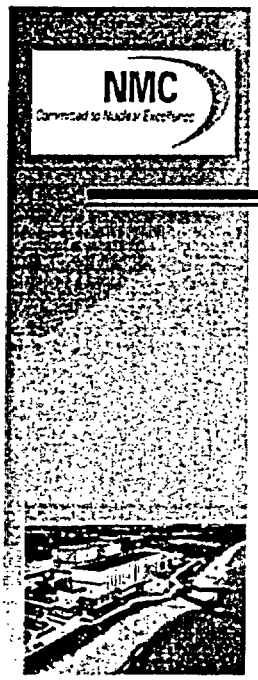


Point Beach Nuclear Plant License Renewal Application

March 9, 2004

Roger Newton – LR Project Manager

Jim Knorr – LR Licensing Lead

John Thorgersen – Programs Lead

Todd Mielke – Mechanical Lead

Kris McKinney – LR Environmental Lead

Agenda
PBNP License Renewal Application
NRC/NMC

1) Introduction of License Renewal Participants
2) Original License Expiration and Plant History
3) Introduction of Point Beach Application
4) Section 2
5) Section 3
6) Section 4
7) Appendix A
8) Appendix B
9) Appendix E
10) Questions

Point Beach History

Unit 1 License Expiration October 5, 2010

Unit 2 License Expiration March 8, 2013

Original design with 20 MWe Combustion Turbine and 2 EDGs

Spent fuel pool re-racks 1976 and 1979

TMI Modifications 1980 – 1985

Point Beach History
(Continued)

Unit 1 New Steam Generators – 1982

Replaced # 1, 2, 3 and 5 Feedwater Heaters – 1986

Replaced all Turbine Condenser Tubing – 1986

Reactor Coolant Up flow Modification for Both Units – Late 1980s

New Low Pressure Turbine Rotors with Integral Hubs – 1990

2 New Safety Related Station Batteries Installed – 1990

Point Beach History
(Continued)

Dry Fuel Storage Option Licensed – 1993

Unit 2 New Steam Generators – 1996

- **Power uprate and 60 year evaluations**

2 Additional Safety Related Diesels Installed –1995

Baffle Barrel Bolt Replacement Unit 2 – 1997

Standardized Technical Specifications – 2001

Point Beach History
(Continued)

Modified Water Intake Structure – 2001

Service Water System Upgrade – 2002

Additional Vessel Material Sample Installed in Unit 2 - 2002

Stabilized and Abandoned the Retention Pond – 2002

Point Beach Nuclear Plant
License Renewal Application

Use of Standard Format with enhanced level of detail and cross referencing in electronic form

Section 1 Administrative	(31 Pages)
Section 2 Scoping and Screening	(283 Pages)
Section 3 Aging Management Reviews	(489 Pages)
Section 4 TLAAs	(99 Pages)
Appendix A FSAR Supplement	(51 Pages)
Appendix B Aging Management Programs	(253 Pages)
Environmental Report	(332 Pages)
Drawings	(112 Pages)
Final Safety Analysis Report	(2285 Pages)

1274 Pages

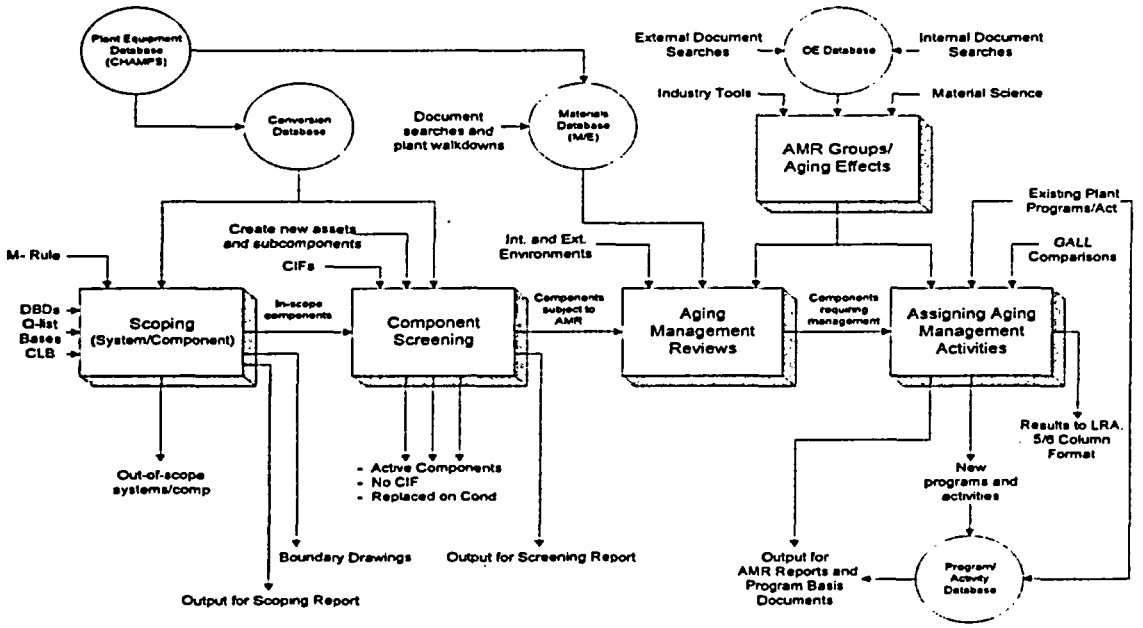
Point Beach Nuclear Plant
License Renewal Application

Section 1 Administrative (31 Pages)

- **Administrative section**
- **Legal discussions**
- **Acronym list**

Point Beach Nuclear Plant License Renewal Process

Figure 3 - Typical LR Database Flowchart



SECTION 2.0 SCOPING AND SCREENING

Section 2 Scoping and Screening (283 Pages)

- **Methodology**
- **System descriptions**
- **System function descriptions**
- **Links to FSAR**
- **Links to Drawings**
- **Lists of component types and intended functions**

SECTION 2.0
SCOPING AND SCREENING

Methodology Section

Provides an overview of plant information sources that were used (CHAMPS, drawings, etc.) and tools that were used (License Renewal Database – LRDB)

Details how each criteria was implemented

- SR – Used Q-list data
- NSR Affecting SR – Used some Q-list data but mostly ISG and industry response to ISG
- Regulated Events – Used Q-list data and vertical slice information

SECTION 2.0
SCOPING AND SCREENING

Methodology Section (cont.)

- System boundaries were set based on results of component-level scoping, and are shown in color on the boundary drawings.
- In some cases, where only a few components were in-scope for a system, these components were moved to an associated system for processing. Examples are Plant Sampling System and Fuel Handling System.

SECTION 2.0

SCOPING AND SCREENING

Methodology Section (cont.)

- One exception is when the only in-scope components are part of a commodity. Example is fire dampers in Non-Essential Ventilation system. This system is not in-scope.
- Not all necessary components/sub-components are represented in our CHAMPS database. Generally, we created assets to reflect the level of detail needed to perform aging management. Examples include CS Components, bolting, HX tubing, and instrument manifolds.

SECTION 2.0

SCOPING AND SCREENING

Methodology Section (cont.)

- Screening was performed on all in-scope components, based mostly on guidance in NEI 95-10. Exceptions include fan and damper housings, some air sub-components, and in-line instruments.
- Component intended functions were assigned for each long-lived component. See Section 2.2.1 for IF definitions.

2.2 Plant Level Scoping Results

The systems, structures, and commodities at Point Beach were evaluated as to whether they were within the scope of license renewal, using the methodology described in Section 2.1. The results are shown in Table 2.2-1.

2.2.1 Intended Function Code Definitions

This section contains the meanings for the abbreviations used in the Scoping/Screening results tables to represent the intended functions for components, subcomponents, and structural members. Intended functions are the specific intended functions performed by in-scope passive components in support of system or structure intended functions. Passive components are components that perform an intended function without moving parts or without a change in configuration or properties.

CODE	DEFINITION
MECHANICAL	
FLOW CONTROL	PROVIDE FLOW CONTROL OR DISTRIBUTION, AS THROUGH A SPRAY NOZZLE
FLOW DISTRIBUTION	PROVIDE A PASSAGEWAY FOR THE DISTRIBUTION OF THE REACTOR COOLANT FLOW TO THE REACTOR CORE
GAMMA/NEUTRON SHIELDING	PROVIDE GAMMA AND NEUTRON SHIELDING FOR THE REACTOR PRESSURE VESSEL. (VESSEL INTERNALS ONLY)
HEAT TRANSFER	PROVIDE HEAT TRANSFER
MECHANICAL CLOSURE INTEGRITY	PROVIDE MECHANICAL CLOSURE INTEGRITY ON BOLTED JOINTS
PRESSURE BOUNDARY	PROVIDE PRESSURE-RETAINING BOUNDARY SO THAT SUFFICIENT FLOW AT ADEQUATE PRESSURE IS DELIVERED
PROVIDE FILTRATION	PROVIDE FILTRATION
PROVIDE SUPPORT	PROVIDE STRUCTURAL SUPPORT TO SAFETY RELATED COMPONENTS

SECTION 2.0

SCOPING AND SCREENING

System Descriptions

- The plant was divided into about 50 systems that more closely matched the descriptions in the FSAR and the GALL, for consistency.
- Actual plant systems were assigned to one of these 50 LR systems.
- Table 2.2-1 provides a list of LR systems and overall results of the scoping process.

SECTION 2.0

SCOPING AND SCREENING

System Functions

- System functions were generated from Q-list data and from other CLB sources.
- A generic list of functions was used (see Table 2.1-1)
- Specific system considerations were added to each generic function. (SI System description)

Table 2.2-1 Plant Level Scoping Results

Description	Within Scope of License Renewal?	Comments
SRP Evaluation Group: Reactor Vessel, Internals, and Reactor Coolant System		
Class 1 Piping/Components (Section 2.3.1.1)	Yes	This system spans numerous systems including portions of Safety Injection, Residual Heat Removal, Chemical and Volume Control, and Plant Sampling.
Reactor Vessel (Section 2.3.1.2)	Yes	
Reactor Vessel Internals (Section 2.3.1.3)	Yes	
Pressurizer (Section 2.3.1.4)	Yes	
Steam Generators (Section 2.3.1.5)	Yes	
Non-Class 1 RCS Components (Section 2.3.1.6)	Yes	RCP oil collection equipment is addressed in the Fire Protection System.
SRP Evaluation Group: Engineered Safety Features		
Containment Isolation Components (Section 2.3.2.4)	Yes	This system includes Containment isolation components from the Radiation Monitoring, Heating Steam, and Treated Water Systems, and mechanical portions of miscellaneous Containment penetrations
Containment Spray (Section 2.3.2.2)	Yes	
Residual Heat Removal (Section 2.3.2.3)	Yes	This system includes some Plant Sampling System components. The Class 1 portions of this system are addressed in the Class 1 Piping/ Components System.
Safety Injection (Section 2.3.2.1)	Yes	The Class 1 portions of this system are addressed in the Class 1 Piping/Components System.

Table 2.1-1 System Function Codes

System Function Code	Function Description	Notes	10 CFR 54.4(a) Criterion
A	MAINTAIN REACTOR CORE ASSEMBLY GEOMETRY		1
B	INTRODUCE EMERGENCY NEGATIVE REACTIVITY TO MAKE THE REACTOR SUBCRITICAL	Functions include limiting the introduction of positive reactivity.	1
C	INTRODUCE NEGATIVE REACTIVITY TO ACHIEVE OR MAINTAIN SUBCRITICAL REACTOR CONDITION		1
D	SENSE OR PROVIDE PROCESS CONDITIONS AND GENERATE SIGNALS FOR REACTOR TRIP AND ENGINEERED SAFETY FEATURES ACTUATION		1
E	PROVIDE REACTOR COOLANT PRESSURE BOUNDARY		1
F	REMOVE RESIDUAL HEAT FROM THE RCS	Residual heat removal by direct recirculation of reactor coolant. This system function does not address emergency core cooling via Engineered Safety Features Actuation.	1
G	PROVIDE EMERGENCY CORE COOLANT WHERE THE ECCS PROVIDES COOLANT DIRECTLY TO THE CORE	This function includes coolant that is provided to the core via RCS piping. This function also addresses coolant inventory that is maintained for use by the ECCS to provide emergency core cooling and to introduce negative reactivity.	1
H	PROVIDE EMERGENCY HEAT REMOVAL FROM THE REACTOR COOLANT SYSTEM USING SECONDARY HEAT REMOVAL CAPABILITY	Secondary heat removal capability addresses the secondary side of the steam generators, and steam generator secondary cooling paths, for example: Auxiliary Feedwater, Relief Valves/Lines.	1

Code Y	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 2 - CONTAINS NON SAFETY RELATED SSC'S WHOSE FAILURE COULD PREVENT SATISFACTORY ACCOMPLISHMENT OF A SAFETY RELATED FUNCTION			FP	EQ	PTS	AT	SB
		X					

Comment: This function identifies non-safety components in the SI System, whose failure could affect safety related systems.

Code Z1	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - CONTAINS SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR FIRE PROTECTION (10 CFR 50.48)			FP	EQ	PTS	AT	SB
			X				

Comment: The Safety Injection System shall be capable of isolating RCS boundaries, preventing loss of inventory of the RWST and supplying RWST inventory to the Chemical and Volume Control System to support reactor coolant make-up capability.

The Safety Injection System shall be capable of providing RHR recirculation flowpaths for maintaining decay heat removal.

Code Z2	Cri 1	Cri 2	Cri 3				
LICENSE RENEWAL CRITERION 3 - CONTAINS SSC'S RELIED UPON IN SAFETY ANALYSES OR PLANT EVALUATIONS TO PERFORM A FUNCTION THAT DEMONSTRATES COMPLIANCE WITH THE COMMISSION'S REGULATIONS FOR ENVIRONMENTAL QUALIFICATION (10 CFR 50.49)			FP	EQ	PTS	AT	SB
				X			

Comment: The Safety Injection System contains electrical equipment that is environmentally qualified.

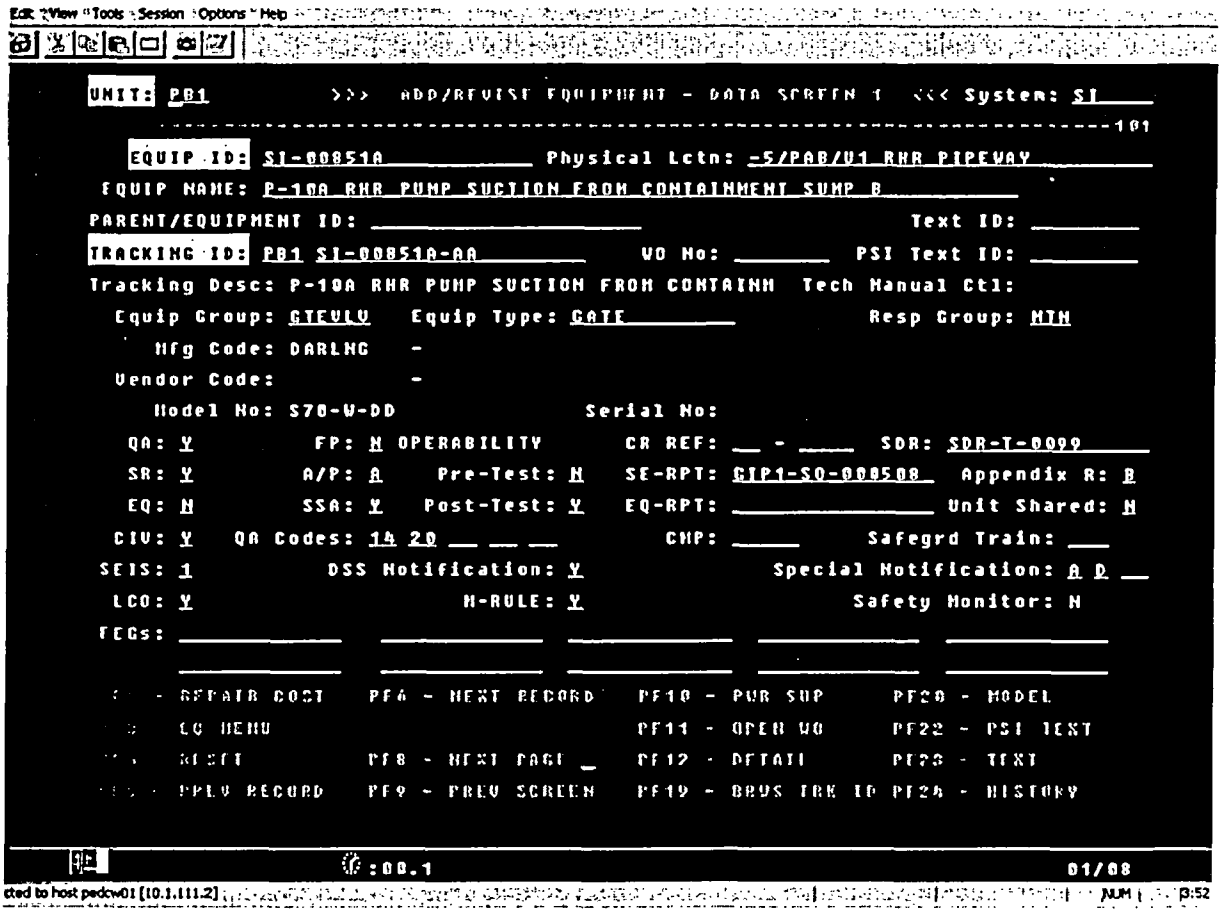
FSAR Reference

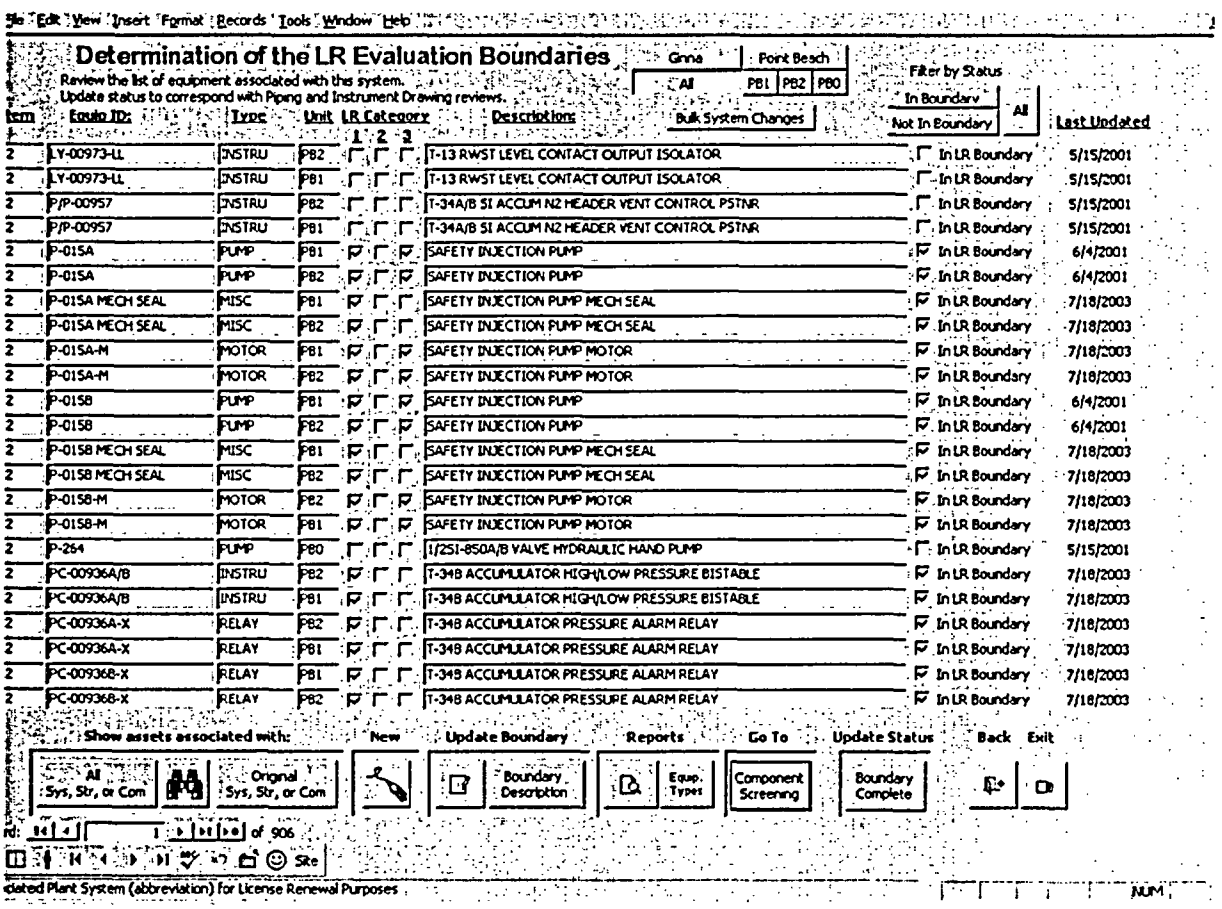
Additional Safety Injection System details are provided in Section 4.1, Section 5.2, Section 6.2, and Section 9.1.1 of the FSAR.

License Renewal Drawings

The license renewal drawings for the Safety Injection System are listed below:

Unit 1	Unit 2
LR - 110E017 Sh 1	LR - 110E035 Sh 1
LR - 110E017 Sh 2	LR - 110E035 Sh 2


Edit View Tools Session Options Help
UNIT: PB1 >>> ADD/REVISE EQUIPMENT - DATA SCREEN 1 <<< System: SI
EQUIP ID: SI-00851A Physical Lctn: -S/PAB/U1 RHR PIPEWAY
EQUIP NAME: P-10A RHR PUMP SUCTION FROM CONTAINMENT SUMP B
PARENT/EQUIPMENT ID: Text ID:
TRACKING ID: PB1 SI-00851A-AA WO No: PSI Text ID:
Tracking Desc: P-10A RHR PUMP SUCTION FROM CONTAINM Tech Manual Ctl:
Equip Group: GTEVLV Equip Type: GATE Resp Group: MTN
Mfg Code: DARLNG -
Vendor Code: -
Model No: S70-W-DD Serial No:
QA: Y FP: N OPERABILITY CR REF: - SDR: SDR-T-0099
SR: Y A/P: A Pre-Test: N SE-RPT: GIP1-SQ-000508 Appendix R: B
EQ: N SSA: Y Post-Test: Y EQ-RPT: Unit Shared: N
CIV: Y QA Codes: 14 20 CMP: Safegrd Train:
SEIS: 1 DSS Notification: Y Special Notification: A D
LCO: Y M-RULE: Y Safety Monitor: N
FEGs:
- REPAIR COST PF4 - NEXT RECORD PF10 - PUR SUP PF20 - MODEL
LC MENU PF11 - OPEN WO PF22 - PSI TEXT
RESET PF8 - NEXT PAGE PF12 - DETAIL PF23 - TEXT
PREV RECORD PF9 - PREV SCREEN PF19 - BRUS TRK ID PF24 - HISTORY
:00.1
01/08
cted to host pedcw01 [10.1.111.2]
NUM
13:52


File Edit View Insert Format Records Tools Window Help
Determination of the LR Evaluation Boundaries
Review the list of equipment associated with this system.
Update status to correspond with Piping and Instrument Drawing reviews.
Ginna
Point Beach
All PB1 PB2 PB0
Bulk System Changes
Filter by Status
In Boundary
Not In Boundary
All
Item Equip ID: Type Unit LR Category Description: 1 2 3 Last Updated
2 LY-00973-LL INSTRU PB2 T-13 RWST LEVEL CONTACT OUTPUT ISOLATOR In LR Boundary 5/15/2001
2 LY-00973-LL INSTRU PB1 T-13 RWST LEVEL CONTACT OUTPUT ISOLATOR In LR Boundary 5/15/2001
2 P/P-00957 INSTRU PB2 T-34A/B SI ACCUM N2 HEADER VENT CONTROL PSTNR In LR Boundary 5/15/2001
2 P/P-00957 INSTRU PB1 T-34A/B SI ACCUM N2 HEADER VENT CONTROL PSTNR In LR Boundary 5/15/2001
2 P-015A PUMP PB1 SAFETY INJECTION PUMP In LR Boundary 6/4/2001
2 P-015A PUMP PB2 SAFETY INJECTION PUMP In LR Boundary 6/4/2001
2 P-015A MECH SEAL MISC PB1 SAFETY INJECTION PUMP MECH SEAL In LR Boundary 7/18/2003
2 P-015A MECH SEAL MISC PB2 SAFETY INJECTION PUMP MECH SEAL In LR Boundary 7/18/2003
2 P-015A-M MOTOR PB1 SAFETY INJECTION PUMP MOTOR In LR Boundary 7/18/2003
2 P-015A-M MOTOR PB2 SAFETY INJECTION PUMP MOTOR In LR Boundary 7/18/2003
2 P-015B PUMP PB1 SAFETY INJECTION PUMP In LR Boundary 6/4/2001
2 P-015B PUMP PB2 SAFETY INJECTION PUMP In LR Boundary 6/4/2001
2 P-015B MECH SEAL MISC PB1 SAFETY INJECTION PUMP MECH SEAL In LR Boundary 7/18/2003
2 P-015B MECH SEAL MISC PB2 SAFETY INJECTION PUMP MECH SEAL In LR Boundary 7/18/2003
2 P-015B-M MOTOR PB2 SAFETY INJECTION PUMP MOTOR In LR Boundary 7/18/2003
2 P-015B-M MOTOR PB1 SAFETY INJECTION PUMP MOTOR In LR Boundary 7/18/2003
2 P-264 PUMP PB0 1/2SI-850A/B VALVE HYDRAULIC HAND PUMP In LR Boundary 5/15/2001
2 PC-00936A/B INSTRU PB2 T-34B ACCUMULATOR HIGH/LOW PRESSURE BISTABLE In LR Boundary 7/18/2003
2 PC-00936A/B INSTRU PB1 T-34B ACCUMULATOR HIGH/LOW PRESSURE BISTABLE In LR Boundary 7/18/2003
2 PC-00936A-X RELAY PB2 T-34B ACCUMULATOR PRESSURE ALARM RELAY In LR Boundary 7/18/2003
2 PC-00936A-X RELAY PB1 T-34B ACCUMULATOR PRESSURE ALARM RELAY In LR Boundary 7/18/2003
2 PC-00936B-X RELAY PB1 T-34B ACCUMULATOR PRESSURE ALARM RELAY In LR Boundary 7/18/2003
2 PC-00936B-X RELAY PB2 T-34B ACCUMULATOR PRESSURE ALARM RELAY In LR Boundary 7/18/2003
Show assets associated with:
All Sys, Str, or Com
Original Sys, Str, or Com
New
Update Boundary
Boundary Description
Reports
Equip. Types
Go To
Component Screening
Update Status
Boundary Complete
Back
Exit
of 906
Ste
ciated Plant System (abbreviation) for License Renewal Purposes
NUM

SECTION 2.0

SCOPING AND SCREENING

- Links to FSAR (SI Description)
  - Links to the appropriate section(s) of the FSAR were added for each system. This provides convenient access to additional information on each system.
- Links to drawings
  - Links to drawings are added for each system. Note that some drawings may be referenced by more than one system.

SECTION 2.0

SCOPING AND SCREENING

List of Component Group and Intended Function

- At the end of each S/S section is a listing of component group and intended function (Table 2.3.2-1).
- This listing is the same as the first two columns within the 9 column (3.x.2) table for the respective system in the AMR section.
- This provides the linkage between Section 2 and Section 3.

Components Subject to an AMR

The component groups for this system that require aging management review are addressed in Table 2.3.2-1 along with each Component Group's intended function(s).

Table 2.3.2-1 Safety Injection System

Component Group	Intended Function
CS COMPONENTS	PRESSURE BOUNDARY
FASTENERS/BOLTING	MECHANICAL CLOSURE INTEGRITY
FLOW ELEMENTS	PRESSURE BOUNDARY
HEAT EXCHANGER	HEAT TRANSFER PRESSURE BOUNDARY
INSTRUMENT VALVE ASSEMBLIES	PRESSURE BOUNDARY
LEVEL ELEMENTS	PRESSURE BOUNDARY
PIPING AND FITTINGS	PRESSURE BOUNDARY
PUMP CASING	PRESSURE BOUNDARY
RESTRICTING ORIFICES	PRESSURE BOUNDARY RESTRICTS FLOW
TANKS	PRESSURE BOUNDARY
VALVE BODIES	PRESSURE BOUNDARY

Table 3.2.2-1 Engineered Safety Features - Safety Injection System - Summary of Aging Management Evaluation

Component Type	Intended Function	Material	Environment	Aging Effect Requiring Management	Aging Management Programs	NUREG -1801 Volume 2 Line Item	Table 1 Item	Notes
CS Components	Pressure Boundary	Carbon/Low Alloy Steel	Borated Water Leaks (External)	Loss Of Material	Boric Acid Corrosion Program	V.D1.1-d, V.D1.2-b, V.D1.4-c, V.D1.5-b, V.D1.7-a, V.D1.8-b, V.E.1-a	3.2.1-17	A
			N/A (Internal)	None	None Required			1
Fasteners/ Bolting	Mechanical Closure Integrity	Carbon/Low Alloy Steel	Containment (External)	Loss Of Material	Bolting Integrity Program	V.E.2-a	3.2.1-18	B, 7
			Indoor - No Air Conditioning (External)	Loss Of Material	Bolting Integrity Program	V.E.2-a	3.2.1-18	B, 7
			N/A (Internal)	None	None Required			2
		Stainless Steel	Containment (External)	None	None Required			J
			Indoor - No Air Conditioning (External)	None	None Required			J
			N/A (Internal)	None	None Required			2
Flow Elements	Pressure Boundary	Stainless Steel	Indoor - No Air Conditioning (External)	None	None Required			J
			Treated Water - Borated, T<140°F (Internal)	Loss Of Material	One-Time Inspection Program	V.D1.1-a, (V.A.1-a)	3.2.1-15	H, 3
					Water Chemistry Control Program	V.D1.1-a, (V.A.1-a)	3.2.1-15	H, 3

SECTION 3.0

AGING MANAGEMENT

Section 3 (489 Pages)

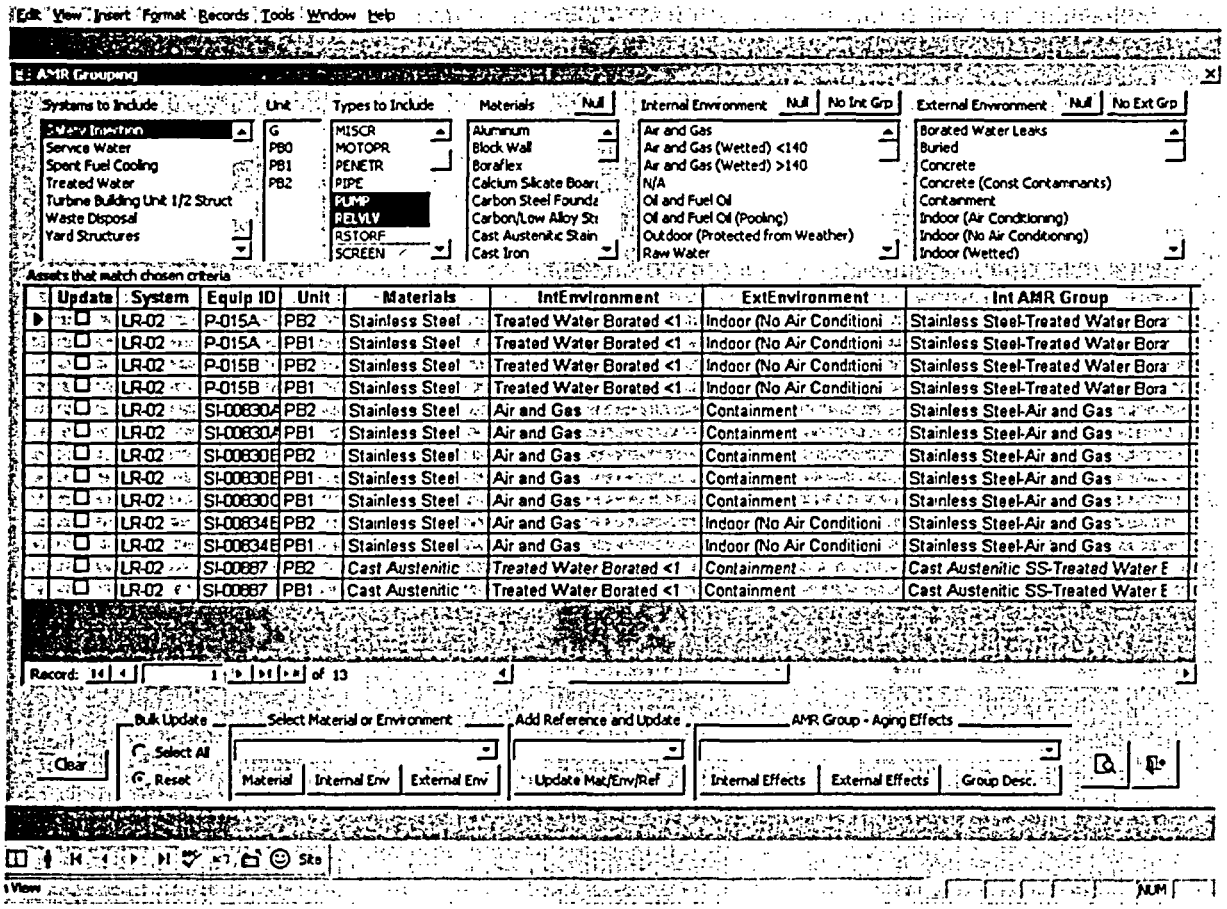
- **Methodology**
- **Results**
  - **Major Components**
  - **Systems/Structures**
- **Results Display**
  - **Tables Follow New Standard Format**
  - **SRP Section Questions Covered in Table 1 or Text**
  - **Plant Specific Notes in Table 2**
  - **Definition of 'Consistent With'**

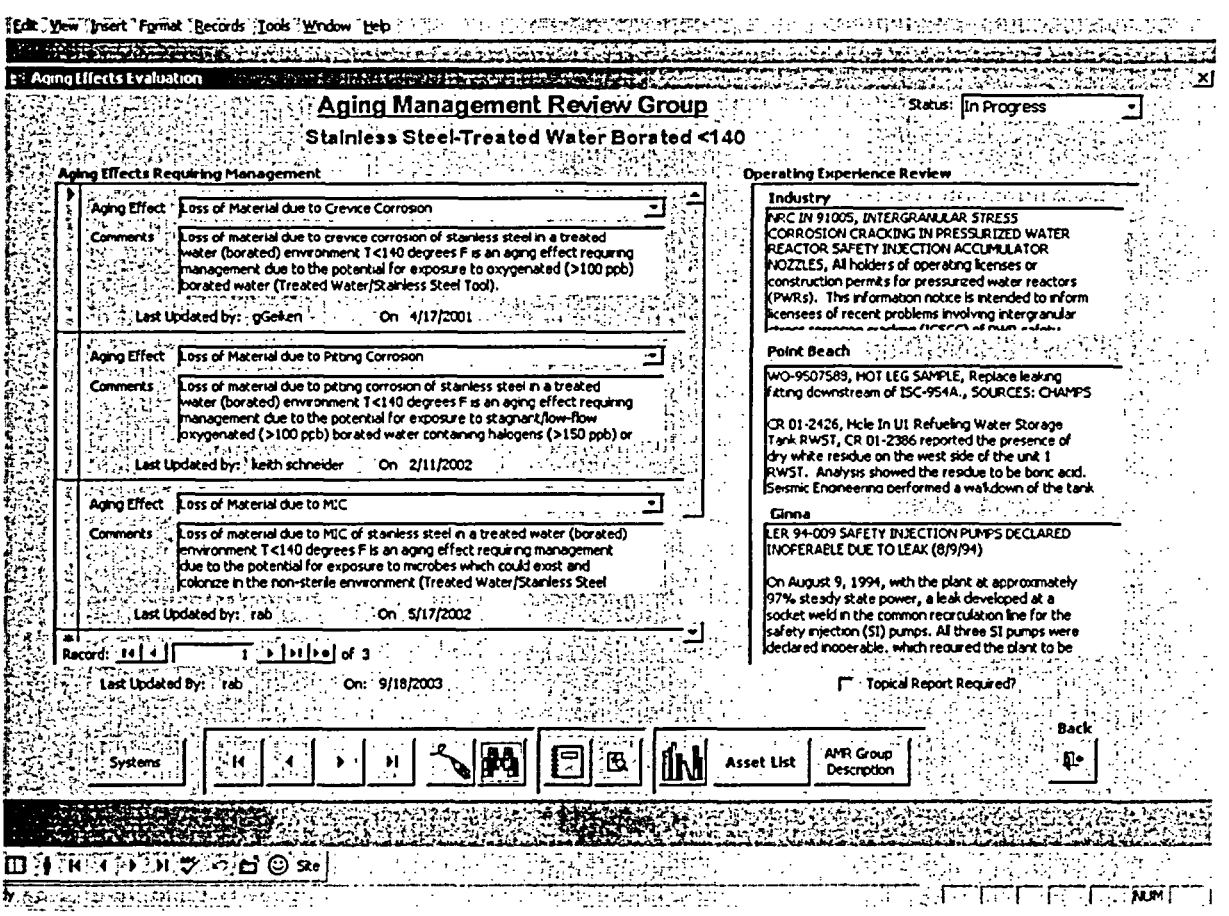
SECTION 3.0

AGING MANAGEMENT

Methodology

- **Materials and Environments determined using plant data, along with some walkdowns**
- **Industry Tools used to determine appropriate aging effects for each AMR group**
- **OE results input into each AMR group**
- **Assignments of aging management activities and programs made at the component level, but results shown at a component-group level**
- **LRDB used extensively to manage data**


Edit View Insert Format Records Tools Window Help
E: AMR Grouping
Systems to Include
Service Water
Spent Fuel Cooling
Treated Water
Turbine Building Unit 1/2 Struct
Waste Disposal
Yard Structures
Unit
G
PB0
PB1
PB2
Types to Include
MISCR
MOTOPR
PENETR
PIPE
PUMP
RELVLV
RSTORF
SCREEN
Materials
Null
Aluminum
Block Wall
Boraflex
Calcium Silicate Boar
Carbon Steel Founda
Carbon/Low Alloy St
Cast Austenitic Stain
Cast Iron
Internal Environment
Null
No Int Grp
Air and Gas
Air and Gas (Wetted) <140
Air and Gas (Wetted) >140
N/A
Oil and Fuel Oil
Oil and Fuel Oil (Pooling)
Outdoor (Protected from Weather)
Raw Water
External Environment
Null
No Ext Grp
Borated Water Leaks
Buried
Concrete
Concrete (Const Contamnants)
Containment
Indoor (Air Conditioning)
Indoor (No Air Conditioning)
Indoor (Wetted)
Assets that match chosen criteria
Update
System
Equip ID
Unit
Materials
IntEnvironment
ExtEnvironment
Int AMR Group
LR-02 P-015A PB2 Stainless Steel Treated Water Borated <1 Indoor (No Air Conditioni Stainless Steel-Treated Water Bora
LR-02 P-015A PB1 Stainless Steel Treated Water Borated <1 Indoor (No Air Conditioni Stainless Steel-Treated Water Bora
LR-02 P-015B PB2 Stainless Steel Treated Water Borated <1 Indoor (No Air Conditioni Stainless Steel-Treated Water Bora
LR-02 P-015B PB1 Stainless Steel Treated Water Borated <1 Indoor (No Air Conditioni Stainless Steel-Treated Water Bora
LR-02 SI-00830A PB2 Stainless Steel Air and Gas Containment Stainless Steel-Air and Gas
LR-02 SI-00830A PB1 Stainless Steel Air and Gas Containment Stainless Steel-Air and Gas
LR-02 SI-00830E PB2 Stainless Steel Air and Gas Containment Stainless Steel-Air and Gas
LR-02 SI-00830E PB1 Stainless Steel Air and Gas Containment Stainless Steel-Air and Gas
LR-02 SI-00830C PB1 Stainless Steel Air and Gas Containment Stainless Steel-Air and Gas
LR-02 SI-00834E PB2 Stainless Steel Air and Gas Indoor (No Air Conditioni Stainless Steel-Air and Gas
LR-02 SI-00834E PB1 Stainless Steel Air and Gas Indoor (No Air Conditioni Stainless Steel-Air and Gas
LR-02 SI-00887 PB2 Cast Austenitic Treated Water Borated <1 Containment Cast Austenitic SS-Treated Water E
LR-02 SI-00887 PB1 Cast Austenitic Treated Water Borated <1 Containment Cast Austenitic SS-Treated Water E
Record: 1 of 13
Bulk Update
Select All
Reset
Clear
Select Material or Environment
Material
Internal Env
External Env
Add Reference and Update
Update Mat/Env/Ref
AMR Group - Aging Effects
Internal Effects
External Effects
Group Desc.


Edit View Insert Format Records Tools Window Help
E: Aging Effects Evaluation
Aging Management Review Group
Stainless Steel-Treated Water Borated <140
Status: In Progress
Aging Effects Requiring Management
Aging Effect: Loss of Material due to Crevice Corroson
Comments: Loss of material due to crevice corrosion of stainless steel in a treated water (borated) environment T<140 degrees F is an aging effect requiring management due to the potential for exposure to oxygenated (>100 ppb) borated water (Treated Water/Stainless Steel Tool).
Last Updated by: gGeiken On 4/17/2001
Aging Effect: Loss of Material due to Pitting Corroson
Comments: Loss of material due to pitting corrosion of stainless steel in a treated water (borated) environment T<140 degrees F is an aging effect requiring management due to the potential for exposure to stagnant/low-flow oxygenated (>100 ppb) borated water containing halogens (>150 ppb) or
Last Updated by: keith schneider On 2/11/2002
Aging Effect: Loss of Material due to MIC
Comments: Loss of material due to MIC of stainless steel in a treated water (borated) environment T<140 degrees F is an aging effect requiring management due to the potential for exposure to microbes which could exist and colonize in the non-sterile environment (Treated Water/Stainless Steel
Last Updated by: rab On 5/17/2002
Record: 1 of 3
Last Updated By: rab On: 9/18/2003
Operating Experience Review
Industry
NRC IN 91005, INTERGRANULAR STRESS CORROSION CRACKING IN PRESSURIZED WATER REACTOR SAFETY INJECTION ACCUMULATOR NOZZLES, All holders of operating licenses or construction permits for pressurized water reactors (PWRs). This information notice is intended to inform licensees of recent problems involving intergranular
Point Beach
WO-9507589, HOT LEG SAMPLE, Replace leaking fitting downstream of ISC-954A., SOURCES: CHAMPS
CR 01-2426, Hole In U1 Refueling Water Storage Tank RWST, CR 01-2386 reported the presence of dry white residue on the west side of the unit 1 RWST. Analysis showed the residue to be boric acid. Seismic Engineering performed a walkdown of the tank
Ginna
LER 94-009 SAFETY INJECTION PUMPS DECLARED INOPERABLE DUE TO LEAK (8/9/94)
On August 9, 1994, with the plant at approximately 97% steady state power, a leak developed at a socket weld in the common recirculation line for the safety injection (SI) pumps. All three SI pumps were declared inoperable, which required the plant to be
Topical Report Required?
Systems
Asset List
AMR Group Description
Back

SECTION 3.0

AGING MANAGEMENT

Results

- **Major components (Class 1 piping and components, reactor vessel, vessel internals, steam generators, pressurizer) used the Westinghouse GTRs.**
  - **Those GTRs that were approved by the NRC have all Applicant Action Items addressed in each respective section (Table 3.1.0-1)**
- **Systems are addressed simply by material/ environment combinations, and are sorted by the major Component groups.**
  - **A Review Tool may be used to find a specific component within a component group.**

SECTION 3.0
AGING MANAGEMENT

Results Display

- **Used the New Standard (Class of 2003) format**
- **SRP Section questions are addressed in 3.x.1 tables (Table 3.2.1-01) (Section 3.2.2.2.1)**
- **In Table 3.x.2, where an exact match to a GALL line item was not available, parenthesis were used around the GALL reference, and differences were addressed in the Note column**
- **"Consistent with GALL" means that the line item and program are consistent without exception, and Notes A or C are used**

Table 3.1.0-1 Class 1 Piping and Associated Pressure Boundary Components - WCAP-14575-A Final Safety Evaluation Report Response to Applicant Action Items

Renewal Applicant Action Item	Plant-Specific Response
(1) The license renewal applicant is to verify that its plant is bounded by the topical report. Further, the renewal applicant is to commit to programs described as necessary in the topical report to manage the effects of aging during the period of extended operation on the functionality of the reactor coolant system piping. Applicants for license renewal will be responsible for describing any such commitments and identifying how such commitments will be controlled. Any deviations from the aging management programs within this topical report described as necessary to manage the effects of aging during the period of extended operation and to maintain the functionality of the reactor coolant system piping and associated pressure boundary components or other information presented in the report, such as materials of construction, will have to be identified by the renewal applicant and evaluated on a plant-specific basis in accordance with 10 CFR 54.21(a)(3) and (c)(1).	As summarized in Section 3.1 of the LRA, the Class 1 piping and associated pressure boundary components are bounded by the topical report with regard to design criteria and features, materials of construction, fabrication techniques, installed configuration, modes of operation, and environments/exposures. Deviations from the aging management programs included in the topical report are also described in Section 3.1 of the LRA. · Programs necessary to manage the effects of aging are identified in Section 3.1.2.1.1, and are summarized in Appendix B of the LRA. Program commitments to manage the effects of aging for Class 1 piping and associated pressure boundary components are also described in Appendix B of the LRA.
(2) Summary description of the programs and evaluation of Time-Limited Aging Analyses are to be provided in the license renewal FSAR supplement in accordance with 10 CFR 54.21(d).	A summary of the programs identified to manage the effects of aging for Class 1 piping and associated pressure boundary components is included in the proposed FSAR supplement in Appendix A of the LRA. A mark-up of the FSAR sections affected by the TLAA evaluations is also included in Appendix A of the LRA
(3) The renewal applicant should complete the updated review of generic communications and capture any additional items not identified by the original review.	PBNP has completed an updated review of generic communications for applicability to Class 1 piping and associated pressure boundary components. All generic communications applicable to aging effects have been captured.

Pump Casing

External Table ***Stainless Steel-Indoor (No Air Conditioning)***

Unit ID	Equip ID	Description
PB1	P-015A	SAFETY INJECTION PUMP
PB2	P-015A	SAFETY INJECTION PUMP
PB1	P-015B	SAFETY INJECTION PUMP
PB2	P-015B	SAFETY INJECTION PUMP

Internal Table ***Stainless Steel-Treated Water Borated <140***

Unit ID	Equip ID	Description
PB2	P-015A	SAFETY INJECTION PUMP
PB1	P-015A	SAFETY INJECTION PUMP
PB2	P-015B	SAFETY INJECTION PUMP
PB1	P-015B	SAFETY INJECTION PUMP

Restricting Orifices

External Table ***Stainless Steel-Indoor (No Air Conditioning)***

Unit ID	Equip ID	Description
PB1	RO-1P-15A	RESTRICTIVE OROFICE DOWN STREAM OF PUMP 1P-15A
PB1	RO-1P-15B	RESTRICTIVE OROFICE DOWN STREAM OF PUMP 1P-15B
PB2	RO-2P-15A	RESTRICTIVE OROFICE DOWN STREAM OF PUMP 2P-15A
PB2	RO-2P-15B	RESTRICTIVE OROFICE DOWN STREAM OF PUMP 2P-15B
PB1	RO-A	Piping section designated as a restricting Orifice on the SI injection line - a 12" long section of 1" diameter pipe added to a 2" diameter pipe to balance flow
PB2	RO-A	Piping section designated as a restricting Orifice on the SI injection line - a 12" long section of 1" diameter pipe added to a 2" diameter pipe to balance flow

Internal Table ***Stainless Steel-Treated Water Borated <140***

Unit ID	Equip ID	Description
PB1	RO-1P-15A	RESTRICTIVE OROFICE DOWN STREAM OF PUMP 1P-15A
PB1	RO-1P-15B	RESTRICTIVE OROFICE DOWN STREAM OF PUMP 1P-15B
PB2	RO-2P-15A	RESTRICTIVE OROFICE DOWN STREAM OF PUMP 2P-15A
PB2	RO-2P-15B	RESTRICTIVE OROFICE DOWN STREAM OF PUMP 2P-15B
PB1	RO-A	Piping section designated as a restricting Orifice on the SI injection line - a 12" long section of 1" diameter pipe added to a 2" diameter pipe to balance flow
PB2	RO-A	Piping section designated as a restricting Orifice on the SI injection line - a 12" long section of 1" diameter pipe added to a 2" diameter pipe to balance flow

Table 3.2.1 Summary of Aging Management Evaluations in Chapter V of NUREG-1801 for Engineered Safety Features

Item Number	Component	Aging Effect/Mechanism	Aging Management Programs	Further Evaluation Recommended	Discussion
3.2.1-01	Piping, fittings, and valves in emergency core cooling system	Cumulative fatigue damage	TLAA, evaluated in accordance with 10 CFR 54.21(c)	Yes, TLAA (see [SRP] subsection 3.2.2.2.1)	Further evaluation documented in Section 3.2.2.2.1.
3.2.1-02	BWR only				
3.2.1-03	Components in containment spray (PWR only), standby gas treatment (BWR only), containment isolation, and emergency core cooling systems	Loss of material due to general corrosion	Plant specific	Yes, plant specific (see [SRP] subsection 3.2.2.2.2.2)	This line item was not used at PBNP. Further evaluation documented in Section 3.2.2.2.2.2.
3.2.1-04	BWR only				
3.2.1-05	Components in containment spray (PWR only), standby gas treatment (BWR only), containment isolation, and emergency core cooling systems	Loss of material due to pitting and crevice corrosion	Plant specific	Yes, plant specific (see [SRP] subsection 3.2.2.2.3.2)	Further evaluation documented in Section 3.2.2.2.3.2.
3.2.1-06	Containment isolation valves and associated piping	Loss of material due to microbiologically influenced corrosion	Plant specific	Yes, plant specific (see [SRP] subsection 3.2.2.2.4)	This line item was not used at PBNP. Further evaluation documented in Section 3.2.2.2.4.
3.2.1-07	BWR only				
3.2.1-08	High pressure safety injection (charging) pump miniflow orifice	Loss of material due to erosion	Plant specific	Yes, plant specific (see [SRP] subsection 3.2.2.2.6)	Not applicable at PBNP as SI pumps are not normally in use. Further evaluation documented in Section 3.2.2.2.6.
3.2.1-09	BWR only				

- Indoor - No Air Conditioning (External)
- Treated Water - Other (Stagnant) (Internal)

Aging Effects Requiring Management

The following aging effects, associated with the Containment Isolation Components System, require management:

- Loss Of Material

Aging Management Programs

The following aging management programs manage the aging effects for the Containment Isolation Components System components:

- Bolting Integrity Program
- Boric Acid Corrosion Program
- One-Time Inspection Program
- Systems Monitoring Program
- Water Chemistry Control Program

3.2.2.2 Further Evaluation of Aging Management as Recommended by NUREG-1801

NUREG-1801 Volume 1 Tables provide the basis for identifying those programs that warrant further evaluation by the reviewer in the license renewal application. For the Engineered Safety Features, those programs are addressed in the following sections.

3.2.2.2.1 Cumulative Fatigue Damage

Fatigue is a TLAA as defined in 10 CFR 54.3. TLAAs are required to be evaluated in accordance with 10 CFR 54.21(c). The evaluation of this TLAA is addressed separately in Section 4.3.

3.2.2.2.2.1 Loss of Material Due to General Corrosion

Applicable to BWR Only

3.2.2.2.2.2 Loss of Material Due to General Corrosion

This line item was not used at PBNP, although PBNP does have carbon steel components in the ESF systems. Loss of material due to general corrosion is an applicable aging effect/mechanism. PBNP addresses this aging effect for external environments in Item Number 3.2.1-10, and credits

Notes for Tables 3.2.2-1 through 3.2.2-4

A Consistent with NUREG-1801 item for component, material, environment, and aging management program. AMP is consistent with NUREG-1801 AMP.

B Consistent with NUREG-1801 item for component, material, environment, and aging management program. AMP has exceptions to NUREG-1801 AMP.

C Component is different, but consistent with NUREG-1801 for material, environment, aging effect and AMP. AMP is consistent with NUREG-1801 AMP.

D Component is different, but consistent with NUREG-1801 for material, environment, aging effect and AMP. AMP has exceptions to NUREG-1801 AMP.

E Consistent with NUREG-1801 for material, environment, and aging effect but a different AMP is credited.

F Material not in NUREG-1801 for this component.

G Environment not in NUREG-1801 for this component and material.

H Aging effect not in NUREG-1801 for this component, material and environment combination.

I Aging effect in NUREG-1801 for this component, material and environment combination is not applicable.

J Neither the component nor the material and environment combination is evaluated in NUREG-1801.

Plant-specific notes:

1 The CS Component asset was created to manage Boric Acid wastage of external surfaces only (for any carbon steel, low alloy steel, or cast iron component, including bolting), and therefore internal environments for this asset are not applicable. All other internal and external aging effects are identified separately under the specific component type.

2 Internal aging effects are not applicable. Due to the way data is entered into the LRDB, the internal environment of some components is listed as N/A (e.g. bolting, walls, clad vessels, structural steel, etc.).

3 Although the NUREG references a temperature gate of < 90 degrees C (200 degrees F) and a single aging effect (cracking due to SCC), materials science supports (1) a temperature gate > 140 degrees F for cracking due to SCC, and (2) loss of material due to pitting (stagnant or low flow conditions) and crevice corrosion for all temperatures. The aging effect identified by PBNP (loss of material) for temperatures < 140 degrees F differs from that of the NUREG. That not withstanding, the Water Chemistry Control Program, which is credited

Point Beach Nuclear Plant
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Section 4 TLAA (99 Pages)

- **Detail Results for each TLAA**
  - **29 evaluated - 23 TLAAs**
    (Table 4.1-2)
- **Some Analysis Under Review by NRC**
  - **Master Curve and LBB**
    (Table 4.2.1-3)
- **Some TLAA Exemptions Necessary**
  - **Master Curve (3)**

Point Beach Nuclear Plant
License Renewal Application

Appendix A FSAR Supplement

- **Existing FSAR Section Revisions**
- **New LR related FSAR section**
  - **Program Descriptions**
  - **TLAA Descriptions**

Table 4.1-2 Time Limited Aging Analyses

TLAA Category	Number	TLAA	Section	Disposition 10 CFR 54.21(c)(1)	Comments
Reactor Vessel Irradiation Embrittlement	1	Reactor Vessel Pressurized Thermal Shock	4.2.1	(ii) projected to the end of the period of extended operation	
	2	Reactor Vessel Upper-Shelf Energy	4.2.2	(ii) projected to the end of the period of extended operation	
	3	Reactor Vessel Pressure/ Temperature Limits	4.2.3	(ii) projected to the end of the period of extended operation	Includes LTOP setpoint calculation(s)
Fatigue	4	Reactor Vessel Structural Integrity	4.3.1	(ii) projected to the end of the period of extended operation	
	5	Reactor Vessel Internals Structural Integrity	4.3.2	(ii) projected to the end of the period of extended operation	
	6	Control Rod Drive Mechanism Structural Integrity	4.3.3	(ii) projected to the end of the period of extended operation	
	7	Steam Generator Structural Integrity	4.3.4	(ii) projected to the end of the period of extended operation & (iii) effects of aging on the intended function will be adequately managed for the period of extended operation	The Unit 1 SGs' inspection port closure bolting replacement will be managed for the extended period of operation.by the Periodic Surveillance and Preventive Maintenance Program
	8	Pressurizer Structural Integrity	4.3.5	(ii) projected to the end of the period of extended operation	

Table 4.2.1-3 Comparisons of Reference Temperature Methods and Results

Method of Analysis	Material and Margin Properties			Inside Surface ART= RT_{PTS} Determination		
	Initial RT_{NDT} or RT_{To} (°F)	CF (°F)	Margin (°F)	Fluence Factor	ΔRT_{NDT} (°F)	ART = RT_{PTS} (°F)
Current Regulation	-5	180	68.5	1.406	253.0	316
$RT_{To(U)}$ + ΔCVN + Margin (B&WOG)	-38	180	60.8	1.406	253.0	276
$RT_{To(U)}$ + ΔRT_{To} + Margin (NRC)	-38	163	60.5	1.406	229.5	252
Direct Use of Irr. RT_{To}	--	180	42.9	1.406	RT_{irr} = 185.6	229

The margin term was chosen depending upon the analysis approach discussed above. For Method 1, margin was based on three uncertainties: material variability based on a Monte Carlo study from BAW-2308 of weld heat 72442 non-irradiated data (σ_{MC} = 9.3°F), the uncertainty in determining T_o from ASTM E 1921-02 (σ_{To} = 7.4°F), and the current regulatory value for weld metal Charpy shift (σ_{Δ} = 28°F); σ_{MC} and σ_{To} are combined to give a measure of the uncertainty in initial properties (σ_I = 11.9°F). Method 2 used the margin specified by the NRC in the Kewaunee SE, which used a larger σ_I (14°F) and the same σ_{Δ} of 28°F. Method 3 used a more complete uncertainty analysis: material variability (σ_{MC} = 9.3°F as above), determination of irradiated T_o (σ_{To} = 10.7°F), Cu content (σ_{Cu} = 1.6-1.7°F), Ni content (σ_{Ni} = 4.1-4.2°F), irradiation temperature (σ_{Tirr} = 6.9-8.9°F), fluence ($\sigma_{\phi t}$ = 13.2-12.5°F), and fluence projection (σ_{Proj} = 1.0-1.6°F). Remaining consistent with industry practice, an approximate 95% statistical level (or two sigma) margin was chosen, where the individual uncertainties were combined as two times the square root sum of the squares.

Since there was a need to extrapolate to higher fluence levels (higher than where current fracture toughness measurements exist) to assess PTS and pressure-temperature operating curves, the current Regulatory fluence function for CVN-based predictions was used for the Master Curve approach.

The supplemental surveillance program utilizes irradiation of the limiting weld metal heat in a new capsule that will be available for testing near the time corresponding to 38 EFPY for

15.2.5 Boraflex Monitoring Program

The Boraflex Monitoring Program manages aging effects for the boraflex material in the spent fuel racks. This program provides for blackness testing and areal density measurements of the boraflex material in the spent fuel storage racks to confirm the in-service boraflex performance. In addition, tracking of the spent fuel pool silica levels provides a qualitative indication of boron carbide loss. The results of silica sampling will be trended and analyzed using a predictive code. Neutron attenuation or blackness testing will be performed to determine gap formation, while areal density measurements will be used to ascertain the physical loss of boron carbide. Monitoring and analysis of criticality will also be performed to assure that the required 5% subcriticality margin is maintained. Based on the results of these inspections and analysis, appropriate measures will be taken to ensure the boraflex will continue to perform its intended function. This program addresses the concerns described in NRC GL 96-04.

15.2.6 Boric Acid Corrosion Program

The Boric Acid Corrosion Program manages aging effects for structures and components as a result of borated water leakage. The program requires periodic visual inspection of systems that contain borated water for evidence of leakage or accumulations of dried boric acid. It includes provisions for (a) determination of the principal location or source of the leakage, (b) examination requirements and procedures for locating small leaks, and (c) evaluations and/or corrective actions to ensure that boric acid leakage does not lead to degradation of the leakage source as well as other SSC exposed to the leakage, including mechanical, structural, and electrical items such as bolts, fasteners, piping, cables, cable trays, electrical connectors, etc., which could cause the loss of intended function(s). This program complies with PBNP's response to NRC GL 88-05.

15.2.7 Buried Services Monitoring Program

The Buried Services Monitoring Program manages aging effects on the external surfaces of carbon steel, low-alloy steel, and cast iron components (e.g., tanks, piping) that are buried in soil or sand. This program includes (a) preventive measures to mitigate degradation (e.g., external coatings and wrappings), and (b) visual inspections of external surfaces of buried components for evidence of coating damage and substrate degradation to manage the effects of aging. The periodicity of these inspections will be based on plant operating experience and opportunities for inspection such as scheduled maintenance work.

To address the period of extended operation, the end of license extension projected fluences, and the RPV material properties were used to determine the limiting materials, and calculate pressure-temperature limits for heatup and cooldown. When considering the master-curve ART for the Unit 2 intermediate to lower shell girth weld, the highest "Circ-Flaw" ART would then come from the PBNP Unit 1 intermediate to lower shell circumferential weld. The most limiting "Axial-Flaw" ART comes from the PBNP Unit 1 lower shell axial welds (for 1/4T) and the intermediate shell axial welds (for 3/4T).

The analysis associated with reactor vessel pressure-temperature limit curves has been projected to the end of the period of extended operation, in accordance with 10 CFR 54.21(c)(1)(ii).

15.4.2 Fatigue

The thermal and mechanical fatigue analyses of plant mechanical components have been identified as time limited aging analyses for the Point Beach Nuclear Plant. Specific components have been designed and analyzed considering transient cycle assumptions identified in vendor specifications and the PBNP FSAR.

In conjunction with revising the NSSS design transients for the Unit 2 Replacement Steam Generator Project (SGRP), and the Power Uprate Project (PUP), the NSSS design transients were also evaluated for acceptability for a 60-year operating period. The number of NSSS transients actually experienced by the two units was identified. Based on historical transient occurrences, and current plant operational practices, the number of future NSSS transients was forecasted for a 60-year operating period. With few exceptions, the anticipated number of transients for a 60-year operating period was far less than the original design number of transients for a 40-year operating period.

The exceptions noted above comprise a set of pressure test transients that were included in some of the NSSS component Equipment Specifications. The pressure test transients forecasted for a 60-year operating period exceeded the original design number of transients for a 40-year operating period. The NSSS design transient set was revised to include an increased number of pressure test transients, sufficient for a 60-year operating period.

In addition, the NSSS transient set was also revised to increase the number of steady state random RCS pressure and temperature fluctuations to ensure adequate margin existed for a 60-year operating period. The revised set of NSSS design transients were used in performing the detailed engineering evaluations in support of the Power Uprate Project.

APPENDIX B

AGING MANAGEMENT PROGRAMS

- **Detailed descriptions are provided for each program credited for aging management (253 Pages).**
- **There are 27 aging management programs, including 3 TLAA programs.**
  - **22 - Existing Programs (E)**
  - **5 - New Programs (N)**

APPENDIX B

AGING MANAGEMENT PROGRAMS

1. ASME Section XI, Subsections IWB, IWC, & IWD Inservice Inspection Program (E)
2. ASME Section XI, Subsections IWE & IWL Inservice Inspection Program (E)
3. ASME Section XI, Subsection IWF Inservice Inspection Program (E)
4. Bolting Integrity Program (E)
5. Boraflex Monitoring Program (E)
6. Boric Acid Corrosion Program (E)
7. Buried Services Monitoring Program (N)
8. Cable Condition Monitoring Program (N)
9. Closed-Cycle Cooling Water System Surveillance Program (E)
10. Fire Protection Program (E)
11. Flow-Accelerated Corrosion Program (E)
12. Fuel Oil Chemistry Control Program (E)
13. One-Time Inspection Program (N)
14. Open-Cycle Cooling (Service) Water System Surveillance Program (E)
15. Periodic Surveillance and Preventive Maintenance Program (E)

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AGING MANAGEMENT PROGRAMS

16. Reactor Coolant System Alloy 600 Inspection Program (N)
17. Reactor Vessel Internals Program (E)
18. Reactor Vessel Surveillance Program (E)
19. Steam Generator Integrity Program (E)
20. Structures Monitoring Program (E)
21. Systems Monitoring Program (E)
22. Tank Internal Inspection Program (N)
23. Thimble Tube Inspection Program (E)
24. Water Chemistry Control Program (E)

Time-Limited Aging Analyses Support Activities:

1. Environmental Qualification Program (E)
2. Fatigue Monitoring Program (E)
3. Pre-Stressed Concrete Containment Tendon Surveillance Program (E)

APPENDIX B

AGING MANAGEMENT PROGRAMS

- **<u>All programs</u> have been evaluated against the 10 elements in Appendix A.1 of NUREG-1800, and Section X or XI of NUREG-1801, as applicable.**
- **Details of the evaluation of each of the 10 elements are provided for <u>all programs</u>, including any applicable enhancements.**
- **Each program is described as if the identified enhancements have been implemented.**

APPENDIX B

AGING MANAGEMENT PROGRAMS

- **Each program is deemed to be either:**
  - **Consistent with the corresponding NUREG-1801 program,**
  - **Consistent with exceptions and meets the intent of the corresponding NUREG- 1801 program, or**
  - **Plant-specific.**

APPENDIX B

AGING MANAGEMENT PROGRAMS

- **Aging Management Programs Correlation**

(Correlation Table)

B2.0 AGING MANAGEMENT PROGRAMS CORRELATION

Correlation between NUREG-1801 (Generic Aging Lessons Learned (GALL)) programs and PBNP programs are shown below. For the PBNP Programs, links to appropriate sections of this appendix are provided.

NUREG -1801 ID	NUREG-1801 Program	PBNP Program	NUREG -1801 Comparison
XI.M1	ASME Section XI Inservice Inspection, Subsections IWB, IWC, & IWD	ASME Section XI, Subsections IWB, IWC, & IWD Inservice Inspection Program [Section B2.1.1]	Consistent with Exceptions and Meets the Intent
XI.M2	Water Chemistry	Water Chemistry Control Program [Section B2.1.24]	Consistent with Exceptions and Meets the Intent
XI.M3	Reactor Head Closure Studs	ASME Section XI, Subsections IWB, IWC, & IWD Inservice Inspection Program [Section B2.1.1]	Consistent with Exceptions and Meets the Intent
XI.M4	BWR Vessel ID Attachment Welds	Not Applicable, PBNP is a PWR.	N/A
XI.M5	BWR Feedwater Nozzle	Not Applicable, PBNP is a PWR.	N/A
XI.M6	BWR Control Rod Drive Return Line Nozzle	Not Applicable, PBNP is a PWR.	N/A
XI.M7	BWR Stress Corrosion Cracking	Not Applicable, PBNP is a PWR.	N/A
XI.M8	BWR Penetrations	Not Applicable, PBNP is a PWR.	N/A
XI.M9	BWR Vessel Internals	Not Applicable, PBNP is a PWR.	N/A
XI.M10	Boric Acid Corrosion	Boric Acid Corrosion Program [Section B2.1.6]	Consistent
XI.M11	Nickel-Alloy Nozzles and Penetrations	Reactor Coolant System Alloy 600 Inspection Program [Section B2.1.16]	Consistent with Exceptions and Meets the Intent

APPENDIX B

AGING MANAGEMENT PROGRAMS

- For programs that are deemed consistent with or consistent with exceptions to the corresponding NUREG-1801 program, the discussion is presented in the following form.
  - Program description
  - NUREG-1801 consistency statement
  - Exceptions to the NUREG-1801 program
  - Enhancements
  - Element by element discussion
  - Conclusion

APPENDIX B

AGING MANAGEMENT PROGRAMS

- **Exceptions to the NUREG-1801 program are outlined and a justification provided.**
- **Enhancements to the program are identified.**
- **Enhancements include those needed to ensure consistency with NUREG-1801 or provide additional features to the program.**

APPENDIX B

AGING MANAGEMENT PROGRAMS

- **An element by element discussion is provided for all programs.**
- **Comparisons are made to and consistency evaluated for each NUREG-1801 program element.**
- **The conclusion section provides reasonable assurance that the program is or will be effective once enhanced to manage the effects of aging.**

APPENDIX B

AGING MANAGEMENT PROGRAMS

- **For programs that are deemed plant-specific, the discussion is presented in the following form.**
  - **Program description**
  - **Enhancements**
  - **Element by element discussion**
  - **Conclusion**
- **Enhancements ensure consistency with the 10 elements in Appendix A.1 of NUREG-1800.**

APPENDIX B

AGING MANAGEMENT PROGRAMS

- **This appendix includes a commitment to apply the PBNP Quality Assurance Program to both safety related and non-safety related systems, structures, and components that are subject to an aging management review for the program elements of corrective action, confirmation process and administrative controls.**

APPENDIX B

AGING MANAGEMENT PROGRAMS

- **These program elements will be implemented in accordance with the requirements of 10 CFR 50, Appendix B and ANSI 18.7-1976, as committed in Section 1.4 of the PBNP FSAR.**
- **The elements of corrective action, confirmation process and administrative controls have been evaluated on a generic basis for all of the programs.**

APPENDIX B

AGING MANAGEMENT PROGRAMS

- **ASME Section XI, Subsections IWE & IWL Inservice Inspection Program**

(Program in Application)

(Program Basis Document Cover and TOC)

Environmental Report

- NRC Generic Environmental Impact Statement addresses 92 environmental issues
  - 69 Category 1 issues addressed generically (49 applicable to PBNP)
  - 21 Category 2 issues plant specific (12 applicable to PBNP)
  - 2 issues were NA and removed from the process
- No new and significant issues were identified
- 12 environmental issues evaluated – small impact
- No cost beneficial Severe Accident Management Alternatives (SAMA) were identified (65 of 202 were evaluated)
- Outside agency contacts have been initiated
  - WDNR, US Fish & Wildlife Service, Wisconsin State Historical Society, Wisconsin Department of Administration (CZM)

A review of NRC Inspection Reports, QA Audit/Surveillance Reports, and Self-Assessments since 1999 revealed no other issues or findings that could impact the effectiveness of the ASME Section XI, Subsections IWB, IWC, and IWD Inservice Inspection Program. As additional operating experience is obtained, lessons learned may be used to adjust this program.

This element is consistent with the corresponding NUREG-1801 aging management program elements.

Conclusion

The ASME Section XI, Subsections IWB, IWC, and IWD Inservice Inspection Program provides reasonable assurance that aging effects will be managed such that the systems and components within the scope of this program will continue to perform their intended functions consistent with the current licensing basis for the period of extended operation.

B2.1.2 ASME Section XI, Subsections IWE & IWL Inservice Inspection Program

The ASME Section XI, Subsections IWE & IWL Inservice Inspection Program manages aging of (a) steel liners of concrete containments and their integral attachments; containment hatches and airlocks; seals, gaskets and moisture barriers; and pressure retaining bolting, and (b) reinforced concrete containments and unbonded post-tensioning systems. The primary inspection methods employed are visual examinations with limited supplemental volumetric and surface examinations, as necessary. Tendon anchorages and wires are visually examined. Tendon wires are tested to verify that minimum mechanical property requirements are met. Tendon corrosion protection medium is analyzed for alkalinity, water content and soluble ion concentrations. Pre-stressing forces are measured in sample tendons. Measured tendon lift-off forces are compared to predicted tendon forces calculated in accordance with Regulatory Guide 1.35.1. This program is in accordance with 10 CFR 50.55a and approved Code Cases and Relief Requests.

This program manages aging effects for:

- Carbon steel and miscellaneous polymeric materials and components that provide containment pressure boundary/leak-tight barrier function and are tested/inspected in accordance with 10 CFR 50, Appendix J and/or ASME Section XI, Subsection IWE,
- Containment tendons, and
- Concrete, which is inspected in accordance with ASME Section XI, Subsection IWL.

This program is credited by the Bolting Integrity Program for the inspection of pressure retaining bolting associated with the containment pressure boundary.

LICENSE RENEWAL AGING MANAGEMENT PROGRAM BASIS DOCUMENT

POINT BEACH NUCLEAR PLANT

ASME SECTION XI, SUBSECTIONS IWE & IWL INSERVICE INSPECTION PROGRAM BASIS DOCUMENT FOR LICENSE RENEWAL

LR-AMP-028-IWEL

Revision 1

Prepared By: /s/ W. J. Herrman 02/11/2004
License Renewal Engineer / Date

Reviewed By: /s/ John G. Thorgersen 02/11/2004
License Renewal Program Lead / Date

Reviewed By: /s/ Mark J. Ortmayer 02/11/2004
License Renewal Technical Lead / Date

Reviewed By: /s/ Loyde Hawki 02/11/2004
Program Owner / Date

Approved By: /s/ Gary Sherwood 02/13/2004
Program Owner-Manager / Date

Approved By: /s/ Roger A. Newton 02/13/2004
License Renewal Project Manager / Date

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LIST OF ATTACHMENTS

Table 6-1. Environmental Impacts Related to License Renewal at PBNP.

No.	Issue	Environmental Impact
	Surface Water Quality, Hydrology, and Use (for all plants)	
13	Water use conflicts (plants with cooling ponds or cooling towers using makeup water from a small river with low flow)	**None.** This issue does not apply because PBNP does not use cooling ponds or cooling towers withdrawing water from a small river.
	Aquatic Ecology (for plants with once-through and cooling pond heat dissipation systems)	
25	Entrainment of fish and shellfish in early life stages	**Small.** PBNP has a current WPDES permit which constitutes compliance with CWA Section 316(b) requirements.
26	Impingement of fish and shellfish	**Small.** PBNP has a current WPDES permit which constitutes compliance with CWA Section 316(b) requirements.
27	Heat shock	**Small.** PBNP has a current WPDES permit which constitutes compliance with CWA Section 316(a) requirements.
	Groundwater Use and Quality	
33	Groundwater use conflicts (potable and service water, and dewatering; plants that use > 100 gpm)	**Small.** PBNP has three active high-capacity wells, plus one inactive residential well, that are capable of pumping a total of 116 gpm. Actual use is approximately 6.5 gpm.
34	Groundwater use conflicts (plants using cooling towers or cooling ponds withdrawing makeup water from a small river)	**None.** This issue does not apply because PBNP does not use cooling ponds or cooling towers withdrawing water from a small river.
35	Groundwater use conflicts (Ranney wells)	**None.** This issue does not apply because PBNP does not use Ranney wells.
39	Groundwater quality degradation (cooling ponds at inland sites)	**None.** This issue does not apply because PBNP does not use cooling ponds.
	Terrestrial Resources	
40	Refurbishment impacts	**None.** No impacts are expected because PBNP will not undertake refurbishment.
	Threatened or Endangered Species	
49	Threatened or endangered species	**Small.** No Federally threatened or endangered species are known to occur at the site or along transmission corridors. Agency correspondence is ongoing.
	Air Quality	
50	Air quality during refurbishment (non-attainment and maintenance areas)	**None.** No impacts are expected because PBNP will not undertake refurbishment.

Table F.2-2. Summary of PBNP SAMAs Considered in Cost-Benefit Analysis.

Point Beach SAMA Number	Potential Improvement	Discussion	Percent Reduction in CDF (Bounding)	Percent Reduction in Offsite Person-Rem (Bounding)	Total Benefit (Bounding	Estimated Cost	Conclusion	Basis for Conclusion
4	Install tornado protection on gas turbine generator.	If the unit has a gas turbine, the tornado-induced SBO frequency would be reduced.	14	1	$181.2k	>$1000k (EP)	This SAMA is not cost beneficial.	Implementation costs expected to far exceed benefit.
32	Install MG set trip breakers in control room.	Provides trip breakers for the motor generator sets in the control room. Currently, at Watts Bar, an ATWS would require an immediate action outside the control room to trip the MG sets. Would reduce ATWS CDF.	2	0	$29k	>$100k (EP)	This SAMA is not cost beneficial.	The cost associated with this modification is expected to greatly exceed the benefit.
45	Procedural guidance for use of cross-tied CCW or SW pumps.	Can reduce the frequency of the loss of either of these.	1	0	$13k	>$30k (EP)	This SAMA is not cost beneficial.	The cost of this modification exceeds the benefit. No further evaluation required.
47	Provide self-cooled ECCS seals.	ECCS pump seals are CCW cooled.	0	0	$0	No benefit, so cost greatly exceeds benefit. (EP)	This SAMA is not cost beneficial.	The cost of this modification will greatly exceed the benefit.
48	Provide a centrifugal charging pump.	Currently charging pumps are positive displacement pumps.	0	0	$0.3k	>$500k (EP)	This SAMA is not cost beneficial.	The cost of this modification is expected to greatly exceed the benefit.
50	Install a containment vent large enough to remove ATWS decay heat.	Assuming injection is available, would provide alternative decay heat removal in an ATWS.	2	0	$29k	>$5000k (EP)	This SAMA is not cost beneficial.	The cost associated with this modification is expected to greatly exceed the benefit.

Point Beach Nuclear Plant License Renewal Application Supporting Information

- **The Application is supported by the following documentation:**
  - **64 Scoping Reports**
  - **48 Screening Reports**
  - **31 AMR Reports**
  - **27 Program Basis Documents**
  - **23 Technical and Topical Reports**
  - **Supporting Environmental Documentation**

Point Beach Nuclear Plant License Renewal Application Conclusion

- **The Application includes the information to provide reasonable assurance that:**
  - **Aging effects will be managed**
  - **TLAAs have been identified and addressed**
  - **The applicable requirements of Subpart A of 10 CFR 51 have been satisfied.**
- **The Application provides all necessary information for the SER and the SEIS.**

Questions?