Designated Original

FPL Energy Point Beach, LLC, 6610 Nuclear Road, Two Rivers, WI 54241

FPL Energy
Point Beach Nuclear Plant

May 15, 2008

NRC 2008-0027
10 CFR 50.90

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Point Beach Nuclear Plant, Units 1 and 2
Dockets 50-266 and 50-301
Renewed License Nos. DPR-24 and DPR-27

Response to Request for Additional Information License Amendment Request 260 One-Time Extension of Completion Time for Technical Specification 3.7.5, Auxiliary Feedwater System

References: (1) FPL Energy Point Beach, LLC to NRC Letter Dated December 29, 2007, License Amendment Request 260 One-Time Extension of Completion Time for Technical Specification 3.7.5, Auxiliary Feedwater System (ML073650392)

(2) NRC to FPL Energy Point Beach, LLC Letter Dated April 18, 2008, Point Beach Nuclear Plant, Units 1 and 2 - Request for Additional Information Related to Technical Specification 3.7.5 C Completion Extension for Point Beach, Units 1 and 2 (ML080990388)

(3) NRC to FPL Energy Point Beach LLC Letter Dated April 29, 2008, Point Beach Nuclear Plant, Units 1 and 2 - Request for Additional Information Related to Technical Specification 3.7.5 C Completion Extension for Point Beach, Units 1 and 2 (ML081160206)

Via Reference (1), FPL Energy Point Beach, LLC submitted a proposed license amendment request for Commission review and approval pursuant to 10 CFR 50.90 for the Point Beach Nuclear Plant (PBNP), Units 1 and 2. The proposed amendment would allow two separate one-time extensions of the completion time (CT) of LCO 3.7.5.C, auxiliary feedwater system, from 7 days to 16 days.

On April 3, 2008, a telephone conference was held between NRC and FPL Energy Point Beach personnel. During the conference, License Amendment Request 260 was discussed and additional information was requested by the Commission to enable further review of the application. It was agreed that the response to the request for additional information, Reference (2), would be submitted by FPL Energy Point Beach by May 18, 2008.

Rec'd 6/26/08 at DCD

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The enclosure of this letter provides the FPL Energy Point Beach response to the request for additional information in Reference (2).

FPL Energy Point Beach has determined that the response to this request for additional information does not alter the conclusions contained in the no significant hazards consideration nor the environmental consideration associated with the proposed amendment and Technical Specification changes.

Reference (1) had the following commitment:

> During the motor-drive auxiliary feedwater (MDAFW) pump upgrade replacements, no other work that impacts risk will be planned to take place concurrent with this work. Emergent work to assure continued reliability of redundant auxiliary feedwater (AFW) trains will be coordinated and managed using the on-line risk management process.

This commitment is replaced with the following commitment:

> Planned work and testing will be scheduled and performed such that the plant risk level remains "green" while in the extended completion time for the motor-driven auxiliary feedwater pump (MDAFP) replacement. Emergent work will be addressed in accordance with the plant risk management processes.

This submittal contains the following new commitments:

1. During the extended completion time period, field supervision will be present when modification work is being performed in the auxiliary feedwater pump room.

2. Human performance error reduction tools will be part of every shift brief for personnel installing the modifications prior to beginning and/or continuing work.

3. No transient combustibles and no planned hot work will be permitted in the areas indicated below.

4. FPL Energy Point Beach will perform thermography in the areas indicated below prior to entering the first LCO to provide added assurance that a fire initiator is not imminent, and will periodically re-perform the thermography as previously committed Reference (1).

5. The installed detection and suppression systems in the areas indicated below will not be taken out of service for planned testing or maintenance during the extended completion time.

Commitments 3, 4, and 5 above are applicable for the following durations and fire areas:

1. During the completion time for P-38A out of service for replacement, fire areas A01-B/46, A02, A15, A25, A26, and A23N.

2. During the completion time for P-38B out of service for replacement, fire areas A01-B/46, A02, A15, A25, A26, and A23S.

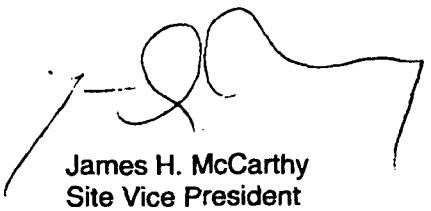
This submittal has been reviewed by the Plant Operations Review Committee.

In accordance with 10 CFR 50.91, a copy of this response to a request for additional information is being provided to the designated Wisconsin Official.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on May 15, 2008.

Very truly yours,

FPL Energy Point Beach, LLC



James H. McCarthy
Site Vice President

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
PSCW

ENCLOSURE

FPL ENERGY POINT BEACH, LLC
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2

LICENSE AMENDMENT REQUEST 260
ONE-TIME EXTENSION OF COMPLETION TIME FOR
TECHNICAL SPECIFICATION 3.7.5, AUXILIARY FEEDWATER SYSTEM

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

The following information is provided by FPL Energy Point Beach, LLC in response to the NRC staff's request for additional information dated April 18, 2008.

Question 1

On page 1 of Enclosure 1, List of Regulatory Commitments, and on page 11 of Enclosure 2, as part of Tier 2 - Avoidance of Risk Significant Plant Configurations- the licensee states no other work that impacts risk will be planned to take place concurrently. As a result, the licensee takes credit for zero-maintenance term in probabilistic risk assessment.

Verify that the licensee can operate the two plants for both 16 day periods, without having to perform any surveillances or maintenance that would impact risk.

FPL Energy Point Beach Response

Reference 1 states in part that:

> "During the MDAFW pump replacement activity with no other risk affecting equipment being unavailable concurrently as is now planned, Safety Monitor shows that both units will be low in the YELLOW risk level."

FPL Energy Point Beach is using an updated Safety Monitor model that incorporates more recent plant data. As a result of this more recent risk model, the previous representation of risk associated with the planned motor-driven auxiliary feedwater pump (MDAFP) replacement has changed to:

> "During the MDAFP replacement activity, with no other risk affecting equipment being unavailable concurrently, Safety Monitor shows that both units will be in the middle of the GREEN risk level."

FPL Energy Point Beach defines a risk significant impact associated with the performance of surveillances and maintenance as a condition that, if it persisted for seven days, would result in an increase in core damage probability (CDP) of 1.0E-6, or would result in an increase in large early release probability (LERP) of 1.0E-7. Exceeding these thresholds results in a "yellow" risk condition per approved plant procedures and is consistent with accepted industry practices for managing on-line risk.

FPL Energy Point Beach confirms that the units can be operated for both 16-day periods without planned entries into a "yellow" risk condition as a result of required surveillances or maintenance.

The methodology used by FPL Energy Point Beach for assessing the risk implications for the proposed license amendment involving use of the zero-maintenance PRA model is consistent with other FPL and industry risk-informed applications for similar one-time changes. It is also consistent with the process for Maintenance Rule a(4) configuration risk assessments on the basis of the proposed change being temporary rather than permanent.

Question 2

On page 23 of Enclosure 2, the licensee states that there were seven fire areas where a fire concurrent with a motor driven auxiliary feedwater (MDAFW) pump being unavailable because of the extended replacement activities could result in no auxiliary feedwater (AFW) pump being available to provide decay heat removal.

Explain the basis for the above statement that no AFW would be available if there was a fire in any of these areas.

FPL Energy Point Beach Response

The statement on Page 23 of the initial application (Reference 1) summarized the detailed findings of the fire risk evaluation. The table on the page that followed summarized the locations of concern and which auxiliary feedwater (AFW) pumps are credited in the Fire Hazards Analysis Report for those areas. The submittal did not, however, provide the details of why a fire in each of the seven areas could cause a loss of all AFW to an operating unit.

Consistent with the assumptions of the station safe shutdown analysis report (SSAR), the non-mechanistic assumption of 100% functional failure of all equipment in (or with associated power or controls passing through) a fire area is made. While it is not likely that such widespread and complete failure would occur in areas where prevention, detection and suppression are present, this assumption is made when assessing mitigation capabilities.

A one-time extension of the allowed out-of-service time for each MDAFP does not result in a change in the Fire Hazards Analysis for Point Beach. Under the current Technical Specifications (TS), removal of one MDAFP from service is permitted, and results in the same configurations and instantaneous risk levels, albeit for a shorter duration, than is being requested.

Each of the fire areas of concern is discussed in more detail below, along with the specific functional losses that could lead to loss of one or more AFW pumps as a result of a fire if additional manual actions are not credited.

FPL Energy Point Beach is reviewing several candidate local manual actions that may be reasonable for promptly restoring AFW capability after a fire in these areas concurrent with a MDAFP being out of service for replacement. These actions, when confirmed to be feasible and reasonable, will be submitted in response to the additional request for additional information (RAI) concerning fire protection that was transmitted on April 29, 2008 (Reference 3).

Fire Area A01-B/46 (Auxiliary Building 46' CCW Heat Exchanger Room)

Both of the steam supply motor-operated valves (MOVs) for each of the unit-specific turbine-driven auxiliary feedwater pumps (TDAFPs) are located in this area. Loss of function of these MOVs and loss of access to them would render both of the unit-specific TDAFPs unavailable. Ordinarily, the two MDAFPs would be available to provide decay heat removal for both units. With a single MDAFP removed from service for replacement at the time of such a fire, the one remaining MDAFP would be insufficient to provide all of the decay heat removal requirements for both units simultaneously. Reduced flow could be provided to both units (~100 gpm each). As shown by the loss of power to station auxiliaries (LOAC, a dual unit accident), a minimum flow capability of 200 gpm is needed for each unit to prevent water discharging from the pressurizer safety valve (acceptance criterion for LOAC).

Therefore, a fire in this area could result in a reduced AFW capacity for decay heat removal, and the reduced flow would not be sufficient to remove the entire decay heat load for several hours following a postulated dual unit event.

Fire Area A02 (SI / Containment Spray Pump Room)

A fire in this area could render the Unit 1 TDAFP (1P-29) unavailable. This is because power cabling for both of the steam supply MOVs for 1P-29, as well as power and/or control circuits for various auxiliary supporting valves originate or pass through the fire area. Additionally, power and control circuits for various valves supporting the "A" MDAFP (P-38A) also pass through the area and could render it unavailable.

If the "B" MDAFP was removed for replacement at the time such a fire occurred, without local manual actions, there would be no analyzed and credited AFW pumps available to deliver water to Unit 1. The Unit 2 TDAFP (2P-29) would have ample capacity for the decay heat removal requirements of Unit 2.

Fire Area A15 (2B32 MCC Area)

Similar to area A02 (described above), a fire in this area could render the Unit 1 TDAFP (1P-29) unavailable because power to the 1P-29 mini recirculation control valve runs through the area. Additionally, power and control for the P-38A discharge isolation MOV to the Unit 2 "A" steam generator passes through this fire zone. The current fire hazards analysis therefore relies on P-38B to feed the Unit 2 "B" steam generator, and discounts the potential use of P-38A for a fire in this area.

If the "B" MDAFP was removed for replacement at the time such a fire occurred, without local manual actions, there would be no analyzed and credited AFW pumps capable of delivering water to Unit 1. The Unit 2 TDAFP (2P-29) would have ample capacity for the decay heat removal requirements of Unit 2.

Fire Area A23N (AFW Pump Room - North)

A fire in this area could render both the "B" MDAFP (P-38B) and the Unit 2 TDAFP (2P-29) unavailable since both pumps are located in this fire area. If the "A" MDAFP was also removed from service at the time such a fire occurred, there would be no analyzed and credited AFW pumps capable of delivering water to Unit 2. The

Unit 1 TDAFP (1P-29) would have ample capacity for the decay heat removal requirements of Unit 1.

A fire in this room is a risk for losing all AFW to Unit 2 only when P-38A, located in the south half of the room, is out of service. When work is being performed on P-38B (located in A23N), a fire in A23N does not damage either of the pumps in the south half of the room, and P-38A remains available to feed Unit 2.

Fire Area A23S (AFW Pump Room - South)

A fire in this area could render both the "A" MDAFP (P-38A) and the Unit 1 TDAFP (1P-29) unavailable since both pumps are located in this fire area. If the "B" MDAFP was also removed from service at the time such a fire occurred, there would be no analyzed and credited AFW pumps capable of delivering water to Unit 1. The Unit 2 TDAFP (2P-29) would have ample capacity for the decay heat removal requirements of Unit 2.

A fire in this room is a risk for losing all AFW to Unit 1 only when P-38B, located in the north half of the room, is out of service. When work is being performed on P-38A (located in A23S), a fire in A23S does not damage either of the pumps in the north half of the room and P-38B remains available to feed Unit 1.

Fire Area A25 (D06 Battery Room)

A fire in this area could render both the Unit 1 TDAFP (1P-29) and the "B" MDAFP (P-38B) unavailable.

The D06 battery is the power supply for one of the steam supply MOVs for 1P-29, as well as various supporting valves. The D06 battery also supplies control power for the P-38B minimum recirculation flow control valve; therefore, the associated pump is not credited with being available during a fire in A25.

If the "A" MDAFP was also removed from service at the time such a fire occurred, there would be no analyzed and credited AFW pumps capable of delivering water to Unit 1. The Unit 2 TDAFP (2P-29) would have ample capacity for the decay heat removal requirements of Unit 2.

Fire Area A26 (D05 Battery Room)

A fire in this area could render both the Unit 1 TDAFP (1P-29) and the "A" MDAFP (P-38A) unavailable.

The D05 battery is the power supply for one of the steam supply MOVs for 1P-29, as well as various supporting valves.

The D05 battery also supplies control power for the P-38A minimum recirculation flow control valve. Therefore, the associated pump is not credited with being available during a fire in A25.

If the "B" MDAFP was also removed from service at the time such a fire occurred, there would be no analyzed and credited AFW pumps capable of delivering water to Unit 1.

The Unit 2 TDAFP (2P-29) would have ample capacity for the decay heat removal requirements of Unit 2.

To address these conditions, FPL Energy Point Beach commits to implement the following fire protection controls:

1. No transient combustibles and no planned hot work will be permitted in the areas of concern previously discussed and listed below.

2. FPL Energy Point Beach will perform thermography in the areas of concern previously discussed and listed below prior to entering the first LCO to provide added assurance that a fire initiator is not imminent, and will periodically re-perform the thermography as previously committed in Reference (1).

3. The installed detection and suppression systems in the areas of concern previously discussed and listed below will not be taken out of service for planned testing or maintenance during the extended completion time.

The above three commitments are applicable for the following durations and fire areas:

1. During the completion time for P-38A out of service for replacement, fire areas A01-B/46, A02, A15, A25, A26, and A23N.

2. During the completion time for P-38B out of service for replacement, fire areas A01-B/46, A02, A15, A25, A26, and A23S.

The cumulative effect of these compensatory actions provides reasonable assurance that a fire would not be initiated and that the consequences of a postulated fire in the areas of concern would be minimized.

Question 3

On page 1 of Enclosure 1, List of Regulatory Commitments, and on page 12 of Enclosure 2, as part of Tier 2 - Avoidance of Risk Significant Plant Configurations - the licensee states that redundant operable AFW trains and supporting systems will be protected from inadvertent challenges. This design modification may involve interfaces with electrical busses/logics that supply power/start signals to the other operable AFW trains, which would present inadvertent challenges to these protected trains. Regulatory Guide 1.174 directs the licensee to perform a safety margin assessment. Potential interfaces include:

a) *Both the MDAFW pumps and turbine driven auxiliary feedwater (TDAFW) pumps start on a trip or shutdown of both main feedwater pumps or closure of both feedwater regulating valves in one unit. These signals are processed through AMSAC at power levels above 40%.*

b) *The Update Final Safety Analysis Report (UFSAR) shows safe shutdown loads for 125v DC come from two busses, D-03 and D-04. The steam supply and AFW discharge valves for the TDAFW pumps are powered from vital 125V DC.*

c) *This change will result in an increase in the emergency diesel generator loading, that the licensee states has been factored in the station electrical analysis, and has been deemed acceptable. Though the design considers the impact on the bus and diesel, the implementation of this modification from the 480v AC bus to the 4160v AC bus may affect sequencing and logic of risk important equipment.*

A) Describe the interfaces this modification may have with other risk important equipment during the modification and testing that may affect operability of the other AFW pumps if an inadvertent action occurred.

B) Identify actions that will be used to fulfill licensing commitment to protect redundant operable trains from these inadvertent challenges.

C) Identify how the safety margins were affected and methodology used to determine the new margins were acceptable.

FPL Energy Point Beach Response

A) *Describe the interfaces this modification may have with other risk important equipment during modification and testing that may affect the operability of the other AFW pumps if inadvertent action occurred.*

The design of the AFW system and the modifications prevent interfaces between the redundant and separate AFW pumping systems. The scope of potential interfaces is broader than the three examples cited. Several potential interfaces, including those specifically mentioned, are described below.

The common portions of the automatic actuation control logic for the AFW system will remain unaffected by the AFW pump upgrades. The revised MDAFP breaker control scheme will not impact existing permissives, interlocks or trips and actuations that

automatically strip the breakers, close them (i.e. ESF, AMSAC), or sequence them onto the emergency diesel generators (EDGs) such as Engineered Safeguards Features (ESF) and ATWS Mitigation System Actuation Circuitry (AMSAC).

The safe shutdown loads fed by D-03 and D-04 as indicated by FSAR Figure 8.7-1 is dedicated alternate DC control power to diesel generators G-01 and G-02, 480 VAC alternate shutdown buses B08 and B09, and safe shutdown inverters DY-13 and DY-14. Buses D-03 and D-04 do not supply the TDAFPs or any of their supporting equipment.

The DC power supporting the TDAFPs is provided by DC buses D01 and D02, with the loads split such that loss of either will not result in a loss of TDAFP function. While some of the mini-flow recirculation valve logic for the MDAFPs are also powered via D01 and D02, these circuits are not being affected by the pump upgrade modifications.

The MDAFP upgrades will maintain the existing separation, independence and redundancy of the AFW trains. The plant modification process and procedures ensure that these attributes are considered during the design, and are not adversely impacted.

The AFW pumps are each located in their own separate cubicles and mechanical interfaces are limited to a single piping crosstie between the two MDAFPs. This pipe has two closed manual isolation valves that are maintained closed to provide train separation.

Separate, dedicated, safety related backup compressed gas is supplied for the auxiliaries of each of the separate AFW pump trains (i.e., minimum flow recirculation valves and flow control valves).

The current MDAFP power supply breakers are located in electrically separate switchgear (Unit 1 "A" train 480 VAC bus, and Unit 2 "B" train 480 VAC bus). The planned replacement breakers are located in electrically and physically separate switchgear (Unit 1 "A" train 4160 VAC bus, and Unit 2 "B" train 4160 VAC bus). Neither the current nor the planned replacement pump power supplies share common electrical power interfaces between the trains.

Both P-38A, "A" MDAFP, and P-38B, "B" MDAFP, have controls and wiring located in the same control room panel (C-01). However, within the panel there is physical and electrical separation of the wiring and controls between train A and train B components.

The two TDAFP controls and wiring in the control room are located in separate control consoles (1C-03 and 2C-03 for the Unit 1 and Unit 2 TDAFPs respectively). There are no common electrical interfaces between the proposed work to repower and upgrade the MDAFPs and these circuits.

The local control stations for P-38A (N-01 for the "A" train MDAFP) and P-38B (N-02 for the "B" train MDAFP) are electrically and physically separated and do not share a common interface.

B) *Identify actions that will be used to fulfill licensing commitment to protect redundant operable trains from these inadvertent challenges.*

As described above regarding interfaces, the physical and electrical separation of components, logic and power supplies substantially limits the potential impact of inadvertent actions to those involving "wrong train" errors. To minimize the risk of such errors, the plant procedure for protecting critical equipment will be used. The purpose of the procedure is:

> "...to raise the awareness of all plant personnel to the importance of maintaining designated equipment Operable and\or Available in situations of potentially increased risk. This increased risk may be due to infrequent or unusual plant configurations, planned maintenance activities or external factors that may reduce the plants safety margin."

The provisions of this procedure include the placement of conspicuous orange placards, barrier tape, or equivalent bearing the marking "PROTECTED EQUIPMENT." These postings will be placed on the pump cubicles, breakers, and local control stations for AFW trains remaining in service. The control switches for the protected equipment will be labeled as "PROTECTED EQUIPMENT."

In addition, the site processes requiring, tag-out, verification of de-energized equipment, and independent verification, combined with error reduction tools such as, supervisory oversight, self-checking, peer-checking, and place-keeping will minimize the potential for a wrong train error to occur. As previously committed in Reference (1), turnovers and pre-job briefings will be held at the work location, further reducing the potential for wrong-train errors.

FPL Energy Point Beach further commits that during the extended completion time period, field supervision will be present when modification work is being performed in the AFW pump room, and that human performance error reduction tools will be part of every shift brief prior to beginning and/or continuing work.

Inadvertent action affecting the wrong train during testing would be immediately apparent by unexpected response (start of a standby pump, failure to start of the pump being tested; no flow change when expected, etc.). These actions would not result in the standby trains being unavailable, and would permit prompt restoration and recovery from the inadvertent action.

Inappropriate action affecting the train in test would not have an affect on other risk important equipment due to the independence and redundancy of the AFW system.

Based on the above, the physical separation of redundant equipment and circuits, the protected equipment postings, and worker practices for verifying correct equipment is being worked on will minimize the potential for inadvertent action that could potentially affect the operability of the other AFW pumps.

C) *Identify how the safety margins were affected and methodology used to determine the new margins were acceptable.*

Section 2.2.1.2 of Regulatory Guide (RG) 1.174 discusses the assessment of the impact of proposed license basis changes to safety margins. With sufficient safety margins:

- Codes and standards (or their NRC approved alternatives) are met, and
- The safety analysis acceptance criteria in the license basis (e.g. FSAR and supporting analyses) are met, or the proposed revisions provide sufficient margin to account for analysis and data uncertainty.

RG 1.174 also refers to RG 1.177 for application specific guidelines for proposed TS changes. Section 2.2 of RG 1.177, "Traditional Engineering Considerations" addresses Safety Margins in Sub-section 2.2.2. This section states that sufficient safety margins are maintained when:

- "Codes and standards... or alternatives approved for use by the NRC are met...",
- "Safety analysis acceptance criteria in the Final Safety Analysis Report (FSAR) are met... The proposed TS AOT [Allowed Outage Time, i.e. Completion Time]... change does not adversely affect any assumptions or inputs to the safety analysis... For TS AOT changes, an assessment should be made of the effect on the FSAR acceptance criteria assuming the plant is in the AOT (i.e. the subject equipment is inoperable) and there are no additional failures"

Codes and Standards

Codes and standards are written to address design considerations and final configurations. Codes and standards do not address potential inadvertent actions that could be postulated to occur during interim configurations of equipment that is out of service.

During the period of the proposed one-time completion time extension, the remaining operable trains of AFW will be isolated from, and unaffected by, the work being performed to replace the existing MDAFPs. As such, their design and configuration will remain unaffected, and they will continue to meet the applicable codes and standards.

FSAR and Supporting Safety Analyses

The safety analysis acceptance criteria in the FSAR are met with one MDAFP inoperable and no additional failures. The following table summarizes the significant analyzed accidents and transients that are limiting for the AFW system, and how their acceptance criteria are met with one MDAFP out of service:

Accident	FSAR Chapter	Required AFW (gpm)	Available AFW (gpm)
Loss of Normal Feedwater (LONF)	14.1.10	200	200 (remaining MDAFP) 400 (TDAFP)
Loss of AC to Auxiliaries (LOAC)	14.1.11	200 per unit	200 (remaining MDAFP) 400 per unit (TDAFPs)
Steam Generator Tube Rupture (SGTR)	14.2.4	270	200 (remaining MDAFP) 400 (TDAFP)
Rupture of a Steam Pipe (MSLB)	14.2.5	270	200 (remaining MDAFP) 400 (TDAFP)

Summary of Safety Margins

Since codes and standards will be met, and the FSAR acceptance criteria will be met throughout the duration of the proposed TS completion time extension, traditional engineering safety margins remain unaffected and will be acceptable.

Question 4

The UFSAR states that the AFW system components are tested and inspected in accordance with technical specification surveillance criteria and frequencies. Testing verifies motor-driven pump operability, turbine-driven pump operability including a cold start, and operability of all required motor operated valves (MOV). Control circuits, starting logic, and indicators are verified operable by their respective functional test. New pumps and flow control valves will change flow rates, or may require changes to flow orifices to limit flow to ruptured generator with a MOV open.

Verify that all required post modification testing can be performed with the units at the proposed power level and would not present an inadvertent challenge to other protected trains.

FPL Energy Point Beach Response

FPL Energy Point Beach confirms that the required post-modification testing can be performed with the units at near full power, and that the testing will not present an inadvertent challenge to other protected trains.

The pump flow testing will be performed at a slightly reduced power as is typically done during periodic TS surveillance testing. This is to ensure that the minor excursion in reactor power that results from the initial injection of cold AFW flow does not result in exceeding rated thermal power.

The impact of the testing on other plant equipment will be consistent with the required quarterly test of MDAFW pumps. The expanded scope of testing will require a longer duration to complete.

Prior to removing an AFW pump from service, the new breaker cubicles and control circuits will be configured and tested to verify proper functioning of interlocks and relays.

Continuity of the automatic start capability of the upgraded pumps will be demonstrated by a functional test of the breaker closure circuit in response a simulated signal (e.g., a steam generator low-low level) injected into the auto start logic upstream of the conductor that will be relocated from the existing 480 VAC breaker to the new 4160 VAC breaker.

After installation of an upgraded AFW pump, the post-modification testing will include:

- Pump operation from minimum pump recirculation to maximum attainable flow to collect baseline hydraulic performance data and demonstrate design capabilities,
- Demonstrating acceptable dynamic response of discharge flow control and mini-flow recirculation valves to a pump start,
- Demonstrating acceptable pump flow start times, coast down characteristics, and power consumption,
- Obtaining motor condition evaluation (MCE) data of motor windings,
- Breaker checkouts, including relay setting and calibration checks,
- Close circuit checks,
- Trip circuit checks,
- Demonstrating local transfer capability,
- Functional tests of protective relays (manual actuation to verify proper response), and
- Functional test of breaker trip circuit in response to a manually initiated automatic trip signal (continuity test of auto-trip circuitry).

Since the AFW system pump trains are redundant and independent of one another, periodic (and in this case, post-modification) testing is routinely performed on one pump without affecting or degrading the capability of the other pump trains that are in standby. The redundancy and independence is being maintained by the replacement pump installation.

Based on the above, FPL Energy Point Beach is confident that all necessary post-modification testing can be completed at the proposed power levels without challenging other protected AFW trains.

Question 5

In the event of a loss of the TDAFW pump during an accident involving a steam generator tube rupture (SGTR), main feedwater line break in containment, or faulted steam generator (main steam line break (MSLB)), there may only be AFW to the faulted generator. In the UFSAR design basis, AFW is to be capable of isolating steam and feedwater to the faulted steam generator following a SGTR or a MSLB.

On page 18 of Enclosure 2, the licensee states "If one of the unit-specific TDAFW pumps fails, then the remaining unit-specific TDAFW pump system is capable of providing 200 gpm per steam generator to a single unit, and the remaining in-service MDAFW pump system is capable of providing the credited 200 gpm to a single steam generator on the other unit." However, the methodology does not appear to address if the faulted generator or tube rupture occurs on the only steam generator supplied by the MDAFW pump, assuming the TDAFW pumps fails.

In addition, on page 20 of Enclosure 2, Section 3.2.1.3 - Isolation of Ruptured or Faulted Steam Generator- the deterministic evaluation analysis does not address the ability to isolate feed to a steam generator if the faulted generator or tube rupture occurs on the only steam generator supplied by the MDAFW pump, assuming failure of the TDAFW pump.

Provide an analysis of the response of the plant to meet design criteria to isolate flow to a ruptured or faulted steam generator during this maintenance activity.

Further, on page 3 of Enclosure 2, the licensee states that during this modification, the cross connect capability for the MDAFW pumps to feed the other steam generator will not be available.

Explain how the unavailability of the cross tie valves affects the ability to meet: the current design basis, functions credited in risk assessment, and fulfill the defense in depth for accident analysis.

FPL Energy Point Beach Response

The loss of a unit-specific TDAFP or the redundant MDAFP is not assumed during the LCO 3.7.5.C Completion Time while one MDAFP is out of service. Completion Times represent a temporary relaxation of the single failure criterion. Generic Letter 80-30, "Clarification of the Term Operable as it Applies to Single Failure Criterion for Safety Systems Required by TS," dated April 10, 1980, stated:

> "The NRC's Standard Technical Specifications (STS) were formulated to preserve the single failure criterion for systems that are relied upon in the safety analysis report. By and large, the single failure criterion is preserved by specifying Limiting Conditions for Operation (LCOs) that require all redundant components of safety related systems to be OPERABLE. When the required redundancy is not maintained, either due to equipment failure or maintenance outage, action is required, within a specified time, to change the operating mode of the plant to place it in a safe condition. The specified time to take action, usually called the equipment out-of-service time, is a temporary relaxation of the single failure criterion, which, consistent with overall system reliability considerations, provides a limited time to fix

equipment or otherwise make it OPERABLE. If equipment can be returned to OPERABLE status within the specified time, plant shutdown is not required."

The above guidance is consistent with the guidance of RG 1.177. As previously discussed in response to RAI 3 above, the assessment of safety margin considers only a single pump out-of-service with no additional failures.

Therefore, a failure of the unit-specific TDAFP concurrent with having one MDAFP out-of-service for replacement need not be considered.

The citation from Page 18 of Enclosure 2 of Reference (1) was specifically discussing decay heat removal requirements for the LONF and LOAC transients only, and was not considering SGTR or MSLB events. The discussion was demonstrating additional defense in depth for the LONF and LOAC transients if an additional failure of a single TDAFP were postulated to occur. The discussion illustrated the flexibility and redundancy inherent in the design of the system, but was not intended to imply that such a combination of multiple failures is a design basis event.

The deterministic evaluation cited from Page 20 of Enclosure 2 of Reference (1) is consistent with the design basis analytical assumption of having no additional failures of redundant components while in the applicable TSAC. Therefore, it does not postulate the failure of the redundant TDAFP.

Defense in depth for such an unlikely event is available however, because the cool down could be performed using the faulted or ruptured SG and the remaining MDAFP. Existing emergency operating procedures provide for such a contingency. It is expected that the dose consequences for such an event would still be acceptably low because of low reactor coolant system (RCS) activity and partitioning of the release within the affected steam generator. However, because this would be outside of the design of the facility and previously completed dose assessments, it was not discussed in the previous submittal.

Crosstie Valves

The crosstie valves in question are local manual isolation valves that directly connect the discharge of P-38A to that of P-38B. During normal operations, opening these valves could complicate pump-to-pump interaction (strong pump / weak pump interaction), and would violate train separation criteria. As such, the current design bases do not credit the availability of the cross tie valves. Similarly, the site risk assessment does not credit the use of this crosstie line. Contingencies are provided in appropriate safe shutdown procedures.

Summary

The capability to provide adequate flow to mitigate the SGTR and MSLB accidents will be maintained during the proposed extended completion time, and the unavailability of the manual crossties has no detrimental effect on risk.

Question 6

On page 19 of Enclosure 2, the licensee states that upon a SGTR the required flow rate will be 270 gpm to provide a rapid cooldown to meet design basis requirement. The SGTR and MSLB events require a rapid cool down in addition to meeting the demands of decay heat removal. However, the licensee reports that the margin available with a single MDAFW pump is minimal. Based upon the steam generator level, reactor coolant system temperature and pressurizer level, that accompany the loss of normal feed and loss of all AC power to the station auxiliaries analyses, additional pumping capacity would be required to mitigate the SGTR or MSLB events. The existing MDAFW pump can only deliver 200 gpm; and the proposed new pump only delivers 240 gpm, which is still less than the 270 gpm required for SGTR and MSLB.

The licensee states that the purpose for this design change and approval for an extended technical specification completion time (CT) was to modify the AFW pump system to alleviate the portions of the existing operable but nonconforming or degraded conditions; however, this modification does not meet the design flow requirements for SGTR and MSLB. Explain why the modification was not designed to alleviate this condition, and how will the licensee address this continuing degraded condition.

FPL Energy Point Beach Response

The failure of the unit-specific TDAFP in conjunction with a SGTR or MSLB event could place the plant in a configuration where only a single MDAFP is available to feed the intact steam generator. This is because the ruptured or faulted steam generator would be isolated to limit radiological releases, and the associated MDAFP cannot be re-aligned to the intact steam generator.

The existing license basis radiological analyses for SGTR and MSLB accident analyses assume adequate AFW is available to support a rapid initial cool down.

There are no corresponding thermal / hydraulic plant response analyses for either of these radiological events. The FSAR contains analyses of containment pressure and temperature, and of a core response to a postulated MSLB. However, these both presume a massive break causing very rapid cool down, and are not dependent upon AFW flow to mitigate the containment pressure or core reactivity transients.

The following is an excerpt from the analysis that supports the FSAR Chapter 14.2.4 on SGTR:

> "The auxiliary feedwater flow resulting from this analysis is 37.55 lbm/sec. This value represents a minimum flowrate from all the operating pumps assuming no single failure and is calculated based on the mass of the feedwater and the reactor trip time. The SGTR event is typically not considered a limiting transient with respect to the auxiliary feedwater system since the analysis does not consider any failure in the auxiliary feedwater system."

The ability of a single MDAFP to provide all of the flow needed to mitigate these two events as assumed in the radiological analyses is not part of the PBNP AFW design and license bases.

The historical design and license basis notwithstanding, the upgraded pumps will be capable of delivering the necessary flow to support the initial rapid cool down assumed in the radiological analyses of SGTR and MSLB events, even if a single failure is considered. While the upgraded pumps are nominally rated for 240 gpm, this is at a substantially higher discharge pressure than the current pumps, and allows margin for both a future thermal uprate and potential pump degradation. The actual flow capacity at hot standby conditions for the upgraded pumps is expected to be a nominal 280-300 gpm.

Additionally, when a rapid cool down is performed by dumping steam, steam generator pressure decreases rapidly. By reducing steam generator pressure by only 100 psi, the upgraded pumps will be capable of providing approximately 340 gpm.

While the current MDAFPs can also deliver more than 200 gpm with reduced steam generator pressure, their flow is limited to ~240 gpm due to the trip settings of the 480 VAC breakers supplying the pumps. These trip settings provide time-over current protection for the existing 250 Hp motors.

By re-powering the upgraded pumps with 350 Hp motors powered from the 4.16 kV buses, the existing power limitations will not be a limiting factor.

The future installed capacity of a single MDAFP to provide all of the flow required to mitigate a SGTR or MSLB event is not a design requirement of the PBNP AFW pumps or system.