Final Safety Evaluation Report for Combined Licenses for William States Lee III Nuclear Station Units 1 and 2

U. S. Nuclear Regulatory Commission
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ABSTRACT

This final safety evaluation report[1] (FSER) documents the U.S. Nuclear Regulatory Commission (NRC) staff's technical review of the combined license (COL) application submitted by the applicant for the William States Lee III Nuclear Station (WLS) Units 1 and 2. The applicant, Duke Energy Carolinas, LLC (DEC or the applicant), is a wholly owned subsidiary of Duke Energy Corporation.

By letter dated December 12, 2007, the applicant submitted its application to the NRC for COLs for two AP1000 advanced passive pressurized-water reactors pursuant to the requirements of Sections 103 and 185(b) of the Atomic Energy Act of 1954, as amended; Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, "Licenses, certifications and approvals for nuclear power plants," and the associated material licenses under 10 CFR Part 30, "Rules of general applicability to domestic licensing of byproduct material"; 10 CFR Part 40, "Domestic licensing of source material"; and 10 CFR Part 70, "Domestic licensing of special nuclear material." These reactors are identified as WLS Units 1 and 2, and would be located at a greenfield site in Cherokee County, South Carolina. The applicant submitted its final update to the COL application, Revision 11, on April 11, 2016.

The application incorporated by reference 10 CFR Part 52, Appendix D, "Design Certification Rule for the AP1000 Design," including the AP1000 Design Certification Document (DCD) Revision 19. The results of the NRC staff's evaluation of the AP1000 DCD are documented in NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," and its supplements.

This FSER presents the results of the staff's review of information submitted in conjunction with the COL application, except those matters resolved as part of the referenced design certification rule. Appendix A to this FSER identifies certain license conditions and inspections, tests, analyses and acceptance criteria (ITAAC) that the staff recommends the Commission impose, should COLs be issued to the applicant. In addition to the ITAAC in Appendix A, the ITAAC found in the AP1000 DCD Revision 19 Tier 1 material will also be incorporated into the COLs, should COLs be issued to the applicant.

[1] This FSER documents the NRC staff's position on all safety issues associated with the combined license application. The Advisory Committee on Reactor Safeguards (ACRS) independently reviewed those aspects of the application that concern safety, as well as the advanced safety evaluation report without open items (an earlier version of this document), and provided the results of its review to the Commission in reports dated December 14, 2015 and April 18, 2016. These reports are included as Appendix F to this FSER.

The staff's review[2] of the application, as documented in this FSER, supports the following conclusions with respect to the safety aspects of the COL application: 1) the applicable standards and requirements of the Atomic Energy Act and Commission regulations have been met; 2) required notifications to other agencies or bodies have been duly made; 3) there is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the Atomic Energy Act, and the Commission's regulations; 4) the applicant is technically and financially qualified to engage in the activities authorized; and 5) issuance of the license will not be inimical to the common defense and security or to the health and safety of the public.

[2] An environmental review was also performed of the COL application, and its evaluation and conclusions are documented in NUREG-2111, "Final Environmental Impact Statement for Combined Licenses for William States Lee III Nuclear Station Units 1 and 2," dated December 2013.

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The chapter and section layout of this FSER is consistent with the format of (1) NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)"; (2) Regulatory Guide (RG) 1.206, "Combined License Applications for Nuclear Power Plants"; and (3) the applicant's final safety analysis report (FSAR). Where applicable, references to other regulatory actions (e.g., design certifications) are included in the text of the safety evaluation report (SER).

APPENDICES

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EXECUTIVE SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52 include requirements for licensing new nuclear power plants.[3] These regulations include the NRC's requirements for design certification and combined license (COL) applications. The COL process (10 CFR Part 52, Subpart C, "Combined Licenses") allows an applicant to seek authorization to construct and operate a new nuclear power plant.

This FSER describes the results of a review by the NRC staff of a COL application submitted for two new reactors to be located at the William States Lee III Nuclear Station (WLS) Units 1 and 2 site. The applicant is Duke Energy Carolinas, LLC (DEC). The staff's review was to determine the applicant's compliance with the requirements of Subpart C of 10 CFR Part 52, as well as the applicable requirements under 10 CFR Parts 30, 40, and 70 governing the possession and use of source, byproduct and special nuclear materials. This FSER identifies the staff's conclusions with respect to the COL safety review.

The NRC regulations in 10 CFR Part 51, "Environmental protection regulations for domestic licensing and related regulatory functions," also require an applicant to submit an environmental report. The NRC reviews the environmental report as part of the Agency's responsibilities under the National Environmental Policy Act of 1969, as amended. The NRC presents the results of that review in a final environmental impact statement (FEIS), which is a report separate from this FSER. The staff's FEIS, NUREG-2111, "Final Environmental Impact Statement for Combined Licenses (COLs) for William States Lee II Nuclear Station Units 1 and 2," was issued in December 2013, and can be accessed through the Agencywide Documents Access and Management System (ADAMS) at Accession Nos. ML13340A005, ML13340A006, and ML13340A007.[4]

[3] Applicants may also choose to seek a construction permit (CP) and operating license in accordance with 10 CFR Part 50, "Domestic licensing of production and utilization facilities," instead of using the 10 CFR Part 52 process.

[4] The Agencywide Documents Access and Management System (ADAMS) is the NRC's information system that provides access to all image and text documents that the NRC has made public since November 1, 1999, as well as bibliographic records (some with abstracts and full text) that the NRC made public before November 1999. Documents available to the public may be accessed via the Internet at http://www.nrc.gov/reading-rm/adams.html#web-based-adams. Documents may also be viewed by visiting the NRC's Public Document Room at One White Flint North, 11555 Rockville Pike, Rockville, Maryland. Telephone assistance for using web-based ADAMS is available at (800) 397-4209 between 8:30 a.m. and 4:15 p.m., Eastern Time, Monday through Friday, except Federal holidays. The staff is also making this FSER available on the NRC's new reactor licensing public web site at http://www.nrc.gov/reactors/new-reactors/col/levy/documents.html.

By letter dated December 12, 2007, the applicant submitted its initial application to the NRC for COLs for two AP1000 advanced passive pressurized-water reactors (PWRs) (ADAMS Accession No. ML073510494) to be located at the WLS site. The application identified the two units as WLS Units 1 and 2. The WLS site is located in Cherokee County, South Carolina, approximately 35 miles southwest of Charlotte, North Carolina, approximately 25 miles northeast of Spartanburg, South Carolina, and approximately 7.5 miles southeast of Gaffney, South Carolina.

The application incorporated by reference 10 CFR Part 52, Appendix D, "Design Certification Rule for the AP1000 Design," including the AP1000 Design Certification Document (DCD) Revision 19. The results of the NRC staff's evaluation of the AP1000 DCD are documented in NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," and its supplements. The applicant submitted its final update to the COL application, Revision 11, on April 11, 2016.

Appendix A to this FSER identifies certain license conditions, and inspections, tests, analyses and acceptance criteria (ITAAC) that the staff recommends the Commission impose, should COLs be issued to the applicant. In addition to the ITAAC in Appendix A, the ITAAC found in the AP1000 DCD Revision 19 Tier 1 material will also be incorporated into the COLs should COLs be issued to the applicant.

Inspections and audits conducted by the NRC have verified, where appropriate, the conclusions in this FSER. The inspections focused on selected information in the COL application and its references. The FSER identifies applicable inspection reports as reference documents.

The NRC's Advisory Committee on Reactor Safeguards (ACRS) also reviewed the bases for the conclusions in this report. The ACRS independently reviewed those aspects of the application that concern safety, as well as the advanced safety evaluation report without open items (an earlier version of this document), and provided the results of its review to the Commission in a report dated December 14, 2015. Appendix F includes a copy of this report by the ACRS on the COL application, as required by 10 CFR 52.87, "Referral to the Advisory Committee on Reactor Safeguards (ACRS)."

ABBREVIATIONS

χ/Q	atmospheric dispersion
A2LA	American Association for Laboratory Accreditation
AB	annex building
ac	alternating current
ACI	American Concrete Institute
ACP	access control point
ACRS	Advisory Committee on Reactor Safeguards
ADAMS	Agencywide Documents Access and Management System
ADS	automatic depressurization system
AE	architect-engineer
AEA	Atomic Energy Act of 1954
AFFF	aqueous film forming foam
AFUDC	allowance for funds used during construction
AHPS	Advanced Hydrologic Prediction Service
ALARA	as low as is reasonable achievable
ALI	annual limit on intake
ALWR	advanced light-water reactor
AMP	amperes
ANI	American Nuclear Insurers
ANS	Alert and Notification Systems
ANS	American Nuclear Society
ANSI	American National Standards Institute
ANSS	Advanced National Seismic System
AOO	anticipated operational occurrence
AOV	air-operated valve
ASA	Applicable Safety Analyses
ASCE	American Society of Civil Engineers
ASE	advanced safety evaluation
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATE	advisory to evacuate
ATWS	anticipated transients without scram
AWWA	American Water Works Association
B&PV	Boiler and Pressure Vessel (ASME BPV Code)
BDBE	beyond-design basis event
BE	best estimate

BL	Bulletin
BLN	Bellefonte Nuclear Station
BPV	Boiler & Pressure Vessel
BTP	Branch Technical Position
BWR	boiling-water reactor
C	Celsius
C&C	command & control
CAS	central alarm station
CAV	cumulative absolute velocity
CCS	component cooling water system
CDF	core damage frequency
CDI	conceptual design information
CDM	certified design material
CDRS	control rod drive system
CEM	Coastal Engineering Manual
CFBC	Cross Florida Barge Canal
CFD	computational fluid dynamics
cfm	cubic feet per minute
CFR	*Code of Federal Regulations*
cfs	cubic feet per second
cGy	centiGray
CLSM	controlled low strength material
cm	centimeters
CMT	core makeup tank
COL	combined license
CP	construction permit
CR	control room
CR3	Crystal River Unit 3
CRD	control rod drive
CRDM	control rod drive mechanism
CRDS	control rod drive system
CREC	Crystal River Energy Complex
CRNP	Crystal River Nuclear Plant
CRR	cyclic resistance ratio
CS	containment system
CS	core supports
CS	critical system
CSA	control support area
CSC	Coastal Services Center

CSDRS	certified seismic design response spectra
CTA	critical target area
CVCS	chemical and volume control system
CVS	chemical and volume control system
CWS	circulating water system
DAC	derived air concentration
DAS	Diverse Actuation System
DBA	design-basis accident
DBE	design-basis event
DBT	design-basis threat
dc	direct current
DC	design certification
DCA	design certification amendment
DCD	design control document
DCP	Design Change Package
DCRA	design-centered review approach
DE	deaggregation earthquakes
DEI	dose equivalent iodine
DEM	digital elevation model
DEM	Division of Emergency Management
DEP	Departure
DF	design factor
DG	diesel generator
DHBRC	Department of Health, Bureau of Radiation Control
DHEC	Department of Health and Environmental Control
DHS	Department of Homeland Security
DNBR	departure from nucleate boiling ratio
DOE	Department of Energy
DOT	Department of Transportation
D-RAP	Design Reliability Assurance Program
DTS	demineralized water treatment system
DVI	direct vessel injection
DWS	demineralized water system
EAB	exclusion area boundary
EAL	emergency action level
EAS	Emergency Alert System
EC	Emergency Coordinator
ECC-GC	extended continental crust Gulf Coast

ECCS	emergency core cooling system
ECL	effective concentration limit
ED	Emergency Director
EDMG	Extensive Damage Mitigation Guidelines
EIA	Energy Information Agency
EIS	Environmental Impact Statement
ENC	Emergency News Center
ENS	Emergency Notification System
EOC	emergency operation center
EOF	emergency operations facility
EOP	emergency operating procedure
EOP	emergency operating plan
EP	Emergency Plan
EP	emergency planning
EPA	Environmental Protection Agency
EPAct	Energy Policy Act of 2005
EPC	engineering, procurement, and construction
EPDM	ethylene propylene diene monomer
EPIP	emergency plan implementing procedure
EP-ITAAC	emergency planning-inspections, tests, analyses, and acceptance criteria
EPRI	Electric Power Research Institute
EPZ	emergency planning zone
EQ	environmental qualification
EQL	equivalent linear
EQMEL	Environmental Qualification Master Equipment List
ERDS	emergency response data system
ERF	emergency response facility
ERM	Eastern rift margin
ERO	emergency response officer
ERO	Emergency Response Organization
ERT	emergency response team
ESATCOM	Emergency Satellite Communications System
ESF	engineered safety feature
ESFAS	engineered safety features actuation system
ESP	Early Site Permit
ETE	evacuation time estimate
ETS	Emergency Telephone System
F	Fahrenheit
FAC	flow-accelerated corrosion

FBI	Federal Bureau of Investigation
FDLE	Department of Law Enforcement
FEIS	final environmental impact statement
FEM	Finite Element Model
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FFD	fitness for duty
FHA	Fuel Handling Accident
FIRS	foundation input response spectra
FIV	flow induced vibration
FMCRD	fine motion control rod drive
FMEA	failure mode and effects analysis
fps	feet per second
FPS	fire protection system
FPSC	Florida Public Service Commission
FR	*Federal Register*
FRCC	Florida Reliability Coordinating Council
FRS	floor response spectra
FS	factor of safety
FSAR	final safety analysis report
FSER	final safety evaluation report
ft	feet
GALL	Generic Aging Lessons Learned
GCSZ	Gulf Coastal Source Zones
GDC	General Design Criteria (Criterion)
GE	General Emergency
GG&S	Geotechnical, Geological, and Seismological
GL	Generic Letter
GMRS	ground motion response spectra
gpm	gallons per minute
GSI	Generic Safety Issue
GSI	geologic strength index
GSU	generator step-up
GTS	generic technical specification
GWMS	gaseous waste management system
HCM	Highway Capacity Manual
HCLPF	high confidence in low probability of failure
HEPA	high efficiency particulate air

HFE	human factors engineering
HP	health physics
HPN	Health Physics Network
HPS	Health Physics Society
hr	hour
HRA	human reliability analysis
HRHF	hard rock high frequency
HRTS	Hot Ringdown Telephone System
HSI	human-system interface
HV	high voltage
HVAC	heating, ventilation, and air conditioning
HX	heat exchanger
Hz	Hertz
HZP	Hot Zero Power
I&C	instrumentation and control
IBC	International Building Code
ICMO	interim compensatory order
IDLH	immediate danger to life and health
IDS	1E dc and uninterruptible power supply system
IEEE	Institute of Electrical and Electronic Engineers
IFR	Interim Findings Report
IGSCC	intergranular stress corrosion cracking
IHP	integrated head package
IIS	incore instrumentation system
ILAC	International Laboratory Accreditation Cooperation
in	inch
INPO	Institute of Nuclear Power Operations
IRWST	in-containment refueling water storage tank
ISA	independent safety assessment
ISC	International Seismological Centre
ISG	Interim Staff Guidance
ISI	inservice inspection
ISL	Information Systems Laboratory, Inc.
IST	inservice testing
ITAAC	inspections, tests, analyses, and acceptance criteria
ITP	Initial Test Program
JOG	Joint Owners Group
JTWG	Joint Test Working Group

kg/m^3	kilogram per cubic meter
kg/yr	kilograms per year
km	kilometers
kPa	kilopascal
kV	kilovolt
kWe	kilowatt electric
LAN	Local Area Network
lb/ft^2	pounds per square foot
LB	lower bound
LBB	leak-before-break
LCCWS	low capacity chilled water subsystem
LCD	Local Climatological Data
LCO	limiting condition for operation
LEFM	Leading Flow Edge Meter
LLB	Lower LB case
LLEA	local law enforcement agency
LLHS	light load handling system
LLNL	Lawrence Livermore National Laboratory
LLRW	low-level radioactive waste
LMA	left margin annotation
LNP	Levy Nuclear Plant
LOA	letter of agreement
LOAC	Loss of AC Power to Plant Auxiliaries
LOCA	loss-of-coolant accident
LOLA	loss of large area
LOOP	loss of offsite power
LPZ	low population zone
LRF	large release frequency
LSS	low strategic significance
LRA	locked rotor accident
LTOP	low-temperature overpressure protection
LWA	Limited Work Authorization
LWMS	liquid waste management system
LWR	light-water reactor
M	magnitude
m	meter
m/s	meters per second

m^3/s	cubic meters per second
Ma	million years ago
MAAP	Modular Accident Analysis Program
m_b	body-wave magnitude
Mbtu/hr	one million British thermal units/hour
MC&A	material control and accounting
MCL	Management Counterpart Link
MCR	main control room
MCRE	main control room envelope
M_d	duration magnitude
MEI	maximally exposed individual
MERL	Mobile Emergency Radiological Laboratory
MESE	Mesozoic and younger extended prior
mgd	million gallons per day
mGy	milliGray
mi	miles
MIDC-A	Midcontinent A
MIT	Massachusetts Institute of Technology
M_L	local magnitude
mld	million liters per day
MLU	Multi-Layer Unsteady
mm	millimeters
Mmax	maximum magnitude
MOA	Memorandum of Agreement
MOM	maximum envelope of water
MOU	Memorandum of Understanding
MOV	motor-operated valve
MOX	mixed-oxide
mph	miles per hour
MR	Maintenance Rule
MRA	Mutual Recognition Arrangement
mrad	millirad
mrem	millirem
MSD	Mitigative Strategies Description
MSLB	Main Steam Line Break
MSSS	main steam supply system
MST	Mitigative Strategies Table
mSv	milliSievert
MT	magnetic particle
MW	megawatts

MWe	megawatts electric
MWt	megawatts thermal
N	North
NCDC	National Climatic Data Center
NDQAM	Nuclear Development Quality Assurance Manual
NEI	Nuclear Energy Institute
NFPA	National Fire Protection Association
NGS	National Geodetic Survey
NI	nuclear island
NIRMA	Nuclear Information and Records Management Association
NIST	National Institute of Standards and Technology
NMFS	New Madrid Fault System
NNS	non-nuclear safety
NOAA	National Oceanic and Atmospheric Administration
NOUE	Notification of Unusual Event
NOV	Notice of Violation
NPSH	net positive suction head
NRC	U.S. Nuclear Regulatory Commission
NRCOC	NRC Headquarters Operations Center
NRF	National Response Framework
NRO	Office of New Reactors
NS	nonseismic
NSM	Nuclear Shift Manager
NSSS	nuclear steam system supplier
NSW	nonlinear shallow-water
NTTF	Near-Term Task Force
NUMARC	Nuclear Management and Resources Council
NVLAP	National Voluntary Laboratory Accreditation Program
NW	northwest
NWS	National Weather Service
OBE	operating basis earthquake
ODCM	Offsite Dose Calculation Manual
OE	operating experience
OER	operating experience review
OHLHS	overhead heavy load handling system
OM	Operation and Maintenance (ASME OM Code)
OPRAA	operational phase reliability assurance activity
ORE	occupational radiation exposure

ORO	Offsite-Response Organizations
OSC	Operational Support Center
OSHA	Occupational Safety and Health Administration
PA	protected area
PABS	private automatic branch system
PAM	Postaccident Monitoring
PAP	primary access point
PAR	protective action recommendation
PBSRS	performance based surface horizontal and vertical response spectra
PCCAWST	passive containment cooling ancillary water storage tank
PCCWST	passive containment cooling water storage tank
pcf	pounds per cubic foot
pcf	per cubic foot
PCP	Process Control Program
PCS	passive containment cooling system
PDP	procedure development program
PE	Polyethylene
PEC	Progress Energy Carolinas, Inc.
PEF	Progress Energy Florida
PF	performance goal
PGA	peak ground acceleration
PGM	Plant General Manager
PGP	procedures generation package
PID	Public Information Director
P&IDs	piping and instrumentation diagrams
PLT	point load test
PM	preventive maintenance
PMCL	Protective Measures Counterpart Link
PMP	probable maximum precipitation
PMS	protection and safety monitoring
PMSS	probable maximum storm surge
PMT	pressuremeter tests
PORV	power-operated relief valve
POV	power-operated valve
ppm	parts per million
PRA	probabilistic risk assessment
PRHR	passive residual heat removal
PRP	Peer Review Panel
psf	pounds per square foot

PSHA	probabilistic seismic hazard analysis
PSI	preservice inspection
psi	pounds per square inch
psig	pounds per square inch gauge
PS-ITAAC	physical security inspections, tests, analyses, and acceptance criteria
PSP	Physical Security Plan
P-T	pressure temperature
PT	liquid penetrant
PT&O	plant test and operations
PTAC	Plant Transmission Activities Coordinator
PTS	plant-specific technical specifications
Pu	per unit
PWR	pressurized-water reactor
PWS	potable water system
PWSCC	primary water stress corrosion cracking
PXS	passive core cooling system
QA	quality assurance
QDPS	Qualified Data Processing System
QAPD	Quality Assurance Program description
QAPD	Quality Assurance Program Document
QC	quality control
RAI	request for additional information
RAP	reliability assurance program
RAT	reserve auxiliary transformer
RB	radwaste building
RCA	radiation controlled area
RCCA	rod cluster control assembly
RCL	reactor coolant loop
RCOL	reference combined license
RCP	reactor coolant pump
RCPB	reactor coolant pressure boundary
RCS	reactor coolant system
REA	Rod Ejection Accident
REAC/TS	Radiation Emergency Assistance Center/Training Site
rem	roentgen equivalent man
REMP	Radiological Emergency Management Plan
REP	radiological emergency preparedness
RG	regulatory guide

RH	relative humidity
RIS	Regulatory Issue Summary
RLME	repeated large magnitude earthquake
RMS	rock mass rating
RMS	radiation monitoring system
RMS	root-mean-square
RNS	residual heat removal system
RO	reactor operator
RPP	Radiation Protection Program
RPV	reactor pressure vessel
RSCL	Reactor Safety Counterpart Link
RSW	Remote Shutdown Workstation
RTDP	revised thermal design procedure
RT_{NDT}	nil-ductility reference transition temperature
RTNSS	regulatory treatment of nonsafety systems
RTP	rated thermal power
RT_{PTS}	pressurized thermal shock reference temperature
RV	reactor vessel
RVSP	reactor vessel surveillance capsule program
RWS	raw water system
RXS	reactor system
S&PC	steam and power conversion
SAE	Site Area Emergency
SAMSON	Solar and Meteorological Surface Observation Network
SAR	safety analysis report
SAT	systematic approach to training
SBO	station blackout
SC	steel concrete composite
SCBA	self-contained breathing apparatus
SCOR	soil column Outcrop response
SCOR	soil column outcropping response
SCE&G	South Carolina Electric and Gas Company
SCOL	subsequent combined license
SCOR	soil column outcrop response spectra
SCDOT	South Carolina Department of Transportation
SCP	Safeguards Contingency Plan
SCPSC	South Carolina Public Service Commission
SCR	stable continental region
SE	safety evaluation

SEC	Securities and Exchange Commission
SER	safety evaluation report
SFP	spent fuel pool
SFS	spent fuel pool cooling system
SG	steam generator
SGI	safeguards information
SGTR	steam generator tube rupture
SLOSH	Sea, Lake, and Overland Surge from Hurricanes
s/m	seconds per cubic meter
SNC	Southern Nuclear Operating Company
SNM	special nuclear material
SMA	seismic margins analysis
SNMPPP	Special Nuclear Material Physical Protection Program
SP	Setpoint Program
SPDS	safety parameter display system
SPT	standard penetration test
sq	square
sq mi	square mile
SR	surveillance requirement
SRM	Staff Requirements Memorandum
SRO	senior reactor operator
SRP	standard review plan
SSAR	Site Safety Analysis Report
SSC	seismic source characterization
SSCs	structures, systems, and components
SSE	safe shutdown earthquake
SSI	soil-structure interaction
SS-ITAAC	site-specific inspections, tests, analyses and acceptance criteria
SSHAC	Senior Seismic Hazard Analysis Committee
STA	Shift Technical Advisor
STD	Standard
STS	standard technical specification
SUNSI	Sensitive Unclassified Non-Safeguards Information
SUP	Supplement
Sv	Sievert
SWFWMD	Southwest Florida Water Management District
SWMS	solid waste management system
SWPT	State Warning Point-Tallahassee
SWS	service water system
SWFWMD	South West Florida Water Management District

T&QP	Training and Qualification Plan
TAC	total annual cost
TB	turbine building
TCP	traffic control point
TCS	turbine building closed cooling water system
TEDE	total effective dose equivalent
TG	turbine-generator
TGS	turbine generator system
TLD	thermoluminescent dosimeter
TMI	Three Mile Island
TR	technical report
TS	technical specification
TSC	Technical Support Center
TSCSR	Truncated Soil Column Surface Response
TSO	transmission system operator
TSP	trisodium phosphate
TSTF	Technical Specification Task Force Traveler
TSTF	Technical Specification Task Force
TVA	Tennessee Valley Authority
U	unconfined compressive strength
UAT	unit auxiliary transformer
UB	upper bound
UCS	unconfined compressive strength
UCSS	updated Charleston seismic source
UF_6)	uranium hexafluoride
UFM	ultrasonic flow meter
UFSAR	Updated Final Safety Analysis Report
UHF	ultra high frequency
UHRS	uniform hazard response spectra
UPS	uninterruptible power supply
USACE	United States Army Corps of Engineers
USE	upper shelf energy
USGCRP	United States Global Change Research Program
URD	Utility Requirements Document
USGS	United States Geological Survey
UT	ultrasonic
V&V	verification and validation

VAC	volts alternating current
VBS	nonradioactive ventilation system
VCSNS	V.C. Summer Nuclear Station
Vdc	volts direct current
VEGP	Vogtle Electric Generating Plant
VES	main control room emergency habitability system
VFS	containment air filtration system
V/H	vertical to horizontal
VHRA	very high radiation area
WAC	waste acceptance criteria
WCAP	Westinghouse Commercial Atomic Power
WEC	Westinghouse Electric Company
WSW	worst meteorological sector
WUS	Western United States
WWRB	waste water retention basin
WWS	waste water system
WWS	worst case
YFS	yard fire system