Nuclear Power Business Unit

DOCUMENT REVIEW AND APPROVAL

Note: Refer to NP 1.1.3 for requirements

I - INITIATION

Doc Number Tech Spec Bases B 3.7.5 Unit PB0 Usage Level NA Proposed Rev No NA

Title Auxiliary Feedwater (AFW) Ststem Classification NA

☒ Revision ☐ Cancellation ☐ New Document ☐ Other (e g , periodic review, admin hold) _____

List Temporary Changes/Feedbacks Incorporated: NA

Description of Alteration/Reason (If necessary, continue description of changes on PBF-0026c and attach)

Changes to Tech Spec Bases changes to reflect upgrade of the open function of AFW pump mini-recirc valves (1/2AF-4002, AF-4007, and AF-4014) to safety-related (MR 02-029).

List other documents required to be effective concurrently with the revision (e.g., other procedures, forms, drawings, etc.):

Technical Specification Bases List of Effective Pages

Document Preparer (print/sign) David Black / David Black Date 9-10-02

Indicates draft prepared according to NP1.1.3, any commitments/bases changes have been documented and resolved.

II - TECHNICAL REVIEW

(Cannot be the Preparer or Approval Authority)

Technical Reviewer (print/sign) Rob Chapman / [signature] Date 9-10-02

Indicates draft technically correct, consistent with references/bases/upper tier requirements, requirements of NP 1.1.3 completed

III – DOCUMENT OWNER REVIEW

Required Reviewers/Organizations: _____

Validation Required? ☒ NO ☐ YES ☐ WAIVED (Group Head Approval and Reason Required)

Reason Validation Waived: _____

Continue on PBF-0026c if necessary.

Validation Waiver Approval: _____

Group Head Signature

Changes pre-screened according to NP 5.1.8? ☐ NO ☐ YES (Provide documentation according to NP 5.1.8)

Screening completed according to NP 5.1.8? ☐ NA ☒ YES (Attach copy) Safety evaluation required? ☒ NO ☐ YES

Training or briefing required? ☐ NO ☐ YES If YES, training or briefing required before issue? ☐ NO ☐ YES

Training assistance desired? ☐ NO ☐ YES If YES, Training Coordinator contacted/date: _____ /

☐ QR/MSS Review NOT Required (Admin or NNSR only) ☐ QR Review Required ☐ MSS Review Required (reference NP 1.6.5)

Document Owner (print/sign) _____ / Date _____

Indicates document is technically correct, can be performed as written, does not adversely affect personnel or nuclear safety, appropriate reviews have been performed (i e., technical, cross-disciplinary, validation and 50 59/72.48), comments have been resolved and incorporated as appropriate, affected documents/ training/briefing have been identified and word processing completed. Document Control notified if emergent issuance required (e.g , may be less than 2 days for procedure issuance)

IV - APPROVAL

(The Preparer, Qualified Reviewer (QR), and Approval Authority shall be different individuals)

QR/MSS (print/sign) _____ / Date _____

Indicates 50.59/72.48 applicability assessed, any necessary screenings/evaluations performed, determination made as to whether additional cross-disciplinary review required, and if required, performed

MSS Meeting No. _____

Approval Authority (print/sign) _____ / Date _____

V – RELEASE FOR DISTRIBUTION

☐ NA ☐ YES Pre-implementation requirements complete (e.g , training/briefings, affected documents, word processing, etc.).

☐ Specific effective date not required. Issue per Document Control schedule.

☐ Required effective date: _____ (Coordinate date with Document Control)

Document Owner/Designee (print/sign) _____ / Date _____

Effective Date (to be entered by Document Control) _____

#1231

References NP 1.1 3, NP 1.1.5, NP 1.1 6
NP 1 2 3 NP 1 2 5 NP 1 2 6

Point Beach Nuclear Plant
DOCUMENT REVIEW AND APPROVAL CONTINUATION

Doc Number Technical Specification Bases B 3.7.5 Revision 1 Unit 0

Title Auxiliary Feedwater (AFW) System

Temporary Change Number N/A

Description of Changes:

Step *	Change/Reason
page B 3.7.5-1	Added: "The recirculation lines from each pump connect to a single header. The header is aligned to a Condensate Storage Tank (CST) and is the normal flowpath for recirculation flow." after line in second paragraph that begins "Each pump is provided with ..." MR 02-029 changed the reclassification of the open function of the AFW pump recirculation valves to safety-related. (SCR 2002-0359)
page B 3.7.5-1	Deleted Condensate Storage Tank and parens for CST since this was redundant after the above change was added. (Pre-screening #1 Editorial)
page B 3.7.5-4	Added. "... a minimum recirculation flow path is OPERABLE," to reflect the reclassification of the open function of the AFW pump recirculation valves to safety-related. (SCR 2002-0359)

Other Comments

* Note Recording of Step Number(s) is not required for multiple occurrences of identical information or when not beneficial to reviewers

Title of Proposed Activity: Removal of Internals from AF-117 and Upgrade Open function of AFW pumps Mini Recirc Valves to Safety-Related (MR 02-09)

Associated Reference(s) #: SCR 2002-0010-01, SCR 2002-0321 and 2002-0339; MR 01-144, AF-4007/4014 Backup Nitrogen Supply, MR 02-001, 1/2AF-4002 Backup Air Supply; EVAL 2002-005, Permanent Plant Changes to Address Simultaneous Failure of All AFW Pumps; FCR 02-019; SE 97-085, MR 97-038 AFW Motor Driven Pump Pressure Dischsrge Valve Modification; Fay Letter to NRC, NRC Bulletin 88-04, Potential Safety-Related Pump Loss, June 28, 1988; NPM 2002-0228, Designation Of Backup Pneumatics For AFW Mini- Recirculation Valves As Safety-Related, NRC 2002-0068, Point Beach Nuclear Plant, Units 1 and 2 Reply to a Notice Of Violation (EA-02-031) NRC Special Inspection Report No. 50-266/01-17 (DRS); 50-301/01-17 (DRS).

Prepared by: David Black (Name (Print)) David Black (Signature) Date: 9-5-2002

Reviewed by: Rob Chapman (Name (Print)) (Signature) Date: 9-5-02

PART I (50.59/72.48) - DESCRIBE THE PROPOSED ACTIVITY AND SEARCH THE PLANT AND ISFSI LICENSING BASIS (Resource Manual 5.3.1)

NOTE: The "NMC 10 CFR 50.59 Resource Manual" (Resource Manual) and NEI 96-07, Appendix B, Guidelines for 10 CFR 72.48 Implementation should be used for guidance to determine the proper responses for 10 CFR 50.59 and 10 CFR 72.48 screenings.

I.1 Describe the proposed activity and the scope of the activity being covered by this screening. (The 10 CFR 50.59 / 72.48 review of other portions of the proposed activity may be documented via the applicability and pre-screening process requirements in NP 5.1.8.) Appropriate descriptive material may be attached.

The scope of this screening involves the following activities associated with MR 02-029:

- *Remove internals for AF-117, the Auxiliary Feedwater Pump Common Mini-Recirc Header Check Valve to prevent a common mode active failure in the recirc return header.*
- *Upgrade open function for all Auxiliary feedwater pump mini-recirc valves to safety-related (also being done by IST group for procedure changes under screenings SCR 2002-0321 and 2002-0339.*
- *State in the FSAR (FSAR 10.2) and Technical Specification Bases(B 3.7.5) that (1) the open function for all Auxiliary feedwater pump mini-recirc valves is safety-related, and(2) the recirculation line downstream of the flow restricting orifices has a safety function and is required for AFW operability, but the line is not safety-related since failure of the line is conservative The Bases will indicate that the mini-recirculation flowpaths have to be OPERABLE for the AFW system to be operable.*

A simplified P&ID of the mini-recirc header is shown below

EVAL 2002-005 evaluated permanent procedure changes that were implemented in response to a condition (CR 01-3595) that was identified where, with a procedure-directed operator action to control steam generator level (which could be accomplished by reducing flow through one or more AFW pumps), concurrent with a loss of instrument air (which would cause the AFW pumps' mini-recirculation valves to fail close), the potential existed for a simultaneous failure of the multi-stage high pressure AFW pumps due to very low or no flow through running AFW pumps. The procedure changes added instructions to the operators that if any AFW pump mini-recirc valve fails shut OR annunciator C01 A 1-9, INSTRUMENT AIR HEADER PRESSURE LOW is in alarm, then monitor and maintain minimum AFW flow or stop the affected AFW pump as necessary to control S/G levels. Minimum flow values for each pump were also included in the procedures. The majority of the changes were associated with EOP and ECA foldout pages. The procedures were initially revised as a compensatory measure to support AFW pump operability. The 50.59 evaluation reviewed the procedure changes as a permanent change to the procedures as described in the FSAR to confirm consistency with the licensing basis. The permanent procedure changes restored the AFW pumps to fully operable status.

This evaluation also was the basis for changes to the FSAR to clarify that the mini-recirculation valves require instrument air to function and that either a pump minimum flow is maintained or pumps are secured if the valve fails or instrument air is lost (FCR 02-019).

Screening SCR 2002-0010-01 reviewed modifications to provide backup air sources to all AFW pump minimum flow recirculation valves. These modifications were an enhancement that reduced the core damage probability from a loss of instrument air and increased the time for an operator to take manual action to override the valves open. Instrument air accumulator tanks were installed by MR 02-001 for the 1/2P-29 valves (1/2AF-4002), and the existing nitrogen backup system for the MDAFP discharge valves were tied in by MR 01-144 for the P-38A/B valves (AF-4007, AF-4014).

Point Beach has made an NRC commitment to upgrade the open function for all mini-recirc valves to safety-related as stated in NMC letter NRC 2002-0068:

> *"To further improve the future effectiveness of the AFW system by providing additional pump protection against low flow, Point Beach is classifying the open function of the pump recirculation flow control valves, as safety-related. This will provide a redundant method of providing for minimum AFW pump flow and consequently, pump cooling. As a result, testing and quality assurance requirements required for safety-related functions will be applied to the open function of these valves. As discussed previously, internal pump cooling is designed to be provided by minimum forward flow through the pumps. Classifying the recirculation flow control valves as safety-related will provide greater assurance that minimum flow will be available to provide internal pump cooling. The pneumatic backup supply to the recirculation flow control valves is limiting and therefore Point Beach will also continue to specify operator action to manually open these recirculation valves. Similar to other plants, Point Beach has one common recirculation flowpath from all the AFW pumps to the condensate storage tanks"*

The scope of this screening also includes FSAR changes and Technical Specification Bases changes to coincide with the mini-recirculation safety upgrade described above.

I.2 Search the PBNP Current Licensing Basis (CLB) as follows: Final Safety Analysis Report (FSAR), FSAR Change Requests (FCRs) with assigned numbers, the Fire Protection Evaluation Report (FPER), the CLB (Regulatory) Commitment Database, the Technical Specifications, the Technical Specifications Bases, and the Technical Requirements Manual. Search the ISFSI licensing basis as follows: VSC-24 Safety Analysis Report, the VSC-24 Certificate of Compliance, the CLB (Regulatory) Commitment Database, and the VSC-24 10 CFR 72.212 Site Evaluation Report. Describe the pertinent design function(s), performance requirements, and methods of evaluation for both the plant and for the cask/ISFSI as appropriate. Identify where the pertinent information is described in the above documents (by document section number and title). (Resource Manual 5.3.1 and NEI 96-07, App B, B.2)

The Auxiliary Feedwater (AFW) system has the following functions described in the licensing basis

a. *To automatically start and ensure that adequate feedwater is supplied to the steam generators for heat removal during accidents which may result in a main steam safety valve opening (Loss of Normal Feedwater – including ATWS and Loss of AC to the Station Auxiliaries)*

b. To automatically start and provide flow to maintain steam generator levels during accidents which require or result in rapid reactor coolant system cooldown (Steam Generator Tube Rupture and Rupture of a Steam Pipe).
c. To allow the isolation of all lines to the ruptured steam generator in the SGTR event.
d. To provide sufficient feedwater to remove decay heat from both units for one hour during a station blackout (SBO) event (TDAFP only).
e. To provide sufficient flow to the steam generators to remove decay heat to achieve cold shutdown within 72 hours following a plant fire (Appendix R).
f. To withstand a seismic event (i.e., the seismic Class 1 portions of the system) and to ensure that steam generator levels are maintained during a seismic event.
g. To provide flow to the steam generators during plant startup and shutdown, and during hot shutdown or hot standby conditions for chemical additions and when operation of the main feedwater and condensate systems is not warranted.

These modifications affect the operation of the minimum recirculation valves for the auxiliary feedwater pumps (1/2AF-4002, AF-4007, AF-4014). These valves have the following design functions:

1. To isolate the minimum recirculation line to ensure that the auxiliary feedwater pumps deliver the required flow to the steam generators as needed to support the following accidents or events: LONF, LOAC, MSLB, SGTR, ATWS, Appendix R, and SBO
2. To open to provide flow through the auxiliary feedwater pumps to prevent hydraulic instabilities and to dissipate pump heat.
3. To maintain the pressure boundary integrity of the auxiliary feedwater system.

FSAR 10 2.2, System Design and Operation, states: "The auxiliary feedwater system consists of two electric motor-driven pumps, two steam turbine-driven pumps, pump suction and discharge piping, and the controls and instrumentation necessary for operation of the system. Redundancy is provided by utilizing two pumping systems, two different sources of power for the pumps, and two sources of water supply to the pumps. The system is categorized as seismic Class I and is designed to ensure that a single fault will not obstruct the system function "

CLB References:
FSAR 7.2.3.2- Specific Control and Protection Interactions
FSAR 7.3.3.4 - Manual AFW Flow Control During Plant Shutdown
FSAR Section 7 4.1 – AMSAC
FSAR Section 10.1 - Steam and Power Conversion System
FSAR Section 10.2 – Auxiliary Feedwater
FSAR Figure 10 2-1 Sheet 1 – Bech M-217 Sh. 1 – Auxiliary Feedwater System
FSAR Figure 10.2-1 Sheet 2 – Bech M-217 Sh. 2 – Auxiliary Feedwater System
FSAR Section 14.1.10 – Loss of Normal Feedwater
FSAR Section 14.1.11 – Loss of All AC Power to the Station Auxiliaries
FSAR Section 14.2.4 – Steam Generator Tube Rupture
FSAR Section 14.2.5 – Rupture of a Steam Pipe
FSAR Appendix A.1 – Station Blackout
FPER 5.2.2 – Safe Shutdown Systems and Equipment
FPER 5.2.5.2.3 – Auxiliary Feedwater Pump Room
Tech Spec 3.7.5 – Auxiliary Feedwater
Tech Spec Bases B 3.7.5 – Auxiliary Feedwater
NRC 2002-0068, Point Beach Nuclear Plant, Units 1 and 2 Reply to a Notice Of Violation (EA-02-031) NRC Special Inspection Report No 50-266/01-17 (DRS); 50-301/01-17 (DRS)

I.3 Does the proposed activity involve a change to any Technical Specification? Changes to Technical Specifications require a License Amendment Request (Resource Manual Section 5 3.1.2).

Technical Specification Change ☐ Yes ☒ No

If a Technical Specification change is required, explain what the change should be and why it is required

I.4 Does the proposed activity involve a change to the terms, conditions or specifications incorporated in any VSC-24 cask Certificate of Compliance (CoC)? Changes to a VSC-24 cask Certificate of Compliance require a CoC amendment request.

☐ Yes ☒ No

If a storage cask Certificate of Compliance change is required, explain what the change should be and why it is required.

10 CFR 50.59 SCREENING

PART II (50.59) - DETERMINE IF THE CHANGE INVOLVES A *DESIGN FUNCTION* (Resource Manual 5.3.2)

Compare the proposed activity to the relevant CLB descriptions, and answer the following questions:

YES	NO	QUESTION
☒	☐	Does the proposed activity involve Safety Analyses or structures, systems and components (SSCs) credited in the Safety Analyses?
☒	☐	Does the proposed activity involve SSCs that support SSC(s) credited in the Safety Analyses?
☒	☐	Does the proposed activity involve SSCs whose failure could initiate a transient (e.g., reactor trip, loss of feedwater, etc.) or accident, OR whose failure could impact SSC(s) credited in the Safety Analyses?
☒	☐	Does the proposed activity involve CLB-described SSCs or procedural controls that perform functions that are required by, or otherwise necessary to comply with, regulations, license conditions, orders or technical specifications?
☐	☒	Does the activity involve a *method of evaluation* described in the FSAR?
☐	☒	Is the activity a *test or experiment*? (i e., a non-passive activity which gathers data)
☐	☒	Does the activity exceed or potentially affect a *design basis limit for a fission product barrier (DBLFPB)*? (NOTE: If THIS questions is answered YES, a 10 CFR 50.59 Evaluation is required.)

If the answers to ALL of these questions are NO, mark Part III as not applicable, document the 10 CFR 50.59 screening in the conclusion section (Part IV), then proceed directly to Part V - 10 CFR 72.48 Pre-screening Questions.

If any of the above questions are marked YES, identify below the specific design function(s), method of evaluation(s) or DBLFPB(s) involved.

1. The AF-117 check valve has an implicit function to open to allow minimum recirculation flow from the auxiliary feedwater pumps to return to the condensate storage tank(s). There is no direct discussion of this function in the licensing basis, other than that the valve appears in FSAR Figure 10.2-1.

A search of plant documents did not yield any reference to a need for valve AF-117 to close (or remain closed) The following uses were considered as possible functions for the closed position:

a. To prevent backflow of heating steam condensate from entering the mini-recirculation return header. *Given that the min-recirculation header is not drained and remains filled with water during and after pump operation, migration of heating steam condensate into the header in any significant amounts is unlikely Further, the plant no longer returns heating steam condensate to the condensate storage tank because of water quality concerns, and it is extremely unlikely that this plant design feature will ever be used again Regardless, this reason for preventing back flow does not constitute a licensing basis design function. Therefore this function will not be evaluated for adverse effects.*

b. To prevent backflow and siphoning of water from the condensate storage tanks through AF-4035 in the event that this valve opens due to high pressure in the line, or due to a break in the header. *The valve's nominal relief setting is 50 psi For AF-4035 to open, either an event occurs where multiple pumps start with high recirc flowrates and pressurize the line, or there is a blockage in the line The safety-related flow restricting orifices in the recirc line from each AFW pump limit the flow and pressure from each pump Further, if the line is blocked either by mispositioning of manual valves or failure of the check valve to*

open, there is no flowpath for backflow. The only credible way for the header to break is during a seismic event, in which case water from the condensate storage tank cannot be credited for accident mitigation. The prevention of backflow from the condensate storage tanks cannot be considered a licensing basis design function. Therefore this function will not be evaluated for adverse effects.

2. *The minimum recirculation valves for the auxiliary feedwater pumps (1/2AF- 4002, AF-4007, AF-4014) have the design functions to isolate the minimum recirculation line to ensure that the auxiliary feedwater pumps deliver the required flow to the steam generators as needed to support the mitigation of accidents or events. The proposed activity is to make the open function for these valves a safety-related function. The new components for modifications MR 02-001 and MR 01-144 as discussed above were installed safety-related due to their risk significance. These components were classified safety-related based on a PBNP management decision, as described in NPM 2002-0228. These modifications ensure a safety-related supply of air or nitrogen to ensure that the auxiliary feedwater pumps have adequate cooling.*

PART III (50.59) - DETERMINE WHETHER THE ACTIVITY INVOLVES ADVERSE EFFECTS (Resource Manual 5.3.3)

If ALL the questions in Part II are answered NO, then Part III is ☐ NOT APPLICABLE.

Answer the following questions to determine if the activity has an *adverse effect* on a design function. Any YES answer means that a 10 CFR 50.59 Evaluation is required; EXCEPT where noted in Part III.3.

III.1 CHANGES TO THE FACILITY OR PROCEDURES

YES	NO	QUESTION
☐	☒	Does the activity adversely affect the *design function* of an SSC credited in safety analyses?
☐	☒	Does the activity adversely affect the method of performing or controlling the *design function* of an SSC credited in the safety analyses?

If any answer is YES, a 10 CFR 50.59 Evaluation is required. If both answers are NO, describe the basis for the conclusion (attach additional discussion as necessary):

1. *The only function identified for the AF-117 check valve was to open to allow mini-recirculation water from AFW pumps to return to the condensate storage tank. It has no design function to close. Therefore removing the check valve internals has no adverse effect on the open function and precludes the valve from failing to open.*

2. *The change in designation of the open function of mini-recirculation valves 1/2AF- 4002, AF-4007, AF-4014 as safety-related has no adverse affect on the valve's function to open or close. The open function was a design function desribed in the FSAR. Designating the open function as safety-related requires addition quality control and testing and should, therefore, make the open functions of the valve more reliable. The necessary backup air/nitrogen supplies were installed as safety-related so no additional physical changes to the plant are required SCR 2002-0010-01 assessed the installation of these backup pneumatic supplies on the close function of the valves and no adverse effects were identified. Therefore there is no adverse effect on the functions of these valves.*

3. *Changes will be made in the FSAR to state that the open function for all Auxiliary feedwater pump mini-recirc valves is safety-related. The Technical Specification Bases will indicate that the mini-recirculation flowpaths have to be OPERABLE for the AFW system to be operable. These changes only reflect the activities discussed above, which have already been assessed and determined that there is no adverse effect on a design function FSAR changes will also be made to reflect the recirculation line downstream of the flow restricting orifices has a safety function and is required for AFW operability, but the line is not safety-related since failure of the line is conservative No physical changes were made to this line. If the line fails, a break or opening will be created which may increase overall flow through the recirculation line. The service-water system is the safety-related water supply for the AFW system The loss of CST inventory due to the line failing and recirculation water spilling only affects the non-safety-related water source for the AFW system. The required minimum CST water is based on the station blackout(SBO) event, SBO is not an event that would cause this line to fail (open) Therefore, based on the above the licensing basis documents changes do not have an adverse effect on any design functions*

III.2 CHANGES TO A METHOD OF EVALUATION

(If the activity does not involve a method of evaluation, these questions are ☒ NOT APPLICABLE.)

YES	NO	QUESTION
☐	☐	Does the activity use a revised or different method of evaluation for performing safety analyses than that described in the CLB?
☐	☐	Does the activity use a revised or different method of evaluation for evaluating SSCs credited in safety analyses than that described in the CLB?

If any answer is YES, a 10 CFR 50.59 Evaluation is required. If both answers are NO, describe the basis for the conclusion (attach additional discussion, as necessary).

III.3 TESTS OR EXPERIMENTS

If the activity is not a test or experiment, the questions in III.3.a and III.3.b are ☒ NOT APPLICABLE.

a. Answer these two questions first:

YES	NO	QUESTION
☐	☐	Is the proposed test or experiment bounded by other tests or experiments that are described in the CLB?
☐	☐	Are the SSCs affected by the proposed test or experiment isolated from the facility?

If the answer to BOTH questions in V.3.a is NO, continue to III.3.b. If the answer to EITHER question is YES, then describe the basis.

b. Answer these additional questions ONLY for tests or experiments which do NOT meet the criteria given in III.3.a above. If the answer to either question in III.3.a is YES, then these three questions are ☒ NOT APPLICABLE.

YES	NO	QUESTION
☐	☐	Does the activity utilize or control an SSC in a manner that is outside the reference bounds of the design bases as described in the CLB?
☐	☐	Does the activity utilize or control an SSC in a manner that is inconsistent with the analyses or descriptions in the CLB?
☐	☐	Does the activity place the facility in a condition not previously evaluated or that could affect the capability of an SSC to perform its intended functions?

If any answer in III.3.b is YES, a 10 CFR 50.59 Evaluation is required. If the answers in III.3.b are ALL NO, describe the basis for the conclusion (attach additional discussion as necessary):

Part IV - 10 CFR 50.59 SCREENING CONCLUSION (Resource Manual 5.3.4).

Check all that apply:

A 10 CFR 50.59 Evaluation is ☐ required or ☒ NOT required.

A Point Beach FSAR change is ☒ required or ☐ NOT required. If an FSAR change is required, then initiate an FSAR Change Request (FCR) per NP 5.2.6.

A Regulatory Commitment (CLB Commitment Database) change is ☐ required or ☒ NOT required. If a Regulatory Commitment Change is required, initiate a commitment change per NP 5.1.7.

A Technical Specification Bases change is ☒ required or ☐ NOT required. If a change to the Technical Specification Bases is required, then initiate a Technical Specification Bases change per NP 5.2.15.

A Technical Requirements Manual change is ☐ required or ☒ NOT required. If a change to the Technical Requirements Manual is required, then initiate a Technical Requirements Manual change per NP 5.2.15.

---------- 10 CFR 72.48 SCREENING -------- ----------

NOTE: NEI 96-07, Appendix B, Guidelines for 10 CFR 72.48 Implementation should be used for guidance to determine the proper responses for 72.48 screenings.

PART V (72.48) - 10 CFR 72.48 INITIAL SCREENING QUESTIONS

Part V determines if a full 10 CFR 72.48 screening is required to be completed (Parts VI and VII) for the proposed activity.

YES	NO	QUESTION
☐	☒	Does the proposed activity involve IN ANY MANNER the dry fuel storage cask(s), the cask transfer/transport equipment, any ISFSI facility SSC(s), or any ISFSI facility monitoring as follows: Multi-Assembly Sealed Basket (MSB), MSB Transfer Cask (MTC), MTC Lifting Yoke, Ventilated Concrete Cask (VCC), Ventilated Storage Cask (VSC), VSC Transporter (VCST), ISFSI Storage Pad Facility, ISFSI Storage Pad Data/Communication Links, or PPCS/ISFSI Continuous Temperature Monitoring System?
☐	☒	Does the proposed activity involve IN ANY MANNER SSC(s) installed in the plant specifically added to support cask loading/unloading activities, as follows: Cask Dewatering System (CDW), Cask Reflood System (CRF), or Hydrogen Monitoring System?
☐	☒	Does the proposed activity involve IN ANY MANNER SSC(s) needed for plant operation which are also used to support cask loading/unloading activities, as follows: Spent Fuel Pool (SFP), SFP Cooling and Filtration (SF), Primary Auxiliary Building Ventilation System (VNPAB), Drumming Area Ventilation System (VNDRM), RE-105 (SFP Low Range Monitor), RE-135 (SFP High Range Monitor), RE-221 (Drumming Area Vent Gas Monitor), RE-325 (Drumming Area Exhaust Low-Range Gas Monitor), PAB Crane, SFP Platform Bridge, Truck Access Area, or Decon Area?
☐	☒	Does the proposed activity involve a change to Point Beach CLB design criteria for external events such as earthquakes, tornadoes, high winds, flooding, etc.?
☐	☒	Does the activity involve plant heavy load requirements or procedures for areas of the plant used to support cask loading/unloading activities?
☐	☒	Does the activity involve any potential for fire or explosion where casks are loaded, unloaded, transported or stored?

If ANY of the Part V questions are answered YES, then a full 10 CFR 72.48 screening is required and answers to the questions in Part VI and Part VII are to be provided. If ALL the questions in Part V are answered NO, then check Parts VI and VII as not applicable. Complete Part VIII to document the conclusion that no 10 CFR 72.48 evaluation is required.

PART VI (72.48) - DETERMINE IF THE CHANGE INVOLVES A ISFSI LICENSING BASIS *DESIGN FUNCTION*

(If ALL the questions in Part V are NO, then Part VI is ☒ NOT APPLICABLE.)

Compare the proposed activity to the relevant portions of the ISFSI licensing basis and answer the following questions:

YES	NO	QUESTION
☐	☐	Does the proposed activity involve cask/ISFSI Safety Analyses or plant/cask/ISFSI structures, systems and components (SSCs) credited in the Safety Analyses?
☐	☐	Does the proposed activity involve plant, cask or ISFSI SSCs that support SSC(s) credited in the Safety Analyses?
☐	☐	Does the proposed activity involve plant, cask or ISFSI SSCs whose function is relied upon for prevention of a radioactive release, OR whose failure could impact SSC(s) credited in the Safety Analyses?
☐	☐	Does the proposed activity involve cask/ISFSI described SSCs or procedural controls that perform functions that are required by, or otherwise necessary to comply with, regulations, license conditions, CoC conditions, or orders?
☐	☐	Does the activity involve a *method of evaluation* described in the ISFSI licensing basis?
☐	☐	Is the activity a *test or experiment*? (i.e., a non-passive activity which gathers data)
☐	☐	Does the activity exceed or potentially affect a cask *design basis limit for a fission product barrier (DBLFPB)*? (NOTE: If THIS questions is answered YES, a 10 CFR 72.48 Evaluation is required.)

If the answers to ALL of these questions are NO, mark Parts VII as not applicable, and document the 10 CFR 72.48 screening in the conclusion section (Part VIII).

If any of the above questions are marked YES, identify below the specific design function(s), method of evaluation(s) or DBLFPB(s) involved.

PART VII (72.48) - DETERMINE WHETHER THE ACTIVITY INVOLVES ADVERSE EFFECTS (NEI 96-07, Appendix B, Section B.4.2.1)

(If ALL the questions in Part V or Part VI are answered NO, then Part VII is ☒ NOT APPLICABLE.)

Answer the following questions to determine if the activity has an *adverse effect* on a design function. Any YES answer means that a 10 CFR 72.48 Evaluation is required; EXCEPT where noted in Part VII.3.

VII.1 Changes to the Facility or Procedures

YES	NO	QUESTION
☐	☐	Does the activity adversely affect the *design function* of a plant, cask, or ISFSI SSC credited in safety analyses?
☐	☐	Does the activity adversely affect the method of performing or controlling the *design function* of a plant, cask, or ISFSI SSC credited in the safety analyses?

If any answer is YES, a 10 CFR 72.48 Evaluation is required. If both answers are NO, describe the basis for the conclusion (attach additional discussion, as necessary)

VII.2 Changes to a Method of Evaluation

(If the activity does not involve a method of evaluation, these questions are ☒ NOT APPLICABLE.)

YES	NO	QUESTION
☐	☐	Does the activity use a revised or different method of evaluation for performing safety analyses than that described in a cask SAR?
☐	☐	Does the activity use a revised or different method of evaluation for evaluating SSCs credited in safety analyses than that described in a cask SAR?

If any answer is YES, a 10 CFR 72.48 Evaluation is required. If both answers are NO, describe the basis for the conclusion (attach additional discussion, as necessary):

VII.3 Tests or Experiments

(If the activity is not a test or experiment, the questions in VII.3.a and VII.3.b are ☒ NOT APPLICABLE.)

a. Answer these two questions first:

YES	NO	QUESTION
☐	☐	Is the proposed test or experiment bounded by other tests or experiments that are described in the cask ISFSI licensing basis?
☐	☐	Are the SSCs affected by the proposed test or experiment isolated from the cask(s) or ISFSI facility?

If the answer to both questions is NO, continue to VII.3.b. If the answer to EITHER question is YES, then briefly describe the basis.

b. Answer these additional questions ONLY for tests or experiments which do not meet the criteria given in VII.3.a above. If the answer to either question in VII.3.a is YES, then these three questions are ☒ NOT APPLICABLE:

YES	NO	QUESTION
☐	☐	Does the activity utilize or control an SSC in a manner that is outside the reference bounds of the design bases as described in the ISFSI licensing basis?
☐	☐	Does the activity utilize or control a plant, cask or ISFSI facility SSC in a manner that is inconsistent with the analyses or descriptions in the ISFSI licensing basis?
☐	☐	Does the activity place the cask or ISFSI facility in a condition not previously evaluated or that could affect the capability of a plant, cask, or ISFSI SSC to perform its intended functions?

If any answer in VII.3.b is YES, a 10 CFR 72.48 Evaluation is required. If the answers are all NO, describe the basis for the conclusion (attach additional discussion as necessary):

PART VIII - DOCUMENT THE CONCLUSION OF THE 10 CFR 72.48 SCREENING

Check all that apply:

A 10 CFR 72.48 Evaluation is ☐ required or ☒ NOT required. Obtain a screening number and provide the original to Records Management regardless of the conclusion of the 50.59 or 72.48 screening.

A VSC-24 cask Safety Analysis Report change is ☐ required or ☒ NOT required. If a VSC-24 cask SAR change is required, then contact the Point Beach Dry Fuel Storage group supervisor.

A Regulatory Commitment (CLB Commitment Database) change is ☐ required or ☒ NOT required. If a Regulatory Commitment Change is required, initiate a commitment change per NP 5.1.7.

A change to the VSC-24 10 CFR 72.212 Site Evaluation Report is ☐ required or ☒ NOT required. If a VSC-24 10 CFR 72.212 Site Evaluation Report change is required, then contact the Point Beach Dry Fuel Storage group supervisor.

B 3.7 PLANT SYSTEMS

B 3.7.5 Auxiliary Feedwater (AFW) System

BASES

BACKGROUND

The AFW System automatically supplies feedwater to the steam generators to remove decay heat from the Reactor Coolant System upon the loss of normal feedwater supply. The AFW pumps provide cooling water to the steam generator secondary side via connections to the main feedwater (MFW) piping inside containment. The steam generators function as a heat sink for core decay heat. The heat load is dissipated by releasing steam to the atmosphere from the steam generators via the main steam safety valves (MSSVs) (LCO 3.7.1) or atmospheric dump valves (LCO 3.7.4). If the main condenser is available, steam may be released via the steam bypass valves and recirculated to the CST.

The AFW System consists of three independent pump systems; two motor driven AFW pumps which are shared between the two units, and one dedicated steam turbine driven pump per unit. Each motor driven pump is capable of providing 100% of the design AFW flow rate, while the turbine driven pump is capable of providing 200% of the design flowrate. Each pump is provided with a recirculation line to maintain pump discharge flow above the minimum required flow rate for pump cooling. The recirculation lines from each pump connect to a single header. The header is aligned to a Condensate Storage Tank (CST) and is the normal flow path for minimum recirculation flow. Each AFW pump system can be manually aligned to take suction from the service water system. The normal source of water for the AFW pumps is the CST and the safety related supply is the Service Water (SW) System. Motor operated valves are provided to allow the suction supply for the AFW pumps to be manually transferred to the SW system. For an AFW pump system to be considered OPERABLE, its associated service water suction supply valve must be operable. CST low level alarms and AFW pump low suction pressure alarms and trips are provided to alert personnel that the AFW pump suction supply must be manually swapped.

Each motor driven AFW pump is powered from an independent safeguards power supply and feeds one steam generator in each unit. AFW pump P-38A supplies AFW flow to the Unit 1 and Unit 2 A steam generators, while AFW pump P-38B supplies the Unit 1 and Unit 2 B steam generators. Each motor driven AFW pump's discharge header contains two normally closed automatic motor operated valves. Upon receipt of an AFW actuation signal, the discharge valve associated with the affected unit receives an automatic open signal and the discharge

BASES

BACKGROUND (continued)

valve associated with the unaffected unit receives an automatic close signal. This feature will ensure that 100% of the motor driven AFW pump flow will be delivered to the affected unit, thereby, assuring that the accident analysis flowrates are met. Each motor driven AFW pump is also equipped with a backpressure control valve, which is designed to preclude the motor driven AFW pump from tripping on an overcurrent condition at low steam generator pressures.

The motor driven AFW pump systems actuate automatically on steam generator water level (low-low) and upon receipt of an safety injection (SI) signal. If offsite power is available, the motor driven AFW pump systems actuate immediately. If offsite power is not available, the safeguards buses shed their normal operating loads and are connected to the emergency diesel generators (EDGs). The motor driven AFW pump systems are then actuated per their programmed time sequence. While not credited in any DBA analysis, the motor driven AFW pump systems also actuate on; a trip of all MFW pumps, and by the Anticipated Transient Without Scram Mitigating System Actuation Circuit.

Each unit's turbine driven AFW pump receives steam from both steam generator main steam lines upstream of the main steam isolation valves. Each of the two steam feed lines can supply 100% of the required steam flow to the turbine driven AFW pump. Both steam supply lines must be OPERABLE to consider the turbine driven AFW pump OPERABLE. All power-operated valves associated with the turbine driven AFW pump system are DC-powered, with the exception of the service water suction supply valve (Unit 1 and Unit 2 AF-4006) which is powered from a 480 Volt AC safeguards bus.

The turbine driven AFW pump system actuates automatically on a steam generator water level - low-low in both steam generators. While not credited in any DBA analysis, the turbine driven AFW pump system also actuates on; a trip of all MFW pumps, undervoltage on both main feedwater pump buses, and by the Anticipated Transient Without Scram Mitigating System Actuation Circuit.

The AFW System is capable of supplying feedwater to the steam generators during normal unit startup, shutdown, and hot standby conditions.

One pump at full flow is sufficient to remove decay heat and cool the unit to residual heat removal (RHR) entry conditions. Thus, the requirement for diversity in motive power sources for the AFW System is met.

BASES

BACKGROUND (continued)

The AFW System is designed to supply sufficient water to the steam generator(s) to remove decay heat with steam generator pressure at the setpoint of the MSSVs. Subsequently, the AFW System supplies sufficient water to cool the unit to RHR entry conditions, with steam released through the ADVs.

The AFW System is discussed in the FSAR, Section 10.2 (Ref. 1).

APPLICABLE SAFETY ANALYSES

The AFW System mitigates the consequences of any event with loss of normal feedwater.

The design basis of the AFW System is to supply water to the steam generator to remove decay heat and other residual heat by delivering at least the minimum required flow rate to the steam generators at pressures in excess of the steam generator safety valve set pressure.

In addition, the AFW System must supply enough makeup water to replace steam generator secondary inventory lost as the unit cools to MODE 4 conditions.

The AFW system is assumed to function in the mitigation of Design Basis Accidents (DBAs) and transients to include; Steam Generator Tube Rupture (SGTR), main steam line break, loss of normal feedwater, and loss of all AC power to the station auxiliaries. The AFW system must be capable of isolating AFW to the ruptured steam generator following a SGTR in addition to isolating the steam supply to turbine driven AFW pump associated with the ruptured steam generator. Although the AFW System will be initiated during the Small Break LOCA, the event has been analyzed with no credit for AFW. The Small Break LOCA was analyzed without AFW to be conservative and to limit the modeling required to address all possible combinations and time delays for various AFW system configurations.

The limiting Design Basis Accident (DBA) for the AFW System is the loss of normal feedwater event (Ref. 2).

The ESFAS automatically actuates the AFW turbine driven pump and associated power operated valves and controls when required to ensure an adequate feedwater supply to the steam generators during loss of power. DC power operated valves are provided for each AFW line to control the AFW flow to each steam generator.

The AFW System satisfies the requirements of Criterion 3 of the NRC Policy Statement.

BASES

LCO

This LCO provides assurance that the AFW System will perform its design safety function to mitigate the consequences of Design Basis Accidents and transients. Three AFW pump systems, consisting of two shared motor driven pump systems and one dedicated turbine driven pump system are required to be OPERABLE to ensure the availability of RHR capability for all events accompanied by a loss of offsite power and a single failure. This is accomplished by powering two of the pumps from independent emergency buses. The third AFW pump is powered by a different means, a steam driven turbine supplied with steam from a source that is not isolated by closure of the MSIVs.

The AFW System is configured into three pump systems. The AFW System is considered OPERABLE when the components and flow paths required to provide redundant AFW flow to the steam generators are OPERABLE, a minimum recirculation flow path is OPERABLE, and the components required to manually transfer AFW pump suction supply to the service water system are OPERABLE. This requires that the two motor driven AFW pumps be OPERABLE, each capable of supplying AFW to a separate steam generator. The turbine driven AFW pump is required to be OPERABLE with redundant steam supplies from each main steam line upstream of the MSIVs, and shall be capable of supplying AFW to both of the steam generators. The piping, valves, instrumentation, and controls in the required flow paths also are required to be OPERABLE.

The LCO is modified by a Note indicating that only the motor driven AFW pumps which are associated with steam generators required to be operable for heat removal (per LCO 3.4.6) are required to be OPERABLE in MODE 4. This is because of the reduced heat removal requirements and short period of time in MODE 4 during which the AFW is required and the insufficient steam available in MODE 4 to power the turbine driven AFW pump.

APPLICABILITY

In MODES 1, 2, and 3, the AFW System is required to be OPERABLE in the event that it is called upon to function when the MFW is lost. In addition, the AFW System is required to supply enough makeup water to replace the steam generator secondary inventory, lost as the unit cools to MODE 4 conditions.

In MODE 4 the AFW System may be used for heat removal via the steam generators.

In MODE 5 or 6, the steam generators are not normally used for heat removal, and the AFW System is not required.

MARK-UP

B 3.7 PLANT SYSTEMS

B 3.7.5 Auxiliary Feedwater (AFW) System

BASES

BACKGROUND

The AFW System automatically supplies feedwater to the steam generators to remove decay heat from the Reactor Coolant System upon the loss of normal feedwater supply. The AFW pumps provide cooling water to the steam generator secondary side via connections to the main feedwater (MFW) piping inside containment. The steam generators function as a heat sink for core decay heat. The heat load is dissipated by releasing steam to the atmosphere from the steam generators via the main steam safety valves (MSSVs) (LCO 3.7.1) or atmospheric dump valves (LCO 3.7.4). If the main condenser is available, steam may be released via the steam bypass valves and recirculated to the CST.

The AFW System consists of three independent pump systems; two motor driven AFW pumps which are shared between the two units, and one dedicated steam turbine driven pump per unit. Each motor driven pump is capable of providing 100% of the design AFW flow rate, while the turbine driven pump is capable of providing 200% of the design flowrate. Each pump is provided with a recirculation line to maintain pump discharge flow above the minimum required flow rate for pump cooling. Each AFW pump system can be manually aligned to take suction from the service water system. The normal source of water for the AFW pumps is the ~~Condensate Storage Tank~~ (CST) and the safety related supply is the Service Water (SW) System. Motor operated valves are provided to allow the suction supply for the AFW pumps to be manually transferred to the SW system. For an AFW pump system to be considered OPERABLE, its associated service water suction supply valve must be operable. CST low level alarms and AFW pump low suction pressure alarms and trips are provided to alert personnel that the AFW pump suction supply must be manually swapped.

The recirculation lines from each pump connect to a single header. The header is aligned to a Condensate Storage Tank (CST) and is the normal flow path for minimum recirculation flow.

Each motor driven AFW pump is powered from an independent safeguards power supply and feeds one steam generator in each unit. AFW pump P-38A supplies AFW flow to the Unit 1 and Unit 2 A steam generators, while AFW pump P-38B supplies the Unit 1 and Unit 2 B steam generators. Each motor driven AFW pump's discharge header contains two normally closed automatic motor operated valves. Upon receipt of an AFW actuation signal, the discharge valve associated with the affected unit receives an automatic open signal and the discharge valve associated with the unaffected unit receives an automatic close signal. This feature will ensure that 100% of the motor driven AFW pump flow will be delivered to the affected unit, thereby, assuring that

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BASES

BACKGROUND (continued)

the accident analysis flowrates are met. Each motor driven AFW pump is also equipped with a backpressure control valve, which is designed to preclude the motor driven AFW pump from tripping on an overcurrent condition at low steam generator pressures.

The motor driven AFW pump systems actuate automatically on steam generator water level (low-low) and upon receipt of an safety injection (SI) signal. If offsite power is available, the motor driven AFW pump systems actuate immediately. If offsite power is not available, the safeguards buses shed their normal operating loads and are connected to the emergency diesel generators (EDGs). The motor driven AFW pump systems are then actuated per their programmed time sequence. While not credited in any DBA analysis, the motor driven AFW pump systems also actuate on; a trip of all MFW pumps, and by the Anticipated Transient Without Scram Mitigating System Actuation Circuit.

Each unit's turbine driven AFW pump receives steam from both steam generator main steam lines upstream of the main steam isolation valves. Each of the two steam feed lines can supply 100% of the required steam flow to the turbine driven AFW pump. Both steam supply lines must be OPERABLE to consider the turbine driven AFW pump OPERABLE. All power-operated valves associated with the turbine driven AFW pump system are DC-powered, with the exception of the service water suction supply valve (Unit 1 and Unit 2 AF-4006) which is powered from a 480 Volt AC safeguards bus.

The turbine driven AFW pump system actuates automatically on a steam generator water level - low-low in both steam generators. While not credited in any DBA analysis, the turbine driven AFW pump system also actuates on; a trip of all MFW pumps, undervoltage on both main feedwater pump buses, and by the Anticipated Transient Without Scram Mitigating System Actuation Circuit.

The AFW System is capable of supplying feedwater to the steam generators during normal unit startup, shutdown, and hot standby conditions.

One pump at full flow is sufficient to remove decay heat and cool the unit to residual heat removal (RHR) entry conditions. Thus, the requirement for diversity in motive power sources for the AFW System is met.

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The AFW System is designed to supply sufficient water to the steam generator(s) to remove decay heat with steam generator pressure at the setpoint of the MSSVs. Subsequently, the AFW System supplies

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BASES

BACKGROUND (continued)

sufficient water to cool the unit to RHR entry conditions, with steam released through the ADVs.

The AFW System is discussed in the FSAR, Section 10.2 (Ref. 1).

APPLICABLE SAFETY ANALYSES

The AFW System mitigates the consequences of any event with loss of normal feedwater.

The design basis of the AFW System is to supply water to the steam generator to remove decay heat and other residual heat by delivering at least the minimum required flow rate to the steam generators at pressures in excess of the steam generator safety valve set pressure.

In addition, the AFW System must supply enough makeup water to replace steam generator secondary inventory lost as the unit cools to MODE 4 conditions.

The AFW system is assumed to function in the mitigation of Design Basis Accidents (DBAs) and transients to include; Steam Generator Tube Rupture (SGTR), main steam line break, loss of normal feedwater, and loss of all AC power to the station auxiliaries. The AFW system must be capable of isolating AFW to the ruptured steam generator following a SGTR in addition to isolating the steam supply to turbine driven AFW pump associated with the ruptured steam generator. Although the AFW System will be initiated during the Small Break LOCA, the event has been analyzed with no credit for AFW. The Small Break LOCA was analyzed without AFW to be conservative and to limit the modeling required to address all possible combinations and time delays for various AFW system configurations.

The limiting Design Basis Accident (DBA) for the AFW System is the loss of normal feedwater event (Ref. 2).

The ESFAS automatically actuates the AFW turbine driven pump and associated power operated valves and controls when required to ensure an adequate feedwater supply to the steam generators during loss of power. DC power operated valves are provided for each AFW line to control the AFW flow to each steam generator.

The AFW System satisfies the requirements of Criterion 3 of the NRC Policy Statement.

BASES

LCO

This LCO provides assurance that the AFW System will perform its design safety function to mitigate the consequences of Design Basis Accidents and transients. Three AFW pump systems, consisting of two shared motor driven pump systems and one dedicated turbine driven pump system are required to be OPERABLE to ensure the availability of RHR capability for all events accompanied by a loss of offsite power and a single failure. This is accomplished by powering two of the pumps from independent emergency buses. The third AFW pump is powered by a different means, a steam driven turbine supplied with steam from a source that is not isolated by closure of the MSIVs.

a minimum recirculation flow path is OPERABLE

The AFW System is configured into three pump systems. The AFW System is considered OPERABLE when the components and flow paths required to provide redundant AFW flow to the steam generators are OPERABLE, and the components required to manually transfer AFW pump suction supply to the service water system are OPERABLE. This requires that the two motor driven AFW pumps be OPERABLE, each capable of supplying AFW to a separate steam generator. The turbine driven AFW pump is required to be OPERABLE with redundant steam supplies from each main steam line upstream of the MSIVs, and shall be capable of supplying AFW to both of the steam generators. The piping, valves, instrumentation, and controls in the required flow paths also are required to be OPERABLE.

The LCO is modified by a Note indicating that only the motor driven AFW pumps which are associated with steam generators required to be operable for heat removal (per LCO 3.4.6) are required to be OPERABLE in MODE 4. This is because of the reduced heat removal requirements and short period of time in MODE 4 during which the AFW is required and the insufficient steam available in MODE 4 to power the turbine driven AFW pump.

APPLICABILITY

In MODES 1, 2, and 3, the AFW System is required to be OPERABLE in the event that it is called upon to function when the MFW is lost. In addition, the AFW System is required to supply enough makeup water to replace the steam generator secondary inventory, lost as the unit cools to MODE 4 conditions.

In MODE 4 the AFW System may be used for heat removal via the steam generators.

In MODE 5 or 6, the steam generators are not normally used for heat removal, and the AFW System is not required.