Dual Application Format For License Renewal

Duke and Virginia Power

January 12, 2000

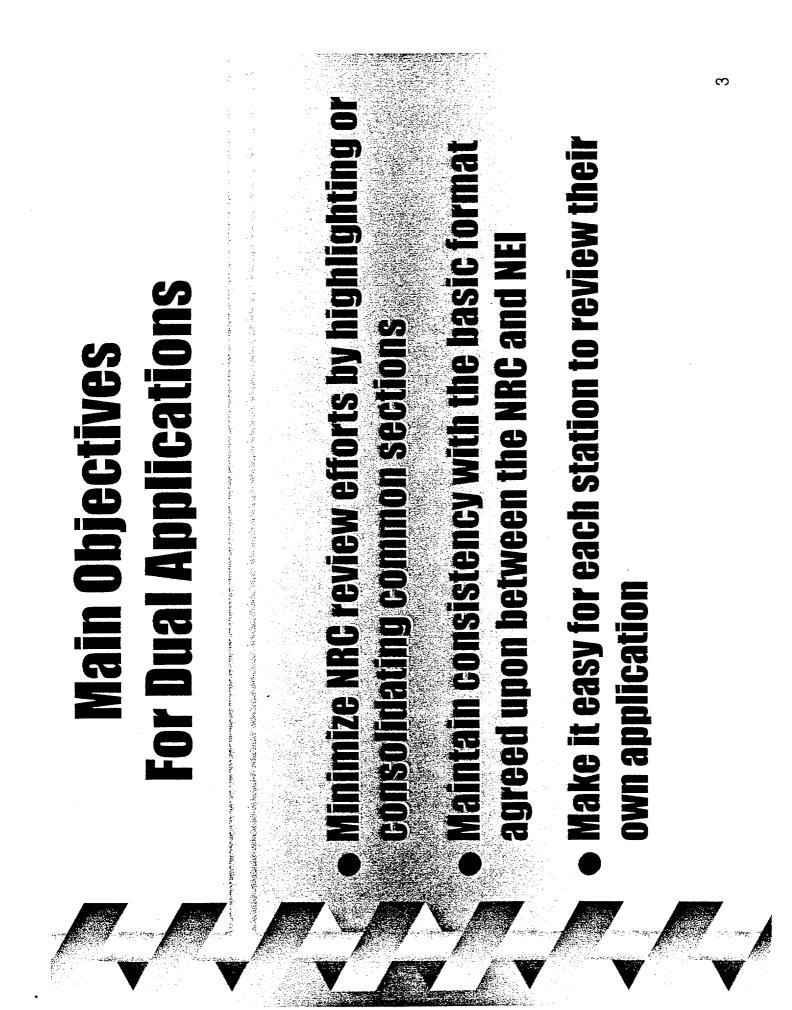
Purpose of Meeting

Most efficient manner to present two applications that will minimize the NRC's review effort

• Use of electronic submittals

To Discuss:

Minor changes in the current NRC/NEI LRA Format



Options

#1 One Set of Binders

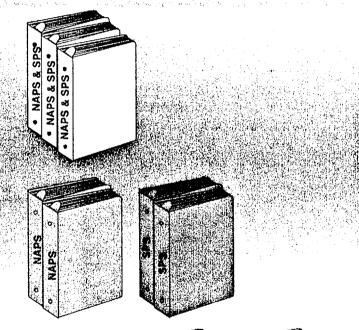
One set with sections & tables noted as common or station specific (i.e., North Anna/Surry)

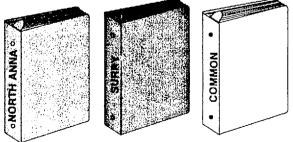
#2 <u>Two Sets of Binders</u> One set for each station with

common information highlighted

#3 Three Sets of Binders

One set for each station with common information in a third set





Option Comparison



#1 #2 #3

X X X

X

X

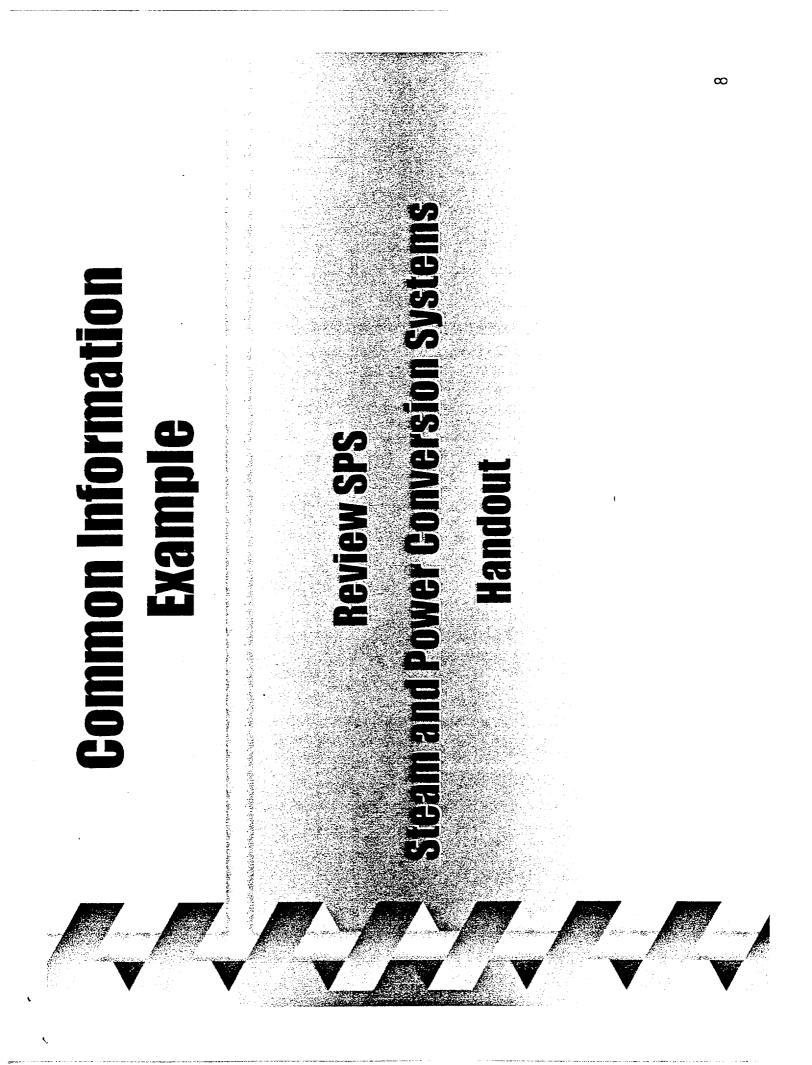
Advantages

- 1. NRC only needs to review common information once
- 2. Facilitates NRC development of individual site SERs
- 3. Easiest for the Applicant to format & prepare
- 4. Easiest for each station to review their own application
- 5. Easiest for the NRC and other organizations to review X

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Submittal to NRC

Original signed cover letter One hardcopy application for each site Remaining application copies on CD in PDF

- Cover Letter
- Application for each site
- UFSAR for each site (*)
- LR Boundary Drawings (*)
- * Not included in the hardcopy application submittal

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Electronic Submittal

Hypertext Links to:

- UFSAR Sections
- LR Boundary Drawings
 - Other portions of the Application (Sections, Appendices, Exhibits)

Proposed License Renewal Application Format

- **General Information IPart 54.17 & 19]**
- Exhibit A Technical Information [Part 54.21 (a)-(c)]
 - 1.0 Introduction & Site Description
 - 2.0 Structures & Components Subject to AMR
 - 3.0 Aging Management Review Results
 - 4.0 Time Limited Aging Analysis
 - Appendix A Aging Management Activities
 - Appendix B Commodity Groups
 - Appendix C CLB Changes
- Exhibit B UFSAR Supplement [Part 54.21(d)]
- Exhibit C Technical Specifications [Part 54.22]
- Exhibit D Environmental Information [Part 54.23]

Exhibit A Technical Information Discussion

Review Virginia Power Table of Contents Handout

Questions & Issues

หม่อนว่ามากที่อ่างที่สืบผู้สารที่สาวสีที่หนึ่งแล้วร้องเห็นสาวที่ส

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الأبرا فالمراج ومنابع والأمام والمتعاولة

Surry Power Station Units 1 and 2 Application for Renewed Operating Licenses Exhibit A – Technical Information Table of Contents

GENERAL INFORMATION

EXHIBIT A – Technical Information

1.0 INTRODUCTION AND SITE DESCRIPTION

2.0 STRUCTURES AND COMPONENTS SUBJECT TO AGING MANAGEMENT REVIEW

- 2.1 SCOPING AND SCREENING METHODOLOGY
- 2.2 PLANT LEVEL SCOPING RESULTS
- 2.3 MECHANICAL COMPONENTS SYSTEM SCOPING AND SCREENING RESULTS
 - 2.3.1 Reactor Coolant System Mechanical Components
 - 2.3.2 Engineered Safety Features
 - 2.3.3 Auxiliary Systems
 - 2.3.4 Steam and Power Conversion System
- 2.4 STRUCTURES AND STRUCTURAL COMPONENTS SCOPING AND SCREENING RESULTS

2.5 ELECTRICAL AND INSTRUMENTATION AND CONTROLS SYSTEM SCOPING AND SCREENING RESULTS

3.0 AGING MANAGEMENT REVIEW RESULTS

- 3.1 COMMON AGING MANAGEMENT PROGRAMS
- 3.2 AGING MANAGEMENT REVIEW METHODOLOGY
- 3.3 MECHANICAL AGING MANAGEMENT REVIEW RESULTS
 - 3.3.1 Reactor Coolant System
 - 3.3.2 Engineered Safety Features
 - 3.3.3 Auxiliary Systems
 - 3.3.4 Steam and Power Conversion Systems
- 3.4 STRUCTURES AND STRUCTURAL COMPONENTS AGING MANAGEMENT REVIEW RESULTS
- 3.5 ELECTRICAL AND INSTRUMENT AND CONTROLS AGING MANAGEMENT REVIEW RESULTS

4.0 TIME-LIMITED AGING ANALYSIS

- 4.1 IDENTIFICATION OF TLAAS
- 4.2 REACTOR VESSEL NEUTRON EMBRITTLEMENT
- 4.3 METAL FATIGUE
- 4.4 ENVIRONMENTAL QUALIFICATION
- 4.5 CONTAINMENT LINER PLATE FATIGUE
- 4.6 Aging of Boraflex in Spent Fuel Rack
- 4.7 OTHER PLANT-SPECIFIC TLAAS

APPENDIX A - Aging Management Activities

APPENDIX B - Commodity Groups

APPENDIX C - CLB Changes

EXHIBIT B - UFSAR Supplement

EXHIBIT C - Technical Specification Changes

EXHIBIT D - Environmental Information

EXAMPLE

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Surry Power Station Units 1 and 2 Application for Renewed Operating Licenses Exhibit A – Technical Information

2.3.4 Steam and Power Conversion System

The following systems (internally grouped as secondary process systems) are addressed in this section:

- Feedwater System, which also includes the Auxiliary Feedwater System Condensate System
 Main Steam System
 Blowdown System

- Steam Generator Recirculation and Transfer System

2.3.4.1 Feedwater System

System Description

The feedwater system provides feedwater to the steam generators during normal operating conditions and the auxiliary feedwater system provides a source of feedwater to the steam generators during emergency conditions. The components/commodities of the feedwater system that have been evaluated to be within the scope of license renewal encompass the auxiliary feedwater system components and commodities.

The feedwater system is comprised of two main feedwater pumps and associated piping that supply heated feedwater to the steam generators for the safety function of maintaining the reactor heat sink. Water supplied to the steam generators absorbs heat transferred from the reactor coolant system and results in the production of steam, which is subsequently used to generate electricity. The feedwater system originates at the feedwater pump suction and ends at the steam generator feedwater nozzle.

The auxiliary feedwater system is comprised of three pumps; two of the pumps are motor-driven and one pump is steam driven. The steam driven pump has double the capacity of one motor-driven pump so it is capable of supplying the required auxiliary feedwater flow capacity upon loss of power. The auxiliary feedwater pumps are directly connected to the auxiliary feedwater system piping that ties into the main feed line for the steam generators.

The feedwater system (which includes the auxiliary feedwater system) interfaces with the following additional systems and components:
condensate system
main steam system
steam generator (reactor coolant system)
bearing cooling system

- bearing cooling system
- extraction steam system
- extraction steam system
 secondary drain system
 reactor protection system

Attachment 3

The portion of the feedwater system within the scope of license renewal extends from the main FW line isolation check valves to the steam generator nozzles.

UFSAR Reference

Additional details on the feedwater and auxiliary feedwater systems are provided in Section 10.3.5 of the UFSAR.

System Intended Functions (Later)

Boundary Drawings

The license renewal boundary drawings used in developing the scope and boundaries for the feedwater system during the screening process are listed below:

11448-LRM-064B, SH. 1
11448-LRM-068A, SH. 1
11448-LRM-068A, SH. 3
11448-LRM-068A, SH. 4
11548-LRM-064B, SH. 1
11448-LRM-068A, SH. 1
11448-LRM-068A, SH. 3
11548-LRM-068A, SH. 4

Components/Commodities Subject to an AMR

The components/commodities in the feedwater system that are in-scope for license renewal and require an aging managing review are the flow elements, feedwater heat exchangers, instrument valve assemblies, feedwater pump casings, restricting orifices, strainers, valve bodies, and the feedwater piping indicated on the above boundary drawings.

2.3.4.2 Condensate System

System Description

The condensate system pumps take suction on the main condenser hotwell and increase the water pressure to a pressure suitable for the operation of the steam generator feedwater pumps. The condensate pump discharge is directed through feedwater heaters and drain coolers, which increases the temperature of the condensate, thereby increasing secondary plant efficiency. Water is provided to

রুমন্দ্রস্থায়ায়ের্জ্যাল্পন্থা মং numerous plant support systems and accepted from numerous systems and components. Most of these components, although important for plant operation, are not within the scope of license renewal. However, the piping, valves, water storage tank and make-up supply for the auxiliary feedwater system have a condensate system designation: these are within the scope of license renewal.

The Emergency Condensate Storage Tank is a missile protected tank that provides a source of emergency cooling water for use by the auxiliary feedwater system via individual lines to the three auxiliary feedwater pumps.

The condensate system interfaces with the following additional systems and feedwater system
 avvillary feedwater system

- auxiliary feedwater system bearing cooling system extraction steam system
- secondary drain system

UFSAR Reference

Additional details of the condensate system are provided in Section 10.3.5 of the UFSAR.

System Intended Functions (Later)

Boundary Drawings

The license renewal boundary drawings used in developing the scope and boundaries for the condensate system during the screening process are listed below:

> 11448-LRM-064B, SH. 1 11448-LRM-067A, SH.2 11448-LRM-068A, SH. 3 11448-LRM-068A, SH.4 11548-LRM-067A, SH.2 11548-LRM-068A, SH. 3 11548-LRM-068A, SH.4

Components/Commodities Subject to an AMR

The components/commodities in the condensate system that are in-scope for license renewal and require an aging managing review are valve bodies, the condensate tanks (accumulators), and the condensate piping indicated on the above boundary drawings: http://www.above.com/above/a

2.3.4.3 Main Steam System

System Description

The main steam system transports steam from the steam generators to the main turbine for the production of electricity. During normal operation, the steam produced in the steam generators is also provided to the following via the three main steam lines:

The turbine driven auxiliary feedwater pump.

A manifold with five (5) code safety valves to relieve excessive main steam system pressure to the atmosphere. One atmospheric relief valve or power-operated relief valve (PORV). The PORVs are used to help control plant heatup or cooldown.

Following a reactor trip or during accident conditions, the main steam system contains valves that provide isolation to prevent excessive cooldown and valves that provide for excessive energy removal from the reactor coolant system. 이는 것이 있는 것이 같은 것이다. 것이지, 아이는 것이 있는 것이다. 같은 아이는 분들은 것은 것이 가지 않는 것을 많은 것이다.

The main steam system interfaces with the following additional systems and components:

- extraction steam
- auxiliary steam
- auxiliary steam main turbine
- electro-hydraulic control system feedwater system (Aux. Feedwater portion)

UFSAR Reference

Additional details of the main steam system are provided in Section 10.3.1 of the UFSAR.

System Intended Functions (I ater) (Later)

Boundary Drawings

The license renewal boundary drawings used in developing the scope and boundaries for the main steam system during the screening process are listed below:

> 11448-LRM-064A, SH. 1 11448-LRM-064A, SH. 2 11448-LRM-064A, SH. 3 11448-LRM-064A, SH.4 11548-LRM-064A, SH. 1 11548-LRM-064A, SH. 2 11548-LRM-064A, SH. 3 11548-LRM-064A, SH.4

Components/Commodities Subject to an AMR

The components/commodities in the main steam system that are in-scope for license renewal and require an aging managing review are accumulators, flow elements, instrument valve assemblies, steam traps, strainers, tubing, valve bodies, valve operators, and the main steam piping indicated on the above boundary drawings.

2.3.4.4 Blowdown System

System Description

The blowdown system removes particulate and dissolved impurities from the secondary side of the steam generators during startup, shutdown, and power operation, and maintains and controls steam generator water and chemical inventory during periods of wet lay-up.

A secondary purpose of the blowdown system is to chemically treat the blowdown water and return it to the condensate system.

The blowdown system consists of the blowdown cooling subsystem, the blowdown water treatment subsystem, and the recirculation and transfer subsystem. The portion of the blowdown system within the scope of license renewal includes the components from the connection to the steam generator to the outermost automatic containment isolation valves. The blowdown system interfaces with the following additional systems and components: • feedwater system • steam generator • condensate system • secondary drain system

UFSAR Reference

Additional details on the blowdown system are provided in Sections 10.3.1.2 and 11.2.3.2 of the UFSAR.

	Sec. Sec.
System Intended Functions	
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Boundary Drawings

The license renewal boundary drawings used in developing the scope and boundaries for the blowdown system during the screening process are listed below:

> 11448-LRM-124A, SH. 1 11448-LRM-124A, SH. 2 11448-LRM-124A, SH. 3 11548-LRM-124A, SH. 1 11548-LRM-124A, SH. 2 11548-LRM-124A, SH. 3

Components/Commodities Subject to an AMR

The components/commodities in the blowdown system that are in-scope for license renewal and require an aging managing review are flow elements, hoses, instrument valve assemblies; valve bodies, and the blowdown piping indicated on the above boundary drawings.

2.3.4.5 Steam Generator Recirculation and Transfer System

System Description

The recirculation and transfer system consists of recirculation and transfer pumps and recirculation coolers. The pumps are used to thoroughly mix and distribute the water in the steam generator during wet lay-up. The pumps draw water from the top of the steam generator and use the common blowdown lines to return the water to the tube sheet area of the associated steam generator. The suction line has manually operated containment isolation valves (CIVs). The pumps can also be used to transfer the contents of one steam generator to another and to pump the water in a steam generator to the liquid and solid waste radiation waste system.

The recirculation coolers are used to cool the water in the steam generators to minimize the temperature differential between the water in the reactor coolant cold leg and the water in the steam generator. Since this is a manually actuated system and largely not safety-related, the in scope portion extends from the connection at the steam generators to the manually operator outside containment isolation valves.

The recirculation and transfer system interfaces with the following additional systems and components:

- feedwater system
- steam generator
- condensate system
- secondary drain system

UFSAR Reference

Additional details of the steam generator recirculation and transfer system are provided in Section 9.6 of the UFSAR.

System Intended Functions

(Later)

Boundary Drawings

The license renewal boundary drawings used in developing the scope and boundaries for the recirculation and transfer system during the screening process are listed below:

> 11448-LRM-124A, SH. 1 11448-LRM-124A, SH. 2 11448-LRM-124A, SH. 3 11548-LRM-124A, SH. 1

Components/Commodities Subject to an AMR

The components/commodities in the recirculation and transfer system that are inscope for license renewal and require an aging managing review are valve bodies, and the recirculation and transfer piping indicated on the above boundary drawings.



Format for McGuire and Catawba License Renewal Applications

Bob Gill January 12, 2000

Attachment 5

Contents of Plant Specific Document

Submittal Letter

contains all required Administrative Information

Exhibit A: Technical Information Place Holder – point to Exhibit A

Exhibit B: Updated Final Safety Analysis Report (UFSAR) Supplement

Exhibit C: Technical Specification Changes (if any)

Exhibit D: Environmental Report

Contents of Technical Information Document Exhibit A

1.0 Administrative Information Place holder - point to plant specific submittal letter 2.0 Structures and Components Subject to Aging **Management Review** 2.1 Scoping and Screening Methodology 2.2 Plant Level Scoping Results 2.3 System Scoping and Screening Results (Mechanical) 2.4 Structures and Structural Components Scoping and **Screening Results** 2.5 System Scoping and Screening Results (Electrical and Instrumentation and Controls) 3.0 Aging Management Review Results 3.1 Common Aging Management Programs 3.1.1 Chemistry Control 3.1.2 Quality Assurance 3.1.3 Structure and System Walkdowns 3.2 Reactor Coolant System 3.3 Engineered Safety Features 3.4 Auxiliary Systems 3.5 Steam and Power Conversion Systems 3.6 Diesel Generators 3.7 Ventilation Systems 3.8 Structures and Structural Components 3.9 Electrical and Instrumentation and Controls 4.0 Time-Limited Aging Analyses 4.1 Identification of TLAAs 4.2 Reactor Vessel Neutron Embrittlement 4.3 Metal Fatigue 4.4 Environmental Qualification (EQ) 4.5 Concrete Containment Tendon Prestress (NA for MNS and CNS) 4.6 Containment Liner Plate Fatigue 4.7 Aging of Boraflex in Spent Fuel Rack 4.8 Others as necessary Appendix A: Aging Management Programs and Activities Appendix B: Aging Effects that Require Aging Management

Appendix C: CLB Changes (Place Holder until Annual Update)

McGuire Nuclear Station	Catawba Nuclear Station	Contents of Technical Information Document (Exhibit A)
1.0 Place holder – point to plant specific document	1.0 Place holder – point to plant specific document	1.0 Place holder – point to plant specific document
2.0 Structures and Components Subject to Aging Management Review	2.0 Structures and Components Subject to Aging Management Review	2.0 Structures and Components Subject to Aging Management Review
2.1 Scoping and Screening Methodology	2.1 Scoping and Screening Methodology	Generic Methodology Description
2.2 Plant Level Scoping Results	2.2 Plant Level Scoping Results	Plant specific list of all SSCs in UFSAR currently. Plant specific in scope results
		in individual tables
2.3 System Scoping and Screening Results (Mechanical)	2.3 System Scoping and Screening Results (Mechanical)	2.3 System Scoping and Screening Results (Mechanical)
2.3.1 Reactor Coolant System	2.3.1 Reactor Coolant System	2.3.1 Reactor Coolant System
Reactor Vessel Internals	Reactor Vessel Internals	Reactor Vessel Internals
Reactor Vessel	Reactor Vessel	Reactor Vessel
Pressurizer	Pressurizer	Pressurizer
Steam Generator	Steam Generator	Steam Generator
Reactor Coolant Pumps	Reactor Coolant Pumps	Reactor Coolant Pumps
Piping (Class 1)	Piping (Class 1)	Piping (Class 1)
Piping (Non-Class 1)	Piping (Non-Class 1)	Piping (Non-Class 1)
CRDM Housings	CRDM Housings	CRDM Housings
Valves	Valves	Valves
2.3.2 Engineered Safety Features	2.3.2 Engineered Safety Features	2.3.2 Engineered Safety Features
Containment Air Return & Hydrogen-Skimmer	Containment Air Return & Hydrogen-Skimmer	Containment Air Return & Hydrogen- Skimmer
Combustible Gas Control	Combustible Gas Control	Combustible Gas Control
Containment Isolation	Containment Isolation	Containment Isolation
Containment Spray	Containment Spray	Containment Spray
	Containment Valve Injection Water	Containment Valve Injection Water (CNS Only)
Residual Heat Removal	Residual Heat Removal	Residual Heat Removal
Safety Injection	Safety Injection	Safety Injection
2.3.3 Auxiliary Systems	2.3.3 Auxiliary Systems	2.3.3 Auxiliary Systems
Boron Recycle	Boron Recycle	Boron Recycle
Boron Thermal Regeneration	Boron Thermal Regeneration	Boron Thermal Regeneration

McGuire Nuclear Station	Catawba Nuclear Station	Contents of Technical Information Document (Exhibit A)
Chemical & Volume Control	Chemical and Volume Control	Chemical & Volume Control
Component Cooling	Component Cooling	Component Cooling
Fuel Pool Cooling & Cleanup	Fuel Pool Cooling & Cleanup	Fuel Pool Cooling & Cleanup
Instrument Air	Compressed Air	Instrument Air
Nuclear Service Water	Nuclear Service Water	Nuclear Service Water
Recirculated Cooling		Recirculated Cooling (MNS Only)
2.3.4 Steam and Power Conversion	2.3.4 Steam and Power Conversion	2.3.4 Steam and Power Conversion
Auxiliary Feedwater	Auxiliary Feedwater	Auxiliary Feedwater
Feedwater	Feedwater	Feedwater
Main Steam	Main Steam	Main Steam
2.3.5 Diesel Generator	2.3.5 Diesel Generator	2.3.5 Diesel Generator
Cooling Water	Cooling Water	Cooling Water
Crankcase Vacuum		Crankcase Vacuum (MNS Only)
Fuel Oil	Fuel Oil	Fuel Oil
Intake & Exhaust	Intake & Exhaust	Intake & Exhaust
Lube Oil	Lube Oil	Lube Oil
Room Sump Pump	Room Sump Pump	Room Sump Pump
Starting Air	Starting Air	Starting Air
2.3.6 Ventilation	2.3.6 Ventilation	2.3.6 Ventilation
Annulus Ventilation	Annulus Ventilation	Annulus Ventilation
Auxiliary Building	Auxiliary Building	Auxiliary Building
Containment Purge	Containment Purge	Containment Purge
Containment Ventilation	Containment Ventilation	Containment Ventilation
Control Room	Control Room Area	Control Room Area
Diesel Building	Diesel Building	Diesel Building
	Fuel Building	Fuel Building (CNS Only)
	Nuclear Service Water Pump Structure Ventilation	Nuclear Service Water Pump Structure Ventilation (CNS Only)
Radwaste		Radwaste (MNS Only)
Turbine Building	Turbine Building	Turbine Building
2.4 Structures and Structural Components Scoping and	2.4 Structures and Structural Components Scoping and	2.4 Structures and Structural Components Scoping and
Screening Results	Screening Results	Screening Results

McGuire Nuclear Station	Catawba Nuclear Station	Contents of Technical Information Document (Exhibit A)
Auxiliary Building – including Diesel Building, Fuel Pool, New Fuel Storage Vault, Fuel Storage Racks	Auxiliary Building – including Diesel Building, Fuel pool, Fuel Building, Fuel Storage Racks (New & Spent)	Auxiliary Building – including Diesel Building, Fuel Pool, New Fuel Storage Vault, Fuel Storage Racks
Containment	Containment	Containment
Cranes	Cranes	Cranes
Foundations	Foundations	Foundations
Fuel Handling	Fuel Handling	Fuel Handling
Ice Condenser	Ice Condenser Refrigeration System	Ice Condenser
Intake/Discharge	Nuclear Service Water	Intake/Discharge
Structures	Structures	Structures
Nuclear Service Water Pipe	Nuclear Service Water Pipe	Nuclear Service Water Pipe
Nuclear SW Pond Dam	Standby Nuclear Service Water Pond Dam and Outlet Works	Nuclear SW Pond Dam (MNS)
		Standby Nuclear Service Water Pond Dam and Outlet Works (CNS)
RCS Supports	RCS Supports	RCS Supports
Reactor Building	Reactor Building	Reactor Building
Station Vent	Station Vent	Station Vent
Trenches	Trenches	Trenches
2.5 System Scoping and Screening Results (Electrical and Instrumentation and Controls)	2.5 System Scoping and Screening Results (Electrical and Instrumentation and Controls)	2.5 System Scoping and Screening Results (Electrical and Instrumentation and Controls)
Insulated Cables and Connectors	Insulated Cables and Connectors	Insulated Cables and Connectors

McGuire Nuclear Station	Catawba Nuclear Station	Contents of Generic Technical Information
3.0 Aging Management Review Results	3.0 Aging Management Review Results	3.0 Aging Management Review Results
		3.1 Common Aging
		Management Programs
		3.1.1 Chemistry Control (Generic)
		3.1.2 Quality Assurance (Generic)
		3.1.3 Structure and System Walkdowns (Generic)
		3.2 Reactor Coolant System
		3.3 Engineered Safety Features
		3.4 Auxiliary Systems
		3.5 Steam and Power
	· ····································	Conversion Systems
		3.6 Diesel Generator
······		3.7 Ventilation
		3.8 Structures and Structural
		Components
		3.9 Electrical and
		Instrumentation and Controls
4.0 Time-Limited Aging Analyses	4.0 Time-Limited Aging Analyses	4.0 Time-Limited Aging Analyses
		4.1 Identification of TLAAs
		4.2 Reactor Vessel Neutron
		Embrittlement
		4.3 Metal Fatigue
		4.4 Environmental
		Qualification (EQ)
		4.5 Concrete Containment
		Tendon Prestress (NA to MNS and CNS)
		4.6 Containment Liner Plate
		Fatigue
		4.7 Aging of Boraflex in Spent Fuel Rack
		4.8 Others as necessary

McGuire Nuclear Station	Catawba Nuclear Station	Contents of Generic Technical Information
		Appendix A: Aging Management Programs and Activities (Generic)
	· · · · ·	Appendix B: Aging Effects that Require Aging Management (Generic)
		Appendix C: CLB Changes (Place Holder until Annual Update) (Note: Even though this update will be site-specific, it fits better as part of the technical information document as it will be technical in nature.)

Notes for plant specific differences -

- 1. Use different paragraphs or sections for the site-specific description of an SSC.
- 2. If system name is the only difference then put the Catawba system name in ().
- 3. If SSC is at only one site then state "(McGuire only)" or "(Catawba only)"
- 4. Consider using bounding parameters, materials, etc., if possible.
- 5. Key attributes of aging management programs will be the same (frequency, acceptance criteria, sample size). Scope may vary due to plant specific differences.
- 6. TLAA need to be evaluated on a unit specific basis results should be presented in a manner that does confuse the reader.