

October 6, 2008

LICENSEE: FPL Energy Point Beach, LLC
FACILITY: Point Beach Nuclear Plant, Units 1 and 2
SUBJECT: SUMMARY OF THE AUGUST 12, 2008, MEETING WITH FPL ENERGY POINT BEACH, LLC, ON THE AUXILIARY FEEDWATER TECHNICAL SPECIFICATION COMPLETION TIME EXTENSION AMENDMENT REQUEST (TAC NOS. MD7672 AND MD7673)

On August 12, 2008, a Category 1 public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of FPL Energy Point Beach, LLC (the licensee) at NRC Headquarters, Two White Flint North, 11545 Rockville Pike, Rockville, Maryland. A list of attendees is provided as Enclosure 1. The information needs in Enclosure 2 are not requests for additional information (RAI), rather they are information that a future submittal would need to address.

The purpose of the meeting was to discuss the auxiliary feedwater (AFW) technical specification completion time extension request. The meeting was requested by the licensee in response to the staff informing the licensee that it intended to deny the application based on insufficient information. A list of the staff's information needs is provided as Enclosure 2.

The licensee presented information (See the Agencywide Documents Access and Management System (ADAMS) Accession No. ML082260450. The licensee presentation focused on the following areas:

- Standby steam generator feedwater pump
- Fire based Compensatory measures
- AFW flow design requirement
- Risk analysis

Standby Steam Generator Feedwater Pump

The standby steam generator feedwater pump is at the concept stage of development. The licensee's proposed design is for an independent non-safety class feedwater pump, powered from a dedicated diesel generator unit, that would be temporarily installed for the period of the completion time extension. The staff's position was that the diesel feedwater pump installation needs to be permanent. The reason the pump needs to be a permanently installed is that the licensee has not been able to quantify the fire contribution to overall risk associated with completion time extension, and that the information submitted indicates that the overall plant risk due to fires may be significant, and therefore, per Regulatory Guide (RG) 1.174, the licensee's focus should be on reducing plant risk rather than small incremental risk increases. The AFW

system is a frontline system and taking the AFW pump out of service at power for 16 days for each pump for a cumulative time of 32 days for both pump replacements, is a risk-significant

evolution and the risk needs to be quantified. Bundling of changes in this case would allow compensation for the potential short-term increase in risk with a long-term reduction in risk and safety improvement from having a diverse auxiliary feedwater pump which could supply either unit. The staff believes leaving the diesel-supplied feedwater pump permanently installed would result in a long-term reduction in risk, though this would have to be justified in your submittal.

The licensee stated that they were evaluating a permanent installation, but did not commit to installing the pump permanently, nor did they commit to leaving the temporary pump installed until the pump could be permanently installed. The staff told the licensee that a temporary pump had not been demonstrated to result in a risk neutral or risk reduction situation, but that a permanently installed pump potentially could result in a long-term reduction in risk due to the importance of the auxiliary feedwater function in the plant's risk model.

The staff informed the licensee that they needed to submit the actual design, not a conceptual design for NRC review. The actual design would need to include a human reliability analysis. (See Enclosure 2 for additional staff information needs).

Fire-based Compensatory Measures

The licensee discussed their compensatory measures. The licensee agreed that the fire impairments that affect AFW would be fixed prior to removal of AFW pump from service. (See Enclosure 2 for additional staff information needs). However, other fire impairments would not be resolved prior to the planned AFW pump replacement outage, which the staff noted raised questions regarding the uncertainty of the actual baseline risk of the plant.

AFW Flow Design Requirement

The proposed pump would be rated for 240 gpm at 3100 feet discharge head, which would be the same capacity as the replacement AFW pumps.

Risk Analysis

Probabilistic Risk Assessment (PRA) Licensing Branch

RG 1.174 requires that the licensee make a robust determination that the risk from out-of-scope initiators (i.e., fires) are inconsequential, and this may require additional PRA analyses. The licensee has not performed the additional PRA analyses, due to limitations in their current risk model. Specifically, the licensee's submittal and RAI responses identify significant impacts of fires on AFW system based on qualitative evaluation. The individual plant examination of external events identifies the AFW room as a dominant fire risk contributor, and deficiencies in overall fire analyses assumptions. A recent preliminary notification of occurrence also identifies significant AFW-fire interactions. The licensee commitments for fire watches are already in place to address fire protection system deficiencies, therefore, there is no net improvement in fire safety for the duration of the AFW replacement. Fire risk may be significant resulting in a cumulative plant risk in the region where, per RG 1.174, licensees should be identifying risk reduction opportunities (such as a permanent backup AFW pump).

The licensee must provide a solid technical basis for assumptions used in its supporting risk analyses. Basing success on the existence of procedural guidance, operating experience or

simulator data, without a corresponding analytical basis, is inconsistent with industry guidance on PRA technical adequacy. Deleting invalid cutsets generated by the peer-reviewed PRA model calls into question the PRA technical adequacy for the application.

If backup AFW capability is proposed as new basis for approval of the extension of the completion time, the licensee needs to address internal events PRA technical adequacy issues, and must make robust case that fire risk is not significant. Compensatory measures must be demonstrably effective in reducing the source of risk.

The licensee needs to provide answers to the RAIs previously asked.

Conclusion

Jack Grobe, Associate Director for Engineering and Safety Systems, pointed out that the amendment and responses to RAIs were deficient in supporting risk information. In response to the addition of an independent non-safety diesel pump, he stated that the licensee's is only at the concept stage and that the staff would need to review the actual design before a risk decision could be made.

Senior Nuclear Reactor Regulation management agreed to discuss the proposal with the staff and communicate our decision to the licensee as soon as practical.

Members of the public were in attendance. Public Meeting Feedback forms were not received.

Please direct any inquiries to Jack Cushing at 301-415-1424, or Jack.Cushing@nrc.gov.

/RA/

Jack Cushing, Senior Project Manager
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-266 and 50-301

Enclosures:

1. List of Attendees
2. Staff's Additional Information Needs

cc w/encls: See next page

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Backup AFW capability proposed as new basis for approval of the extension of the completion time. The licensee still needs to address internal events PRA technical adequacy issues, and must make robust case that fire risk is not significant. Compensatory measures must be demonstrably effective in reducing the source of risk.

The licensee needs to provide answers to the RAIs previously asked.

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OFFICE	LPL3-1/PM	LPL3-1/LA	APLA/BC	SBPB/BC	LPL3-1/BC
NAME	JCushing	THarris	MRubin	DHarrison	LJames
DATE	9/14/08	8/28/08	9/9/08	9/23/08	10/6/08

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Point Beach Nuclear Plant, Units 1 and 2

cc:

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

Mr. Ken Duveneck
Town Chairman
Town of Two Creeks
13017 State Highway 42
Mishicot, WI 54228

Resident Inspector's Office
U.S. Nuclear Regulatory Commission
6612 Nuclear Road
Two Rivers, WI 54241

Chairman
Public Service Commission of Wisconsin
P.O. Box 7854
Madison, WI 53707-7854

Mr. J. A. Stall
Executive Vice President, Nuclear and
Chief Nuclear Officer
FPL Group
P. O. Box 14000
Juno Beach, FL 33408-0420

T. O. Jones
Vice President, Nuclear Operations
Mid-West Region
Florida Power & Light Company
P. O. Box 14000
Juno Beach, FL 33408-0420

Peter Wells
Acting Vice President, Nuclear
Training and Performance Improvement
Florida Power & Light Company
P. O. Box 14000
Juno Beach, FL 33408-0420

John Bjorseth
Plant General Manager
Point Beach Nuclear Plant
6610 Nuclear Road
Two Rivers, WI 54241

Mark E. Warner
Vice President, Nuclear Plant Support
Florida Power & Light Company
P. O. Box 14000
Juno Beach, FL 33408-0420

Mr. Antonio Fernandez
Senior Attorney
FPL Energy, LLC
P. O. Box 14000
Juno Beach, FL 33408-0420

Mr. Mano Nazar
Senior Vice President and
Nuclear Chief Operating Officer
FPL Energy, LLC
P. O. Box 14000
Juno Beach, FL 33408-0420

Abdy Khanpour
Vice President
Engineering Support
FPL Energy, LLC
P. O. Box 14000
Juno Beach, FL 33408-0420

J. Kitsembel
Electric Division
Public Service Commission of Wisconsin
P. O. Box 7854
Madison, WI 53707-7854

Mr. M. S. Ross
Managing Attorney
FPL Energy, LLC
P. O. Box 14000
Juno Beach, FL 33408-0420

Mr. Larry Meyer
Vice President, Point Beach Recovery
Point Beach Nuclear Plant
6610 Nuclear Road
Two Rivers, WI 54241

ATTENDANCE LIST
MEETING BETWEEN THE NRC AND FPL
ON THE AUXILIARY FEEDWATER AMENDMENT
AUGUST 12, 2008

<u>NAME</u>	<u>ORGANIZATION</u>
Jack Cushing	NRR/DORL
Vincent Ruban	FPLE
DJ Tomeswski	FPLE
Raj Kundalkar	FPLE
Sidney Brain	FPLE
Liz Abbott	FPLE
Jack Grobe	NRR/AD for Engineering
Tim McGinty	NRR/DD DORL
Robert Krsek	RIII/DRP/Branch 5
Andrew Howe	NRR/DRA/APLA
Melanie Galloway	NRR/DRA
Harry Barrett	NRR/DRA/AFP
Mark Rubin	NRR/DRA/APLA
Ching Guey	FPLE
Mike Millen	FPLE
Glen Blinde	FPLE
Jeff Novak	FPLE
Nestor Feliz-Adorno	NRR/DSS
Ludwig Kern	NRR/DSS/SRXB
Frank Orr	NRR/DSS/SRXB
David Diec	NRR/DSS/SBPB
Stanley Gardocki	NRR/DSS/SBPB
Mike Kunowski	RIII, DRP, Branch 5
Steven A. Laur	NRR/DRA
Dean Raleigh	Sciencetech
Lois James	NRR/DORL

Fire Protection Branch

1. The licensee is proposing operator manual actions to restore auxiliary feedwater (AFW) functions potentially impacted by fire damage. They need to be able to show that the actions are both feasible and reliable and that they have sufficient staffing to accomplish all actions within the required time.
2. The licensee needs to be able to state that the fire vulnerability identified in the July 16, 2008, emergency notification (EN) has been resolved for all fire areas where fire can remove all credited AFW for a unit. Note that the condition in the EN would make the fire a 2 unit event if it is not resolved.
3. The licensee is proposing the use of a "Dedicated" safe shutdown train to take the place of a motor-driven AFW pump out of service for the replacement. This means that the alternate pump needs to provide sufficient capacity and the installation/set-up can be accomplished so that it meets Appendix R Section III.L (Performance Goals for Post-Fire Safe Shutdown under Section III.G.3). This paragraph requires that the transient in the reactor coolant system due to the fire shall be maintained within those predicted for a loss of normal AC power. It also means that they have to be able to cool down to cold shutdown within 72 hours.
4. If the licensee can not make a positive statement that there are no other 4KV (or higher voltage) cables (safety-related or not) with the same potential failure mode described in the EN in the fire areas that affect AFW, they should propose to increase the size of their dedicated pump so that it can feed 2 units at the same time.
5. The licensee needs to describe the compensatory actions being taken for disabling the automatic suppression feature in the fire area where the replacement activity (cutting, welding, grinding) is being performed (on the last phone call, they stated that they would likely place the Halon suppression system in manual only mode).

The following more detailed information needs were provided to the licensee to help them prepare for the public meeting.

1. Please provide a technical basis for the frequency of periodic thermography (once every 7 days) committed to in the December 29, 2007, submittal.
2. Your July 3, 2008, response to PRA RAI-8 included commitments to limit hot work and planned transient combustibles in 11 additional fire areas. Please provide a justification for why these 11 fire areas are receiving different treatment than the 7 fire areas originally identified. Explain why fire watch patrols and thermography would not be an effective compensatory action in these fire areas as well as the original 7. Based on the importance of feed and bleed, it appears that applying all proposed compensatory actions on all 18 fire areas would be more appropriate.
3. The May 29, 2008, FPL response to AFBP RAI 1 states that five fire areas have feasible and reasonable compensatory manual actions.

Please describe the feasible and reasonable compensatory manual actions:

1. Provide the component whose fire damage requires mitigation.
2. Provide the type of component, its normal position, loss of air position and loss of electric power position.
3. If the component is a motor-operated valve, state whether the valve is susceptible to permanent fire-induced damage (fire damage can bypass the actuator torque and limit switches resulting in mechanical failure of valve or actuator).
4. A description of the manual action.
5. A description of the environmental aspects of the manual action (presence of smoke, toxic fumes, etc.).
6. List the instrumentation needed for the manual action:
 - a. Instrumentation used as a cue for the need to perform the action.
 - b. Instrumentation needed to enable the performance of the action.
 - c. Instrumentation needed to verify satisfactory completion of the manual action,
7. The time required to perform the manual action.
8. The time available before a non-recoverable condition is reached.
9. The presence or absence of emergency lighting for the egress route and the task itself (manual action).
10. The availability and need for communication to perform the manual action.
11. Whether or not the egress route or the location of the manual action is in the fire area of concern.
12. Total timeline that demonstrates sufficient operators on-shift to meet all required actions throughout the fire event.
13. Documentation of actual demonstration of the capability.

Note: Treatment of the proposed compensatory measures in accordance with NUREG-1852 is one acceptable approach

4. Your May 29, 2008, response to AFPB RAI 1 states that personnel designated as performing the augmented compensatory actions will receive a pre-job brief on required actions. Please explain the basis for the use of a pre-job briefing rather than formal classroom or on-the-job training. Based on the importance of restoring AFW during a fire event, the fact that these are new requirements on the operators, and that they must be performed in a limited amount of time under the stress of a fire event, training appears to be a more appropriate delivery method than a pre-job briefing.
5. Based on your May 29, 2008, response, two fire areas could still potentially result in the total loss of AFW. These two areas continue to rely on prevention and suppression of fires, should they occur. During the July 29, 2008, telephone conference, FPL stated that an additional compensatory action was being considered to address these areas. We understood that a pump was being obtained such that the AFW function could be provided independent of the fire area. Please provide a description of this proposed compensatory measure:
 1. Provide a general description of the independent feedwater pump
 2. Provide the details of the independent pump
 - a. Power source

- b. Control scheme
 - i. Location of controls
 - ii. Communications with Control Room and any other required areas
 - iii. Instrumentation
 - c. Piping design pressure and classification (ANSI/ASME)
 - d. Tie-ins
 - e. Design flow rate, temperature and pressure
 - f. Suction source
 - g. Time required to set up and establish flow
 - h. Task lighting (battery powered emergency lights)
 - i. Provide a summary of the procedure to be used to operate the pump
 - j. Describe how the independent pump will be operated by the normal shift complement of operators, excluding the fire brigade
 - k. Describe the training to be provided to the personnel performing set-up and to the operators that will operate the pump
 - l. Provide the details of the testing to be performed to assure that the pump set-up is sufficient to meet the functional requirements of the AFW system during a fire event
6. FPL recently submitted an EN to the Nuclear Regulatory Commission Operations Center in accordance with 10CFR 50.72(b)(3)(ii)(B) – unanalyzed condition regarding the potential for a fire in the south area of the AFW room to propagate to the vital switchgear room. The event described would cause a significant increase in the scope of fire damage compared with that postulated in the Appendix R safe shutdown analysis. Please describe how the situation described in the recent EN is being addressed with respect to the proposed AFW allowed outage time (AOT) extension request.

Balance of Plant

1. The safety analysis credits 270 gpm is needed for main steamline break (MSLB) analysis. The licensee needs to explain the basis for 270 gpm and how the license is going to obtain this flow.
2. In the MSLB analysis, AFW is assumed to be manually re-aligned at 600 seconds to prevent further water addition to the faulted steam generator (SG). The proposed design is putting higher capacity MD AFW pumps. What is the affect on the design-basis accident? The reduced pressure in the faulted SG will direct most of the flow from other SGs. (They are operating at close to design limits. Additional AFW will add energy to containment. Not sure how much. Currently, the peak containment pressure is 59.8 psi, and the limit is 60 psi, and the peak containment temperature is 285 degrees and the limit is 286.)
3. In order to meet design-basis, AFW needs to be supplied within 5 minutes of receiving SG low-low level. Will this standby pump be able to provide this function?
4. In the event both units need AFW (such as LOOP) there is an possibility that a 50 psi pressure differential between units could divert all motor-driven auxiliary feedwater pump (MDAFWP) to one unit. One unit may not get any AFW if its turbine-driven auxiliary feedwater pump (TDAFWP) fails. The license (ref LER 91-001) took credit for manual

operator actions to recognize the condition and restore sufficient flow to both units within 5 minutes. The licensee needs to augment their application to describe such events and the effects with one MDAFWP in maintenance for an extended period of time. Also, they need to address these manual actions and their impact on risk, along with other compensatory manual actions they are taking credit for.

The following more detailed information needs were provided to the licensee to help them prepare for the meeting. The information needs are not requests for additional information (RAIs).

SBPB ARAI-1

The staff identified a concern that the existing flow rate from one MDAFWP does not meet the current licensing basis requirement of 270 gpm flow necessary during a steam generator tube rupture (SGTR) to provide a rapid cooldown of the reactor coolant system (RCS) in order to meet radiological release design-basis analysis. The existing MDAFWP can only deliver 200 gpm, and the proposed new pump can only deliver 240 gpm. The SGTR event analysis does not consider any failure in the AFW system, and assumes isolation of the affected SG can be achieved within thirty minutes by operator actions, to include securing AFW flow to ruptured SG. If the TDAFWP fails, and if the licensee isolates flow to the affected SG, the unit would be left with only one MDAFWP with a 200 gpm (240 gpm with the new pump) capacity supplying the unaffected SG to mitigate the accident. The emergency operating procedures (EOPs) contains a caution, "Do not commence cooldown until the rupture S/G is identified and isolated."

- a) Explain the basis for the 270 gpm criteria and how it is obtained. Include whether there is sufficient flow to assure the SG pressure is below the safety relief lift setpoint within 30 minutes assumed in the radiological analysis.
- b) Explain how EOP's assures the credit actions in the accident analysis are performed, and remain bounded within the accident analysis.

SBPB ARAI-2

Under Regulatory Guide (RG) 1.177, the staff uses the defense-in-depth philosophy to ensure there are multiple means to accomplish safety functions and prevent the release of radiological material. With one of the MDAFWP unavailable for maintenance, the TDAFWP becomes critical in mitigating a design-basis accident. Several accident scenarios show that in the event of a loss of the TDAFWP, the accident may result in no AFW available to the accident unit; such as, in the event of a MSLB on the SG supplied by the only remaining operable MDAFWP, the only means to cool down the RCS would be to feed the failed SG. Also, in the event of a LOOP and the TDAFWP fails on non-accident unit, there would be no AFW to the non-accident unit if the accident unit automatically closed off AFW flow from the only MDAFWP.

The licensee iterated that they do not have to consider a failure of the TDAFWP while having one MDAFWP unavailable due to the temporary relaxation of the single-failure criterion while in a limiting condition for operation. However, to ensure the licensee maintains an adequate defense-in-depth should a TDAFW pump fail, the staffs asks the licensee to explain their proposed defense-in-depth in the events as describe above, to mitigate the consequences of the accident.

SBPB ARAI-3

The licensee proposes to use compensatory measures to mitigate the risk profile while in the extended completion time (CT). The staff evaluated the licensee's proposed compensatory actions and found areas where the licensee's actions were less than adequate for the amount of risk exposure during the CT.

- a) In the original license amendment request, the licensee stated that no other work that impacts risk will be planned to take place during the time the units are in the two separate 16 day extended CTs. As a result, the licensee took credit for zero-maintenance term in their probabilistic risk assessment. The licensee responded in letter dated, May 15, 2008, that they have changed their safety monitor and their method of assessing allowed work during the maintenance period. In their initial risk assessment, the licensee reported that both units would be in a yellow risk level during the extended CT. In their RAI response, the licensee reported their new risk assessment shows the risk level as green. Additionally, the licensee has changed their maintenance plan for the time the units are in the extended CT, from performing no maintenance or surveillance that impact risk, to performing no maintenance or surveillance during the extended CT that would result in a yellow risk condition, i.e. if persisted for 7 days would result in an increase in core damage probability of $1.0 \text{ E-}06$ or an increase in large early release probability of $1.0 \text{ E-}07$.

In order to assess the adequacy of their defense-in-depth strategy, the staff requests information on the proposed maintenance and surveillance activities that are planned to occur, or likely to occur, during the extended CT and their plant impact. The staff is especially concerned about any activities that have the potential to impact the ability of AFW system or its support systems to provide their function, and compensatory actions the licensee plan to implement. Additionally, the staff request information on the changes made to the safety monitor, which reduced the risk profile from yellow to green condition while in the extended CT.

- b) In a letter dated April 18, 2008, the staff asked the licensee to describe areas where work being performed during the modification could impact other risk important equipment and their proposed actions to prevent inadvertent impacts. The licensee cited the controls for both MDAFWPs are co-located inside control room panel C-01. The licensee stated there was physical and electrical separation of the wiring. However, the licensee did not address whether work was being performed inside this panel and the appropriate compensatory measures to be enacted to prevent inadvertent action on the wrong train.
- c) The licensee proposes to credit the use of thermography in selected fire areas to add assurance that a fire initiator is not imminent. The licensee proposes to initially baseline thermography of potential fire initiators in the seven fire areas of concern within 7 days prior to starting the modification, and the licensee proposes to repeat weekly readings thereafter until restoration. The best estimate for the duration of the modification is only 7 days; therefore, the 7-day time interval the licensee plans to implement for this compensatory action will not provide any added benefit during the CT. The staff requests the licensee provide their basis for crediting the use thermography for a reduction in risk during the CT based upon a 7-day interval between thermography readings, when the work should be complete before the first reading is scheduled to be taken.

SBPB ARAI-3

Part of the staff's responsibility under RG 1.177 is to ensure the proposed change maintains sufficient safety margins. According to the design-basis document for AFW, the sizing of the original MDAFWP was limited to 250 brake-horse-power motors by diesel loading restraints. The proposed replacement pumps are rated at 300 brake-horse-power. The licensee states that the increase in diesel loading had been found acceptable when factored into the station electrical analysis under a review performed in accordance with the 10 CFR 50.59 process. Since the modification will be implemented at power, and the diesel start, load, and sequencing test only occurs during shutdown, the staff needs to assess if there is sufficient margin available to encompass any uncertainty in the proposed modifications.

In order to assess the impact on the safety margins for the extended AOT, the staff asked the licensee to identify how the safety margins on the safety-related buses will be affected due to the modification, which have an impact on the affected buses, sequencing, and logics. (An RAI was previously asked in a letter dated April 18, 2008, but no information was provided that would allow the staff to assess the impact of the modification on the available safety margin for the emergency bus.)