NEXTera ENERGY POINT BEACH

December 1, 2010

NRC 2010-0172
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

License Amendment Request 261
Extended Power Uprate
Response to Request for Additional Information

References:
(1) FPL Energy Point Beach, LLC letter to NRC, dated April 7, 2009, License Amendment Request 261, Extended Power Uprate (ML091250564)
(2) NRC letter to NextEra Energy Point Beach, LLC, dated November 18, 2010, Point Beach Nuclear Plant, Units 1 and 2 - Request for Additional Information Re: License Amendment Request (LAR-261) Associated with Extended Power Uprate (TAC NOS. ME1044 AND ME1045) (ML103200066)

NextEra Energy Point Beach, LLC (NextEra) submitted License Amendment Request (LAR) 261 (Reference 1) to the NRC pursuant to 10 CFR 50.90. The proposed amendment would increase each unit's licensed thermal power level from 1540 megawatts thermal (MWt) to 1800 MWt, and revise the Technical Specifications to support operation at the increased thermal power level.

Via Reference (2), the NRC staff determined that additional information is required to enable the staff's continued review of the request. Enclosure 1 provides the NextEra response to the NRC staff's request for additional information.

This letter contains no new Regulatory Commitments and no revisions to existing Regulatory Commitments.

The information contained in this letter does not alter the no significant hazards consideration contained in Reference (1) and continues to satisfy the criteria of 10 CFR 51.22 for categorical exclusion from the requirements of an environmental assessment.

In accordance with 10 CFR 50.91, a copy of this letter is being provided to the designated Wisconsin Official.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on December 1, 2010.

Very truly yours,

NextEra Energy Point Beach, LLC

Larry Meyer
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 1

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

LICENSE AMENDMENT REQUEST 261
EXTENDED POWER UPRATE
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

The NRC staff determined that additional information was required (Reference 1) to enable the staff's continued review of License Amendment Request (LAR) 261, Extended Power Uprate (EPU) (Reference 2). The following information, in addition to that provided by References (2) and (3), is provided by NextEra Energy Point Beach, LLC (NextEra) in response to the NRC staff's request.

Request for Additional Information-General

Provide a thermal-hydraulic analysis for PBNP, at both current licensed thermal power conditions and at the proposed, uprated conditions, for a limiting margin-to-overfill/overfill scenario. One acceptable methodology would be for the analysis to align as closely as possible to what is approved in WCAP-10698-P-A; however, since the licensee has asserted that a limiting single failure is not in the Point Beach licensing basis, this exception to the WCAP-10698-P-A methodology would be acceptable.

NextEra Response

NextEra has performed analyses of the limiting margin-to-overfill scenarios for operation at the current licensed thermal power (CLTP) level of 1540 MWt, and at the proposed extended power uprate (EPU) licensed core power level of 1800 MWt. The analyses followed the methodology in WCAP-10698-P-A, with the exception of the assumption of a single failure. The inputs for the analyses in comparison to WCAP-10698-P-A are provided in Table 1 below. Additionally, other inputs were refined from the analyses presented in References (2), (3) and (4) to reflect the latest design values as follows:

- Cooldown target temperature from emergency operating procedures
- Feedwater minimum temperature
- Auxiliary feedwater (AFW) start delay time
- AFW minimum temperature
- AFW flow

The analyses were performed using the LOFTTR2 thermal hydraulic model consistent with the methodology in WCAP-10698-P-A.

The results indicate a margin to overfill of >30 ft^3 in the ruptured steam generator (SG) for the CLTP case, and >70 ft^3 in the ruptured steam generator for the EPU case. No water is transferred into the steam lines. The sequence of events for each analysis is provided in Table 2. Figures 1, 2, and 3 provide the time-dependent primary and secondary pressures, primary-to-secondary break flow, and ruptured steam generator water volume, respectively, for the limiting CLTP scenario. Figures 4, 5, and 6 provide the same figures for the limiting EPU scenario.

TABLE 1

Parameter	WCAP-10698 modeling	Point Beach Revised SGTR MTO Analysis	
	Direction of Conservatism	CLTP	EPU
Initial Conditions			
Power(1)	Full-Power (Nominal + Uncertainty)	Nominal + Uncertainty	Nominal + Uncertainty
RCS Pressure	Minimum	Minimum	Minimum
Pressurizer Water Level	Maximum	Maximum	Maximum
Steam Generator Secondary Mass	Maximum	Maximum	Maximum
Break Location	Cold-Leg	Cold-Leg	Cold-Leg
Offsite Power Availability			
Offsite Power	Loss of Offsite Power (LOOP)	LOOP	LOOP
Protection Setpoints and Errors			
Reactor Trip Delay	Minimum	Minimum	Minimum
Turbine Trip Delay	Minimum	Minimum	Minimum
SG Relief or Safety Valve Setpoint	Minimum (PORV)	Minimum (PORV)	Minimum (PORV)
Pressurizer Pressure Trip Setpoint	Maximum	Maximum	Maximum
Pressurizer Pressure SI Setpoint	Maximum	Maximum	Maximum
Safeguards Capacity			
SI Flow Rate	Maximum	Maximum	Maximum
AFW Flow Rate (Isolation on Operator Action Time)	Maximum	Maximum	Maximum
AFW System Delay	Minimum	Minimum	Minimum
AFW Temperature	Maximum	Minimum(2)	Minimum(2)
Control Systems			
CVS Operation, PZR Heater Control	Not Operating	Not Operating	Not Operating
Turbine Runback Mass Penalty	Included	Included	Included
RCP Running	Not Operating	Not Operating	Not Operating
Decay Heat			
Decay Heat	Maximum	1971 Nominal(2)	1979-2σ(2)
Single Failure			
Single Failure	Included	Not Included, Consistent with CLB	Not Included, Consistent with CLB

(1) Consistent with the discussion of power in WCAP-10698-P-A, the initial steam generator mass is more conservatively calculated without inclusion of the initial power uncertainty since it results in a higher mass.

(2) Plant-specific sensitivities for Point Beach concluded that it is more conservative (i.e., less margin to overfill) to model AFW temperature and decay heat differently than prescribed by WCAP-10698-P-A.

TABLE 2

Event	CLTP Time (sec)	EPU Time (sec)
Tube Rupture	0	0
Reactor Trip	52	55
AFW Initiation	66	69
Safety Injection (SI) Actuation	141	113
Isolate Ruptured SG	360	360
Initiate Cooldown with Intact SG	1380	1380
Terminate Cooldown	1732	1762
Initiate Depressurization	1912	1942
Terminate Depressurization	1974	2006
Terminate SI Flow	2094	2126
Break Flow Termination	2628	2620

From a defense in depth perspective, NextEra has performed an assessment of the main steam lines for water filled conditions (see the NextEra response to Question 1 below). Based on this assessment, a minimum of an additional 150 ft^3 of margin would be available in the unlikely event of a steam generator overfill condition.

Figure 1: SGTR Margin to Overfill Evaluation for CLTP: RCS and Secondary Pressures

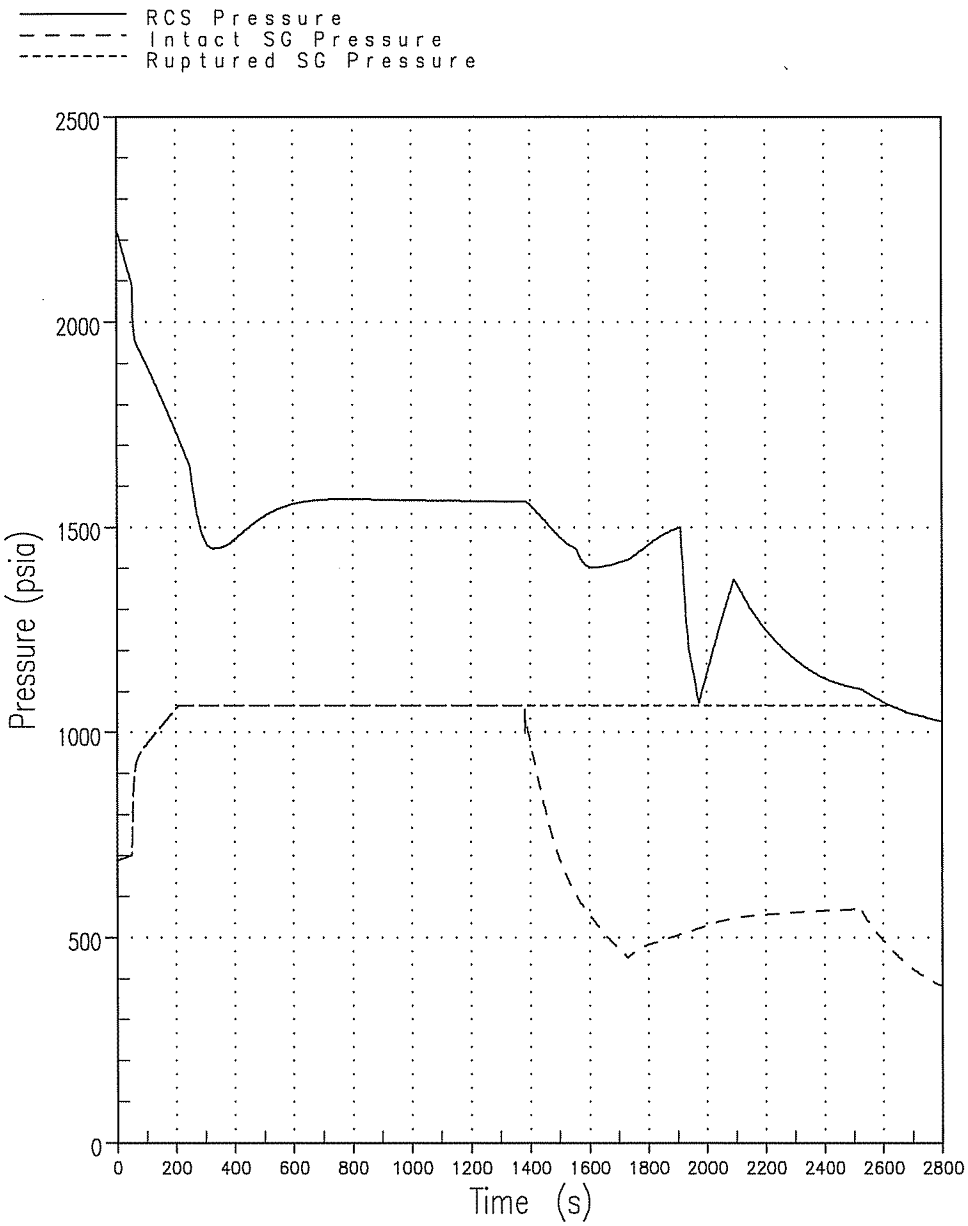


Figure 2: SGTR Margin to Overfill Evaluation for CLTP: Ruptured Steam Generator Break Flow

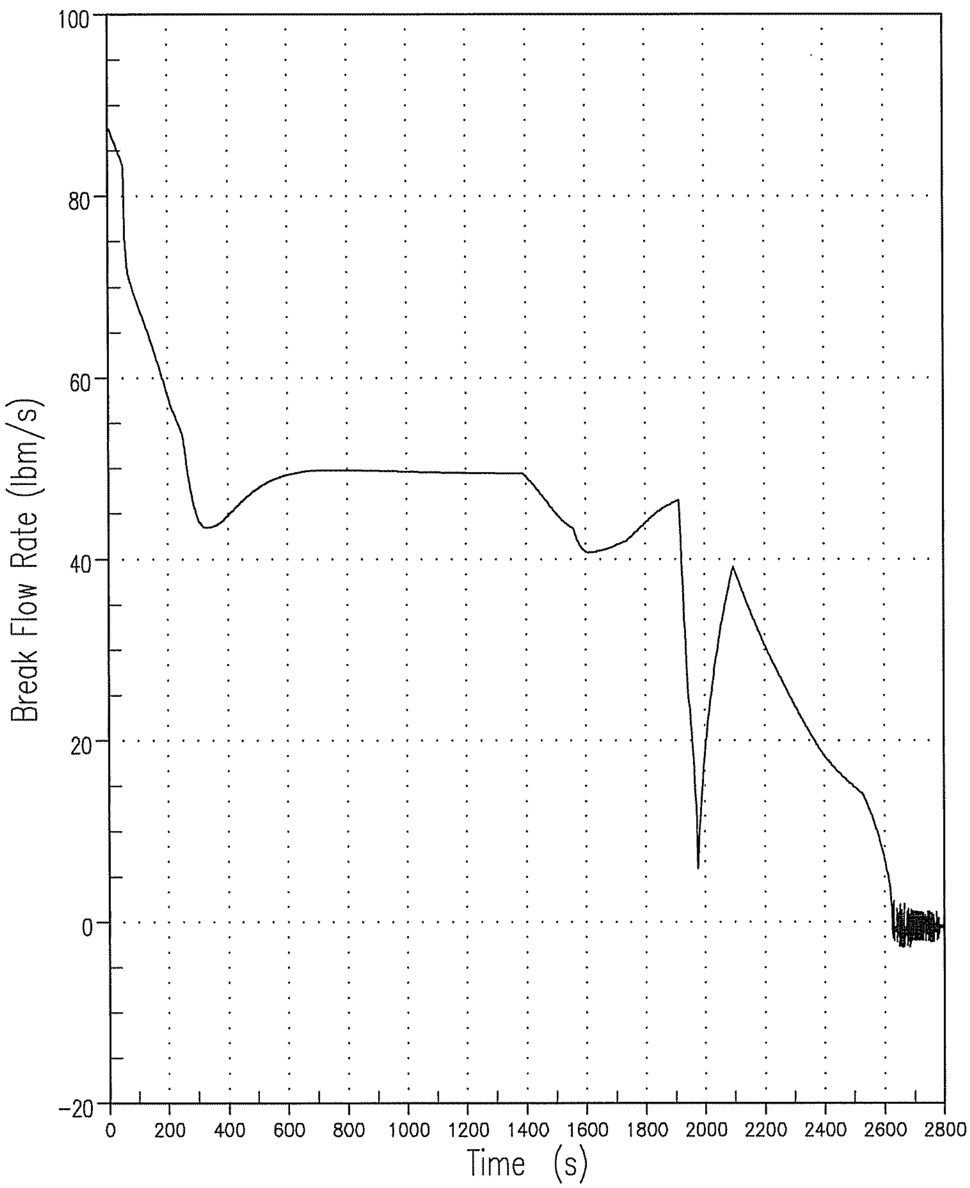


Figure 3: SGTR Margin to Overfill Evaluation for CLTP:
Ruptured Steam Generator Water Volume

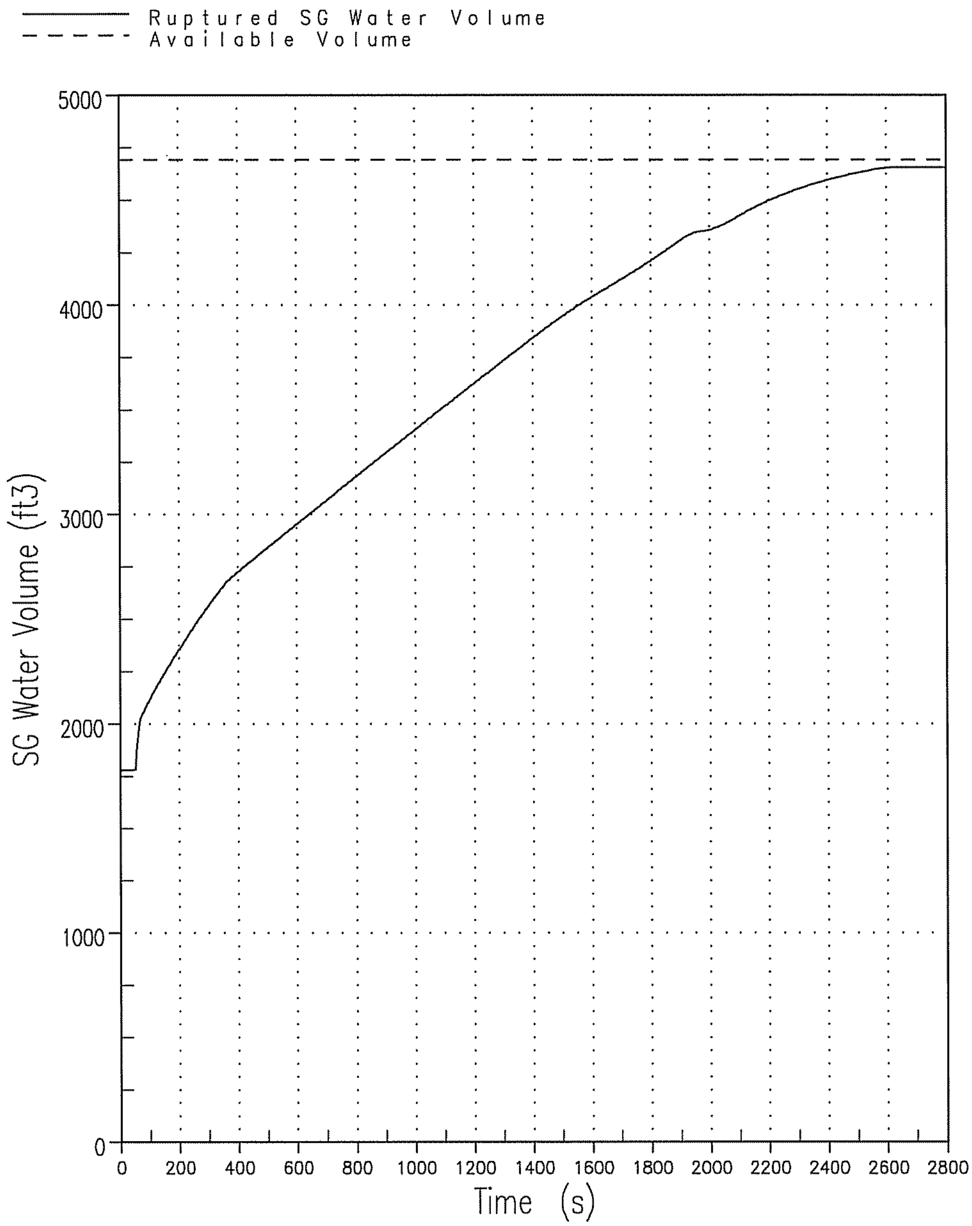


Figure 4: SGTR Margin to Overfill Evaluation for EPU:
RCS and Secondary Pressures

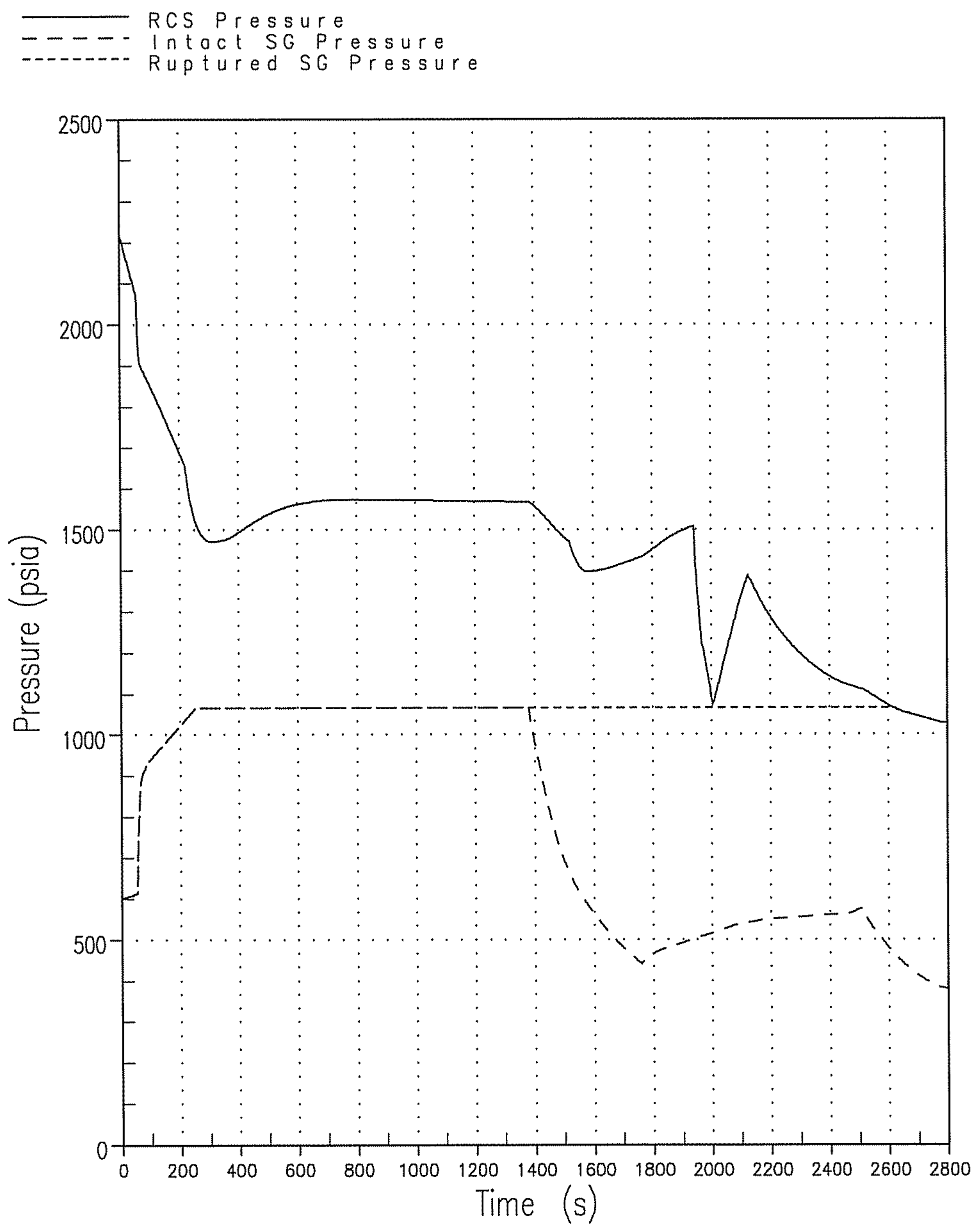


Figure 5: SGTR Margin to Overfill Evaluation for EPU: Ruptured Steam Generator Break Flow

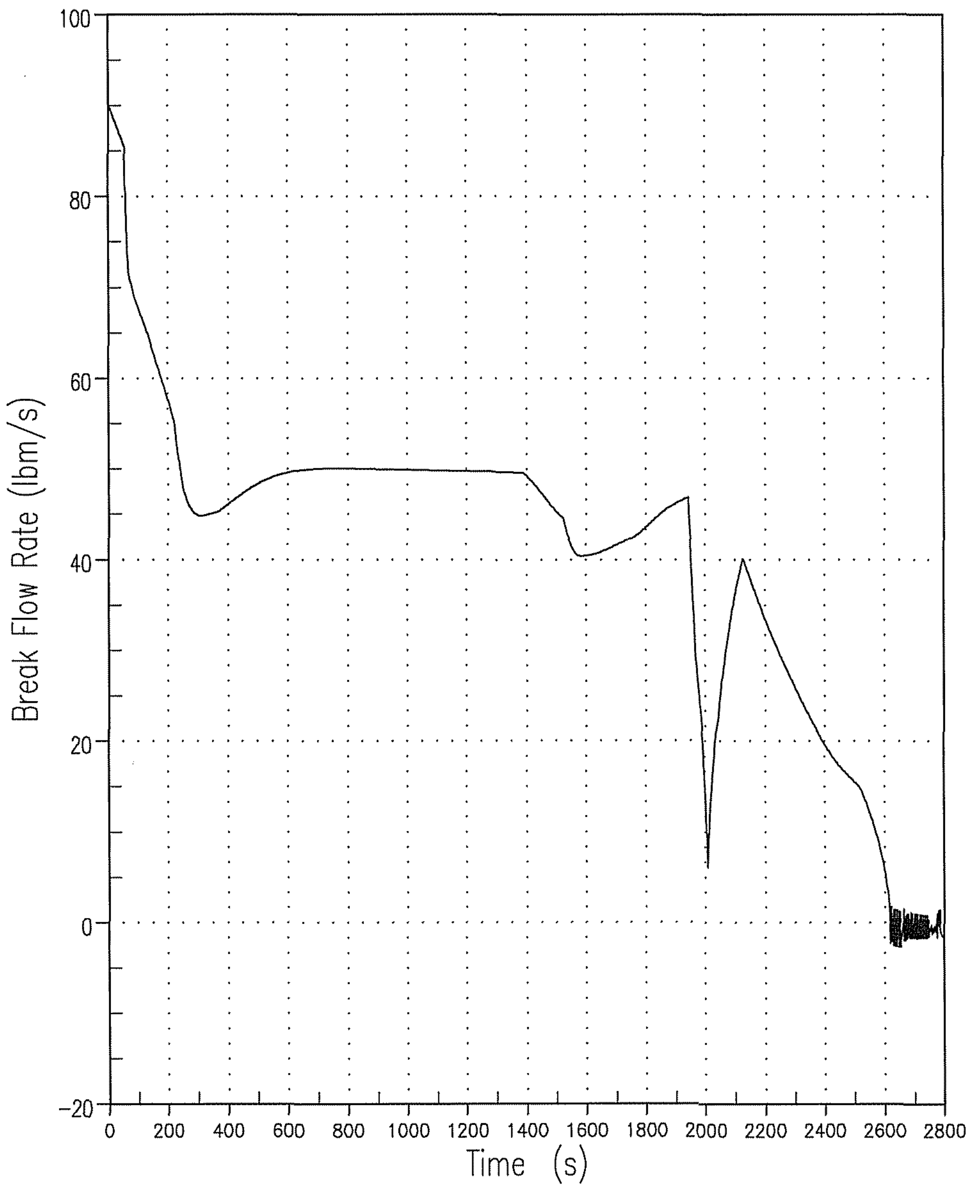
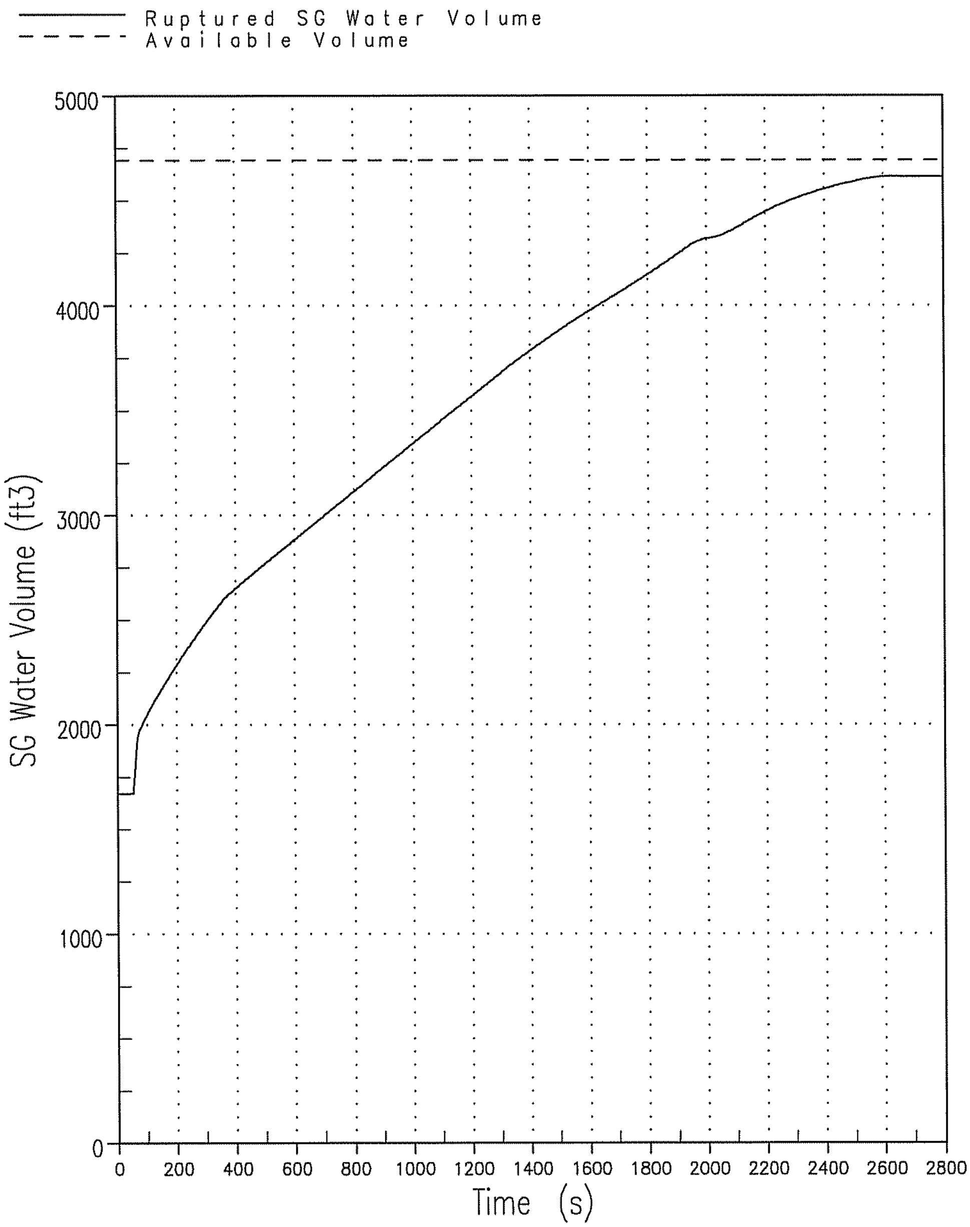


Figure 6: SGTR Margin to Overfill Evaluation for EPU:
Ruptured Steam Generator Water Volume



Question 1

Ensure that the limiting liquid release pathway and scenario are identified. Include consideration of the steam line equipment water-release failures discussed in WCAP-11002. If a liquid release is predicted, provide analyses of the static and dynamic structural effects in the main steam system and of the consequences of passing water through the steam pressure relief valves.

NextEra Response

Based on the analyses for the CLTP and EPU cases described above, there will be no liquid release or water filled conditions in the main steam lines.

However, from a defense in depth perspective, an assessment was performed of the main steam lines up to the main steam isolation valves for water filled conditions. Considering a flow rate into the ruptured steam generator of approximately 50 lbm/sec, or 500 gpm for both the CLTP and EPU cases, there would be no significant fluid transient loads in the main steam lines. Seismic loads would not be applicable for this event, and thermal expansion loads would be consistent with the current analyses of record. Thus, only deadweight and pressure stresses/loads for water filled conditions need to be considered. The assessment indicates that the piping and supports can accommodate these loads. As a result, the main steam piping provides a minimum of (smallest volume of the four steam lines for the two units) an additional 150 ft^3 of steam generator overfill margin. Because the analysis of record displays margin to overfill and the defense in depth analysis considers water filled lines only up to the main steam isolation valves, the steam line water-release failures discussed in WCAP-11002 were not taken into consideration.

Question 2

Under the assumed LOOP conditions, address the functionality of each atmospheric dump valve (ADV). Discuss what, if any, mitigating function the ADV provides and its capability to perform that function under the assumed LOOP conditions. If valve actuation is manually performed, provide information to demonstrate that the operator is capable of causing the valve actuation within the analytically assumed time.

NextEra Response

The atmospheric dump valves (ADVs) provide the mitigating functions of steam generator secondary side pressure control and relief, and reactor coolant system (RCS) cooldown.

Under LOOP conditions, automatic and remote operation of the ADVs from the control room is available for the following reasons:

- With LOOP on the affected unit, instrument air (IA) from the other unit is available
- With LOOP on both units, there is available air volume in the IA receiver, and the IA compressors are loaded on the emergency diesel generators by steps in the applicable abnormal operating procedure and alarm response procedures
- In addition, local operation of the ADVs is also available

These actions are already in current operating procedures, and operator action times are considered in the analytical operator response times. Therefore, operators are capable of performing the required ADV functions within analytically assumed timeframes.

Question 3

For the CLTP [current licensed thermal power] case, provide recent trending data for full-power steam generator water level to demonstrate that a conservative initial steam generator water level has been selected.

NextEra Response

The 100% power nominal setpoint for steam generator level control is 64% narrow range under CLTP conditions. Unit 1 full-power steady state steam generator narrow range level data was reviewed for the last six months. Unit 1 data was reviewed because it is more limiting from a margin to overfill perspective. Level data from the six level channels (three on each steam generator) during 100% power, steady state operation showed a variation of approximately +/-1% indicated level around the level setpoint. Thus, actual steam generator indicated level for 100% steady state power operation is well within the value of 10% of steam generator secondary mass margin assumed in the revised analyses described above.

Question 4

Identify any new operator actions credited in the analysis resulting from the response in Question 1, and confirm that each action is consistent with station procedures.

NextEra Response

There are no additional operator actions credited in the above analysis to that provided in References (2), (3), (4), (5) and (6).

Question 5

Update the information contained in response to RAI SRXB-5 in the September 28, 2010, supplemental letter to reflect assumptions used in the analysis performed in response to the above request.

NextEra Response

There are no additional systems, components, or instruments credited in the above analysis to those provided in the response to RAI SRXB-5 in Reference (3).

Question 6

Should the radiological consequences from the analyses requested in this RAI be more severe than the currently proposed radiological analyses, then update the licensing basis radiological consequence analyses for both the AST and EPU license amendment requests to reflect these results. Since the NRC staff is allowing the single failure exception to the WCAP-10698-P-A methodology, the above requested analysis represents an event that has a significantly higher likelihood of occurrence.

NextEra Response

Based on the results presented in NextEra response to Request for Additional Information-General above, the dose analysis presented in Reference (6) remains bounding.

Request for Additional Information Number 1 from November 2, 2010 Meeting

Identify procedures addressing steam generator overfill conditions. What parameters do operators monitor to help ensure that overfill does not occur?

NextEra Response

The PBNP procedural guidance for a SGTR event is consistent with Westinghouse Owners' Group (WOG) Emergency Response Guidelines (ERGs). For a SGTR event with loss of offsite power, as the event progresses, water level in the ruptured steam generator could potentially go off scale high on control room indications. Once this condition is reached, however, there is still significant volume (1160 ft^3) available to accommodate break flow into the ruptured steam generator. In order to minimize the potential for overfill, the procedural guidance has the operator continue with rapid cooldown and depressurization of the RCS, secure safety injection, and maintain RCS and ruptured steam generator pressures equal until transition to a recovery procedure.

Request for Additional Information Number 2 from November 2, 2010 Meeting

For any revised radiological consequence analyses, provide the basis for the assumed flashing fraction if it is less than 100%.

NextEra Response

This response is no longer required based on the responses above.

References

(1) NRC letter to NextEra Energy Point Beach, LLC, dated November 18, 2010, Point Beach Nuclear Plant, Units 1 and 2 - Request for Additional Information Re: License Amendment Request (LAR-261) Associated with Extended Power Uprate (TAC NOS. ME1044 AND ME1045) (ML103200066)

(2) FPL Energy Point Beach, LLC letter to NRC, dated April 7, 2009, License Amendment Request 261, Extended Power Uprate (ML091250564)

(3) FPL Energy Point Beach, LLC letter to NRC, dated September 28, 2010, License Amendment Request 261, Extended Power Uprate, Response to Request for Additional Information (ML102710365)

(4) NextEra Energy Point Beach, LLC letter to NRC, dated June 1, 2009, Response to Request for Additional Information, License Amendment Request 241, Alternative Source Term (ML091560413)

(5) NextEra Energy Point Beach, LLC letter to NRC, dated April 29, 2010, License Amendment Request 261, Extended Power Uprate, Response to Request for Additional Information (ML101190456)

(6) FPL Energy Point Beach, LLC letter to NRC, dated December 8, 2008, License Amendment Request 241, Alternative Source Term (ML083450683)