NEXTera ENERGY POINT BEACH

February 22, 2013

NRC 2013-0017
10 CFR 50.54(f)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

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

NextEra Energy Point Beach, LLC's Overall Integrated Plan in Response to March 12, 2012 Commission Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051)

References:
(1) U.S. Nuclear Regulatory Commission, Order Number EA-12-051, Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Effective Immediately), dated March 12, 2012, (ML12056A044)
(2) U.S. Nuclear Regulatory Commission, Interim Staff Guidance JLD-ISG-2012-03, "Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation," Revision 0, dated August 29, 2012, (ML12221A339)
(3) NEI 12-02, "Industry Guidance for Compliance with NRC Order EA-12-051, 'To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation,'" Revision 1, dated August, 2012, (ML122400399)
(4) NextEra Energy Point Beach, LLC's Initial Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), dated October 26, 2012, (ML12305A200)

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued an order (Reference 1) to NextEra Energy Point Beach, LLC (NextEra). Reference (1) was immediately effective and directed NextEra to implement and maintain reliable spent fuel pool water level instrumentation. Specific requirements are outlined in Attachment 2 of Reference (1).

Reference (1) requires submission of an Overall Integrated Plan by February 28, 2013. The NRC Interim Staff Guidance (ISG) (Reference 2) was issued August 29, 2012, which endorses industry guidance document NEI 12-02, Revision 1 (Reference 3), with clarifications and exceptions identified in Reference (2). Reference (3) provides direction regarding the content of this Overall Integrated Plan.

Reference (4) provided the NextEra initial status report regarding reliable spent fuel pool instrumentation, as required by Reference (1).

Enclosure 1 provides the Overall Integrated Plan pursuant to Section IV, Condition C.1, of Reference (1). This letter confirms NextEra has received Reference (2) and has an Overall Integrated Plan developed in accordance with the guidance for installing and maintaining reliable spent fuel pool water level indication that satisfies the requirements of Reference (1).

The information in the enclosure provides the NextEra Overall Integrated Plan for reliable spent fuel pool instrumentation pursuant to Reference (3). The enclosed Integrated Plan is based on conceptual design information that is current as of this letter. As design details and associated procedural guidance are finalized, additional information, as well as revisions to the information contained in the enclosure to this letter, if required, will be communicated to the NRC in the 6-month Integrated Plan updates as required by Reference (1).

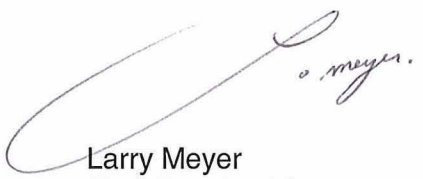
This letter contains no new Regulatory Commitments and no revisions to existing Regulatory Commitments.

If you have any questions please contact Mr. Michael Millen, Licensing Manager, at 920/755-7845.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on February 22, 2013.

Very truly yours,

NextEra Energy Point Beach, LLC



Larry Meyer
Site Vice President

Enclosure

cc: Director, Office of Nuclear Reactor Regulation
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ENCLOSURE 1

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

NEXTERA ENERGY POINT BEACH, LLC'S OVERALL INTEGRATED PLAN IN RESPONSE TO MARCH 12, 2012 COMMISSION ORDER TO MODIFY LICENSES WITH REGARD TO RELIABLE SPENT FUEL POOL INSTRUMENTATION (ORDER NUMBER EA-12-051)

Point Beach Nuclear Plant Overall Integrated Plan with Regard to Reliable Spent Fuel Pool Instrumentation

I. Introduction

The Nuclear Regulatory Commission (NRC) issued Order EA-12-051, *Issuance of Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation*, (Reference 1) on March 12, 2012. The Order requires licenses to have a reliable indication of the water level in associated spent fuel storage pools capable of supporting identification of the following pool water level conditions by trained personnel: (1) level that is adequate to support operation of the normal fuel pool cooling system, (2) level that is adequate to provide substantial radiation shielding for a person standing on the spent fuel pool operating deck, and (3) level where fuel remains covered and actions to implement make-up water addition should no longer be deferred. The Order also requires that an overall integrated plan that provides a description of how the requirements of the Order will be achieved.

NEI 12-02, *Industry Guidance for Compliance with NRC Order EA-12-051, "To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation,"* (Reference 4) provides an approach for complying with order EA-12-051. NRC Interim Staff Guidance JLD-ISG-2012-03, *Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation*, (Reference 3) considers that the methodologies and guidance in conformance with the guidelines provided in NEI 12-02, Revision 1, subject to the clarifications and exceptions specific to Section 3.4, Qualification, are an acceptable means of meeting the requirements of Order EA-12-051.

This overall integrated plan provides the Point Beach Nuclear Plant (PBNP) approach for complying with Order EA-12-051 using the methods described in NRC JLD-ISG-2012-03. The current revision of the PBNP Overall Integrated Plan is based on our conceptual design information and may be revised as we proceed with detailed design engineering. Consistent with the requirements of Order EA-12-051 and the guidance in NEI 12-02, our six-month reports will delineate progress made, any proposed changes in our compliance methods, updates to the schedule, and if needed, requests for relief and the bases.

II. Schedule

NextEra will be implementing a standard Spent Fuel Pool (SFP) level indicating system design across the fleet. The installation time table will ensure that implementation is completed prior to the requirements of the order.

The following milestone schedule is provided. The dates are planning dates subject to change as design and implementation details are developed. Any changes to the following target dates will be reflected in the six month updates:

The current milestones are:	Units 1 and 2 Shared SFP
• Commence Engineering and Design	In progress
• Complete Design	4Q 2013
• Complete Procurement of SFP Instruments	4Q 2013
• Complete Installation of SFP Instruments	3Q 2014
• Instruments Operational and Training completed	3Q 2014

Required implementation date:

• PBNP Units 1 and 2	Unit 1 Refueling Outage 35, 4Q 2014

III. Identification of Spent Fuel Pool Water Levels

Key spent fuel pool water levels:

1. **Level adequate to support operation of the normal spent fuel pool cooling system** - Indicated level on either the primary or backup instrument channel of greater then or equal to 23 feet (plant elevation 60 feet 9 inches) above the top of the irradiated fuel assemblies seated in the storage racks. (Technical Specification 3.7.10, Reference 10). This level is above the spent fuel pool cooling suction and return connections' siphon breaker at 21 feet 11 inches (plant elevation 59 feet 8 inches) above the active fuel. (FSAR 9.9, Reference 11)

2. **Level adequate to provide substantial radiation shielding for a person standing on the spent fuel pool operating deck** - Indicated level on either the primary or backup instrument channel of greater than 10 feet (plant elevation 47 feet 9 inches) above the top of the irradiated fuel assembles seated in the storage racks. This monitoring level ensures there is adequate water level to provide substantial radiation shielding for personnel to respond to Beyond-Design-Basis External Events and to initiate SFP makeup strategies.

3. **Level where fuel remains covered** - Indicated level on either the primary or backup instrument channel of greater than 2 feet 11 inches (plant elevation 40 feet 8 inches) above the top of the irradiated fuel assemblies seated in the storage racks. This monitoring level assures that there is adequate water level above the stored fuel seated in the rack. This monitoring level is where actions to implement makeup water addition should no longer be delayed.

   The top of the fuel assemblies is located at plant elevation 37 feet 9 inches. The top of the east west oriented wall opening that separates the northern and southern areas of the SFP is at plant elevation 40 feet 8 inches (See Section XVIII Drawing). Once the water level drops below this point, the single SFP has effectively been segregated into two separate pools. Consequently, plant elevation 40 feet 8 inches is the level at which actions to initiate water make-up should not be further delayed. This setting is in compliance with the Order; however, it represents a slight variation to the NEI guidance. This is a conservative decision to treat plant elevation 40 feet 8 inches as the top of the fuel and necessary to ensure proper actions are taken in the event that one of the channels of SFP level instrumentation is lost or in the event that level is decreasing due to a breach in one of the pits.

IV. Instruments

Design of the instruments will be consistent with the guidelines of NRC JLD-ISG-2012-03 and NEI 12-02 as discussed below.

Primary and backup instrument channels will consist of fixed components. The plan is for both channels to utilize Guided Wave Radar, which functions according to the principle of Time Domain Reflectometry (TDR). A generated pulse of electromagnetic energy travels down the probe. Upon reaching the liquid surface the pulse is reflected, and based upon reflection time, level is inferred. Measured range will be continuous from the high pool level alarm at plant elevation 64 feet 10 inches to the top of the spent fuel racks at plant elevation 39 feet 0 inches. Primary instrument channel level sensing components will be located near the north wall of the SFP. Backup instrument channel level sensing components will be located near the south wall of the SFP approximately 78 feet from the primary instrument channel. See Plan View of SFP showing new SFP level instrumentation in Section XVIII, Drawing.

Reliability:

Reliability of the primary and backup instrument channels will be assured by conformance with the guidelines of NRC JLD-ISG-2012-03 and NEI 12-02, as discussed in Section VII, Qualification. Reliable level indication will be functional at all times of operation consistent with Section XV, Testing and Calibration.

Instrument Channel Design Criteria:

Instrument channel design criteria will be consistent with the guidelines of NRC JLD-ISG-2012-03 and NEI 12-02.

V. Arrangement

The two SFP level instrument channels will be installed in diverse locations, arranged in a manner that provides reasonable protection of the level indication function against missiles that may result from damage to the structure over the SFP. Channel separation (independence) will be provided as part of the design of the SFP level instrumentation.

The Spent Fuel Storage Pool is considered a common area and is provided with adequate rack storage to meet the requirements of the two units (PBNP FSAR, Reference 11). SFP level sensor probes will be installed near the north and south walls of the SFP. Sensor conditioning electronics and battery backup will be located in the Primary Auxiliary Building. Level indication will be located approximately 300 feet away from the SFP. The SFP and sensor conditioning electronics will be separated by a reinforced concrete wall(s) that will provide suitable radiation shielding for the electronics. These locations will provide protection against missiles and will not interfere with SFP activities.

The reinforced concrete walls in the vicinity of the spent fuel pool have been seismically evaluated.

> The spent fuel storage pool is a reinforced concrete structure with seam welded stainless steel plate liners. This structure is designed to withstand the anticipated earthquake loadings as Class I structures so that the liner prevents leakage even if the reinforced concrete develops cracks. Various sections of the fuel handling system are shared by Units 1 and 2. These include a common spent fuel pool and a common new fuel storage area. The spent fuel pool is divided into two parts by an east west oriented internal dividing wall with the lowest point 2 feet 11 inches (plant elevation 40 feet 8 inches) above the top of the stored spent fuel. Once the water level drops below this point, the single SFP has effectively been segregated into two separate pools. Consequently, as described above, plant elevation 40 feet 8 inches is the level at which actions to initiate water make-up should not be further delayed. This is a conservative decision to treat plant elevation 40 feet 8 inches as the top of the fuel and necessary to ensure proper actions are taken in the event that one of the channels of SFP level instrumentation is lost or in the event that level is decreasing due to a breach in one of the pits.

Mounting the probes near the north and south walls of the SFP provides adequate separation and indication of SFP level (PBNP FSAR, Reference 11).

Cabling for power supplies and indications for each channel will be routed in separate conduits for each channel. The existing control room alarm will be maintained.

VI. Mounting

Mounting will be Seismic Class I. Installed equipment will be seismically qualified to withstand the maximum seismic ground motion considered in the design of the plant area in which it is installed.

VII. Qualification

Both channels will be reliable at temperature, humidity, and radiation levels consistent with the spent fuel pool water at saturation conditions for an extended period. Post event temperature at sensors located above the SFP is assumed to be 212°F. Post event humidity in the Auxiliary Building near and above the SFP is assumed to be 100% with condensing steam. Equipment will be qualified for expected conditions at the installed location assuming that normal power is unavailable and that the SFP has been at saturation for an extended period. Equipment located in the vicinity of the SFP will be qualified to withstand peak and total integrated dose radiation levels for its installed location assuming that post event SFP water level is equal to Top of Rack for an extended period of time.

Instrument channel reliability will be demonstrated via an appropriate combination of design, analyses, operating experience, and/or testing of channel components for the following sets of parameters:

- Conditions in the area of instrument channel component use for all instrument components,
- Effects of shock and vibration on instrument channel components, and
- Seismic effects on instrument channel components used during and following a potential seismic event for installed components.

Augmented Quality requirements, similar to those described in the PBNP Quality Assurance Topical Report, and to those applied to fire protection, will be applied to this project.

Temperature, humidity and radiation levels consistent with conditions in the vicinity of the SFP and the area of use considering normal operational, event and post-event conditions for at least seven days post-event, or until off-site resources can be deployed by the mitigating strategies resulting from Order EA-12-049 (Reference 2) will be addressed in the engineering and design phase. Examples of post-event (beyond-design-basis) conditions that will be considered are:

- Radiological conditions for a normal refueling quantity of freshly discharged (100 hours) fuel with the SFP water level 3 as described in this order,
- Temperatures of 212 degrees F and 100% relative humidity environment,
- Boiling water and/or steam environment,
- A concentrated borated water environment, and
- The impact of FLEX mitigating strategies.

Components of the instrument channels will be qualified for shock and vibration using one or more of the following methods:

- Components are supplied by manufacturers using commercial quality programs (such as ISO9001, *Quality management systems – Requirements* (Reference 8)) with shock and vibration requirements included in the purchase specification at levels commensurate with portable hand-held device or transportation applications,
- Components have a substantial history of operational reliability in environments with significant shock and vibration loading, such as portable hand-held device, or transportation applications, or
- Components are inherently resistant to shock and vibration loadings, such as cables.

The effects of postulated seismic events on installed instrument channel components (with the exception of battery chargers and replaceable batteries), will be verified to ensure that the equipment design and installation is robust. Applicable components of the instrument channels will be qualified by the manufacturer (or otherwise tested) for seismic effects at response levels commensurate with the equipment mounting location. Instrument channel qualification will be based on the guidance provided in Sections 7, 8, 9, and 10 of IEEE Standard 344-2004, *IEEE Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations*, (Reference 9) or a substantially similar industrial standard. In addition, any of the below may also be used to provide additional assurance that the equipment will perform as designed during and following a seismic event:

- Review of operating history for components used in environments with significant vibration, such as for portable hand-held devices, or devices used in transportation applications. The effects of low frequency high acceleration will be included in the qualification as described above. Vibration qualification review will be inclusive of methods that demonstrate the effects of seismic motion imparted to the components at the location of the installation as discussed above,
- Demonstration that devices are substantially similar in design to equipment that has been previously tested for seismic effects in accordance with the plant design basis at the location where the instrument is to be installed (g-levels and frequency ranges).

In addition, pool mounted equipment is qualified for submergence, providing protection from wave and seiche related disturbances during and after a seismic event.

VIII. Independence

The primary instrument channel will be redundant to and independent of the backup instrument channel. Independence will be obtained through separation of the sensors, indication, backup battery power supplies, associated cabling and channel power feeds.

IX. Power Supplies

Both channels will be powered from dedicated batteries and local battery chargers. The battery chargers for both channels will normally be powered from non-safety related 120V AC power. Minimum battery life of 72 hours will be provided. The battery systems will include provision for battery replacement should the battery charger be unavailable following the event. Spare batteries will be readily available. In the event of a loss of normal power the battery chargers could be connected to another suitable power source.

X. Accuracy

Instrument channels will be designed such that they will maintain their design accuracy following a power interruption or change in power source without recalibration.

Accuracy will consider SFP conditions, e.g., saturated water, steam environment, or concentrated borated water. Additionally, instrument accuracy will be sufficient to allow trained personnel to determine when the actual level exceeds the specified lower level of each

indicating range (levels 1, 2 and 3) without conflicting or ambiguous indication. The accuracy will be within the resolution requirements of Figure 1 of NEI 12-02.

XI. Testing

Instrument channel design will provide for routine testing and calibration consistent with Order EA-12-051 and the guidance in NEI 12-02. Instrument channel testing and calibration will be performed using existing plant work control processes. Details will be determined during the engineering and design phase.

XII. Display

Remote indication will be provided in the Primary Auxiliary Building. This provides an indication that will be accessible during post accident conditions. This location will ensure that it meets the following criteria:

- Promptly accessible to the appropriate plant staff giving appropriate consideration to various drain down scenarios,
- Outside of the area surrounding the SFP floor, e.g., an appropriate distance from the radiological sources resulting from an event impacting the SFP,
- Inside a structure providing protection against adverse weather, and
- Outside of any very high radiation areas or LOCKED HIGH RAD AREA during normal operation.

XIII. Training

The Systematic Approach to Training (SAT) will be used to identify the population to be trained and to determine both the initial and continuing elements of the required training. Training will be completed prior to placing the instrumentation in service.

XIV. Procedures

Procedures will be developed using guidelines and vendor instructions to address the maintenance, operation, and abnormal response issues associated with the new SFP instrumentation.

Procedures will address a strategy to ensure SFP water level addition is initiated at an appropriate time consistent with implementation of NEI 12-06, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide* (References 5 and 7).

Procedures will also address the following situations:

- If, at the time of an event or thereafter until the unit is returned to normal service, an instrument channel ceases to function, its function will be recovered within a period of time consistent with the emergency conditions that may apply at the time.
- If, at the time of an event or thereafter until the unit is returned to normal service, an instrument channel component must be replaced, we may use commercially available components that may or may not meet all of the qualifications (Section VII) to maintain the instrument channel functionality.

XV. Testing and Calibration

Processes will be established and maintained for scheduling and implementing necessary testing and calibration of the primary and backup spent fuel pool level instrument channels to maintain the instrument channels at the design accuracy. Testing and calibration of the instrumentation will be consistent with vendor recommendations and any other documented basis. Calibration will be specific to the mounted instrument and the monitor.

XVI. Need for Relief and Basis

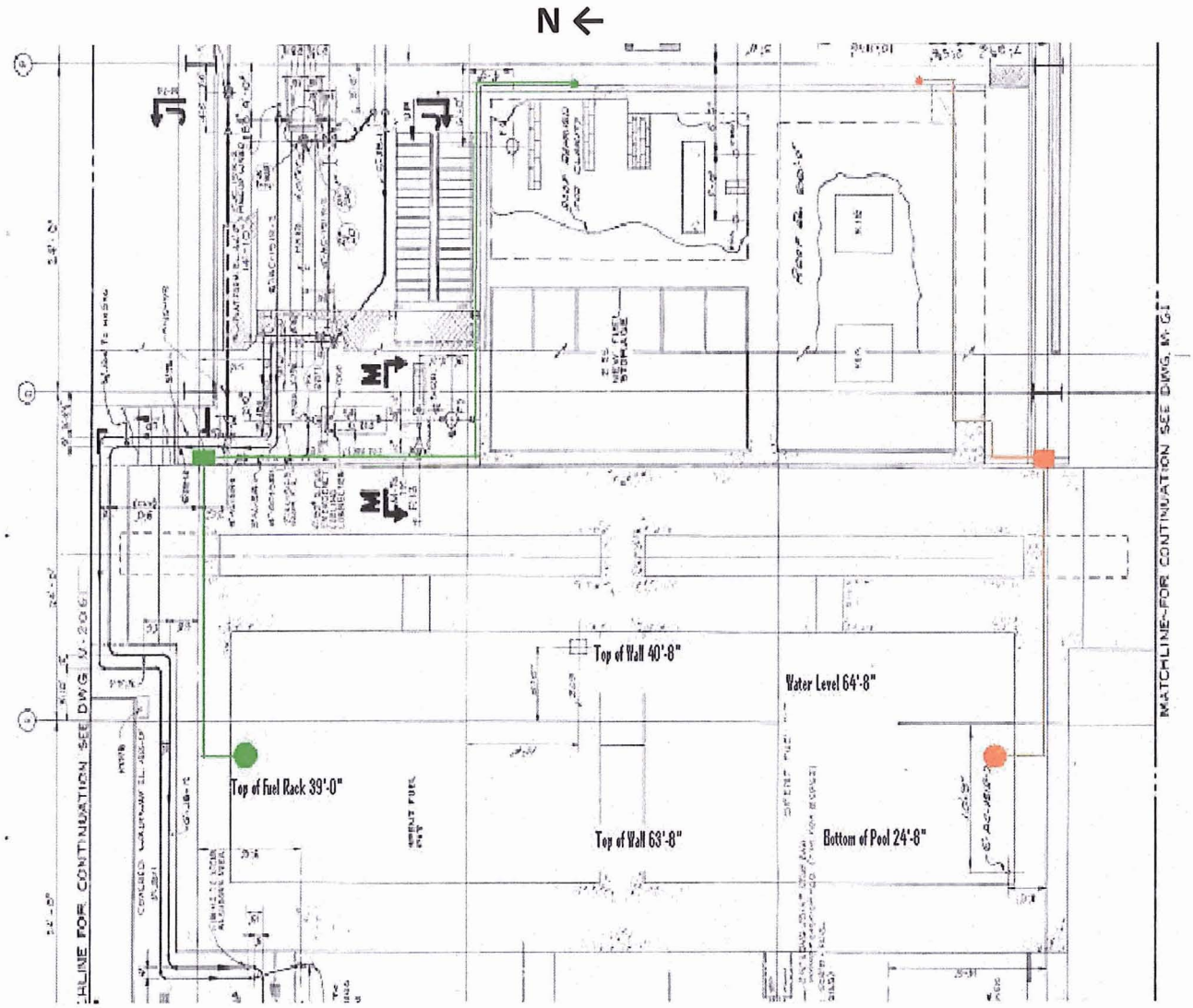
We are not requesting relief from the requirements of Order EA-12-051 or the guidance in NRC JLD-ISG-2012-03 at this time.

Consistent with the requirements of Order EA-12-051 and the guidance in NEI 12-02, our six-month reports will delineate progress made, any proposed changes in our compliance methods, updates to the schedule, and if needed, requests for relief and their bases.

XVII. References

1) EA-12-051, Issuance of Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation, March 12, 2012
2) EA-12-049, Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, March 12, 2012
3) NRC JLD-ISG-2012-03, Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation, Revision 0, August 29, 2012
4) NEI 12-02, Industry Guidance for Compliance with NRC Order EA-12-051, To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation, Revision 1, August 2012
5) NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, Revision 0, August 2012
6) Letter from NextEra Energy Point Beach, LLC to NRC dated October 26, 2012, Initial Status Report in Response to March 12, 2012, Commission Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), (ML12305A200)
7) Letter from NextEra Energy Point Beach, LLC to NRC, dated October 26, 2012, Initial Status Report in Response to Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), (ML12305A201)
8) ISO9001, Quality Management Systems – Requirements
9) IEEE Standard 344-2004, IEEE Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations
10) Point Beach Nuclear Plant Technical Specification 3.7.10, Fuel Storage Pool Water Level
11) Point Beach Nuclear Plant Updated Final Safety Analysis Report

XVIII.Drawing



Point Beach Nuclear Power Plant (reference drawing C-160 and M-68)

Point Beach Nuclear Plant
Spent Fuel Pool Plan View
Level Instrumentation Location