This preface describes information location, layout, and editorial conventions in the Fort Calhoun Station Unit 1 License Renewal Application. Abbreviated names and acronyms are used throughout the application, and are defined in Table P.1 at the end of this preface. Among the most commonly used terms specific to this application are FCS (for Fort Calhoun Station) and USAR (for Updated Safety Analysis Report). Regulatory documents such as NUREG-1801, *Generic Aging Lessons Learned (GALL) Report*, and 10 CFR Part 54 - *Requirements for Renewal of Operating Licenses for Nuclear Power Plants* (the License Renewal Rule) are referred to by the document number, i.e., NUREG-1801 and 10 CFR 54, respectively.

Section 1 provides administrative information.

Section 2 provides the integrated plant assessment scoping and screening methodology and results. Section 2 describes and justifies the methodology used to determine the systems, structures, and components within the scope of license renewal and the structures and components subject to aging management review. Table 2.2-1 identifies those plant systems and structures that are within the scope of license renewal.

Subsections in Section 2 provide descriptions of systems, structures and commodities, along with their component types subject to aging management review and the associated intended functions. Also included in these discussions are references to system boundary drawings and the Updated Final Safety Analysis (USAR). The drawings are provided in a separate submittal, but are not part of this application. The subsections are divided into mechanical, structural, then electrical results.

Section 3 describes the results of the aging management reviews of the system and structural component types subject to aging management review, using NUREG-1801, *Generic Aging Lessons Learned (GALL) Report*, published July 2001, as the primary basis. Section 3 describes or references the processes used to identify aging effects requiring management, discusses the materials and environments which produce aging effects, identifies the aging effects requiring management, describes industry and operating experience with respect to the applicable aging effects, and identifies the aging management programs that will manage the aging effects requiring management.

On a systematic basis, Section 3 compiles the aging management review results for programs evaluated in NUREG-1801 that are relied on for license renewal into tables. There are also tables for system and structural component types subject to aging management review not evaluated in NUREG-1801.

Section 4 includes time-limited aging analyses, as defined by 10 CFR 54.3. It includes the identification of the component or subject and an explanation of the time-dependent aspects of the calculation or analysis. Section 4 includes a demonstration that the analyses remain valid for the period of extended operation, the analyses have been projected to the end of the period of extended operation, or the effects of aging on the intended function(s) will be adequately managed for the period of extended operation. Section 4 also states that no 10

CFR 50.12 exemptions involving a time-limited aging analysis as defined in 10 CFR 54.3 are required during the period of extended operation.

Appendix A, the Updated Safety Analysis Report Supplement, provides a summary description of the programs and activities for managing the effects of aging for the period of extended operation. A summary description of the evaluation of time-limited aging analyses for the period of extended operation is also included.

Appendix B, Aging Management Activities, describes the aging management programs and activities and demonstrates that the aging effects on the components and structures within the scope of the license renewal rule will be managed such that they will continue to perform their intended functions consistent with the current licensing basis for the period of extended operation. The programs and activities that are credited for managing aging are characterized as existing activities, enhanced activities, or new activities. Appendix B also includes a matrix comparing FCS programs with those included in NUREG-1801.

Appendix C is not used.

Appendix D, Technical Specification Changes, concludes that no technical specification changes are necessary to manage the effects of aging during the period of extended operation.

Appendix E is the Environmental Information which fulfills the requirements of 10 CFR 54.23 and 10 CFR 51.53(c).

The information in Section 1 fulfills the requirements of 10 CFR 54.17 and 10 CFR 54.19. The information in Section 2, Section 3, and Appendix B fulfills the requirements of 10 CFR 54.21(a). The information in Section 4 fulfills the requirements of 10 CFR 54.21(c). The information in Appendix A fulfills the requirements of 10 CFR 54.21(d). The information in Appendix D fulfills the requirements of 10 CFR 54.22.

In the electronic version of this application, blue hyperlinks are provided in the text where related subsections, drawings, or USAR sections are mentioned.

TABLE P.1
List of Acronyms, Symbols, etc.

‘	feet
“	inches
10 CFR #	Code of Federal Regulations, Title 10, Part #
10 CFR 54	10 CFR Part 54 - *Requirements for Renewal of Operating Licenses for Nuclear Power Plants*
AB	Auxiliary Boiler
ABB	Asea Brown Boveri
AFW	Auxiliary Feedwater
AMG	Aging Management Group
AMR	Aging Management Review
ANSI	American National Standards Institute
AOV	Air-Operated Valve
APCSB	Auxiliary and Power Conversion Systems Branch
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Materials
ATWS	Anticipated Transients Without Scram
B&W	Babcock and Wilcox
BAC	Boric Acid Corrosion
BTP	Branch Technical Position
BWR	Boiling Water Reactor
C	Celsius
CA-PA	Compressed Air
CASS	Cast Austenitic Stainless Steel
CCNPP	Calvert Cliffs Nuclear Power Plant
CCW	Component Cooling Water
CE	Combustion Engineering
CEA	Control Element Assembly

TABLE P.1 (CONTINUED)
List of Acronyms, Symbols, etc.

CEOG	Combustion Engineering Owners Group
CFR	Code of Federal Regulations
CIAS	Containment Isolation Actuation Signal
CLB	Current Licensing Basis
CPU	Central Processing Unit
CQE	Critical Quality Element
CR	Condition Report
CRD	Control Rod Drive
CRDM	Control Rod Drive Mechanism
CRHS	Containment Radiation High Signal
CS	Containment Spray
CSB	Core Support Barrel
CUF	Cumulative Usage Factors
CVCS	Chemical and Volume Control System
CVCS	Chemical & Volume Control System
DAS	Data Acquisition System
DBD	Design Basis Document
DBE	Design Basis Event
DBE	Design Basis Event
DC	Direct Current
Dc	Direct Current
Deg	degrees
DG	Diesel Generator
DSS	Diverse Scram System
DW	Demineralized Water
E&C	Electrical and Controls
EAS	Emergency Alarm System
ECT	eddy current testing

TABLE P.1 (CONTINUED)
List of Acronyms, Symbols, etc.

EdF	Electricite deFrance
EEQ	Electrical Equipment Qualification
EFWST	Emergency Feedwater Storage Tank
EFWST	Emergency Feedwater Storage Tank
EOF	Emergency Operations Facility
EPRI	Electric Power Research Institute
EQ	Environmental Qualification
ERF	Emergency Response Facility
ESFAS	Engineered Safety Features Actuation System
F	Fahrenheit
FAC	Flow-accelerated Corrosion
FACTS	Fort Calhoun Automatic Cable Tracking System
FAX	facsimile
FCS	Fort Calhoun Station
FIX	Filtration/ion Exchange
FO	Fuel Oil
FP	Fire Protection
FR	Federal Register
FSAR	Final Safety Analysis Report
FW	Feedwater
FW-BD	Feedwater Blowdown
GALL	Generic Aging Lessons Learned
GE	General Electric
GL	Generic Letter
GSI	Generic Safety Issue
GTC	Gaitronics Transistorized Communication
HELB	High Energy Line Break
HEPA	High Efficiency Particulate Air

TABLE P.1 (CONTINUED)
List of Acronyms, Symbols, etc.

HPSI	High Pressure Safety Injection
HVAC	Heating, Ventilation and Air Conditioning
IASCC	Irradiation-assisted Stress Corrosion Cracking
ICI	In-Core Instrumentation
IGA	Intergranular Attack
IGSCC	Intergranular Stress Corrosion Cracking
IPA	Integrated Plant Assessment
IR	Insulation Resistance
ISI	Inservice Inspection
KV	kilovolt
LBB	Leak Before Break
LO	Lube Oil
LOCA	Loss of Coolant Accident
LPSI	Low Pressure Safety Injection
LR	License Renewal
LRA	License Renewal Application
LTOP	Low Temperature Overpressure Protection
MCC	Motor Control Center
MFW	Main Feedwater
MIC	Microbiologically Influenced Corrosion
MS	Main Steam
MSIV	Main Steam Isolation Valve
MW	megawatt
MWt	Megawatts thermal
N/A	Not Applicable
NDE	Non-destructive Examination
NDTT	Nil Ductility Transition Temperature
NEI	Nuclear Energy Institute

TABLE P.1 (CONTINUED)
List of Acronyms, Symbols, etc.

NFPA	National Fire Protection Association
NG	Nitrogen Gas
NPS	Nominal Pipe Size
NRC	Nuclear Regulatory Commission
NSR	Non-Safety-Related
NSSS	Nuclear Steam Supply System
NUREG-1800	NUREG-1800, *Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plant*s, published July 2001
NUREG-1801	NUREG-1801, *Generic Aging Lessons Learned (GALL) Repor*t, published July 2001
OD	Outside Diameter
ODCM	Off-Site Dose Calculation Manual
ODSCC	Outside Diameter Stress Corrosion Cracking
OPPD	Omaha Public Power District
P&ID	Piping and Instrumentation Diagram
P/T	Pressure/Temperature
PB	Pressure Boundary
PC	Plant Computer
PM	Preventive maintenance
PORV	Power Operated Relief Valve
PTS	Pressurized Thermal Shock
PWR	Pressurized Water Reactor
PWSCC	Primary Water Stress Corrosion Cracking
PZR	Pressurizer
QSPDS	Qualified Safety Parameter Display System
RAMS	Resource Acquisition Management System (site database)
RC	Reactor Coolant
RCGVS	Reactor Coolant Vent Gas System

TABLE P.1 (CONTINUED)
List of Acronyms, Symbols, etc.

RCP	Reactor Coolant Pump
RCPB	Reactor Coolant Pressure Boundary
RCS	Reactor Coolant System
RG	Regulatory Guide
RTD	Resistance Temperature Device
RT_{PTS}	Transition Temperature for Pressurized Thermal Shock
RV	Reactor Vessel
RV	Relief Valve
RVI	Reactor Vessel Internals
RW	Raw Water
SBO	Station Blackout
SC	Structure or Component
SCC	Stress Corrosion Cracking
SCs	Structures and Components
SDC	Shutdown Cooling
SG	Steam Generator
SGIS	Steam Generator Isolation Signal
SI	Safety Injection
SIAS	Safety Injection Actuation Signal
SIRWT	Safety Injection and Refueling Water Tank
SOC	Statements of Consideration
SPDS	Safety Parameter Display System
SR	Safety-Related
SRO	Senior Reactor Operator
SRP	Standard Review Plan
SS	System and Structure
SSCs	Systems, Structures, and Components

TABLE P.1 (CONTINUED)
List of Acronyms, Symbols, etc.

SSEL	Safe Shutdown Equipment List
SV	Safety Valve
TIC	Temperature Indication Controller
TID	Total Integrated Dose
TLAA	Time Limited Aging Analysis
TSC	Technical Support Center
TSP	Tri-Sodium Phosphate
UGS	Upper Guide Structure
USAR	Updated Safety Analysis Report
USAS	United States of America Standard
USI	Unresolved Safety Issue
USNRC	United States Nuclear Regulatory Commission
UV	Ultraviolet
V	Volt
VAC	Volts – alternating current
VCT	Volume Control Tank
VDC	Volts – direct current
WD-L	Liquid Waste Disposal