.
Table 4.1-5, 9.1.2.1 [SPS-UCR-2010-012]	Revised description of reactor coolant pump seal leakoff to reflect Flowserve N-9000 seals.
8.2, 10.3.3.2, Table 10.3-4, Figure 10.3-11 [SPS-UCR-2010-013]	Revised discussion on isolated phase bus duct coolers to reflect Unit 1 upgrade.
9.10.4.12 [SPS-UCR-2011-002]	Updated discussion to reflect addition of reactor coolant pump stator cooler outlet trough oil collection assemblies.
Table 18-1 [SPS-UCR-2010-018]	Updated license renewal commitment related to alloy 82/182 weld material.
18.2.15, 18.5 Refs [SPS-UCR-2010-022]	Updated license renewal commitment to perform enhanced inspections of reactor vessel internals in accordance with EPRI MRP-227.
3.5.2.2 [SPS-UCR-2010-025]	Reflects replacement of enhanced performance control rod assemblies for Unit 1 cycle 24 operation.
9.10.4.8, 9.10 Refs, 9.13.3.1 [SPS-UCR-2010-033]	Removed requirement to use 1-VS-F-58B after an Appendix R fire to ventilate the charging pump cubicles.

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Revision 43—09/29/11 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
1.1, 1.1.2, 1.1 Refs, 3.2.1, 3.3.3.2.2, 3.4.1.3, Table 3.4-1, 4.1.7.1, 4.1.7.3, 4.1.7.4, 4.1 Refs, Table 4.1-2, Table 4.1-4, Table 4.1-5, Table 4.1-8, Table 4.1-14, Table 4.1-15, 4.2.5, 4.3.3.2, 4.3.4, 4.3 Refs, 5.3.1.1, 5.4.1.2, 5.4.3.1, 5.4.3.2.2, Table 5.4-1, Table 5.4-17, 6.2.1.1, 7.2.2.5, 7.3.2.6.1, 8.1, 9.1.2.2, 9.1.2.3.2.6, Table 9.1-4, Table 9.1-5, Table 9.1-6, Table 9.1-7, 9.4, 9.5, 9.9, 9.13.3.6, Figures 10.2-1 thru Figure 10.2-4, 10.3.1, 10.3.1.1, 10.3.1.2, 10.3.2, 10.3.3, 10.3.4, 10.3.5,10.3.5.2, 10.3.5.3, 10.3.9, Table 10.3-4, 11.2.5.1, Table 11.2-2, Table 11.2-3, 11.3.2.2, Table 11.3-3, Table 11A-1, 14.1, 14.1 Refs, 14.2.1.1, 14.2.1.2, 14.2.2, 14.2.2.1, 14.2.2.3, 14.2.4.1, 14.2.4.2, 14.2.4.3, 14.2.7.1, 14.2.7.2, 14.2.7.3.1, 14.2.7.3.2, 14.2.8, 14.2.8.1, 14.2.8.2, 14.2.8.3, 14.2.9.1, 14.2.9.1.1, 14.2.9.1.2, 14.2.9.1.6, 14.2.9.2.2.1, 14.2.9.2.2.2, 14.2.9.2.4.1, 14.2.9.2.4.3, 14.2.10.2, 14.2.10.3, 14.2.10.4.2, 14.2.10.5, 14.2.11.1, 14.2 Refs, Table 14.2-1, Table 14.2-2, Table 14.2-3, Table 14.2-4, Figure 14.2-1, Figure 14.2-2, Figure 14.2-3, Figure 14.2-4a, Figures 14.2-5 thru Figure 14.2-14, Figure 14.2-16, Figure 14.2-21, Figure 14.2-23, Figures 14.2-27 thru Figure 14.2-42, Figure 14.2-45, Figure 14.2-49, Figure 14.2-50, Figure 14.2-51, Figure 14.2-55, Figure 14.2-56, Figure 14.2-62, Figure 14.2-67, [SPS-UCR-2009-022]	Reflects the Measurement Uncertainty Recapture Power Uprate.

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Revision 43—09/29/11 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Figure 14.2-68, 14.3.1.2, 14.3.1.3, 14.3.1.4.3, 14.3.1.4.4, 14.3.2.1, 14.3.2.3, 14.3.2.4.2, 14.3.2.4.4, 14.3.2.5, 14.3.3.1.2, 14.3.3.2.2, 14.3.3.2.2.5, Tables 14.3-4 thru 14.3-11, Table 14.3-13, Table 14.3-15, Table 14.3-16, Figures 14.3-1 thru 14.3-9, Figure 14.3-14, Figure 14.3-19, Figure 14.3-24, Figure 14.3-26, 14.4.1.3.1, 14.4.2.1, Table 14.4-6, 14.5.2.3, 14.5.5, Table 14.5-1, Table 14.5-13, Appendix 14A, Table 14A-1, Table 14A-2 [SPS-UCR-2009-022]	(continued)
14.3.1.4.4, 14.3.2.4.4 [SPS-UCR-2010-030]	Removed discussion of 20 gpd primary to secondary leakage limit for Unit 1 B steam generator.
Table 9.7-1 [SPS-UCR-2010-034]	Updated pump data for Unit 2 containment sump pump replacements.
10.3.5.2, Figure 10.3-9 [SPS-UCR-2009-014]	Update reflects installation of the ultrasonic flowmeters in the feedwater lines.
10.3.1.2 [SPS-UCR-2010-020]	Description of the feedwater flow distribution removed to reflect new J-nozzle design, which provides even distribution.

Revision 42—09/30/10

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
14.2.9.1.6, Figure 14.2-49, Figure 14.2-50, Figure 14.2-55, Figure 14.2-56 [SPS-UCR-2010-019]	Loss of Reactor Coolant Flow Analysis updated to reflect the DNB transient for the underfrequency and undervoltage events in the LOFA reanalysis.
Table of Contents, List of Tables, List of Figures for following chapters: 9, 11, 14, & 15 [SPS-UCR-2010-021]	Table of Contents modified to include the Appendices Table of Content.

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Revision 42—09/30/10 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9.10.1, 9.10.2.2.5, 9.10.4.19 [SPS-UCR-2009-027]	Fire Protection discussions updated to include the addition of the Turbine Deck Security Office.
15A.3.2, 15A Refs [SPS-UCR-2010-009]	Modified references to reflect procedures updated.
9.9.2 [SPS-UCR-2010-011]	Modified the total flow for each intake structure to be consistent with the circulating water pump flow rate.
7.7.2, 11.3.6 [SPS-UCR-2010-003]	Removed discussion of the Main Control Room Bottled Air System.
11.2.3.2 [FS-2003-045]	Final configuration reflects portions of the blowdown water treatment subsystem that are no longer used at the station.
9.10.2.1 [SPS-UCR-2010-002]	Interim configuration reflects portions of the Surry Fire Detection System that have been replaced.
11.2.3.2 [SPS-UCR-2010-005]	Corrects FS 2003-045 to reflect portions of the blowdown water treatment subsystem that is no longer in use.
2.1.5.2, 2.1 Refs [SPS-UCR-2010-006]	Adds a new reference to Chapter 2.
6.2.2.2.13, 6.3.1.2.5 [SPS-UCR-2009-003]	Description of the containment strainer assembly seals was updated to reflect installation of the U2 seal closure frames.
7.2.1.1, Table 7.5-2, 7.7.2, 9.10.4.17, 9.13.2, 9.13.3.6, 9.13.4.1, 9.13.4.2, Table 9.13-1, 14.2.9.2.4.3, 14.3.1.4.4, 14.3.2.4.4, 14.4.1.2.1, 14.4.1.3.1, 14.5.5.2 [SPS-UCR-2009-026]	Discussion of the Main Control Room Bottled Air System was removed.
10.3.5.2 [SPS-UCR-2009-028]	A discussion was added describing the use of Carbohydrazide for startup of Unit 2 using Auxiliary Feedwater.
9.1, 9.1.2.6.23, Figure 9.1-1 [FS 2007-014]	Reflects installation of Zinc Injection System for Unit 1.
9.1, 9.1.2.6.23, Figure 9.1-1 [FS 2008-023]	Reflects final configuration of Zinc Injection System.

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Revision 42—09/30/10 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
4.1.7.1, 4.1.7.3, Table 4.1-13 [SPS-UCR-2009-021]	Clarifies the capsule locations were original locations. Annotates Table to reflect relocation of Surry Unit 2 surveillance capsule U.
Table 9.7-1 [SPS-UCR-2009-025]	Corrected the containment sump pump data to reflect the current pumps.
18.3.5.6 [SPS-UCR-2009-011]	Updated discussion on reactor coolant pump and ASME code case N-481.
4.2.2.4, Table 4.1-5, 9.1.2.1 [SPS-UCR-2009-019]	Revised description of reactor coolant pump seal arrangement to reflect the Flowserve N-9000 seal.
14.5.2.1, 14.5.2.3, 14.5.2.4.1, 14.5.2.4.2, 14.5.2.5, 14.2.5.6, 14.5 Refs, Table 14.5-13, Table 14.5-14, Table 14.5-15, Table 14.5-16, Table 14.5-17, Figure 14.5-15 through Figure 14.5-76 [SPS-UCR-2009-008]	Revised to incorporate the reanalysis of the Westinghouse small break loss of coolant accident (SBLOCA).

Revision 41—09/30/09

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Figure 10.2-1 (sh 2), 10.3.3.2 [FS 2008-011]	Reflects the Unit 2 main generator change in hydrogen pressure.
10.3.5.2, 10.3.5.3 [FS 2007-020]	Clarified description of AFW system alignments to ensure minimum AFW flow requirements are met for design basis accident with the RCS above 350 degrees for both Units.
KWI [SPS-UCR-2009-020]	Removed key word index.
8.3, Figure 8.3-1 [SPS-UCR-2009-010]	Reflects the redirection of the 531 transmission line to Suffolk substation.
14.3.1.4.4, 14.3.2.4.4 [SPS-UCR-2009-013]	Reflects a 20 gpd leakage limit for Unit 1 B steam generator for operating cycle 23.
6.2.2.2.13, 6.3.1.2.5 [FS 2008-024]	Added a description of Unit 1 seal closure frames installed over the containment sump strainer flexible metal seals.

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Revision 41—09/30/09 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9.4.3.5 [SPS-UCR-2009-005]	Raised the upper pH limit of the charging pump component cooling water system.
8.3, Figure 8.3-1, 8.5 [FS 2005-026]	Incorporates addition of Bus 7 and breakers in switchyard.
6.2.2.2.6, 6.2.4, 6.2.4.1.5, 6.2 Refs [SPS-UCR-2009-004]	Added new section, "Gas Accumulation in ECCS Piping" in response to Generic Letter 2008-01.
14.5.1.7, Table 14.5-5, Table 14.5-6 [SPS-UCR-2009-006]	Incorporates increase of carbon steel surface area in containment and the impact on the best estimate large break loss of coolant accident analysis.
9B.1.1, 9B.2.1, 9B.1 Refs, Table 9B.2-1 [FS 2008-021]	Updated the discussion on heavy loads to include reliance on a RV head drop analysis and revised the weight of the U1 RV head and lifting device.
5.4.2.1.7, Table 5.4-12, Table 5.4-13, Table 5.4-17, 6.1, 6.2.3.11, 6.3.1.3.2 [SPS-UCR-2009-002]	Implements changes to the Surry containment analysis using revised IRS/ORS pump flowrates.
9.4.3.3 [FS 2007-028]	Removed description of Chilled Water circulating pump low suction pressure trip.
5.4.2.1.7, Table 5.4-12, Table 5.4-13, Table 5.4-17, Figure 5.4-3, Figure 5.4-4, Figure 5.4-5, 6.3.1.4.3, 9.4.1.1, 9.4.3.3, 9.9.1 [FS 2008-017]	Incorporates increasing the SW inlet (river water) temperature to 100 degrees in accordance with Technical Specification change request 397.
14.5.1.6, 14.5.1.7, Table 14.5-1, Table 14.5-2, Table 14.5-3, Table 14.5-4, Table 14.5-5, Table 14.5-6, Figure 14.5-1, Figure 14.5-2, Figure 14.5-3, Figure 14.5-4, Figure 14.5-5, Figure 14.5-6, Figure 14.5-7, Figure 14.5-8, Figure 14.5-9, Figure 14.5-10, Figure 14.5-11, Figure 14.5-12, Figure 14.5-13, Figure 14.5-14 [FS 2008-022]	Incorporated the results of a reanalysis of the Westinghouse Best-Estimate Large Break Loss of Coolant Accident (BE-LOCA) analysis using the Automated Statistical Treatment of Uncertainty Method (ASTRUM).
18.5 Refs [FS 2008-025]	Editorial - Updated UFSAR references to reflect current revisions for the steam generator management program.

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Revision 41—09/30/09 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
6.2.2.1.3, 6.2.2.2.13, 6.2.3.11.1, 6.2.3.3, 6.2.4.1.4, 6.2 Refs, Table 6.2-3, 6.3.1.2.5, 6.3.1.3.1, 6.3.1.3.2, 6.3.1.3.3, 6.3.1.3.4, 6.3.1.4.1, 6.3.1.4.3, 6.3.1.4.4, 6.3 Refs Table 6.3-3 [FS 2007-011]	Updated various sections to reflect compliance with GSI-191 for the strainer assembly.
Table 4.1-1 [FS 2008-013]	Revised Low-Pressure trip setpoint to be consistent with TSCR 318.
3.5 Refs, 14.4 Refs [FS 2008-020]	Updated reference placeholders with standard reference information.
18.2.11, Table 18-1 [FS 2008-018]	Updated to reflect license renewal commitments that have been completed.
12.3, 12.3 Refs, KWI [FS 2008-019]	Added NEI 99-01 as a reference.

Revision 40—09/30/08

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
2.1.5.2, Table 2.1-4 [FS 2007-022]	Adds limitation on dimethylamine to chemical section.
9.10.2.2.7 [FS 2008-008]	Modifies description on the actuation of the Low Pressure CO_2 Fire Protection System dampers.
9.10.4.8, 9.10 Refs [FS 2008-009]	Reflects that forced ventilation of the charging pump cubicles is not required after an Appendix R fire.
8.3, Figure 8.3-1, 8.5 [FS 2008-014]	Reflects changes associated with partial implementation of modification to 34.5 kV switchyard buses 5 and 7.
8.4.1 [FS 2007-019]	Incorporates the disconnect of the auto start circuitry for the high pressure heater drain pumps.
6.3.1.3 [FS 2008-006]	Reflects the installation of the entire sump strainer for Unit 2.

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Revision 40—09/30/08 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
8.4.6 [FS 2008-012]	Incorporates changes associated with partial implementation of the modification of D transfer bus breaker to supply power to the TSC MCC and TSC UPS from the ACC diesel generator.
Table 9.4-1, Table 9.4-8 [FS 2008-007]	Corrected component cooling water pump design parameters.
5.4.1.2, 5.4.1.3.3, 5.4.1.3.5.4, 5.4.1.4, 5.4.2.1.6, 5.4.3, 5.4 Refs, Table 5.4-1, Table 5.4-2, Table 5.4-3, Table 5.4-4, Table 5.4-5, Table 5.4-6, Table 5.4-7, Table 5.4-8, Table 5.4-9, Table 5.4-13, Table 5.4-14, Table 5.4-15, Figure 5.4-1, Figure 5.4-2, Table 6.2-12, Table 6.2-13 [FS 2008-003]	Incorporates the containment response using new mass and energy data tables. Updates the minimum NPSH valves.
10.3.5.3 [FS 2007-024]	Updated the total accuracy value for the auxiliary feed flow loop.
10.3.5.2, 10.3.5.3 [FS 2008-001]	Incorporated changes associated with the modification of the operator selector switches for the AFW discharge MOVs.
9.10.4.23 [FS 2008-004]	Corrected the value of the concrete wall thickness separating the two fuel oil pump houses.
6.3.1.3, 11.3.2.1, Table 11.3-2, Figure 11.3-2 [FS 2006-024]	Modifies text associated with Incore Sump Room Drain Modifications.
3.5.2.6.1, 3.5 Refs, 14.4.1.1, 14.4 Refs [FS 2006-033]	Modifies lead rod average burnup limit for Surry fuel.
Figure 6.1-1, 6.2, 6.2.2.2.13, 6.2.3.11.3, Table 6.2-3,Table 6.2-13, 6.3, 6.3.1.2.5, 6.3.1.3, 6.3.1.4, Table 6.3-1, Table 6.3-3, Figure 6.3-2, Figure 6.3-5 [FS 2007-025]	Modifies text to reflect changes associated with Containment Sump Strainer Design.

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Revision 40—09/30/08 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
1.1.8, 1.4.49, 5.3.4.1, 5.3.4.3, 5.3 Refs, Table 5.3-5, 5.4, 5.4.1.1, 5.4.1.3.1, 5.4.1.3.2, 5.4.1.3.3, 5.4.1.3.4, 5.4.1.3.5.2, 5.4.1.3.5.3, 5.4.1.3.5.4, 5.4.1.3.5.5, 5.4.1.3.6, 5.4.1.4, 5.4.2, 5.4.2.1, 5.4.2.1.1, 5.4.2.1.2, 5.4.2.1.3, 5.4.2.1.4, 5.4.1.2.5, 5.4.2.1.6, 5.4.2.1.7, 5.4 Refs, Tables 5.4-6, 5.4-7, 5.4-8, 5.4-9, 5.4-10, 5.4-11, 5.4-12, 5.4-13, 5.4-14, 5.4-15, 5.4-16, 5.4-17, 5.4-18, 5.4-19, 5.4-20, 5.4-21, 5.4-22, 5.4-23, 5.4-24, & 5.4-25, Figures 5.4-1, 5.4-2, 5.4-3, 5.4-4, 5.4-5, 5.4-6, 5.4-7, 5.4-8, 5.4-9, 5.4-10, 5.4-11, 5.4-12, & 5.4-13, 6.2.2.1.4, 6.2.3.11.1, 6.2 Refs, Tables 6.2-11, 6.2-12, & 6.2-13, Figures 6.2-3, 6.2-4, 6.2-5, 6.2-6, & 6.2-7, 6.3.1.3, 6.3.1.4, Figures 6.3-7, 6.3-8, 6.3-9, 6.3-10, 6.3-11, 6.3-12, 6.3-13, 6.3-14, 6.3-15, 6.3-16, & 6.3-17, 14.5.4, 14.5.5, 14.5.5.2, 14.5.5.3, 14.5 Refs, Tables 14.5-7, 14.5-8, & 14.5-11, 14B.2.3.3.1, 14B.2.3.3.2.1, 15.5.1.2 [FS 2005-027]	Performed containment analyses and LOCA alternate source term analyses to support GSI 191 modifications Unit 1.
7.6.2.1 [FS 2006-035]	Removed information that specifies which flux thimble locations are plugged.
6.3.1.3, 7.5.1.3, Figure 7.5-2, Figure 7.5-3 [FS 2007-002]	Modified the refueling water storage tank engineered safety features actuation system to support GSI 191 containment sump modifications for Unit 1.
7.2, 7.2.1.8.6 [FS 2007-021]	Added replacement of the Westinghouse process modules with NUS Scientech modules.
1.1.8, 1.4.49, 14.5.4, 14.5.5, 14.5.5.2, 14.5.5.3, Table 14.5-8, Table 14.5-9, Table 14.5-12, 15.5.1.2 [FS 2008-002]	Editorial changes; clarifies final markups for GSI-191 multiple packages.
5.4.2.1.6, 5.4 Refs [FS 2007-023]	Revised text to describe an alternate containment analysis method that can be used for the calculation of NPSHa for the recirculation spray pumps, and containment pressure and sump temperature response.

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Revision 40—09/30/08 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
14.5.1.1, 14.5.1.2, 14.5.1.3, 14.5.1.4, 14.5.1.5, 14.5.1.6, 14.5.1.7, 14.5.2.5, 14.5 Refs, Tables 14.5-1, 14.5-2, 14.5-3, 14.5-4, 14.5-5, & 14.5-6, Figures 14.5-1, 14.5-2, 14.5-3, 14.5-4, 14.5-5, 14.5-6, 14.5-7, 14.5-8, 14.5-9, 14.5-10, 14.5-11, 14.5-12, 14.5-13, 14.5-14, 14.5-15, 14.5-16, 14.5-17, 14.5-18, 14.5-19, 14.5-20, 14.5-21, 14.5-22, 14.5-23, 14.5-24, 14.5-25, 14.5-26, 14.5-27, 14.5-28, 14.5-29, 14.5-30, 14.5-31, 14.5-32, 14.5-33, 14.5-34, 14.5-35, 14.5-36, & 14.5-37 [FS 2006-021]	Incorporated an analysis performed for LBLOCA using the Westinghouse Best-Estimate Large Break Loss of Coolant Accident (BE-LBLOCA) analysis methodology using the Automated Statistical Treatment of Uncertainty Method (ASTRUM). Revised text for consistency and removed unnecessary references.
14.5.1.6, 14.5.1.7, 14.5.2.5, Table 14.5-6 [FS 2007-026]	Revised table to incorporate a penalty to PCT for the analysis performed for the LBLOCA analysis using the Westinghouse BE-LBLOCA analysis methodology using ASTRUM.
4.3.4.2 [FS 2007-013]	Clarified the description of the pressurizer PORV backup air supply.
14.5.2.5, 14.5.2.6, 14.5 Refs, Table 14.5-15 [FS 2007-009]	Updated peak cladding temperature for small break LOCA analysis for Westinghouse fuel.
14.5 Refs, Table 14.5-5 [FS 2007-010]	Updated peak cladding temperature for large break LOCA analysis for Westinghouse fuel.
9.1, 9.1.2.6.23, Figure 9.1-1 [FS 2007-018]	Installed the Unit 2 zinc injection system.
14.2.9.2.4.2, 14.2.9.2.4.3, 14.3.1.4.4, 14.3.2.4.2, 14.3.2.4.4, 14.3 Refs, Tables 14.3-9, 14.3-10, & 14.3-15 [FS 2006-005 & FS 2006-020]	Revised the steam generator tube rupture and main steam line break accident analyses to reflect the change in the technical specification allowable primary-to-secondary leakage rate. [10 CFR 50.90 License Amendment]
18.2.11, 18.2.13, 18.2.15 [FS 2007-017]	Corrected the description of the Inservice Inspection Plan.

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Revision 39—09/27/07

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
KWI, 12.4 [FS 2007-016]	Reflected the audit and review functions contained in the Nuclear Facility Quality Assurance Program Description.
1.1.8, 1.4.49, 5.3.4.1, 5.3.4.3, 5.3 Refs, Table 5.3-5, 5.4, 5.4.1.1, 5.4.1.3.1, 5.4.1.3.2, 5.4.1.3.3, 5.4.1.3.4, 5.4.1.3.5.2, 5.4.1.3.5.3, 5.4.1.3.5.4, 5.4.1.3.5.5, 5.4.1.3.6, 5.4.1.4, 5.4.2, 5.4.2.1, 5.4.2.1.1, 5.4.2.1.2, 5.4.2.1.3, 5.4.2.1.4, 5.4.1.2.5, 5.4.2.1.6, 5.4.2.1.7, 5.4 Refs, Tables 5.4-6, 5.4-7, 5.4-8, 5.4-9, 5.4-10, 5.4-11, 5.4-12, 5.4-13, 5.4-14, 5.4-15, 5.4-16, 5.4-17, 5.4-18, 5.4-19, 5.4-20, 5.4-21, 5.4-22, 5.4-23, 5.4-24, & 5.4-25, Figures 5.4-1, 5.4-2, 5.4-3, 5.4-4, 5.4-5, 5.4-6, 5.4-7, 5.4-8, 5.4-9, 5.4-10, 5.4-11, 5.4-12, & 5.4-13, 6.2.2.1.4, 6.2.3.11.1, 6.2 Refs, Tables 6.2-11, 6.2-12, & 6.2-13, Figures 6.2-3, 6.2-4, 6.2-5, 6.2-6, & 6.2-7, 6.3.1.3, 6.3.1.4, Figures 6.3-7, 6.3-8, 6.3-9, 6.3-10, 6.3-11, 6.3-12, 6.3-13, 6.3-14, 6.3-15, 6.3-16, & 6.3-17, 14.5.4, 14.5.5, 14.5.5.2, 14.5.5.3, 14.5 Refs, Tables 14.5-7, 14.5-8, & 14.5-11, 14B.2.3.3.1, 14B.2.3.3.2.1, 15.5.1.2 [FS 2007-027]	Performed containment analyses and LOCA alternate source term analyses to support GSI 191 modifications Unit 2.
4.1.7.1, 4.1.7.3, 4.1.7.4, 4.1 Refs, Tables 4.1-14 & 4.1-15, 4.2.5, 4.3.3.2, 4.3 Refs, Tables 4.3-3 & 4.3-4 [FS 2006-015]	Incorporated the revised RT_{PTS} values provided for the Reactor Vessel Integrity Program. [10 CFR 50.61]
4.3.4.2 [FS 2006-022]	Changed the description of the pressurizer PORV backup air supply.
Figure 6.1-2, 6.2.2.2.13, 6.2.3.11.3, Tables 6.2-3 & 6.2-12, 6.3.1.2.5, 6.3.1.3, Tables 6.3-1 & 6.3-3, Figures 6.3-3 & 6.3-5 [FS 2006-029]	Completed partial installation of Unit 2 containment sump strainers to support GSI 191 modifications.
6.3.1.3, 6.3.1.4, 11.3.2.1, Table 11.3-2, Figure 11.3-3 [FS 2006-014]	Added the Unit 2 incore sump room drain to support GSI 191 containment sump modifications.

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Revision 39—09/27/07 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
6.3.1.3, Figure 6.3-17, 7.5.1.3, 7.5.2.1, Figures 7.5-2 & 7.5-3 [FS 2006-007]	Modified the Unit 2 refueling water storage tank engineered safety features actuation system to support GSI 191 containment sump modifications.
Figures 6.3-2 & 6.3-3 [FS 2006-012]	Modified the Unit 2 outside recirculation spray pumps' test loops.
7.3.2.4 [FS 2007-001]	Revised the description of pressurizer pressure control.
7.7.1, 7.9.1, 7.9.3, 8.2, 8.4.4, Figure 8.4-1, 9.10.2.1. [FS 2005-015]	Replaced the intake structure supervisory system in the low level intake structure and in the main control room.
7.7.2, 7.11.2, 8.4.3 [FS 2005-009]	Updated the description of the power supply for the remote monitoring panels.
9.1.2.1, 9.1.3.5.3, 9.6.3.1, 9.6.3.2, 9.10.3.3, 9C.2, 10.3.1.5, 11.3.4.2, 11.3.4.3, 11.3.4.4 [FS 2007-004]	Replaced "operable" terminology with "functional" terminology in accordance with Regulatory Issue Summary 2005-20.
Table 9.7-1 [FS 2006-034]	Updated the description of the component cooling heat exchanger pit sump pump shaft material.
9.10.4.18 [FS 2007-005]	Provided additional fire hazard analysis discussion in order to address Mechanical Equipment Room No. 4.
9.12.9, 9.12.9.1, 9.12.9.2, 9.12.9.3, 19.2 Refs, 9B.1.5 [FS 2007-003]	Revised the description of handling ISFSI cask systems.
9.14.2, Table 9.14-1 [FS 2005-024]	Added the dry shielded canister drain and reflood pumps.
Table 9.14-1 [FS 2004-017]	Replaced the spent fuel storage cask vacuum pumps.
10.3.1.1, 14.2.13 [FS 2006-032]	Modified the turbine overspeed protection control permissive logic and circuitry.
10.3.5.2, 10.3.5.3 [FS 2006-030]	Defeated the auto-open function for auxiliary feedwater flow isolation motor-operated valves.
Figure 10.3-10 [FS 2005-025]	Replaced chemical feed system pumps.

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Revision 39—09/27/07 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
11.2.6.2, 11.3.3, 11.3.3.1, 11.3.3.2, 11.3.3.13, 11.3.3.14, Tables 11.3-5, 11.3-6, & 11.3-8 [FS 2005-012]	Replaced ventilation system radiation monitors.
14.2.11.1, 14.2.11.1.1, 14.2.12, Figures 14.2-73, 14.2-74, 14.2-75, & 14.2-76 [FS 2006-031]	Revised the analysis description of auxiliary feedwater flow following loss of normal feedwater and loss of AC power events.
18.1.4, 18.2.6, 18.2.13, 18.2.19, Table 18-1 [FS 2006-025]	Reflected the completion of License Renewal Commitment Item Nos. 4, 12, 18, 26, and 27.
18.3.2.4, Table 18-1 [FS 2007-008]	Reflected the completion of License Renewal Commitment Item No. 24.

Revision 38—09/29/06

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
2.1.2.1 [FS 2006-023]	Revised the Exclusion Area Boundary to be the site boundary. [10 CFR 50.90]
2.2.1.2 [FS 2004-016]	Clarified the description of the applicability of Regulatory Guide 1.23 to meteorological equipment.
3.1, 3.1 Refs, 3.3.1, 3.3.2.3, 3.3.2.13, 3.3.3.2.2, 3.5.2.1.5, 3.5.2.5, 3.5.2.6.3, 3.5.2.6.4, Table 3.5-3, Figure 3.5-15, 3.6.3.13 [FS 2006-006]	Incorporated the use of integral fuel burnable absorber (IFBA) rods.
Figures 6.3-2 & 6.3-3 [FS 2006-004]	Modified the Unit 1 outside recirculation spray pumps' test loops.
7.6.2.1 [FS 2006-017]	Isolated the flux thimble tube at location 1-RC-TW-J3.
8.5 [FS 2004-023]	Modified the #1 and #3 emergency diesel generators' auto start circuits.
8.5 [FS 2006-009]	Aligned the description of engineered safeguards equipment powered by each emergency bus with the list contained in Technical Specification 3.16 Basis.
9.8 [FS 2006-016]	Corrected the description of the containment instrument air compressors' capacity.

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Revision 38—09/29/06 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9C.1.2 [FS 2005-013]	Augmented the description of the water level monitoring system to include the Amertap pit monitors and a description of the system power supply.
10.3.1.1 [FS 2005-008]	Clarified the description of the turbine-driven auxiliary feedwater pump design and operating conditions.
10.3.3.2 [FS 2005-022]	Added the new Unit 1 generator and exciter ratings and revised the cooling water flow value for the Unit 1 generator hydrogen coolers.
10.3.5.4 [FS 2006-010]	Revised the description of auxiliary feedwater pump surveillance test and inspections. [10 CFR 50.90]
11.2.3.1.7, 11.2.4.1.1, 11.2.4.1.5, 11.2.4.2.2 [FS 2005-016]	Corrected the description of Radwaste Facility reducing and processing functions.
14.3.3.2.1, 14.3.3.2.3.1, 14.3.3.2.3.2, 14.3.3.2.3.3, 14.3.3.2.3.4, 14.3 Refs, Table 14.3-6, Figures 14.3-24, 14.3-25, 14.3-26, and 14.3-27 [FS 2006-001]	Reanalyzed the control rod assembly ejection accident in support of the transition to Integral Fuel Burnable Poison (IFBA) fuel.
14.5.1.6, 14.5.2.5, 14.5.2.6, 14.5 Refs, Tables 14.5-5 & 14.5-15 [FS 2006-003]	Incorporated the peak clad temperature penalties and benefits for the large break and small break LOCA associated with implementation of IFBA fuel. [10 CFR 50.46]
14.5 Refs, Table 14.5-5 [FS 2005-007]	Incorporated the peak clad temperature penalties and benefits for the large break LOCA. [10 CFR 50.46]
14.5 Refs, Table 14.5-5 [FS 2006-002]	Incorporated the peak clad temperature penalties and benefits for the large break LOCA. [10 CFR 50.46]

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Revision 38—09/29/06 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Chapter 17 (all) [QA 2004-002]	Replaced Chapter 17 in its entirety with a brief description of and reference to the recently implemented Topical Report DOM-QA-1. The Dominion Nuclear Facility Quality Assurance Program Description is based on ANSI/ASME NQA-1-1994 and will be maintained as a separate, single document for Dominion facilities. [10 CFR 50.54(a)]
18.2.12 [FS 2005-023]	Removed the ASME XI edition and addenda reference for containment inservice inspection to allow periodic update as required by regulation.

Revision 37—09/30/05

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
1.1, 1.4.41, 2.1.3.5, 4.3.5, 5.1, 6.2.1.1, 6.2.2.1.3, 7.2.1.8.3, 14.1, 15.2.1 [FS 2004-031]	Corrected citations to regulation and regulatory guide dose limits for design basis accident analysis.
3.6.3.2 [FS 2004-029]	Indicated that ultrasonic or x-ray testing is no longer performed for burnable poison rods beginning with Cycle 20.
4.2.2.2, 4.2.6 [FS 2004-018]	Updated the estimated pressurizer heatup rate during startup for a reduced heater capacity of 1200 kW.
4.2.7.2, 7.5.2.2, 7.5.3.5, 7.6.2.2, 7.9.2 [FS 2004-027]	Replaced the emergency response facilities computer system.
4.3.3.1, 4.3 Refs [FS 2004-026]	Extended the inspection interval for reactor coolant pump flywheels from 10 to 20 years. [10 CFR 50.90]
Tables 4.3-2 & 4.3-4 [FS 2004-028]	Revised the stress intensity value for the Unit 2 reactor vessel flange.
4.4.1.7, 6.2.2.2.4, 6.2.2.2.10, 6.2.4, 6.3.1.5.1, 6.3.1.5.2, 9.3.4, 9.4.5 [FS 2004-033]	Changed the ASME Code reference for inservice testing activities from Section XI to a general reference to the ASME Code.

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Revision 37—09/30/05 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Tables 5.2-1 & 5.2-2 [FS 2005-011]	Reflected the removal of valves 1-MS-118 and 2-MS-118 as part of the decay heat subsystem removal.
5.3.5, 5.3 Refs, 6.2.3.3, 6.2.3.12.1, 6.2 Refs, Tables 6.2-14 & 6.2-15, Figures 6.2-3, 6.2-4, 6.2-5, 6.2-6, 6.2-7, & 6.2-8 [FS 2005-002]	Reflected that the Hydrogen analyzers and recombiners will continue to function and be periodically tested, but are no longer part of the plant design basis or credited in accident analyses.
6.3.1.3, Figure 6.3-16 [FS 2004-021]	Changed the refueling water storage tank low level alarm setpoint from 16.0% to 20.0%.
7.2.2.1.1 [FS 2000-006]	Increased the design temperature limit for power cable from 85°C to 90°C and described randomly spaced power cable having less than 1/4 diameter spacing.
7.2.3.2.7, Figure 8.4-1, 10.3.5.3 [FS 2003-030]	Changed electrical power feeds associated with replacement of the plant computer and the emergency response facilities computer system.
8.2 [FS 2003-060]	Provided clarification of the operating conditions and analysis required for electrical equipment and cables.
8.3, Figure 8.3-1 [FS 2004-006]	Installed redundant, underground feeder cables to the low level intake structure buses.
8.5 [FS 2003-037]	Corrected the description of the loads served by the emergency diesel generators. [10 CFR 50.90]
8.5 [FS 2004-025]	Clarified that three low head safety injection pump motors are analyzed to start at 72% of rated voltage.
8.5 [FS 2005-018]	Modified the #2 emergency diesel generator auto start circuit.
Table 9.4-2 [FS 2005-019]	Corrected the description of the capacity of the chilled water system chillers.
9.13.3.6, 9.13.4.2 [FS 2004-022]	Revised the description of the main control room and emergency switchgear and relay room ventilation system to rely on operating either one or two chillers.

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Revision 37—09/30/05 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9B.2.3, 9B.2.4.7, 9B.2 Refs, Table 9B.2-1 [FS 2004-038]	Replaced the 6-ton Auxiliary Building hoist with a 5-ton hoist.
10.3.5.2, Figure 10.3-9 [FS 2004-003]	Replaced Unit 2 auxiliary feedwater system isolation valves with stop-check valves.
10.3.5.2, Figure 10.3-9 [FS 2004-015]	Replaced Unit 1 auxiliary feedwater system isolation valves with stop-check valves.
Table 10.3-4 [FS 2004-004]	Revised the cooling water flow value for the Unit 2 generator hydrogen coolers.
Figure 10.3-11 [FS 2004-036]	Corrected tie-in locations between Sheets 1 & 2 describing the bearing cooling system.
Tables 11.3-5 & 11.3-7 [FS 2005-017]	Reflected consistent mark number format for the radiation monitoring system.
14.2 Refs, 14.3 Refs, 14B Refs [FS 2004-030]	Updated the references to the RETRAN Topical Report.
14.3.1.4.4, 14.3.2.4.2, Table 14.3-7, 14.3-8, 14.3-9, 14.3-10, 14.3-12, & 14.3-15 [FS 2005-010]	Corrected and clarified the description of the dose consequences of the main steam line break, locked rotor accident, and steam generator tube rupture based on the alternative source term methodology.
Table 14.3-8 [FS 2005-021]	Incorporated an editorial correction of the event time ranges.
14.5.1.6, 14.5 Refs, Table 14.5-5 [FS 2005-001]	Incorporated the peak clad temperature penalties and benefits for the large break LOCA. [10 CFR 50.46]
Figure 15.1-1 [FS 2004-032]	Provided the location of well-water supply system Well E and removed the incorrectly identified information center.
Figure 15.1-2 [FS 2004-010]	Added delay fencing in the Protected Area.
Figure 15.1-2 [FS 2004-012]	Added sally port fencing in the Protected Area.
15.6.2.1 [FS 2005-004]	Incorporated an editorial correction replacing “stem generator” with “steam generator.”
15.7, 15.7 Refs [FS 2004-034]	Clarified the scope of statistical information regarding the evaluation of masonry block walls in response to IE Bulletin 80-11.

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Revision 37—09/30/05 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
18.1.1, 18.1.4, 18.2.1, 18.2.9, 18.2.19, Table 18-1 [FS 2004-037]	Reflected the completion of License Renewal Commitment Item Nos. 1, 2, 3, 7, 8, 19, and 29.

Revision 36—09/30/04

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
KWI [FS 2004-002]	Updated the Key Word Index to incorporate an editorial correction.
3.3.3.2.1, 3.3 Refs, 3.5 Refs [FS 2003-035]	Updated references to the topical report for reload design methodology. [10 CFR 50.90 License Amendment]
3.5.3.1, 3.5.3.1.6, 4.1.2.8, 4.1.6, 4.1 Refs, Tables 4.1-2, 4.1-8, & 4.1-15, 4.2.2.1, Table 4.2-1, 4.3.1.1, Tables 4.3-2, 4.3-4, 4.4-1, & 9B.2-1, 14.3.3.1.1.1, 14.5.3, 14.5.3.3.4, 14.5 Refs, 15.2 Refs, Table 15.2-2 [FS 2003-040 & FS 2003-052]	Replaced the Unit 2 reactor vessel closure head.
Table 4.1-2 [FS 2003-051]	Identified the replacement reactor vessel heads' dome insulation thickness.
4.2.2.1, 5.3.1.3.2, 9.12.5.2, 9.12.5.4, 9B.2.5, Table 9B.2-1, Table 11.3-2, Figures 11.3-2 & 11.3-3, 14.3.3.1.1.4.2, 15.5.1.1, 15.5.1.8, 15.5.1.11.1, 15A.3.5.2, 15A.3.5.2.4, 15A Refs [FS 2003-048]	Upgraded the Unit 2 reactor head assembly.
4.2.7.2 [FS 2003-042]	Completed the installation of the Unit 2 N-16 primary-to-secondary leakage detection system.
4.3.1.1, Table 4.3-1 & 4.3-2 [FS 2004-008]	Provided a text description of cumulative usage factors for reactor vessel components in lieu of a tabular format. Updated stresses for reactor vessel components.
Table 5.3-2, 9.4.1.3, 9.4.3.3, Table 9.4-2, Figure 9.9-1, Table 10.3-4, Figure 10.3-11 [FS 99-065]	Updated the description of the Unit 2 chilled water system to reflect equipment replacement and changing the system's source of cooling water.

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Revision 36—09/30/04 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
5.5.3, 7.2.3.2.7, 7.3.2.3.2, 7.4.2.4, 7.4.3.2, 7.4.3.6, Tables 7.4-1, 7.4-2, & 7.4-3, 7.6.2.2, 7.7.2, Figure 7.7-1, 7.9.2, 7.9.2.2, 7.9.2.3, 7.9.2.5, 7.9.2.6, 7.9.3, 7.9.4, 9.10.4.1 [FS 2003-059]	Replaced the Unit 2 plant computer.
6.2.2.2.4 [FS 2003-053]	Replaced the Unit 2 charging pump discharge alternate header isolation valve, 2-CH-MOV-2287C.
7.2.1.2, 7.3.2.3.2, 14.2.4 [FS 2003-023]	Replaced the Unit 2 benchboard individual rod position indicators and the rod bottom lights with redundant flat panel displays.
7.5.2.2, 7.5.3.5, 7.6.2.2, 7.7.2, Figure 7.7-1, 7.9.2, 7.9.2.2, 7.9.2.5, 7.9.3 [FS 2002-019]	Replaced the Unit 1 plant computer.
7.6.2.1 [FS 2003-049]	Clarified the description of the Unit 2 incore instrumentation system.
8.5 [FS 2001-037]	Added provisions for inspection and repair of a buried fuel oil storage tank during plant operation. [10 CFR 50.90 License Amendment]
9.4.1.1 [FS 2004-014]	Added the vacuum priming system to the description of the component cooling heat exchangers.
9.4.1.3 [FS 2003-064]	Clarified the description of the chilled water used to cool the water in the refueling water storage tank.
9.4.1.3, Table 9.4-2 [FS 2003-050]	Updated the Unit 1 chilled water system capacity.
Table 9.6-1, 11.2.3.1.5, Table 11.2-1 [FS 2003-058]	Designated the waste disposal evaporator test tanks as “installed but no longer used.”
9.10.4.7 [FS 2004-011]	Removed the steam heating coils from the motor control center rooms’ ventilation units.
9.12.4.14, 9B.2.4.6, 9B.2.4.7, Table 9B.2-1 [FS 2003-011]	Uprated the Unit 2 polar crane capacity for each of the two hooks from 125 to 140 tons.
Figure 10.2-1, 10.3.3.2, Table 10.3-4 [FS 2003-012]	Replaced the Unit 2 main generator with an upgraded, refurbished generator.

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Revision 36—09/30/04 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
10.3.1.2 [FS 2003-039]	Restored the automatic control mode for the Unit 2 steam header pressure controller.
10.3.3.2, Table 10.3-4 [FS 2003-009]	Replaced the Unit 2 main generator exciter.
10.3.5.1 [FS 2003-041]	Increased the Unit 2 feedwater recirculation flow from 2800 to 4300 gpm.
10.3.5.2, Figure 10.3-9 [FS 2003-038]	Modified the Unit 2 feedwater bypass regulating valve line to provide bypass flow indication during unit startup.
10.3.5.3 [FS 2003-054]	Incorporated editorial correction of punctuation errors.
11.2.4.1.6 [FS 2003-029]	Added the low-level waste storage facility and sea van storage pad to the description of the solid waste disposal system.
14.2.9.2.2.2, 14.2.9.2.3, 14.2.9.2.4.1, 14.2.9.2.4.2, 14.2.9.2.4.3, 14.2.9.2.4.4, 14.2 Refs, Tables 14.2-2, 14.2-4, & 14.3-14 [FS 2003-044]	Reflected the reanalyzed dose consequences of a locked rotor accident using alternate source term and methodologies described in Regulatory Guide 1.183.
14.2.10.3, 14.2.10.4.2, Figures 14.2-68, 14.2-69, 14.2-70, 14.2-71, & 14.2-72 [FS 2004-007]	Updated the reanalyzed information and figures for loss of external electrical load/turbine trip.
14.3.1.4, 14.3.1.4.1, 14.3.1.4.2, 14.3.1.4.3, 14.3.1.4.4, 14.3.1.4.5, 14.3.2.4, 14.3.2.4.2, 14.3.2.4.3, 14.3.2.4.4, 14.3.2.4.5, 14.3 Refs, Tables 14.3-9, 14.3-10, 14.3-11, 14.3-12, 14.3-14, & 14.3-16 [FS 2003-057]	Incorporated the reanalysis of the dose consequences of the steam generator tube rupture and main steam line break using the alternative source term methodology.
14.4.1.2.1, 14.4.1.2.2, 14.4.1.3.1, 14.4.1.3.2, 14.4 Refs, Table 14.4-5 [FS 2003-055]	Incorporated the reanalysis of the dose consequences of a fuel handling accident using the alternative source term methodology.
14.5.2.4.2, 14.5.2.5 [FS 2004-024]	Made editorial corrections to correctly refer to Tables 14.5-15 & 14.5-16.
14.5.2.6, 14.5 Refs, Table 14.5-16 [FS 2004-019]	Incorporated a change to the summary of peak clad temperature penalties and benefits for the small break LOCA. [10 CFR 50.46]

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Revision 36—09/30/04 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
14.5.5.2, 14.5.5.3, 14.5 Refs, Table 14.5-12 [FS 2003-061]	Revised the discussion of dose consequences of the loss of coolant accident using 500 cfm instead of 10 cfm for the control room in-leakage and out-leakage parameters.
15.5.2, 15.5.2.1, 15.5.2.3, 15 Refs [FS 2003-031]	Completed the restoration of construction opening in the containment structure for the Unit 2 reactor pressure vessel head replacement.
17.2.1.2.D.3.c, Figure 17.2.1-3 [QA 2004-004]	Deleted the Manager Nuclear Engineering's responsibility for development of Improved Technical Specifications. Updated the title of and line of reporting for Supervisor Nuclear Records. [10 CFR 50.54(a)(3)]
17.2.2.8 [QA 2004-005]	Updated terminology to the current naming convention for inservice inspection personnel. [10 CFR 50.54(a)(3)]
17.2.10 [QA 2003-001]	Updated the description of qualification requirements for personnel performing non-destructive examinations. [10 CFR 50.54(a)(3)]
18.2.3 [FS 2004-001]	Established acceptance criteria for borated water leakage.
18.2.6, 18.2.10, Table 18-1 [FS 2004-005]	Described completion of commitments regarding inspection of inaccessible areas, groundwater monitoring, and internal inspections of containment polar crane girders.
18.2.19, Table 18-1 [FS 2004-009]	Described completion of commitments regarding procedures to assure consistent inspection of components for aging effects during work activities.
18.3.2.4, 18.5 Refs, Table 18-1 [FS 2003-062]	Completed detailed engineering evaluation for the potential effect of environmentally-assisted fatigue in safety injection accumulator nozzles and charging line nozzles.

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Revision 35—09/30/03

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
1.1, 1.6.2.3, 2.1.3.1, 3.1, 4.1, 4.1.4, 4.1.5, Tables 4.1-8, 4.1-12, & 4.1-13, 4.3.1.1, 4.3.1.2, Tables 4.3-3 & 4.3-4, 5.0, 6.1, 6.3.1.2.1, 7.1, 7.5.3.5, 8.0, 9.0, Table 9.1-3, 10.1, 11.1, 11.3.2.9.1, 15.5.1.8, 18.0, 18.1, 18.1.1, 18.1.2, 18.1.3, 18.1.4, 18.2, 18.2.1, 18.2.2, 18.2.3, 18.2.4, 18.2.5, 18.2.6, 18.2.7, 18.2.8, 18.2.9, 18.2.10, 18.2.11, 18.2.12, 18.2.13, 18.2.14, 18.2.15, 18.2.16, 18.2.17, 18.2.18, 18.2.19, 18.2.20, 18.3, 18.3.1, 18.3.1.1, 18.3.1.2, 18.3.1.3, 18.3.2, 18.3.2.1, 18.3.2.2, 18.3.2.3, 18.3.2.4, 18.3.3, 18.3.4, 18.3.5, 18.3.5.1, 18.3.5.2, 18.3.5.3, 18.3.5.4, 18.3.5.5, 18.3.5.6, 18.3.6, 18.4, 18.4.1, 18.4.2, 18.5, Table 18-1 [FS 2002-016]	Reflected the increased operating life basis from 40 to 60 years and added Chapter 18 [10 CFR 54.21] to describe the programs and activities that manage the effects of aging materials during the extended operation period associated with license renewal.
Table 2.1-4, Figure 15.1-2 [FS 99-064]	Installed a tank farm and feed system for treating the circulating water system with sodium bromide and sodium hypochlorite.
2.2.1.2, 3.3.2.13, 6.2.2.1.2, 7.4.3.3.3, 7.4.3.5.2, 7.4.3.7.2, 7.4.3.7.4, 7.4.3.7.5, 11.3.3, 11.3.4.1, 11.3.4.5 [FS 2001-044]	Replaced paper strip chart recorders in the control room with video display recorders.
3.5.2.6.1, 3.5 Refs [FS 2002-034]	Identified the references for the design requirements for fuel assembly structural components.
3.5.3.1, 4.1.2.8, 4.1.6, 4.1 Refs, Tables 4.1-2, 4.1-9, & 4.1-14, 4.2.2.1, 4.2.5, 4.2 Refs, Table 4.2-1, 4.3.1.1, Tables 4.3-1, 4.3-2, 4.3-3, & 4.3-4, 4.4.1.3, Table 4.4-1, 15A.5.2, 15A.5.2.1, 15.A.5.2.2, 15A.5.2.3, 15A.5.2.4, 15A.5.2.5, 15A Refs [FS 2003-018 & FS 2003-026]	Replaced the Unit 1 reactor vessel closure head.
4.1 Refs, Table 4.1-14 [FS 2003-001]	Reflected a new reference nil ductility transition temperature for the Unit 1 reactor vessel closure head dome. [10 CFR 50.55a(a)(3)(ii) and 10 CFR 50.55a(g)(6)(i) Relief Requests]

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Revision 35—09/30/03 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Table 4.1-1, 7.5.1.4.1, 7.5.1.4.2 [FS 2001-022]	Changed the reactor coolant system low-pressure alarm from 2205 to 2210 psig.
4.2.2.1, Figures 4.2-2 & 4.2-3, 9B.2.4.4, 9B.2 Refs, Table 9B.2-1 [FS 2003-019]	Modified the service structure, cooling air shroud and shroud support, radiation shield, insulation, and intermediate lift ring for the Unit 1 reactor vessel head replacement.
4.2.2.1, 4.3.1.1, Table 4.3-1 [FS 2002-031]	Enhanced the description of repairs performed on the Unit 1 reactor vessel head and control rod drive mechanism nozzles.
4.2.2.6 [FS 2002-029]	Clarified the description of flanges used in the reactor coolant system.
4.2.7.2 [FS 2001-035]	Installed the Unit 1 N-16 primary-to-secondary leakage detection system.
4.2.7.2 [FS 2003-043]	Installed the initial phase of the Unit 2 N-16 primary-to-secondary leakage detection system.
4.2 Refs, Table 4.3-3 & 4.3-4 [FS 2003-014]	Corrected typographical errors.
4.3.3.2, 4.3 Refs, Table 4.3-4 [FS 2003-007]	Reflected the revised RT_{PTS} values provided for the Unit 2 Reactor Vessel Integrity Program.
Table 6.2-5 [FS 2002-028]	Replaced charging pump 1-CH-P-1B.
6.3.1.5.1, 6.3.1.5.2 [FS 2002-002]	Revised the frequency of inspection for the containment spray and recirculation spray nozzles. [10 CFR 50.90 License Amendment]
Figure 6.3-1 [FS 2000-021]	Removed the vent caps from the refueling water storage tanks.
7.2.1.2, 7.3.2.3.2, 14.2.4 [FS 2003-005]	Replaced the Unit 1 benchboard individual rod position indicators and the rod bottom lights with redundant flat panel displays.
7.2.2.1.6 [FS 99-062]	Removed the reactor protection system logic channel testing event recorder.
7.2.2.5, Table 7.2-3, 7.8, 7.8.1, Figure 7.8-1 [FS 2002-022]	Removed the load frequency recorder and the automatic load control system.

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Revision 35—09/30/03 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
7.2.3.2.7, 7.9.4, 8.4.4, 8.4.5, 8.4.6, Figure 8.4-1, 9.10.2.7, 10.3.5.3 [FS 2002-017]	Provided power feed changes in preparation for plant computer replacement, installed a portion of the new computer for parallel testing, and permitted use of engineering-approved cable.
7.6.2.1, 7.6.3 [FS 2002-021]	Clarified the description of the incore instrumentation system.
8.4.4 [FS 2003-003]	Installed an additional 125V dc switchboard crosstie circuit breaker.
8.5 [FS 2003-013]	Modified the #3 emergency diesel generator breaker closure circuit.
9.4.3.5 [FS 2001-009]	Restored the original configuration of the charging pump component cooling water system.
9.10.2.2.2 [FS 2001-028]	Changed the pressure of the firewater system.
9.12.4.14, 9B.2.4.6, 9B.2.4.7, 9B.2 Refs, Table 9B.2-1 [FS 2003-010]	Uprated the Unit 1 polar crane capacity for each of the two hooks from 125 to 140 tons.
9.12.5.3 [FS 2003-017]	Provided an alternate method for monitoring subcriticality during fuel onload.
9.13.3.6 [FS 97-028]	Installed an alternate power feed to Mechanical Equipment Room-5 for use in the event of a fire.
9.13.3.6, 9.13.4.1 [FS 2000-019]	Provided shutdown of fans serving areas adjacent to the main control room (MCR) due to a safety injection signal or manual actuation in the MCR.
10.3.1.2 [FS 2003-028]	Restored the automatic control mode for the Unit 1 steam header pressure controller.
10.3.1.2, 10.3.8, 11.2.3, 11.2.3.2, 11.2.3.2.1, 11.2.3.2.2, Tables 11.2-4, 11.2-5, 11.2-6, & 11.2-7, Figures 11.2-2 & 11.2-3, 11.3.2.6, 11A.4, Tables 11A-10 & 11A-12 [FS 2003-047]	Reflected partial implementation of discontinued use of the steam generator blowdown treatment facility.
10.3.4.1, 10.3.4.2 [FS 98-045]	Increased the flow rate of the circulating water pumps from 210,000 gpm to 220,000 gpm.

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Revision 35—09/30/03 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
10.3.5.1 [FS 2003-004]	Increased the Unit 1 feedwater recirculation flow from 2800 to 4300 gpm.
10.3.5.2, Figure 10.3-9 [FS 2003-024]	Modified the Unit 1 feedwater bypass regulating valve line to provide bypass flow indication during unit startup.
10.3.9, 10.3.9.2, Figure 10.3-11 [FS 2001-003 & FS 2003-046]	Added description of the bearing cooling normal makeup water supply and treatment system.
Figure 10.3-7 [FS 2001-030A]	Installed an additional cross-connect valve for isolation of the Unit 1 auxiliary steam header.
Figure 10.3-11 [FS 2000-029]	Replaced turbine lube oil coolers' temperature control valves with manual throttle valves.
Figure 10.3-11 [FS 2001-006]	Removed and capped dead-leg piping to the flash evaporators that are abandoned in place.
14.2.1.1, 14.2.1.2 [FS 2003-032]	Corrected the description of the reactor trip setpoint for the rod withdrawal from subcritical event.
14.4.1.2.1 [FS 2003-006]	Updated a cross-reference number.
14.5.3.2, 14.5 Refs [FS 2003-002]	Added text describing that it has been shown that the control rods will insert for cold leg breaks.
14.5 Refs, Table 14.5-5 [FS 2003-027]	Incorporated a change to the summary of peak clad temperature penalties and benefits for the large break LOCA. [10 CFR 50.46]
15.3.1, 15.3.2, 15.4, 15.4.1, 15.4.2, 15.4.3, 15.5.1.6, 15.5.1.8, 15.5.1.9, 15.5.1.9.1, 15.5.1.9.3, 15.5.1.9.4, 15.5.1.10, 15.5.2, 15.5.2.1, 15.5.2.2, 15.5.2.3, 15.5.2.4, 15.5.2.5, 15.5 Refs [FS 2003-020 & FS 2003-025]	Completed the restoration of construction opening in the containment structure for the Unit 1 reactor pressure vessel head replacement.
17.2.0.2, Table 17.2-0, 17.2.2.1, 17.2.2.5, 17.2.2.6, 17.2.10, 17.2.17 [FS 2003-021]	Made editorial corrections to correctly refer to Table 17.2-0.

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Revision 35—09/30/03 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
17.2.1.1.A, 17.2.1.2.B, 17.2.1.2.B.1, 17.2.1.2.B.1.b.1.1, 17.2.1.2.C.1, 17.2.16.2.B.2, 17.2.16.2.C, 17.2.1.16.2.D, Figures 17.2.1-1 & 17.2.1-2, Table 17.2-0, App C A.8.e, B.6.e, B.6.i, B.7.c, & B.8 [FS 2003-015]	Revised organizational titles of the Senior Vice President Nuclear Operations, Shift Manager, and Unit Supervisor. [10 CFR 50.54(a)(3)]
17.2.1.2 [FS 2003-008]	Assigned responsibility for maintenance of plant equipment history to the Manager Nuclear Maintenance. [10 CFR 50.54(a)(3)]
17.2.1.2.A.2, Figure 17.2.1-1 [FS 2002-006]	Deleted the description of and reference to the Nuclear Oversight Board. [10 CFR 50.54(a)(4)]
Table 17.2-0 [FS 2002-033]	Provided for the repair and testing of a temporary opening in the containment due to reactor vessel head replacement. [10 CFR 50.54(a)(3)]

Revision 34—09/03/02

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
1.1.8, 1.4.11, 1.4.47, 2.1.2.1, Figure 2.1-3, 5.3.1.2, 5.3.1.3.4, 5.3.1.4, 5.3.1.4.1, 5.3.1.4.2, 5.4, 6.1, Table 6.2-6, 6.3.1.1, 7.7.1, 9.12.6, 9.12.6.1, 9.13.1, 9.13.2, 9.13.3.1, 9.13.3.2, 9.13.3.6, 9.13.3.7, 9.13.4.1, 11.3.1, 11.3.3.13, 11.3.4.2, 11.3.4.3, 11.3.4.4, 11.3.6, Table 11.3-1, 14.4.1.1, 14.4.1.2, 14.4.1.2.1, 14.4.1.2.2, 14.4.1.2.2.1, 14.4.1.2.2.2, 14.4.1.2.2.3, 14.4.1.2.2.4, 14.4.1.2.3, 14.4.1.3.1, 14.4.1.3.2, 14.4.1.3.3, 14.4.1.3.4, 14.4 Refs, Tables 14.4-1, 14.4-2, 14.4-3, 14.4-4, & 14.4-6, 14.5.4, 14.5.5, 14.5.5.1, 14.5.5.2, 14.5.5.3, 14.5.6, 14.5 Refs, Tables 14.5-7, 14.5-8, 14.5-10, 14.5-11, & 14.5-12 [FS 2000-005A]	Incorporated the reanalysis of the LOCA and Fuel Handling Accidents resulting from the implementation of alternative source term. [10 CFR 50.67]

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Revision 34—09/03/02 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
3.4.1.1, 3.4.1.1.4, 3.4.1.2, 3.4 Refs, 3.5.2.1, 3.5.2.6.1, 3.5 Refs, Table 3.5-3 [FS 2002-003]	Reflected the physical description of Surry 2 Batch 20 and subsequent reload fuel batches for Units 1 and 2. Identified the fuel performance models for cycle-specific evaluations.
4.2.2.4 [FS 99-053]	Replaced reactor coolant pump main flange bolts with main flange fasteners.
4.3.1.1 [FS 2001-043]	Described the repairs performed on the Unit 1 reactor vessel head and control rod drive mechanism nozzles.
4.3.1.1, Figure 4.3-2 [FS 2001-046]	Clarified the stress analysis boundary conditions at the vessel head penetration shrink fit for the control rod drive mechanism housings. Showed the vessel head penetration welds in their correct orientation.
5.4.1.3.5.4, 8.4.4 [FS 2002-024]	Updated a reference document number and corrected a typographical error.
6.2.3.12.1, 6.2 Refs, Tables 6.2-14 & 6.2-15, Figures 6.2-3, 6.2-4, 6.2-5, 6.2-6, 6.2-7, & 6.2-8 [FS 2002-012]	Re-evaluated the hydrogen concentration in containment following a LOCA.
Table 6.2-13, 6.3.1.3, Table 14B-3 [FS 2001-026]	Changed the bleed flow contribution to outside recirculation spray pump NPSHa, clarified the function of the recirculation spray suction cross-connect line, and deleted the component cooling heat exchangers from the list of postulated targets in the auxiliary building.
7.6.2.1 [FS 2001-042]	Installed a plug in the high pressure seal at Unit 1 core location J5 (1-RC-TW-J5).
7.6.2.1, 7.6.2.2, 7.6.2.3.1, Figures 7.6-1 & 7.6-2 [FS 2000-049]	Provided the description of a second flux thimble tube and seal table seals design. Described the process for converting to the new design.
7.6.2.1, Figure 7.6-1 [FS 2002-013]	Installed a plug in the high pressure seal at Unit 2 core location N8 (2-RC-TW-N8).

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Revision 34—09/03/02 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
7.7.2, 9.10.3.5, 9.10.4.13, 10.3.1.2 [FS 99-034]	Incorporated changes to reflect that the decay heat release subsystem is no longer used and that decay heat release components have been removed on Unit 1.
Figure 8.3-1, 8.4.4 [FS 2002-004]	Installed an additional 125V dc switchboard crosstie circuit breaker.
8.5 [FS 2001-001]	Removed the diesel generator voltage and speed relay from the residual voltage time delay relay circuit and increased the time delay from 2.0 to 2.2 seconds.
8.5 [FS 2002-020]	Clarified the description of the analysis consideration of a loss of offsite power being sequenced with a loss of coolant accident.
8.5, Table 8.5-1 [FS 99-025]	Updated the setting of the emergency bus degraded voltage relays. [10 CFR 50.90 License Amendment]
9.1.2.1 [FS 2001-036]	Clarified auxiliary spray valve operation meeting the requirements of the Appendix R analysis.
9.4.3.1 [FS 2002-008]	Clarified component cooling system thermal relief requirements.
9.6.1.2, 9.6.2.2, 9.6.2.2.1, 9.6.2.2.3, 9.6.2.2.6, 9.6.3.2, 9.6.4.2, 9.6 Refs, Tables 9.6-3 & 9.6-7 [FS 2002-011]	Clarified the status of the High Radiation Sampling System—Post-Accident Operation. [10 CFR 50.90 License Amendment]
9.6.2.1 [FS 2001-024]	Reflected the abandonment of recorders from the secondary sampling system on-line chemistry monitoring panels.
9.10.1 [FS 2001-039]	Identified fire protection systems that are not required to satisfy regulatory criterion. [10 CFR 50.48]
9.10.1, 16.2, 17.2.1.2, 17.2.5 [FS 2001-034]	Removed terminology associated with the former 10 CFR 50.59 regulation and incorporated wording from the current rule.
9.13.1, 9.13.4.1 [FS 2002-009]	Clarified the description of auxiliary building ventilation fan performance.

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Revision 34—09/03/02 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9.13.3.3, 9.13.4.1 [FS 2002-015]	Enhanced the text description of the decontamination building ventilation system operation.
9B.2.4.4 [FS 2001-002]	Added the reactor vessel head stud racks to the description of special lifting devices.
9B.2.4.4, Table 9B.2-1 [FS 2001-017]	Removed the pneumatic reactor cavity seal ring and its lifting rig.
11.2.3, 11.2.3.1.7, 11.2.3.2, Tables 11.2-5 & 11.2-6 [FS 98-001]	Updated the description of steam generator blowdown to reflect system lineup and chemistry guidelines.
11.2.4.1.2 [FS 97-011]	Incorporated current methodology for handling and storing spent radioactive filters.
11.3.3.8, Tables 11.3-6 & 11.3-7 [FS 2001-025]	Changed the Unit 1 condenser air ejector radiation monitor to a more sensitive detector.
11.3.3.8, Tables 11.3-6 & 11.3-7 [FS 2001-038A]	Changed the Unit 2 condenser air ejector radiation monitor to a more sensitive detector.
14.2.10.3, 14.2.10.4, 14.2.10.4.1, 14.2.10.4.2, Figures 14.2-62, 14.2-63, 14.2-64, 14.2-65, 14.2-66, 14.2-67, 14.2-68, 14.2-69, 14.2-70, 14.2-71, & 14.2-62 [FS 2001-018]	Incorporated an improved analysis technique concerning loss of external electrical load.
Table 14.2-4 [FS 2001-031]	Cited the regulatory whole body dose limit. [10 CFR 100]
14.5 Refs, Table 14B-2, 15.5 Refs [FS 2001-041]	Corrected typographical errors.
14B.3.3, 14B.5.3.3 [FS 2001-045]	Provided discussion of the auxiliary building ambient temperature monitoring system for detection of a high energy line break and associated automatic/manual actions.
17.2.1.1, 17.2.1.2, 17.2.10, Figures 17.2.1-1, 17.2.1-2, & 17.2.1-3 [FS 2002-005]	Modified organizational titles and realigned certain reporting relationships within the Nuclear Business Unit. [10 CFR 50.54(a)(3)]
17.2.1.2, Figures 17.2.1-1 & 17.2.1-3 [FS 2001-040]	Relocated the Records Management Program organization from General Services to Nuclear Engineering. [10 CFR 50.54(a)(3)]

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Revision 34—09/03/02 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
17.2.1.2, 17.2.3, 17.2.5, 17.2.6, 17.2.11, 17.2.15, 17.2.16, 17.2.18, 17.2 Refs, Table 17.2-0, Appendix C [FS 2001-023]	Relocated North Anna Power Station current technical specification requirements for the Management Safety Review Committee, Station Nuclear Safety and Operating Committee, and Station Nuclear Safety to the QA Topical Report. [10 CFR 50.90 License Amendment]
17.2.7 [FS 2002-023]	Updated the description of the organizational structure to reflect the responsibilities of the Vice President Nuclear Engineering and Vice President Nuclear Support Services with respect to procurement, vendor surveillance, and document reviews. [10 CFR 50.54(a)(3)]

Revision 33—09/04/01

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
1.1.6, 1.2.3, 3.3.2.12, 3.5, 3.5.1.3, 3.5.2.1, 3.5.2.1.1, 3.5.2.1.2, 3.5.2.1.4, 3.5.2.1.5, 3.5.2.2, 3.5.2.3, 3.5.2.4, 3.5.2.5, 3.5.2.6.1, 3.5.2.6.3, 3.5.2.6.4, 3.5.3.1, 3.5.3.1.1, 3.5.3.1.2, 3.5.3.2.1, 3.5.4, 3.5.4.1, 3.5 Refs, Tables 3.5-1 & 3.5-3, Figures 3.5-3, 3.5-4, 3.5-5, 3.5-7, 3.5-9, 3.5-11, 3.5-12, & 3.5-13 [FS 2000-027]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of mechanical reactor design.
1.4.23, 7.5.1, 8.4.3 [FS 2001-011]	Provided clarification of the design and licensing basis for the power supplies to the vital bus systems.
2.4.1, Table 9.2-1, Table 15.2-1, 15.5.1.8 [FS 2000-051]	Corrected typographical, administrative, and format errors.
3.4.1.1.2, 3.4.1.1.3, 3.4.1.1.4, 3.4.1.1.5, 3.4.1.2, 3.4.1.3, 3.4.2, 3.4.2.1, 3.4.2.1.1, 3.4.2.1.2, 3.4.2.2, 3.4.2.2.1, 3.4.2.2.2, 3.4.2.2.3, 3.4.2.2.4, 3.4.2.3, 3.4.2.4, 3.4.2.5, 3.4.2.6, 3.4.3.1, 3.4.3.2, 3.4.3.2.1, 3.4.3.3, 3.4.3.5, 3.4.3.8, 3.4 Refs, Table 3.4-1, Figures 3.4-1, 3.4-4, 3.4-8, & 3.4-10, Table 4.2-1, 8.5, 10.3.5.3 [FS 2000-028]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of thermal/hydraulic reactor design.

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Revision 33—09/04/01 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
4.2.2.8, 14.2.6.2.2, 14.2.6.2.3 [FS 99-042A]	Established additional reactivity controls and surveillance for the vacuum-assisted backfill method of returning an RCS loop to service. [10 CFR 50.90 License Amendment]
Table 5.4-20 [FS 2001-013]	Revised the containment analysis results for depressurization time and subatmospheric peak pressure.
6.2.3.12.1, Table 6.2-14 [FS 2001-010]	Updated the description of the containment hydrogen generation analysis.
6.2.3.12.1, Table 6.2-14, 14.5.1.3, 14.5.1.4, Table 14.5-3, 15A References [FS 2001-027]	Corrected typographical, administrative, and format errors.
Figures 6.2-1 & 6.2-2 [FS 99-063]	Incorporated modifications to the Unit 1 safety injection system.
7.6.2.1, Figure 7.6-1 [FS 2000-046]	Installed a seal welded cap on the flux thimble tube at location 2-RC-TW-N8.
8.5 [FS 2000-037]	Added definition of loss of offsite power (LOOP) as a LOOP to both units to the introduction of the emergency power system.
8.5 [FS 2000-045]	Added a time delay relay to each filter exhaust fan start circuit to allow proper damper alignment.
9.4.4.3 [FS 2000-043]	Provided a description of the air lockup valve on the reactor coolant pump thermal barrier inside and outside containment component cooling trip valves.
9.6.1.2, 9.6.2.2.6, Table 9.6-7 [FS 2000-052]	Deleted time restraints for containment sump sampling or analysis with the high radiation sampling system.
9.8.1, Table 9.8-1 [FS 2001-007]	Deleted statement that the compressed air system air receivers are sized to provide ten minutes of breathing quality air and air to essential systems after shutdown of all compressors following a loss-of-power accident. Corrected compressed air system design data.

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Revision 33—09/04/01 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9.10.4.4 [FS 2000-048]	Included a description of the two-hour design basis discharge/recharge case for the station batteries.
9.10.4.4 [FS 99-043]	Revised the description of hydrogen generation and fire potential in the station battery rooms.
9.10.4.12 [FS 2000-041]	Incorporated modifications to the reactor coolant pump motor oil collection system.
9.10.6, 12.2.2.3, 17.2.1.1, 17.2.1.2, 17.2.2.1, 17.2.2.5, 17.2.3, 17.2.7, 17.2.10, 17.2.15, 17.2.16.2, 17.2.17, 17.2.18, Figures 17.2.1-1, 17.2.1-2, & 17.2.1-3, Table 17.2-0 [FS 2001-019]	Modified organizational titles and reporting relationships associated with the entire Nuclear Business Unit. [10 CFR 50.54(a)(3)]
9.12.3.1, 9.12.5.2 [FS 2000-017]	Changed the design of the reactor cavity seal from pneumatic to mechanical.
9.12.5.2 [FS 2000-044]	Corrected the description of lifting the reactor vessel head with the reactor containment polar crane.
9.13.1, 9.13.4.1, 14.3.2 [FS 2000-024]	Updated the description of feedwater isolation for the rupture of a main steam pipe accident and of auxiliary building ventilation system capability.
9.13.2 [FS 99-046A]	Clarified the design and testing of the safety-related charcoal filters installed in the auxiliary ventilation exhaust system. [10 CFR 50.90 License Amendment]
9.13.3.7, 9.13.4.1 [FS2000-053A]	Clarified auxiliary filtration requirements consistent with the Basis for Technical Specification 3.22.
9C.1.1, 9C.2 [FS 97-020]	Deleted “carbon steel” from the description of the flow restriction shields installed around circulating water system expansion joints.
10.3.1.2, 14.3.1.5 [FS 99-057]	Added the description of the backup bottled air system for the steam generator power operated relief valves.

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Revision 33—09/04/01 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
11.2.3, 11.2.3.1.10, Table 11.2-1, Figures 11.2-2 & 11.2-5 [FS 2000-047]	Installed a cross-connect line between the Radwaste Facility building drain system and the laundry waste system. Installed a second laundry drain pre-filter.
Tables 11.2-2 & 11.2-3 [FS 2001-014]	Corrected typographical errors.
14.2.11.1, 14.2.12, Figures 14.2-73, 14.2-74, 14.2-75, 14.2-76, 14.2-77, 14.2-78, 14.2-79, & 14.2-80, 14B.5.1.7 [FS 2001-005]	Described the reanalysis of the loss of normal feedwater (LONF) and loss of ac power to the station auxiliaries (LOAC) events with 500 gpm auxiliary feedwater flow during the transient.
14.3.1.4.2, 14.3.1.4.4, 14.3.1.4.5, 14.3.2.4.2, 14.3.2.4.4, 14.3.2.4.5, 14.3 Refs, Tables 14.3-9, 14.3-10, 14.3-11, 14.3-12, & 14.3-16 [FS 2000-032]	Reflected the reanalysis of the dose consequences of the steam generator tube rupture and main steam line break events.
14.5.1.1, 14.5.1.2, 14.5.1.3, 14.5.1.4, 14.5.1.5, 14.5.1.7, 14.5.1.8, 14.5 Refs, Tables 14.5-2, 14.5-3, 14.5-4, 14.5-5, 14.5-6, 14.5-7, 14.5-8, & 14.5-9, Figures 14.5-2, 14.5-3, 14.5-4, 14.5-5, 14.5-6, 14.5-7, 14.5-8, 14.5-9, 14.5-10, 14.5-11, 14.5-12, 14.5-13, 14.5-14, 14.5-15, 14.5-16, 14.5-17, 14.5-18, 14.5-19, 14.5-20, 14.5-21, 14.5-22, 14.5-23, 14.5-24, 14.5-25, 14.5-26, 14.5-27, 14.5-28, 14.5-29, 14.5-30, 14.5-31, 14.5-32, 14.5-33, 14.5-34, 14.5-35, 14.5-36, 14.5-37 [FS 2001-008]	Updated the analysis of the large break loss-of-coolant accident.
Table 15.2-1 [FS 2000-054]	Restored the seismic Category I designation for the yard hydrant piping system.
15.5.1.8, 15.5 Refs. [FS 99-013]	Documented the evaluation of isolated containment penetration piping for susceptibility to thermal over-pressurization following a DBA. [NRC Generic Letter 96-06]
15A.3.2, 15A Refs [FS 2001-004]	Incorporated generic implementation procedure criteria and methodology for seismic verification of equipment.

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Revision 33—09/04/01 (continued)

Section	**Changes** Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
17.2.17, Table 17.2-0 [FS 99-067]	Updated the Quality Assurance Topical Report description of the retention of quality assurance records in electronic media. [10 CFR 50.54(a)(4)]
Table 17.2-0 [FS 2001-020]	Clarified the provision for substitution of experience for a bachelor's degree. [10 CFR 50.54(a)(3)]
Tables 17.2-0, 17.2-2, & 17.2-3 [FS 2000-003]	Reduced records retention requirements consistent with ANSI N45.2.9 or applicable regulations. [10 CFR 50.54(a)(4)]

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Revision 32—09/01/00

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
KWI, 1.4.2, 1.4.5, Ch 2, 2.2.2.1, 2.3.1.2.2, Tbl 2.3-7, 2.4.7.2, 2.4.7.6, 2.4.9, Tbls 2.4-9, 2.4-10, & 2.4-12, Figs 2.4-5 & 2.4-6, 2.5.4.3, 4.3.1.2, 4.3 Refs, Tbl 4.3-3, Fig 4.3-3, 7.2.1, 7.5.1, 9.2.3.1, 9A.2, 9A.3.1.3.1, 15.1, 15.2.4, Tbl 15.2-1, 15.4.1, 15.4.4, 15.4.5, 15.4.6, 15.4.6.1, 16.4.6.2, 15.4.6.3, 15.4.6.4, 15.4.6.4.1, 15.4.6.4.2, 15.4.6.4.3, 15.4.6.4.4, 15.4.6.4.5, 15.4.6.4.6, 15.4.6.4.7, 15.4.6.4.8, 15.4.6.4.9, 15.4.6.4.10, 15.4.6.4.11, 15.4.6.4.12, 15.4.6.4.13, 15.4.6.4.14, 15.4.6.4.15, 15.4.6.4.16, 15.4.6.4.17, 15.4.6.4.18, 15.4.6.4.19, 15.4.6.5, 15.4.6.5.1, 15.4.6.5.2, 15.4.6.5.3, 15.4.6.5.4, 15.4.6.5.5, 15.4.6.5.6, 15.4.6.5.7, 15.4.6.5.8, 15.4.6.5.8.1, 15.4.6.5.8.2, 15.4.6.5.8.3, 15.4.6.5.8.4, 15.4.6.5.8.5, 15.4.6.5.9, 15.4.6.5.9.1, 15.4.6.5.9.2, 15.4.6.5.9.3, 15.4.6.5.10, 15.4.6.5.10.1, 15.4.6.5.10.2, 15.4.6.5.10.3, 15.4.6.5.11, 15.4.6.5.11.1, 15.4.6.5.11.2, 15.4.6.5.11.3, 15.4.6.5.11.4, 15.4.6.5.11.5, Figs 15.4-1 thru 15.4-3, 15.5.1.6, 15.5.1.8, 15.5.1.10, 15.5.1.12, 15.5.1.13.3, Figs 15.5-5 & 15.5-6, 15.6, 15.6.1, 15.7, 15.7 Refs, 15A, 15A.3.1, 15A.3.2, 15A.3.3, 15A.3.4, 15A.3.5, 15A.3.5.1, 15A.3.5.2, 15A.3.5.2.1, 15A.3.5.2.2, 15A.3.4.2.3, 15A.3.5.2.4, 15A.3.5.3, 15A.4, 15A Refs, Tbl 15A-5 [FS 99-050]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of civil/structural/seismic topics.
KWI, Table 4.1-9, 5.4.1.3.5.4, Table 9.1-7, 9.4.4.7, Table 9.4-1, Figure 9.9-1, 14.2.5.2.1 [FS 99-044]	Incorporated updates to the key word index and corrected typographical, spelling, grammar and administrative errors.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
KWI, 5.3.1.1, 5.3.1.3.1, 9.3.3.2, 9.4, 9.4.1.1, 9.4.1.2, 9.4.1.3, 9.4.1.4, 9.4.1.5, 9.4.3.1, 9.4.3.2, 9.4.3.3, 9.4.3.5, 9.4.4.1, 9.4.4.3, 9.4.4.5, 9.4.5, 9.4 Refs, 9.4 RefDwgs, Tables 9.4-7 through 9.4-10, Figures 9.4-1 through 9.4-5, 9.9, 9.9.1, 9.9.2.1, 9.9.3.2, Table 9.9-3 [FS 99-022]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the component cooling water system.
1.1, 1.4.2, 1.4.28, 1.4.29, 1.4.31, 1.4.33, 1.6, 1.6.1.1, 1.6.2.8, 3.1, 3.2.1, 3.2.2.1, 3.2.3.1, 3.2.3.3, 3.2 Refs, 3.3.1, 3.3.2.1, 3.3.2.3, 3.3.2.10, 3.3.2.12, 3.3.2.13, 3.3.3.2.2, Table 3.3-1, Figures 3.3-1, 3.3-2, 3.3-3, 3.3-7, 3.3-8, & 3.3-9, Table 3.4-1, 3.6.1.2, 3.6.2, 3.6.3.1, 4.3.1.1, 4.3 Refs, 9.1.1.2, 9.1.2.3.1, 9.1 Refs [FS 2000-025]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of reactor design.
1.2.5, 1.4.70, 7.2.1.1, 7.7.1, 9.1.2.1, 9.1.2.6.15, 9.2, 9.2.1, 9.2.2, 9.2.3, 9.2.4, Tables 9.2-1 & 9.2-2, Figure 9.2-1, 9.7.2, 11.2.3, 11.2.3.1.1, 11.2.3.1.2, 11.2.3.1.3, 11.2.3.1.11, 11.2.3.2, 11.2.3.2.1, 11.2.4.1.3, 11.2.4.1.5, 11.2.4.2, 11.2.4.2.1, 11.2.4.2.3, 11.2.4.2.5, 11.2.4.2.7, 11.2.4.2.11, 11.2 RefDwgs, Tables 11.2-1, 11.2-8 through 11.2-10, Figures 11.2-1 & 11.2-2, 11A.4.2 [FS 99-031]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the boron recovery and waste disposal systems.
1.2.8, 1.4.24, 1.4 RefDwgs, 4.3.6, 7.7.1, 8.1, Figure 8.1-1, 8.2, 8.3, 8.3 RefDwgs, Figure 8.3-2, 8.4.1, 8.4.2, 8.4.3, 8.4.4, 8.4.6, 8.5, 8.6, 9.1.3.1 [FS 99-051]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the vital bus and station service systems.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
1.4.3, 7.2.2.1.1, 7.7.2, 9.1.2.1, 9.3.2.1, 9.4.3.1, 9.10.1, 9.10.2.1, 9.10.2.2.1, 9.10.2.2.3, 9.10.2.2.5, 9.10.2.2.7, 9.10.2.2.9, 9.10.2.3.2, 9.10.2.3.3, 9.10.2.4, 9.10.2.6, 9.10.2.8, 9.10.2.9, 9.10.3.3, 9.10.3.4, 9.10.3.5, 9.10.4.1, 9.10.4.3, 9.10.4.4, 9.10.4.5, 9.10.4.7, 9.10.4.8, 9.10.4.9, 9.10.4.10, 9.10.4.11, 9.10.4.12, 9.10.4.14, 9.10.4.15, 9.10.4.16, 9.10.4.17, 9.10.4.18, 9.10.4.19, 9.10.4.20, 9.10.4.22, 9.10.4.23, 9.10.4.24, 9.10.4.25, 9.10.4.26, 9.10.4.27, 9.10.5, 9.10.6, Table 9.10-1, 9.11.1, Table 9.11-1, Figure 9.11-1, 9.13.4.1, 10.3.9.3, 11.1, 11.1 Refs [FS 99-027]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the fire protection system.
1.4.5, 7.7.2, 9.1.2.2, Figure 10.3-2, 12.1.1.2.1, 12.4, 12.5, 12.6, 13.1, 14.2.2, 14.2.2.1, 14.2.5.1, 14.2.5.2.2, 14.2.9.2.3, 14.2.9.2.4.1, Table 14.2-4, Figure 14.2-84, 14.3.2.1, 14.3.2.2.1, 14.3.3.2.2.2, 14.3.3.2.2.4, 14.4.1.2.2.1, 14.4.2.1, Table 14.4-6, 14.5.2.3, 14.5.2.4.2, 14.5.3.3.2, 14.5.3.4.1, 14.5.5.2, 14.5 Refs, Table 14.5-14, Figures 14.5-5 & 14.5-38, 15.4.6 [FS 2000-023]	Corrected typographical, administrative, and format errors.
1.4.11, 5.3.1.2, 5.3.1.3.2, 3.1.3.3, 5.3.1.3.4, 5.3.1.4, 5.3.1.4.1, 5.3.1.5, Table 5.3-1, 6.3.1.4, 7.7.2, 9.13.1, 9.13.3.2, 9.13.3.1, 9.13.3.2, 9.13.3.3, 9.13.3.4, 9.13.3.5, 9.13.3.6, 9.13.3.7, 9.13.3.9, 9.13.4, 9.13.4.1, 9.13.4.2, 9.14.2, 9.14.3, 10.3.6.2, 10.3.8.2, 11.2.2, 11.2.5, Table 11.2-11, 11.3.3.14, 11.3.6 [FS 99-040]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the ventilation system.
1.4.18, 9.4.1.3, 9.4.3.3, Tables 9.4-2 through 9.4-5, 9.5.1, 9.5.3.4, 9.5 Refs, 9.5 RefDwgs, Figure 9.5-1, Table 10.3-4, Figure 10.3-11 [FS 99-049]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of spent fuel pool cooling, chilled water, and bearing cooling systems.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
1.4.24, 2.1.3.2, 2.4.3.3, 2.4.7.4, 2.4.8, Tables 2.4-13 & 9.5-1, 9.10.6, Figure 9A-1, 11.1 Refs, 15.2.4, Table 15.2-1, 15.4.1 [FS 99-058]	Corrected typographical, administrative, and format errors.
1.4.46, 6.2.2.2.3, 6.2.2.2.4, Tables 6.2-5 & 6.2-8 [FS 98-042]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the safety injection system.
1.4.49, 1.4.55, 1.4.57, 5.2.1, 5.2.2, Tables 5.2-1 & 5.2-2, 5.3.4, 5.3.4.1, 5.3.4.2, 5.3.4.3, 5.3.4.4, Tables 5.3-4 & 5.3-5, Figure 5.3-2, 5.4.2, 5.4.2.1, 5.4 Refs, 5.5.1, 6.1, Table 6.2-7, 6.3.1.1, 6.3.2, 6.3.2.1, 6.3.2.2, 6.3.2.3, 6.3.2.4, Tables 6.3-4 & 6.3-5, Figure 6.3-6, 7.5.1.4.2, 15.5.1.2, 15.5.1.8 [FS 99-039]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the containment systems.
1.5, 9.1, 9.1.1, 9.1.1.2, 9.1.1.3, 9.1.2, 9.1.2.1, 9.1.2.4, 9.1.2.4.1, 9.1.2.5, 9.1.2.6.1, 9.1.2.6.2, 9.1.2.6.7, 9.1.2.6.8, 9.1.2.6.9, 9.1.2.6.12, 9.1.2.6.15, 9.1.2.6.16, 9.1.2.6.17, 9.1.2.6.18, 9.1.2.6.19, 9.1.2.6.20, 9.1.3.1, 9.1.3.3, 9.1.3.5.2, 9.1.3.5.3, 9.1 Refs, Tables 9.1-1 through 9.1-3, 9.1-8, & 9.1-9, 9.3.1, 9.3.2.1, 9.3.2.2.2, 9.3.2.2.3, 9.3.3.1, 9.3.3.2, Tables 9.3-2 through 9.3-4, 9.4.1.1, 9.9.1.3 [FS 99-041]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the chemical and volume control and residual heat removal systems.
Figures 2.4-6 & 2.4-7, 6.2.3.10, 7.9.2.5, 7.10.2.1, 7.10.2.2, 12.1.1.2.1, 14.5 Refs [FS 2000-018]	Corrected typographical, administrative, and format errors.
3.6.3.1, 9A.2, 14.5.2.3 [FS 2000-040]	Corrected typographical, administrative, and format errors.
4.1.7.4, 4.1 Refs, Tables 4.1-13 through 4.1-15 [FS 2000-035]	Incorporated the most recently acquired and currently applicable reactor vessel material properties data.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Table 4.1-2, 9.10.3.3, 9.10.4.2, 9.10.4.3, 9.10.4.13, 10.3.1.2, 10.3.1.5, 10.3.3.1, 11.3.3.14, 14.3.1.2, 14.3.1.3, 14B.2.3.2.3, 14B.4.2, 14B.4.3, 14B.5.1.1, 14B.5.1.4, 14B.5.1.5, 14B.5.1.6, 14B.5.1.6.1, 14B.5.1.6.2, 14B.5.1.6.3, 14B.5.1.6.4, 14B.5.1.6.4.2, 14B.5.1.6.4.3, 14B.5.1.6.4.5, 14B.5.2.1, 14B.5.2.5, 14B.5.3.3, 14B.5.4.2, 14B Refs, Tables 14B-2, 14B-3, & 14B-9, Figures 14B-1 & 14B-10 [FS 2000-007]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the high energy line break.
Table 4.1-4, 10.3.1.2, 10.3.4.2, 10.3.5.2, 10.3.6.2, Figure 10.3-2 [FS 99-038]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the feedwater, condensate, steam generator blowdown, and condensate polishing systems.
4.2.11, 4.2 Refs, 9.3.1, 9.6.2.1, 9.6.2.2.6, 9.6.3.2, Tables 9.6-7 & 9.7-1, Figure 9.7-1, 10.3.8.1 [FS 99-047]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the sampling and primary vents and drains systems.
5.2.2, 5.2 Refs [FS 2000-031]	Updated the discussion of acceptable closure time of a normally closed manual isolation valve.
Table 5.2-1 [FS 99-054]	Reflected the addition of a new inside containment isolation valve.
Tables 5.2-1 & 5.2-2 [FS 99-045]	Updated Table 5.2-1 to reflect changes to valves subject to Type C testing as defined in 10 CFR 50, Appendix J. [10 CFR 50, Appendix J]

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
5.4.1.3.4, 6.2.2.1.4, 14.1, 14.1 Refs, 14.2.1, 14.2.2.2, 14.2.2.3, 14.2.4.2, 14.2.7.2, 14.2.7.3.1, 14.2.7.3.3, 14.2.7.4, 14.2.9.2.1, 14.2.9.2.2.2, 14.2.9.2.4.1, 14.2.9.2.4.3, 14.2.10.4.2, 14.2.13, 14.2 Refs, Figures 14.2-16 through 14.2-21, & 14.2-27, 14.3.1.1, 14.3.1.4.3, 14.3.1.4.4, 14.3.2.1, 14.3.2.2.1, 14.3.2.5, 14.3.3.1.1.2, 14.3.3.2.1, 14.3.3.2.1.2, 14.3 Refs, Tables 14.3-8, 14.3-11, & 14.3-12, 14.4.1.1, 14.4.1.2, 14.4.1.2.1, 14.4.1.2.2.2, 14.4.1.3.1, 14.4.2.1, 14.4.2.2.1, 14.5.1.2, 14.5.1.3, 14.5.1.8, 14.5.2.3, 14.5.2.4.2, 14.5.6, 14.5 Refs, Tables 14.5-2, 14.5-11, & 14.5-12, Figures 14.5-30 & 14.5-31 [FS 2000-016]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the plant safety analyses.
Table 6.2-6, Table 6.3-2, 14.5.5.3, 14.5 Refs [FS 2000-008]	Updated the allowable leakage from the safety injection and charging systems.
7.2.2.2.10, 7.3.2.2.3, 7.4.3.4, 7.4.3.6, 7.4.3.8, 7.4.4.1, 7.4.4.3, 7.4.4.4.2, 7.4.4.4.3, Table 7.4-3, Figure 7.4-2, 7.6.1, 7.6.2.1, 7.6.2.3.1, Figure 7.6-1, 7.11.1 [FS 99-035]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the nuclear instrumentation system.
7.3.1, 7.3.2.1, 7.3.2.2.1, 7.3.2.2.2, 7.3.2.3.1, 7.3.2.3.2, 7.3.3.2, 7.3.3.5, 7.3 RefDwgs, 7.7.2, 7.8.1, 7.8.2, 7.8.3, Figure 7.8-1 [FS 99-059]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the nuclear control system.
7.7.2, 9.10.3.5, 9.10.4.13, 10.3.1.2 [FS 99-033]	Incorporated changes to reflect that the decay heat release subsystem is no longer used and that decay heat release components have been removed on Unit 2.
7.12.1.1, 10.3.5.3 [FS 2000-022]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the electrical instrumentation and plant computer system.
9.4.4.3, 9.8.1, 9.8.2, 9.8.3, 9.8.4, Table 9.8-1, Figure 9.8-1, 10.3.9.3, Table 15.2-1 [FS 2000-011]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the instrumentation air system.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Table 9.4-1 [FS 96-032]	Updated the design data for the component cooling water heat exchangers to describe the replacement heat exchangers.
9.7.2, 11.2.2, 11.2.5, 11.2.5.1, 11.2.5.2.3, 11.2.6.1, Tables 11.2-2 & 11.2-3 [FS 99-028]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the gaseous waste disposal system.
9.7.3 [FS 99-023]	Incorporated a modification to the level detector and controls for the auxiliary building sump pumps.
9.9.1.2 [FS 99-007]	Updated the description of emergency service water pump capacity associated with a design change to improve pump reliability.
9.9.1.3 [FS 2000-034]	Provided additional information concerning the response required for hurricane conditions that are less severe than those produced by the probable maximum hurricane.
9.10.2.2.9, 9.10 Refs [FS 99-021]	Added a description of the design basis for the halon system in the emergency switchgear rooms.
9.10.3.3, 10.3.1.2 [FS 99-019]	Added a description of the local operation of the atmospheric steam dump valves.
9.10.4.8 [FS 2000-010]	Incorporated terminology from new EPA regulation, 40 CFR 279.22(c)(1).
9.12.4.4, 9.12.4.5, 9.12.4.6, 9.12.4.9, 9.12.4.13, 9.12.4.14, 9.12.5.2, 9.12.5.4, 9.12.6.2, 9.12.8, 9.14.2, 9A.2 [FS 2000-014]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of fuel handling and storage.
9.13.2, 14B.5.2.1 [FS 2000-004]	Incorporated the environmental impact of a turbine building high energy line break on the control room envelope, mechanical equipment room no. 5, and the emergency diesel generator room.
10.3.5.3, 14.2.11, 14.2.11.1, 14.2.11.1.1, 14.2.11.1.2, 14.2.11.1.3, 14.2.11.1.4, 14.2.11.2, 14.2.12, 14.2 Refs, Figures 14.2-79 through 14.2-89 [FS 2000-015]	Incorporated the description of the reanalysis of the loss of normal feedwater event and the loss of ac power to the station auxiliaries event.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
11A.4.1, 11A.4.2, Table 11A-1 [FS 96-065]	Added descriptions of the application of the Offsite Dose Calculation Manual.
12.4 [FS 2000-026]	Corrected the reference to the personnel qualification requirements for SNSOC and station supervisory personnel. [10 CFR 50.90 License Amendment]
14.2.13 [FS 98-050]	Specified that the governor and main stop valves are exercised on a periodic basis in order to eliminate part of the transient experienced during turbine inlet valve freedom testing.
14.5.1.6, 14.5.1.7, 14.5.2.6, 14.5.2.7, 14.5 Refs, Tables 14.5-5 & 14.5-18 [FS 99-060]	Incorporated descriptions of the peak clad temperature penalties and benefits in the large and small break LOCA analyses.
16.2 [FS 99-052]	Revised the description of the administrative controls that apply to the Technical Requirements Manual.
17.2.1.2, 17.2.2.1, 17.2.17, Figure 17.2.1-1 [FS 2000-033]	Modified organizational titles and reporting relationships associated with information technology.
17.2.1.2, 17.2.2.6, Figure 17.2.2-1 [FS 2000-009]	Updated organizational description to reflect Supply Chain Management (Generation) titles.
17.2.1.2, Figure 17.2.1-2 [FS 2000-020]	Modified organizational titles and reporting relationships associated with records management.
17.2.1.2, Figure 17.2.1-2 [FS 2000-036]	Modified organizational titles and reporting relationships associated with the radwaste facility.

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Revision 31—09/01/99

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
KWI, 1.4.9, 1.4.16, 4.1.3.1, 4.1.4, 4.1.7.1, 4.1.7.2, 4.1.7.4, 4.1 Refs, Tables 4.1-1, 4.1-5, 4.1-8, 4.1-10, & 4.1-11, 4.2.1, 4.2.2.1, 4.2.2.3, 4.2.2.3.1, 4.2.2.3.2, 4.2.2.3.3, 4.2.2.4, 4.2.2.7, 4.2.2.8, 4.2.3, 4.2.5, 4.2.6, 4.2.7.2, 4.2.9, 4.2.9.1, 4.2.9.2, 4.2.9.3, 4.2.9.4, 4.2.9.5, 4.2.9.6, 4.2.9.7, 4.2.10, 4.2.10.1, 4.2.10.2, 4.2 RefDwgs, Tables 4.2-3 & 4.2-4, Figures 4.2-8 & 4.2-11, 4.3.1.3, 4.3.2, 4.3.3.1, 4.3.3.2, 4.3.4.2, 4.3.6, 4.3 Refs, Tables 4.3-4 & 4.3-5, 4.4.1.4, 7.2.3.2.3, 7.3.2.4, 7.10.1, 7.10.2.3, Table 7.10-1, 9.10.3.2 [FS 99-001]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the reactor coolant system.
KWI, 4.2.2.2, 6.2.3.3, 6.3.2.1, Tables 6.3-1 & 3, 7.6.2.1, 7.6.3, 7.10 References, 8.4.1, 8.4.4, Tables 11.2-8 & 9, 11.3.3.10, 14.2.6, 14.5.1.1, 14.5.1.4, 14.5.2.3, Table 14.5-14 [FS 98-052]	Provided grammatical and editorial corrections.
KWI, Tables 5.2-1 & 5.2-2, 7.5 References, 9.1.2.3, Table 9.5-1, App 9B, 10.3.5.2, 10.3.5.3, 11.2.2, 11.2.3, 11.2.4, Tables 11.2-1 & 11.2-11, Figures 11.2-4 through 11.2-6, 11.3.3.1, 14.2.11, 14B.5.1.7, 16.2.2.1 [FS 99-004]	Revised key word references, corrected formatting, typing, and capitalization errors, updated reference lists and references in text, added a list of tables to App 9B, and replaced a non-standard drawing symbol.
KWI, 15.3.2 [FS 95-045]	Added references to the key word index and expanded the description of the containment reinforcing steel.
Ref Dwgs: 1.2, 1.4, 2.1, 2.3, 4.2, 5.3, 6.2, 7.2, 7.3, 7.7, 8.3, 8.4, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 9.11, 9.12, 9.13, 9.14, 10.2, 10.3, 11.2, 11.3, 15.1, 15.5; Section 9.9 [FS 99-006]	Corrected reference drawing descriptions, eliminated duplicate entries, and added companion Unit 2 drawings, where appropriate, in the reference drawing list and revised drawing reference numbers in the text.
1.4.16, 1.4.17, 4.2.7.1, 7.7.2, 9.13.1, 9.13.4.1, 11.3.3, 11.3.3.1, 11.3.3.3, 11.3.3.7, 11.3.3.8, 11.3.3.10, 11.3.3.13, 11.3.3.14, 11.3.4.1, 11.3.4.2, 11.3.4.3, 11.3.4.4, 11.3.4.7, 11.3.6, 11.3 RefDwgs, Tables 11.3-6 through 11.3-9 [FS 99-002]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the radiation monitoring system.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
1.4.17, 6.3.1.2, Table 9.4-7, 9.9, Tables 9.9-1&2, Figure 9.9-1, 9.10.4.17 & 18 [FS 98-014]	Incorporated technical and editorial corrections and clarifications related to the Service Water (SW) System: deleted singular SW flow rate through recirculation spray heat exchangers, corrected the description of the emergency service water pumps, and enhanced the description of the high-level intake canal.
1.4.39, 8.5, Table 8.5-1, 9.10.2.4, & 9.10.4.19 [FS 98-022]	Incorporated technical and editorial corrections and clarifications related to the Emergency Diesel Generator (EDG) System: improved the description of testing, enhanced the description of the auto tap changer configuration, corrected the EDG day tank capacity, rewrote the description of the undervoltage setpoint scheme, and improved the description of load sequencing.
1.4.59, Table 5.4-20, 6.1, Figures 6.1-1 & 2, 6.2.3.3, 6.3.1.3, 6.3.1.5.1, 6.3.1.5.2, 6.3 References, Tables 6.3-1 & 3, Figure 6.3-1, 13.1, Table 13.1-1, 13.5, 13.5.1, 13.5.1.1, 13.5.1.2, 13.5.1.3, 13.5.1.3.1, 13.5.1.3.2, 13.5.1.3.3, 13.5.1.3.4, 13.5.1.3.5, 13.5.2, 13.5 References, Tables 13.5-1 & 13.5-2 [FS 98-027]	Incorporated technical and editorial corrections and clarifications related to the Containment Spray (CS) System: improved the description of testing; designated historical information; corrected a cross-reference; corrected the figure depiction of the RWST, CS pumps, and spray headers; reflected the analyzed amount of time of system operation; enhanced the description of electrical cables; reworded RWST welding requirements; changed the RWST material description; clarified the capacity, heat tracing, and insulation of the chemical addition tank (CAT); resolved discrepancy regarding the manifold drain line; clarified description of electrical equipment testing; corrected rated pump flow; corrected pump motor insulation class; corrected nominal RWST operating temperature; clarified CAT pump horsepower rating; clarified pump operating temperature and test pressure description; clarified the description of check valves; and changed the depressurization time and subatmospheric peak pressure.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
1.4.68, 1.4.69, 9.1.2.2, 11.2.2, 11.2.3, 11.3.2.1, 11.3.2.2, 11.3.2.6, 11.3.2.9, 11.3.5.8, Tables 11.3-3 & 11.3-4, 11A, Table 11A-1 [FS 99-016]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the radiation protection system.
1.5, 4.3.1.2, 6.2.2.2.7, 10.2 RefDwgs, Figure 10.2-1, 10.3.1, 10.3.1.1, 10.3.1.2, 10.3.1.3, 10.3.3, 10.3 RefDwgs, 14.3.2 [FS 99-012]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the main steam system.
Table 2.1-4, 10.3.1.4, 10.3.5.2 [FS 96-063]	Added ethanolamine to the list of chemicals used for pH control.
2.2.1.1, 2.2.1.2, 2.3.1.2.2, Table 9.4-9, 9.12.9.2, 11.3.4.5, Table 11A-1 [FS 99-024]	Updated text, table, and figure cross references; corrected typographical errors; revised non-standard number and unit formats; and sorted a table in alpha-numeric order.
2.3.1.1, 2.3.1.2.1, 2.3.2, 2.3 Refs, Tables 2.3-1 through 2.3-4 [FS 95-038]	Updated the mean monthly discharge and flood discharge rates, added new references, and revised the descriptions of on-site and off-site wells.
3.2.1 [FS 96-054]	Removed the description of boron injection via the safety injection system.
3.5.2.3 [FS 97-008]	Revised the description of secondary neutron sources to reflect that they are optional in reload cores.
4.1.2.6, 4.2.7.1 [FS 96-059]	Removed references to monitoring containment leakage by monitoring containment humidity.
4.1.7.4, 4.1 Refs, Tables 4.1-14 & 4.1-15 [FS 99-018]	Updated reactor pressure vessel toughness data associated with Technical Specification Basis change.
Table 4.2-2, 9.1.2.6.8 [FS 97-005]	Revised the reactor coolant dissolved hydrogen guidelines to include startup, shutdown, and off-normal conditions.
4.3.3.1 [FS 98-006]	Modified the description of inservice inspection requirements on the reactor coolant pump flywheel. [10 CFR 50.90 License Amendment]
4.3.4.2 [FS 96-053]	Clarified the function of the PORV backup-air spare bottles.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Table 5.2-1, 5.3.1.3.1, 9.4.1.1, 9.4.4.7, 9.12.9.3, 9.13.4.2, 11.2.3.1.7 [FS 99-037]	Updated text cross references, corrected typographical errors, and improved grammatical usage.
Table 5.2-2 [FS 96-021]	Added the description of a new valve to containment penetration No. 24.
Table 5.3-2, 9.4.1.2, 9.4.3.2, Tables 9.4-2, 9.4-5, & 9.9-2, Figure 9.9-1, Table 10.3-4, Figure 10.3-11 [FS 98-030]	Updated the description of the Unit 1 chilled water system to reflect equipment replacement and changing the system's source of cooling water.
5.4.1.2 [FS 97-009]	Incorporated a description of the revised method of calculating core stored energy.
6.2.2.2.4 [FS 99-029]	Incorporated modifications to the safety injection system.
6.2.3.12, 6.2.3.13 [FS 99-020]	Added a description of the portable passive autocatalytic recombiner and its use.
Table 6.2-6, Table 6.3-2, & 14.5.5.2 [FS 96-030]	Improved consistency with the Technical Specifications' description of safety injection and recirculation spray loop leakage limits.
Figures 6.2-1 & 6.2-2 [FS 99-005]	Incorporated modifications to the Unit 2 safety injection system.
6.3.1.3 [FS 98-043]	Corrected typographical omission of a passage of recirculation spray pumps' cylindrical suction screens.
6.3.1.5.2 [FS 98-026]	Clarified the description of the initial testing of the recirculation spray system.
7.1, 7.1.1, 7.1.2, 7.2 Refs, 7.2.2.1.1, 7.2.2.1.4, 7.2.2.1.6, 7.2.2.4, 7.2.3.3, 7.2 RefDwgs, Tables 7.2-1 & 7.2-3, Figures 7.2-6, & 7.2-8 through 7.2-11, 7.5.1, 7.5.1.2, 7.5.1.3, 7.5.1.4.1, 7.5.1.4.2, 7.5.2.2, 7.5.2.3.2, 7.5.3.5, Tables 7.5-1 & 7.5-2, Figures 7.5-1, 7.5-2, 7.5-4, & 7.7-1, 10.3.5.3, Table 13.1-1 [FS 98-048]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the reactor protection system.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
7.3.2.6, 8.1, 9.2, 9.4, 9.4.4.5, 9.5, 9.9, 9A.3.2.2.1, 9C.1, 9C.1.1, 10.3.1, 10.3.1.2, 10.3.2, 10.3.4, 10.3.5, 10.3.5.3, 10.3.9, 11.2.3.2, & Table 11.2-11 [FS 99-015]	Incorporated editorial changes and corrections to typographical errors.
7.4.3.2 [FS 97-030]	Added new type of cable to the description of the source range nuclear instrument channels.
8.4, 8.5 [FS 99-010]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the emergency power system.
8.4.4, 8.4.5 [FS 98-029]	Added descriptions of concurrent power supplies to the new Unit 1 main control room Hathaway annunciator.
8.4.4, 8.4.5 [FS 99-009]	Adds a description of the concurrent electrical supplies to the main control room Hathaway annunciators.
8.5 [FS 98-031]	Clarified the EDG start/load acceptance time and power rating.
9.1.2.4, 9.1.2.4.1, 9.1.2.4.2, 9.1.2.4.3 [FS 96-050]	Clarified the description of operation of the reactor makeup control.
9.1.2.6.22 [FS 97-003]	Correct the description of chemical and volume control system piping operation an inspection.
Table 9.1-6 & 14.4.2.1 [FS 98-046]	Revised the description of the volume control tank rupture accident analysis.
9.2 & 10.3 [FS 93-22]	Identified equipment described in the UFSAR that is installed but no longer used.
9.3.3.1 [FS 98-017]	Removed non-combustible from the description of the radiant energy shield between the RHR pump motors.
9.4.1.1, 9.4.3.1, 9.4.3.2, 9.4.4.1, 9.4.4.3, 9.4.4.5, 9.4.5, Table 9.4-2 [FS 97-006]	Incorporate changes to the description and operation of the component cooling system.
9.4.3.1 [FS 98-002]	Revises the component cooling water chemistry chromate concentration and pH limits.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9.4.3.2 [FS 96-008]	Incorporated a revised description of the modified chiller alarms.
9.4.3.4 [FS 97-018]	Added a description of the charging pump seal cooling system modification to a once-through cooling system.
9.4.4.1 [FS 96-025]	Removed the description of automatic closure of the primary drain cooler component cooling return line.
Table 9.4-8 [FS 97-023]	Deleted the table description of the condensate makeup line check valve.
9.5.1, 9.12.5.5, 9.12.9.1, 9.12.9.2, 9.12.9.3, Table 9.12-1 [FS 96-012]	Updated the description of spent fuel handling and the requirements for cask handling in and around the spent fuel pool.
9.5.3.4 [FS 97-016]	Deleted the reference to an assumed value for fuel assembly offload rate.
Table 9.5-3 [FS 97-029]	Added description that power to the spent fuel pool cooling pumps is supplied from emergency buses.
9.9 & 9.10.4.17 [FS 98-041]	Provided grammatical and editorial corrections.
9.9.1.3, 9.10.4.13, 10.3.1.5, 10.3.5.1, 10.3.5.2, 10.3.5.3, 10.3.5.4, Table 13.5-2, 14B.5.1.7, Figure 14B-20 [FS 98-037]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the Auxiliary Feedwater System.
9.9.2 [FS 98-018]	Added the description of a temporary service water supply path to the component cooling heat exchangers. [10 CFR 50.90 License Amendment]
9.12.3.4, 11.3.4.1, 11.3 References [FS 97-042]	Incorporated the exemption form criticality monitoring in the fuel storage and handling areas. [10 CFR 70.14 Exemption]
9.12.4 & App. 9B.1 [FS 97-002]	Enhanced the description of heavy loads and their handling.
9.12.5.4 [FS 97-022]	Revised the refueling reassembly sequence to reflect current practice.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9.12.5.4 [FS 98-040]	Improved the refueling procedure reassembly sequence.
9.12.9, 9.12.9.2, 9.12.9.3 [FS 99-030]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the Surry ISFSI.
9A.1, 9A.2, 9A.3.1.2, 9A.3.1.3.2, 9A.3.1.4, 9A.3.1.5, 14.4.1.3.2, 14.4.1.3.2.1, 14.4.1.3.2.2, 14.4.1.3.2.3, Table 14.4-3 [FS 97-017]	Revised the fuel assembly drop discussions using a 42 inch drop in lieu of a 24 inch drop and corrected typographical errors.
9B.2.4.4 [FS 97-001]	Added the SFP transfer canal gate lift rig to the list of special lifting devices.
9C.1, 10.3.4.2, 10.3.4.3 [FS 99-014]	Incorporated technical and editorial corrections and clarifications resulting from the integration review of the circulating water system.
10.3.1.2 [FS 94-040]	Added a description of the new condensate return divert line to the steam generator blowdown heat exchangers.
10.3.1.4 [FS 98-036]	Updated the description of the secondary plant chemistry monitoring and control.
10.3.5.1 [FS 95-017]	Removed extraneous detail from the description of the steam generator feedwater pumps.
10.3.7.3, 10.3.7.4 [FS 96-058]	Corrected the description of the function and testing of the dc motor-driven oil pump.
10.3.12 [FS 97-021]	Clarified the description of the main steam trip valve Appendix R solenoid operated valves.
11.2.3, 11.2.3.1.8, Figure 11.2-4 [FS 97-041]	Revised the description of the RF liquid waste reverse osmosis system.
11.2.3.1.7, 11.2.4.1.4, Table 11.2-1 [FS 96-039]	Added a description of the new RF liquid waste reverse osmosis system and revised liquid waste handling descriptions.
11.2.3.1.8, Figure 11.2-4 [FS 99-017]	Clarified the operation of the liquid waste reverse osmosis and demineralizer system.
11.2.5.3.4 [FS 95-036]	Incorporated a revised description of the modified waste gas decay tank oxygen analyzer.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
11.3.4.3 [FS 96-007]	Corrected the nominal counting rates for limiting isotopes of the containment gas monitors.
11.3.5.1, 11.3.5.3, 11.3.5.5, 11.3.5.6, 11.3.5.7, 11.3.5.9 [FS 96-033]	Incorporated changes to the Radiological Environmental Monitoring Program
12.2.2.3, 12.2 References [FS 97-045]	Revised reactor operator training program references.
12.7 [FS 97-014]	Incorporated revised security plan references.
14.2.6, 14.2.6.1, 14.2.6.1.1, 14.2.6.1.2, 14.2.6.2, 14.2.6.2.1, 14.2.6.2.2, 14.2.6.2.3, 14.2.6.2.4, 14.2.6.2.5, & 14.2.6.3 [FS 95-041]	Revised the startup on an inactive loop accident analysis description.
14.2.11, 14.3.2, 14B.4.2, 14B.6, 14B.6.1, 14B.6.2, 14B Refs [FS 99-032]	Augmented the description of effects of piping system breaks outside containment with a transient analysis of a high-energy line break in the main steam valve house.
14.3.2 [FS 96-044]	Revised wording to clarify the main steam pipe break description.
14.5.5.3, 14.5 Refs [FS 99-036]	Incorporated the results of a sensitivity analysis performed to evaluate acceptable quantities of emergency core cooling system in conjunction with potentially unfiltered exhaust from the Auxiliary Building.
15.5.1.8 [FS 96-051]	Revised the description of containment electrical penetrations to address variations between manufacturers.
16, 16.1, 16.2, 16.2.1, 16.2.1.1, 16.2.1.2, 16.2.2, 16.2.2.1, 16.2.2.2, 16.2.2.3, Tables 16.2-1, 16.2-2, & 16.2-3 [FS 99-008]	Relocated requirements for plant operation and surveillance of systems to the Technical Requirements Manual (TRM). Explicitly incorporated the TRM into the UFSAR.
17.2.2.5 [FS 98-049]	Updated the qualification requirements for Oversight personnel.
17.2.16.2 [FS 98-051]	Incorporated a title change.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
Table 17.2-0 [FS 98-038]	Revised the description to indicate the both Innsbrook record vaults meet ANSI requirements.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
1.4, 6.1, 6.2, 6.3.1.5, 7.5.3.5, Tables 5.2-1&2, Tables 5.4-18, 19, & 20, Tables 6.2-2, 3, 4, 5, 6, 10, 11, 12, &13, Figs. 6.1-1 & 6.2-2 [FS 98-015]	Incorporated technical and editorial corrections and clarifications related to the Safety Injection System.
1.4.59, 5.3.3, 6.2.3, 6.3.1, 7.5.2.2, 11.3.3.10, Tables 6.3-1 & 3, Figs. 6.3-2, 3, & 5 [FS 98-019]	Incorporated technical and editorial corrections and clarifications related to the Recirculation Spray System.
2.2.1.1, Table 2.2-7, 2.5.3.2, 6.1, 6.2.2.1.2, Table 6.2-1, 6.2.3.12.1, 6.2.4.1.4, 6.2 References, 7.4.3.6, Figure 7.5-1, 8.3, 9.6, 9.8, 9.10, 9B.2.1, 9B.2.4.1, 9B.2.4.4, 9B.2.4.7, 9C, 11.2, Tables 11A-6, 7,9 & 10, Table 14.3-15, Table 14.5-11, 15.5.1.8 & Table 16.2-2 [FS 98-032]	Corrected references, typographical errors, and verb tense; clarified an abbreviated term and illegible text; and corrected format of numbers, upper/lower case usage, and text lists.
3.3.3.2.2, 3.5, App. 9A & Tables 3.3-1 & 9.12-1 [FS 97-043]	Increased the maximum fuel enrichment from 4.1 to 4.3 weight percent U-235. [10 CFR 50.90 License Amendment]
4.2.2.3.2 [FS 98-024]	Added a description of the removal of the steam generator channel head drain lines.
5.3.1 & 9.13 [FS 96-061]	Revised description of auxiliary ventilation and containment ventilation systems to reflect changes in these systems design and operation.
5.4 & Tables 5.4-17, 5.4-18, 5.4-19, 5.4-20, 6.2-11, 6.2-12 & 6.2-13 [FS 97-040]	Removed Containment concrete floor plugs and the Pressurizer cubicle roof plug.
6.2.2.1.1 & Table 6.2-2 [FS 96-047]	Updated the description of the Safety Injection control board indication.
6.2.2.1.3 [FS 96-027]	Changed to state that pressure-relieving devices discharge to the liquid waste disposal system.

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Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
6.2.2.2.1 [FS 97-039]	Clarified the tanks to which the accumulators may be drained.
6.2.2.2.4 & 6.2 References [FS 96-040]	Revised description of safety injection valves MOV-1890A/B and MOV-2890A/B to reflect addition of pressure equalization line. Added Reference to NRC Generic Letter 95-07.
6.2.3.3 [FS 98-007]	Changed containment spray and minimum recirculation spray pH ranges.
6.2.3.10, 6.2.4.1.4, 6.3.1.4, 15.5.1.3, 15.5.1.12 & Figure 15.5-1 [FS 97-007]	Revised the description of the Containment ground water control equipment, ground water protection methods, and liquid level alarms.
6.2.3.12 [FS 98-009]	Changed post-LOCA containment hydrogen concentration for new initial conditions.
6.2.3.12.1 [FS 96-052]	Revised valve stroke time for isolation of the volume control tank.
6.2.4.1.3, 6.2.4.1.4 [FS 96-046]	Changed to describe SI system testing as a series of tests during refueling, and to state that accumulator discharge check valves are tested during refueling.
6.3.1.2.1 [FS 97-004]	Removed the statement that sodium hydroxide solution was only present in the containment spray system during system operation.
6.3.1.4, Tables 6.2-12 & 13 [FS 98-021]	Revised description of NPSH to the recirculation spray pumps to include impact several minor phenomena with impact on post-LOCA sump level.
7.2.3.2.7 [FS 98-010]	Clarified the description of the AMSAC C-20 setpoint.
8.6 [FS 93-33]	Clarified preventive maintenance program requirements by deleting the statement which implies that insulation testing is performed on all electrical equipment.
9.9.1.2 & 9.9.3 [FS 96-011]	Updated the description of Emergency Service Water Pump, 1-SW-P-1A, to indicate the removal of the electric motor drive.

Click on Change Package Number Highlighted in Red to View Change Request.

Revision 30—09/01/98 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
9.9.1.3 & 9.10.4.18 [FS 96-055]	Clarified the description of actions taken prior to the arrival of a hurricane onsite and corrected the classification of the circulating water valves as safety related.
9.9.2 & Table 2.1-4 [FS 96-036]	Updated the description of service water chemical treatment and updated the list of onsite chemicals.
9.10.4.16 [FS 98-025]	Updated the description of Emergency Service Water Pump, 1-SW-P-1A, to indicate the removal of the electric motor drive.
10.3.1.2 [FS 98-013]	Removed the statement that the Main Steam Safety Valves temperature flow probes are required for compliance with Regulatory Guide 1.97.
10.3.5.3, 14.2.11.1.3 [FS 96-041]	Relocated the stated numerical value of auxiliary feedwater (AFW) flowrate from the section describing the AFW system to the section where event analysis is described.
11.2.2, 11.2.5, & Tbl. 11.2-11 [FS 97-035]	Modified descriptions of process vent system to remove implied wind speed limitations for system operation.
12.1.1.2.1, 17.2, & KWI [FS 98-003]	Updated Station Manager title to Site Vice President and Assistant Station Managers titles to Manager-Station O&M and Manager-Station S&L. [10 CFR 50.90 License Amendment]
14.2.7 [FS 98-11]	Updated the description of the feedwater temperature reduction event.
14.3.1 [FS 97-034]	Revised the steam generator tube rupture accident analysis to reflect the evaluation of the effect of steam generator tube bundle uncovery on radioiodine release.
17.2.1.2.B.1 [FS 98-028]	Identified the Site Vice President as the station position fulfilling the Plant Manager position identified in the ISFSI Technical Specifications.

Click on Change Package Number Highlighted in Red to View Change Request.

Revision 30—09/01/98 (continued)

Section	Changes Made under the provisions of 10 CFR 50.59 except where indicated in brackets.
17.2.3 [FS 98-016]	Revised to reflect replacement of A/E Instruction Manual with an Engineering Standard.

Revision 29—3/1998

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 [FS 97-026]	Deleted reference to Nuclear Operations Department Standards and replaced with Nuclear Business Unit Standard. Added position of Project Manager (Configuration Management).
17.2.1.1 and 17.2.1.2 [FS 98-004]	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 [FS 98-005]	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 [FS 97-038]	Clarified Quality Inspection Coordinator qualifications.
17.2.17, Tables 17.2-2 and 17.2-3 [FS 97-048]	Added Generic Letter 88-18 commitment regarding storage of quality assurance records on optical disk media.
Table 17.2.0 [FS 96-049]	Added provision for storage of quality assurance records in an approved offsite facility.
Table 17.2-0 [FS 97-044]	Provided an additional alternative to ANSI/ANS 3.1.
Tables 17.2-2 and 17.2-3 [FS 98-012]	Clarified the description of onsite and offsite nuclear safety review committees.

Click on Change Package Number Highlighted in Red to View Change Request.

Revision 28—02/11/98

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.
5.5 [FS 95-039]	Modified leak rate testing discussion to include 10 CFR 50, Appendix J, Option B performance-based leak rate testing rulemaking.
7.5.1.1 [FS 96-045]	Changed low-low pressurizer SI manual block setpoint from 2000 psia to 2000 psig.
9.6 [FS 95-043]	• Added introduction and revised subsection headings • Clarified the 3-hour requirement for PASS samples • Deleted references to sampling abandoned flash evaporators • Noted that condenser tube leakage monitoring may be by means other than chlorides monitoring • Deleted superfluous HRSS equipment brand names • Clarified operation of the HRSS waste tank • Clarified remote indication of HRSS parameters • Clarified SS valve isolation on an SI signal • Clarified environmental qualification of HRSS containment sump pump
9.10 & 17.2 [FS 96-042]	Deleted references to the Training Center records vault and associated features.
9.12 [FS 96-022 R1]	Updated to reflect current refueling practices.
14.5.2 [FS 96-057]	Updated to reflect reanalysis of small break loss of coolant accident (SBLOCA), including Tables 14.5-14 thru 16, and Figures 14.5-36, and 38 thru 68.

Click on Change Package Number Highlighted in Red to View Change Request.

Revision 28—02/11/98 (continued)

Section	Changes
Table 17.2-3 [FS 97-037]	Corrected typos.
All (no change bars) [FS 97-012] [FS 97-013]	• Consolidated 7 volumes to 4 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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FOREWORD

In the May 9, 1980, edition of the Federal Register (45 FR 30614), the NRC published a Final Rule requiring all licensed reactors to periodically update their Final Safety Analysis Reports. The purpose of the Rule was to establish baseline reference documents to be used in recurring safety analyses by licensees, the NRC, or other interested parties.

The "Supplementary Information" section of the Final Rule notice stated that submittal of an updated FSAR does not constitute a licensing action, but is only intended to provide information. The NRC Staff may review the material submitted, but does not intend to formally approve it. The NRC intends to use the updated FSAR in the future for appropriate applications such as reporting of deviations from conditions stated in the UFSAR.

The Rule became effective July 22, 1980, and established the following basic requirements for Vepco's nuclear power stations:

- A complete Updated FSAR (UFSAR) was required as the initial submittal
- The UFSAR was to reflect information and analyses submitted to the NRC by Vepco, or prepared by Vepco pursuant to NRC requirements, since submission of the original FSAR (or, as appropriate, the last UFSAR)
- NOTE: The "Supplementary Information" section of the Final Rule notice clarifies this requirement by stating that no analyses other than those already prepared or submitted pursuant to NRC requirements are required because of the Rule: however, FSAR analyses that are known to be nonconservative based on new analyses must be updated. Other new analyses not previously included in the FSAR may be incorporated in the UFSAR at the option of the licensee. Furthermore, specialized studies provided in the original FSAR (e.g., seismology, meteorology) should include the latest information developed in response to NRC requirements when these studies are transferred to the UFSAR, and program type material referenced by the UFSAR (e.g., security plan, emergency plan, QA Program) should be referenced accurately. In addition, the level of detail in the UFSAR should be at least the same as but not necessarily greater than that provided in the original FSAR. Information on design changes should not be included until the changes are approved for use and operable.
- The initial UFSAR was due no later than July 22, 1982
- The initial UFSAR was required to be up-to-date as of a maximum of six months prior to the date of filing (January 31, 1982, was chosen by Vepco as the cutoff date)
- Subsequent updates are required at least annually and must reflect changes made up to a maximum of six months prior to the date of filing

- One original and 12 copies of the initial UFSAR and subsequent updates are required to be submitted to the NRC
- The updates are required to be certified by a duly authorized officer of Vepco
- The initial UFSAR should be a clean document without change bars and revision numbers. The subsequent annual revisions should include change indicators and page change identification

In response to the foregoing FSAR update requirements, Vepco and NUS Corporation executed an Agreement for FSAR update services in April 1981, and NUS began work on the project immediately. The project was accomplished in four basic phases:

1. Document Retrieval
2. Change Package Development
3. FSAR Revision
4. Printing

- During the initial document retrieval phase in the Spring of 1981, NUS engineers researched the licensing correspondence files at Vepco offices in Richmond and the design change files at the plant sites. All documents potentially affecting the FSAR were copied and taken to the NUS home office.

  Following the initial document review phase, NUS engineers periodically visited Richmond and the plant sites to acquire newly developed information. NUS was also placed on the distribution list for Vepco/NRC correspondence.

  The document retrieval phase continued until early 1982, at which time sufficient information was available to document changes up to the January 31, 1982, cutoff date.

- The documentation retrieved during the first phase was reviewed in detail during the second phase to determine the particular “two-digit” section or sections of the FSAR that should be revised, i.e., 1.1, 1.2, 1.3, etc. Copies of the document (or of the particular pages of the document that were of interest) were placed in separate files corresponding to the two-digit sections. These files were defined as “change packages.” Development of the change packages continued in parallel with the document retrieval phase, with new information being reviewed and assigned to appropriate change packages. The final change packages became a work product delivered to Vepco on conclusion of the update effort and are available for tracing the sources of changes to the original FSARs
- After development of the initial change packages the material filed therein was used in the third phase of the project to make the actual FSAR revisions. The revision process continued in parallel with the continuing development of the change packages.

The revision phase for most FSAR chapters included two cycles of Vepco review and comment. These comments became part of the change packages and were used in the development of the final draft UFSAR.

- Vepco reviewed and approved the final draft chapters of the UFSARs for printing. The printer prepared approximately 125 sets of the UFSARs. NUS delivered one original and 12 copies of the UFSAR directly to the NRC on July 20, 1982, for Surry and July 22, 1982, for North Anna. The original UFSARs were transmitted under cover letter supplied to NUS by Vepco (see the attachment to this foreword). The remaining copies were shipped to Richmond and the plant sites.

The following work products were also delivered to Vepco by NUS and are available for use in producing subsequent annual updates:

- Printer's copy of the UFSARs
- Annotated FSARs (2 copies)
- Final Change Packages (2 sets)
- Plant Drawing Indexes
- Key Word Indexes
- IBM Displaywriter Floppy Discs (2 sets each of the FSAR, Annotated FSAR, and Key Word Index)
- Update Procedures
- Introductory Volumes to the FSARs including this foreword, a list of effective pages, the key word indexes, the plant drawing indexes and a record of changes

Further 10 CFR 50.71(e) rulemaking pertaining to UFSAR requirements for nuclear power stations was promulgated as recently as July 29, 1996 [61 FR 39278]. In particular, the annual revision requirement has been relaxed to six months after each refueling outage provided the interval between successive updates does not exceed 24 months.

The NRC issued a letter to licensees dated October 9, 1996, entitled Request for Information Pursuant to 10 CFR 50.54(f) Regarding Adequacy and Availability of Design Basis Information. The letter required submittal of information that will provide the NRC added confidence and assurance that Virginia Electric and Power Company's nuclear plants are operated and maintained within their design bases and that any deviations are reconciled in a timely manner. The Company's response (Serial No. 96-535) dated February 7, 1997, described previously conducted programmatic reviews of the Updated Final Safety Analysis Report (UFSAR). The 1996 UFSAR Project Team examined the existing administrative controls for maintaining UFSAR content and usability. Process enhancements to simplify administrative

controls, to increase accountability for technical content, and to improve UFSAR accessibility and usability are promoted by conversion to electronic media.

Under separate cover (Serial No. 97-108) dated May 23, 1997, Virginia Electric and Power Company notified the NRC about its project to address potential regulatory concerns involving the current design and licensing bases for the Surry and North Anna Power Stations. This project scope exceeds the level of scrutiny normally applied to the current licensing basis through routine surveillance and quality assurance activities. In order to facilitate thorough review, exhaustive validation, and a rigorous corrective action process, the recommended conversion to electronic media was implemented in Revision 28 of the Surry UFSAR. The entire text of the UFSAR was entered into electronic media. The conversion was accomplished by a process of augmenting recent UFSAR revision word processing packages with "scanned-in" optical character recognition documents for the balance of text, tables, and figures not previously stored electronically. A 100-percent word-for-word proofing was conducted by comparing a printed version of the entire electronic document with current controlled distribution copies. Thus, the electronic UFSAR was conveyed into service as the quality assurance document of record without introducing any substantive, technical, or non-editorial changes.

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

R. H. LEASBURG
VICE PRESIDENT
NUCLEAR OPERATIONS

July 16, 1982

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Serial No. 424
NO/GSS:acm
Docket Nos. 50-280
50-281
License Nos. DPR-32
DPR-37

Gentlemen:

UPDATED FINAL SAFETY ANALYSIS REPORT
SURRY POWER STATION UNITS NO. 1 AND 2

Pursuant to 10 CFR 50.71(e), the Virginia Electric and Power Company hereby submits the Updated Final Safety Analysis Report (UFSAR) for the Surry Power Station Units No. 1 and 2. One signed original and twelve additional copies of the UFSAR are enclosed.

The UFSAR contains all the necessary changes since the submission of the original FSAR. This UFSAR is up to date as of February 1, 1982 which is within six months prior to the date of this letter.

The enclosed UFSAR is a completely new document without the pages from the original FSAR. It is not a revision of the original FSAR but retains all the applicable information from the original FSAR.

This initial UFSAR is a "clean" document without change bars and revision numbers. The subsequent revisions will have the change indicator and change identification.

Future revisions of the UFSAR will be submitted at least annually and will reflect all the changes up to six months prior to the date of submission.

As a duly authorized officer of Vepco, I hereby certify that the information given in the enclosed UFSAR accurately presents changes made since the previous submittal, necessary to reflect information and analyses submitted to the Commission or prepared pursuant to Commission requirement.

Very truly yours,

R. H. Leasburg

Enclosures:

cc: Mr. James P. O'Reilly (w/o enclosures)
Regional Administrator
Region II

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4.2-1	4.2-44	Revision 52—Updated Online 09/30/20
4.3-1	4.3-22	Revision 52—Updated Online 09/30/20
4.4-1	4.4-10	Revision 52—Updated Online 09/30/20

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5.3-1	5.3-20	Revision 52—Updated Online 09/30/20
5.4-1	5.4-54	Revision 52—Updated Online 09/30/20
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7.2-1	7.2-52	Revision 52—Updated Online 09/30/20
7.3-1	7.3-16	Revision 52—Updated Online 09/30/20
7.4-1	7.4-26	Revision 52—Updated Online 09/30/20
7.5-1	7.5-34	Revision 52—Updated Online 09/30/20
7.6-1	7.6-6	Revision 52—Updated Online 09/30/20
7.7-1	7.7-10	Revision 52—Updated Online 09/30/20
7.8-1	7.8-4	Revision 52—Updated Online 09/30/20
7.9-1	7.9-4	Revision 52—Updated Online 09/30/20
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8.1-1	8.1-2	Revision 52—Updated Online 09/30/20
8.2-1	8.2-4	Revision 52—Updated Online 09/30/20
8.3-1	8.3-6	Revision 52—Updated Online 09/30/20
8.4-1	8.4-10	Revision 52—Updated Online 09/30/20
8.5-1	8.5-10	Revision 52—Updated Online 09/30/20
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9.2-1	9.2-20	Revision 52—Updated Online 09/30/20
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9.13-1	9.13-18	Revision 52—Updated Online 09/30/20
9.14-1	9.14-6	Revision 52—Updated Online 09/30/20
9A-i	9A-ii	Revision 52—Updated Online 09/30/20
9A-1	9A-22	Revision 52—Updated Online 09/30/20
9B-i	9B-ii	Revision 52—Updated Online 09/30/20
9B-1	9B-16	Revision 52—Updated Online 09/30/20
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9C-1	9C-6	Revision 52—Updated Online 09/30/20

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13.3-1	13.3-10	Revision 52—Updated Online 09/30/20
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14.5-1	14.5-136	Revision 52—Updated Online 09/30/20
14A-i	14A-ii	Revision 52—Updated Online 09/30/20
14A-1	14A-4	Revision 52—Updated Online 09/30/20
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15A-i	15A-ii	Revision 52—Updated Online 09/30/20
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