UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 18, 2013

Mr. Larry Meyer
Site Vice President
NextEra Energy Point Beach, LLC
Point Beach Nuclear Plant
6610 Nuclear Road
Two Rivers, WI 54241

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 - INTERIM STAFF EVALUATION AND REQUEST FOR ADDITIONAL INFORMATION REGARDING THE OVERALL INTEGRATED PLAN FOR IMPLEMENTATION OF ORDER EA-12-051, RELIABLE SPENT FUEL POOL INSTRUMENTATION (TAC NOS. MF0729 AND MF0730)

Dear Mr. Meyer:

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-12-051, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12054A679), to all power reactor licensees and holders of construction permits in active or deferred status. This order requires the licensee 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.

By letter dated February 22, 2013 (ADAMS Accession No. ML130660550), NextEra Energy Point Beach, LLC (the licensee) provided the Overall Integrated Plan (OIP) for the Point Beach Nuclear Plant, Units 1 and 2, describing how it will achieve compliance with Attachment 2 of Order EA-12-051 by the third quarter of 2014. By e-mail dated May 29, 2013 (ADAMS Accession No. ML13154A166), the NRC staff sent a request for additional information (RAI) to the licensee. The licensee provided supplemental information by letters dated July 3, 2013 (ADAMS Accession No. ML13186A012), and August 28, 2013 (ADAMS Accession No. ML13241A202).

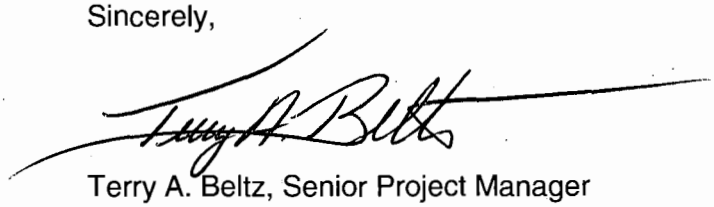
The NRC staff has reviewed these submittals with the understanding that the licensee will update its OIP as implementation of the Order progresses. With this in mind, the staff has included an interim staff evaluation with this letter to provide feedback on the OIP. The staff's findings in the interim staff evaluation are considered preliminary and will be revised as the OIP is updated. As such, none of the staff's conclusions are to be considered final. A final NRC staff evaluation will be issued after the licensee has provided the information requested.

The interim staff evaluation also includes RAIs, response to which the NRC staff needs to complete its review. The licensee should provide the information requested in the 6-month

status updates, as the information becomes available. However, the staff requests that all information be provided by March 31, 2014, to ensure that any issues are resolved prior to the date by which the licensee must complete full implementation of Order EA-12-051. The licensee should adjust its schedule for providing information to ensure that all this information is provided by the requested date.

If you have any questions regarding this letter, please contact me at 301-415-3049 or via e-mail at Terry.Beltz@nrc.gov.

Sincerely,



Terry A. Beltz, 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

Enclosure:
Interim Staff Evaluation and
Request for Additional Information

cc w/encl: Distribution via Listserv

INTERIM STAFF EVALUATION AND REQUEST FOR ADDITIONAL INFORMATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE OVERALL INTEGRATED PLAN IN RESPONSE TO

ORDER EA-12-051, RELIABLE SPENT FUEL POOL INSTRUMENTATION

NEXTERA ENERGY POINT BEACH, LLC

POINT BEACH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-266 AND 50-301

(TAC NOS. MF0729 AND MF0730)

1.0 INTRODUCTION

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-12-051, "Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12054A679), to all power reactor licensees and holders of construction permits in active or deferred status. This order requires, in part, that all operating reactor sites have a reliable means of remotely monitoring wide-range spent fuel pool (SFP) levels to support effective prioritization of event mitigation and recovery actions in the event of a beyond-design-basis (BDB) external event. The order required all holders of operating licenses issued under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," to submit to the NRC an Overall Integrated Plan (OIP) by February 28, 2013.

By letter dated February 22, 2013 (ADAMS Accession No. ML130660550), NextEra Energy Point Beach, LLC (the licensee), provided the OIP for the Point Beach Nuclear Plant (PBNP), Units 1 and 2, describing how it will achieve compliance with Attachment 2 of Order EA-12-51 by the third quarter of 2014. By e-mail dated May 29, 2013 (ADAMS Accession No. ML13154A166), the NRC staff sent a request for additional information (RAI) to the licensee. The licensee provided supplemental information by letters dated July 3, 2013 (ADAMS Accession No. ML13186A012), and August 28, 2013 (ADAMS Accession No. ML13241A202).

2.0 REGULATORY EVALUATION

Order EA-12-051 requires all holders of operating licenses issued under 10 CFR Part 50, notwithstanding the provisions of any Commission regulation or license to the contrary, to comply with the requirements described in Attachment 2 to the Order except to the extent that a more stringent requirement is set forth in the license. Licensees shall promptly start implementation of the requirements in Attachment 2 to the Order and shall complete full implementation no later than two refueling cycles after submittal of the OIP or December 31,

2016, whichever comes first. Order EA-12-051 required the licensee, by February 28, 2013, to submit to the Commission an OIP, including a description of how compliance with the requirements described in Attachment 2 of the Order will be achieved.

Attachment 2 of Order EA-12-051 requires the licensee 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 SFP operating deck, and (3) level where fuel remains covered and actions to implement make-up water addition should no longer be deferred.

Attachment 2 of Order EA-12-051 states that the SFP level instrumentation shall include the following design features:

1.1 Instruments: The instrumentation shall consist of a permanent, fixed primary instrument channel and a backup instrument channel. The backup instrument channel may be fixed or portable. Portable instruments shall have capabilities that enhance the ability of trained personnel to monitor spent fuel pool water level under conditions that restrict direct personnel access to the pool, such as partial structural damage, high radiation levels, or heat and humidity from a boiling pool.

1.2 Arrangement: The spent fuel pool level instrument channels shall be 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 spent fuel pool. This protection may be provided by locating the primary instrument channel and fixed portions of the backup instrument channel, if applicable, to maintain instrument channel separation within the spent fuel pool area, and to utilize inherent shielding from missiles provided by existing recesses and corners in the spent fuel pool structure.

1.3 Mounting: Installed instrument channel equipment within the spent fuel pool shall be mounted to retain its design configuration during and following the maximum seismic ground motion considered in the design of the spent fuel pool structure.

1.4 Qualification: The primary and backup instrument channels shall be reliable at temperature, humidity, and radiation levels consistent with the spent fuel pool water at saturation conditions for an extended period. This reliability shall be established through use of an augmented quality assurance process (e.g., a process similar to that applied to the site fire protection program).

1.5 Independence: The primary instrument channel shall be independent of the backup instrument channel.

1.6 Power supplies: Permanently installed instrumentation channels shall each be powered by a separate power supply. Permanently installed and portable instrumentation channels shall provide for power connections from sources independent of the plant [alternating current (ac)] and [direct current (dc)] power distribution systems, such as portable generators or replaceable batteries. Onsite generators used as an alternate power source and replaceable batteries used for instrument channel power shall have sufficient capacity to maintain the level indication function until offsite resource availability is reasonably assured.

1.7 Accuracy: The instrument channels shall maintain their designed accuracy following a power interruption or change in power source without recalibration.

1.8 Testing: The instrument channel design shall provide for routine testing and calibration.

1.9 Display: Trained personnel shall be able to monitor the spent fuel pool water level from the control room, alternate shutdown panel, or other appropriate and accessible location. The display shall provide on-demand or continuous indication of spent fuel pool water level.

Attachment 2 of Order EA-12-051 states that the SFP instrumentation shall be maintained available and reliable through appropriate development and implementation of the following programs:

2.1 Training: Personnel shall be trained in the use and the provision of alternate power to the primary and backup instrument channels.

2.2 Procedures: Procedures shall be established and maintained for the testing, calibration, and use of the primary and backup spent fuel pool instrument channels.

2.3 Testing and Calibration: Processes shall 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.

On August 29, 2012, the NRC issued an Interim Staff Guidance document (the ISG), JLD-ISG-2012-03, "Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation" (ADAMS Accession No. ML12221A339), to describe methods acceptable to the NRC staff for complying with Order EA-12-051. The ISG endorses, with exceptions and clarifications, the methods described in the Nuclear Energy Institute (NEI) guidance document NEI 12-02, Revision 1, "Industry Guidance for Compliance with NRC Order EA-12-051, to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," dated August 2012 (ADAMS Accession No. ML12240A307).

Specifically, the ISG states:

> The NRC staff considers that the methodologies and guidance in conformance with the guidelines provided in NEI 12-02, Revision 1, subject to the clarifications and exceptions in Attachment 1 to this ISG, are an acceptable means of meeting the requirements of Order EA-12-051.

3.0 TECHNICAL EVALUATION

3.1 Background and Schedule

The PBNP, Units 1 and 2, share a single SFP. The SFP is divided into two parts by an east/west-oriented internal dividing wall with the lowest point at 2 feet (ft.) 11 inches (in.) (plant elevation 40 ft. 8 in.) 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.

The licensee submitted its OIP on February 22, 2013. The OIP states that installation of the SFP level instrumentation at PBNP, Units 1 and 2 would be completed by the third quarter of 2014, which is before startup from the second refueling outage.

The NRC staff has reviewed the licensee's schedule for implementation of SFP level instrumentation provided in its OIP. If the licensee completes implementation in accordance with this schedule, it would appear to achieve compliance with Order EA-12-051 within two refueling cycles after submittal of the OIP and before December 31, 2016.

3.2 Spent Fuel Pool Water Levels

Attachment 2 of Order EA-12-051 states, in part, that

> All licensees identified in Attachment 1 to this Order shall 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 [Level 1], (2) level that is adequate to provide substantial radiation shielding for a person standing on the SFP operating deck [Level 2], and (3) level where fuel remains covered and actions to implement make-up water addition should no longer be deferred [Level 3].

NEI 12-02 states, in part, that

> Level 1 represents the HIGHER of the following two points:
>
> - The level at which reliable suction loss occurs due to uncovering of the coolant inlet pipe, weir or vacuum breaker (depending on the design), or
>
> - The level at which the water height, assuming saturated conditions, above the centerline of the cooling pump suction provides the required

net positive suction head specified by the pump manufacturer or engineering analysis.

In its OIP, the licensee stated that Level 1 is the indicated level on either the primary or backup instrument channel of greater than or equal to 23 ft. above the top of the irradiated fuel assemblies seated in the storage racks, at plant elevation 60 ft. 9 in. The licensee also stated that this level is above the SFP cooling suction and return connections' siphon breaker at plant elevation 59 ft. 8 in.

In its letter dated July 3, 2013, the licensee stated, in part, that

(1) The level at which reliable suction loss occurs due to uncovering the coolant inlet pipe or any weirs or vacuum breakers associated with suction loss is established based on nominal coolant inlet pipe elevation and siphon breaker termination. This level is plant elevation 59 feet 8 inches.

(2) The level at which the normal SFP cooling pumps lose required NPSH, assuming saturated conditions in the pool, is below the elevation that defines Level 1 per (1) above. The centerline of the cooling pump suction is at plant elevation 59 feet 6 inches and the centerline of the SFP cooling pump impellers is at plant elevation 48 foot 2 inches. With the spent fuel pool at 212 degrees F, saturated conditions, the NPSHA is approximately 11.5 feet. The NPSHR for the pump is 5 feet at 212 degrees F. This results in a NPSHA/NPSHR value of approximately 2.3. Therefore, the NPSHA is greater than the NPSHR at saturated conditions and the siphon break will uncover prior to pump cavitation.

The higher of the above levels is (1). Therefore, the Level 1 elevation is established at 59 feet 8 inches for both primary and backup instrumentation.

The NRC staff notes that for PBNP, Level 1 at 59 ft. 8 in. is adequate for normal SFP cooling system operation; it is also sufficient for NPSH and represents the higher of the two points described in NEI 12-02 for this level.

NEI 12-02 states, in part, that

Level 2 represents the range of water level where any necessary operations in the vicinity of the spent fuel pool can be completed without significant dose consequences from direct gamma radiation from the stored spent fuel. Level 2 is based on either of the following:

- 10 feet (+/- 1 foot) above the highest point of any fuel rack seated in the spent fuel pools, or

- a designated level that provides adequate radiation shielding to maintain personnel radiological dose levels within acceptable limits while performing local operations in the vicinity of the pool. This level shall be based on either plant-specific or appropriate generic shielding

> calculations, considering the emergency conditions that may apply at the time and the scope of necessary local operations, including installation of portable SFP instrument channel components.

In its OIP, the licensee stated that Level 2 is the indicated level on either the primary or backup instrument channel of greater than 10 feet above the top of the irradiated fuel assembles seated in the storage racks, which is at plant elevation of 47 ft. 9 in.

In its letter dated July 3, 2013, the licensee provided a sketch depicting the elevations identified as Levels 1, 2 and 3 and the SFP level instrument measurement range. The NRC staff reviewed this sketch and notes that Level 2 is identified at an elevation of 49 ft. 0 in. The staff notes that Level 2 was revised from 47 ft. 9 in., provided in the OIP, to 49 ft. 0 in. The staff also notes this elevation is more than 10 ft. above the top of the fuel racks and that the licensee designated Level 2 using the first of the two options described in NEI 12-02for Level 2.

NEI 12-02 states, in part, that

> Level 3 corresponds nominally (i.e., +/- 1 foot) to the highest point of any fuel rack seated in the spent fuel pool. Level 3 is defined in this manner to provide the maximum range of information to operators, decision makers and emergency response personnel.

In its OIP, the licensee stated, in part, that

> 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.

In its letter dated July 3, 2013, the licensee stated, in part, that

> For Level 3, with regard to the spent fuel pool design, there are no means, temporary or permanent, to further segregate the north/south pool areas.

In addition, in its letter dated July 3, 2013, the licensee provided a sketch depicting the elevations identified as Levels 1, 2 and 3 and the SFP level instrument measurement range. The NRC staff reviewed this sketch and notes that Level 3 is identified at a plant elevation of 40 ft. 8 in., which is in alignment with the top of the east/west oriented wall opening which separates the northern and southern areas of the SFP. The NRC staff also notes that this elevation is above the highest point of any spent fuel storage rack seated in the spent fuel pool. This elevation ensures that level indication will be continuous and consistent for primary and backup instruments and will not be interrupted by pool segregation caused by the east/west wall.

The licensee's proposed plan, with respect to identification of Levels 1, 2, and 3, appears to be consistent with NEI 12-02, as endorsed by the ISG.

3.3 Design Features: Instruments

Attachment 2 of Order EA-12-051 states, in part, that

> The instrumentation shall consist of a permanent, fixed primary instrument channel and a backup instrument channel. The backup instrument channel may be fixed or portable. Portable instruments shall have capabilities that enhance the ability of trained personnel to monitor spent fuel pool water level under conditions that restrict direct personnel access to the pool, such as partial structural damage, high radiation levels, or heat and humidity from a boiling pool.

NEI 12-02 states, in part, that

> A spent fuel pool level instrument channel is considered reliable when the instrument channel satisfies the design elements listed in Section 3 [Instrumentation Design Features] of this guidance and the plant operator has fully implemented the programmatic features listed in Section 4 [Program Features].

In its OIP, the licensee stated that the primary and backup instrument channels will consist of fixed components. The licensee also stated that the measured range will be continuous from the high pool level alarm at plant elevation 64 ft. 10 in. to the top of the spent fuel racks at plant elevation 39 ft. 0 in.

In its letter dated July 3, 2013, the licensee provided a sketch depicting the elevations identified as Levels 1, 2 and 3 and the SFP level instrument measurement range. The NRC staff reviewed this sketch and notes the measurement range depicted in this sketch goes from the normal water level at 63 ft. 8 in. to the top of the spent fuel racks at 39 ft. 0 in.

The NRC staff notes the range specified for the licensee's instrumentation will cover Levels 1, 2, and 3, as described in Section 3.2 above. The licensee's proposed plan with respect to the number of channels and the range of the instrumentation appears to be consistent with NEI 12-02 as endorsed by the ISG.

3.4 Design Features: Arrangement

Attachment 2 of Order EA-12-051 states, in part, that

> The spent fuel pool level instrument channels shall be 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 spent fuel pool. This protection may be provided by locating the primary instrument channel and the fixed portions of the backup instrument channel, if applicable, to maintain instrument channel separation within the spent fuel pool area, and to utilize inherent shielding from missiles provided by existing recesses and corners in the spent fuel pool structure.

NEI 12-02 states, in part, that

> The intent of the arrangement requirement is to specify reasonable separation and missile protection requirements for permanently installed instrumentation used to meet this order. Although additional missile barriers are not required to be installed, separation and shielding can help minimize the probability that damage due to an explosion or extreme natural phenomena (e.g., falling or wind-driven missiles) will render fixed channels of SFP instrumentation unavailable. Installation of the SFP instrument channels shall be consistent with the plant-specific SFP design requirements and should not impair normal SFP function.
>
> Channel separation should be maintained by locating the installed sensors in different places in the SFP area.

In its OIP, the licensee stated that the primary instrument channel level sensing components will be located near the north wall of the SFP, and the backup instrument channel level sensing components will be located near the south wall of the SFP, approximately 78 ft. from the primary instrument channel. Additionally, in its OIP, the licensee stated, in part, that

> 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.
>
> 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....
>
> Cabling for power supplies and indications for each channel will be routed in separate conduits for each channel.

In its OIP, the licensee also provided a sketch with a plan view of the SFP level instrumentation location. The NRC staff reviewed this sketch and notes the SFP level instrument probes are located on the north and south walls of the SFP and from there the cables are routed separately to the display locations.

The licensee's proposed arrangement for the primary and backup SFP level instrumentation appears to be consistent with NEI 12-02, as endorsed by the ISG.

3.5 Design Features: Mounting

Attachment 2 of Order EA-12-051 states, in part, that

> Installed instrument channel equipment within the spent fuel pool shall be mounted to retain its design configuration during and following the maximum seismic ground motion considered in the design of the spent fuel pool structure.

NEI 12-02 states, in part, that

> The mounting shall be designed to be consistent with the highest seismic or safety classification of the SFP. An evaluation of other hardware stored in the SFP shall be conducted to ensure it will not create adverse interaction with the fixed instrument location(s).
>
> The basis for the seismic design for mountings in the SFP shall be the plant seismic design basis at the time of submittal of the Integrated Plan for implementing NRC Order EA-12-051.

In its OIP, the licensee stated that the mounting of the SFP level instrumentation will be Seismic Class I. The licensee also stated that 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.

In its letter dated July 3, 2013, the licensee stated, in part, that

> The answer to this request requires design information that is not available at this time. Information that is available will be provided in the August 2013 semi-annual update. If complete information is not available for the August 2013 update, complete information will be provided as soon as it is available.

The NRC staff notes the information regarding the SFP level instrumentation mounting is not currently available for review. In its letter dated August 28, 2013, the licensee indicated the

response to the staff's RAI requires design information that is not available at this time and a response will be provided to the staff in the February 2014 semi-annual update.

The NRC staff has identified these requests as follows:

RAI #1

Please provide the following:

a) **The design criteria that will be used to estimate the total loading on the mounting device(s), including static weight loads and dynamic loads. Describe the methodology that will be used to estimate the total loading, inclusive of design basis maximum seismic loads and the hydrodynamic loads that could result from pool sloshing or other effects that could accompany such seismic forces.**

b) **A description of the manner in which the level sensor (and stilling well, if appropriate) will be attached to the refueling roof and/or other support structures for each planned point of attachment of the probe assembly. Indicate in a schematic the portions of the level sensor that will serve as points of attachment for mechanical/mounting or electrical connections.**

c) **A description of the manner by which the mechanical connections will attach the level instrument to permanent SFP structures so as to support the level sensor assembly.**

(This information was previously requested as RAI-2 in the NRC electronic mail dated May 29, 2013).

In addition, the NRC staff plans to review the results of the licensee's seismic testing and analysis when it is completed based on the licensee's response to the following RAIs:

RAI #2

Please provide the analyses used to verify the design criteria and methodology for seismic testing of the SFP instrumentation and the electronics units, including, design basis maximum seismic loads and the hydrodynamic loads that could result from pool sloshing or other effects that could accompany such seismic forces.

RAI #3

For each of the mounting attachments required to attach SFP Level equipment to plant structures, please describe the design inputs and the methodology used to qualify the structural integrity of the affected structures/equipment.

3.6 Design Features: Qualification

Attachment 2 of Order EA-12-051 states, in part, that

> The primary and backup instrument channels shall be reliable at temperature, humidity, and radiation levels consistent with the spent fuel pool water at saturation conditions for an extended period. This reliability shall be established through use of an augmented quality assurance process (e.g. a process similar to that applied to the site fire protection program).

NEI 12-02 states, in part, that

> The instrument channel reliability shall be demonstrated via an appropriate combination of design, analyses, operating experience, and/or testing of channel components for the following sets of parameters, as described in the paragraphs below:
>
> - conditions in the area of instrument channel component use for all instrument components,
> - effects of shock and vibration on instrument channel components used during any applicable event for only installed components, and
> - seismic effects on instrument channel components used during and following a potential seismic event for only installed components...

The NRC staff assessment of the instrument qualification is discussed in the following subsections below: (3.6.1) Augmented Quality Process and (3.6.2) Qualification and Reliability.

3.6.1 Augmented Quality Process

Appendix A-1 of the guidance in NEI 12-02 describes a quality assurance process for non-safety systems and equipment that is not already covered by existing quality assurance requirements. Within the ISG, the NRC staff found the use of this quality assurance process to be an acceptable means of meeting the augmented quality requirements of Order EA-12-051.

In its OIP, the licensee stated that 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.

The licensee's proposed augmented quality assurance process appears to be consistent with NEI 12-02, as endorsed by the ISG.

3.6.2 Qualification and Reliability

NEI 12-02 states, in part, that

> The 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 no fewer than seven days post-event or until off-site resources can be deployed by the mitigating strategies resulting from Order EA-12-049 should be considered. Examples of post-event (beyond-design-basis) conditions to 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.

In its OIP, the licensee stated, consistent with NEI 12-02, in part, that

> 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...

In addition, in its OIP, the licensee stated, in part, that

> 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...

While addressing seismic reliability, in its OIP, the licensee stated that 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 IE Equipment for Nuclear Power Generating Stations, (Reference 9) or a substantially similar industrial standard.

In its letter dated July 3, 2013, the licensee stated, in part, that

> The answer to this request requires design information that is not available at this time. Information that is available will be provided in the August 2013 semi-annual update. If complete information is not available for the August 2013 update, complete information will be provided as soon as it is available.

The NRC staff notes the information regarding SFP level instrumentation qualification and reliability is not currently available for review. In its letter dated, August 28, 2013, the licensee indicated the response to the staff's RAI requires design information that is not available at this time and a response will be provided to the staff in the February 2014 semi-annual update.

The NRC staff has identified these requests as follows:

RAI #4

Please provide the following:

a) **A description of the specific method or combination of methods to be applied to demonstrate the reliability of the permanently installed equipment under BDB ambient temperature, humidity, shock, vibration, and radiation conditions.**

b) **A description of the testing and/or analyses that will be conducted to provide assurance the equipment will perform reliably under the worst-case credible design basis loading at the location where the equipment will be mounted. Include a discussion of this seismic reliability demonstration as it applies to (a) the level sensor mounted in the SFP area, and (b) any control boxes, electronics, or read-out and re-transmitting devices that will be employed to convey level information from the level sensor to the plant operators or emergency responders.**

c) **A description of the specific method or combination of methods to be used to confirm the reliability of the permanently installed equipment during and following seismic conditions to maintain its required accuracy.**

(This information was previously requested as RAI-3 in the NRC electronic mail dated May 29, 2013).

In addition, the NRC staff plans to verify the results of the licensee's testing and analysis used to demonstrate the qualification and reliability of the installed equipment when it is completed based on the licensee's response to the following RAI:

RAI #5

For RAI #4 above, please provide the results for the selected methods, tests and analyses used to demonstrate the qualification and reliability of the installed equipment in accordance with the Order requirements.

3.6.3 Qualification Evaluation Summary

Upon acceptable resolution of the RAIs in Section 3.6, the NRC staff will be able to make a conclusion regarding the instrument qualification.

3.7 Design Features: Independence

Attachment 2 of Order EA-12-051 states, in part, that

> The primary instrument channel shall be independent of the backup instrument channel.

NEI 12-02 states, in part, that

> Independence of permanently installed instrumentation, and primary and backup channels, is obtained by physical and power separation commensurate with the hazard and electrical isolation needs. If plant AC or DC power sources are used then the power sources shall be from different buses and preferably different divisions/channels depending on available sources of power.

In its OIP, the licensee stated that the primary instrument channel will be redundant to and independent of the backup instrument channel. The licensee also stated that independence will be obtained through separation of the sensors, indication, backup battery power supplies, associated cabling and channel power feeds.

In its letter dated July 3, 2013, the licensee stated, in part, that

> The permanently installed primary and backup instrument channels will be redundant to and independent of each other with respect to physical separation and the normal electrical power sources are from separate trains. The physical and electrical separation minimizes the potential for a single fault to adversely affect both channels.
>
> The level sensors, located near the north-east corner and south-east corners of the SFP, will be physically separated to the extent practical by a distance greater than the shortest length of a pool side. The length of the shortest side of the SFP is approximately 18 feet long. The level sensors, with the primary located near the north-east corner of the pool and the backup located near the south-east

corner of the pool, exceed the length of the shortest side of the SFP. The horizontal separation minimizes a common cause event in the area of the SFP from adversely affecting both channels.

The level transmitters, one per channel, will be physically separated from each other and are located two elevations below the level sensors in the Primary Auxiliary Building (PAB).

The third component, the level processor cabinets, one per channel, which includes the display and uninterruptible power supply (UPS), will be located on the same PAS plant elevation as the transmitter and are physically separated from each other by a horizontal distance exceeding 15 feet.

All interconnecting cable and raceway between the level sensor and transmitter and transmitter and processor will be routed such that the primary channel components are located and routed in the northern portion of the PAS, whereas the backup channel components are located and routed in the southern portion of the PAB. The cabling for each channel will be located in physically independent raceways. These separation distances are well in excess of the design guidelines for the Point Beach Nuclear Plant (PBNP) and minimize the potential for a single fault to affect both channels.

The primary level channel will be powered from a 120VAC Emergency Lighting Panel. This panel can be aligned to the Unit 2 Train A backup 1 E emergency power supply. This panel is located in the PAB, accessible from plant elevation 66 feet and is located on the north wall near the SFP.

The backup level channel will be powered from a 120VAC Emergency Lighting Panel. This panel can be aligned to the Unit 1 Train B backup 1 E emergency power supply. This panel is located in the PAB, accessible from plant elevation 66 feet and is located on the south wall near the SFP.

These panels are physically separated from each other and are normally powered from independent 1 E backed power supplies which serve to minimize the potential for a single fault to affect both channels.

In the event that the primary power source is unavailable, the UPS will automatically swap from 120VAC to the battery backup power supply.

Two completely redundant, independent and permanently installed SFP level measurement channels, both from the same supplier, will be provided. Each channel will utilize guided wave radar (GWR) technology which uses the principle of time domain reflectometry to detect SFP water level.

Each level measurement channel will consist of a stainless steel sensor cable probe suspended in the SFP from a bracket attached to the operating deck at the side of the pool, a level transmitter located in an adjacent area below the cable probe, and a level processor cabinet containing the display and UPS located

> within the same PAB plant elevation as the transmitter but in the desired display area. Physical and spatial separation will be as described in RAI-4.a above.
>
> Each level measurement channel will be powered by independent power sources. The primary instrument channel will be powered from a Unit 2 power source which can be aligned to Unit 2 Train A backup 1E power. The backup instrument channel will be powered from a Unit 1 power source which can be aligned to Unit 1 Train B backup 1E power.
>
> The primary level channel signals between the level probe, transmitter and level processor cabinet will be entirely independent and separated from the backup level channel as described in RAI-4.a, above.

The NRC staff notes that with this arrangement, the loss of one backup power supply will not affect the operation of the independent channel under BDB event conditions. The implementation of such design provisions appears to be consistent with NEI 12-02, as endorsed by the ISG, and the electrical functional performance of each level measurement channel would be considered independent of the other channel. The NRC staff plans to verify the final electrical power supply design information when it is provided.

The NRC staff has identified this request as follows:

RAI #6

Please provide the NRC staff with the final configuration of the power supply source for each channel so the staff may conclude the two channels are independent from a power supply assignment perspective.

3.8 Design Features: Power Supplies

Attachment 2 of Order EA-12-051 states in part, that

> Permanently installed instrumentation channels shall each be powered by a separate power supply. Permanently installed and portable instrumentation channels shall provide for power connections from sources independent of the plant ac and dc power distribution systems, such as portable generators or replaceable batteries. Onsite generators used as an alternate power source and replaceable batteries used for instrument channel power shall have sufficient capacity to maintain the level indication function until offsite resource availability is reasonably assured.

NEI 12-02 states, in part, that

> The normal electrical power supply for each channel shall be provided by different sources such that the loss of one of the channels primary power supply will not result in a loss of power supply function to both channels of SFP level instrumentation.

> All channels of SFP level instrumentation shall provide the capability of connecting the channel to a source of power (e.g., portable generators or replaceable batteries) independent of the normal plant AC and DC power systems. For fixed channels this alternate capability shall include the ability to isolate the installed channel from its normal power supply or supplies. The portable power sources for the portable and installed channels shall be stored at separate locations, consistent with the reasonable protection requirements associated with NEI 12-06 (Order EA-12-049). The portable generator or replaceable batteries should be accessible and have sufficient capacity to support reliable instrument channel operation until off-site resources can be deployed by the mitigating strategies resulting from Order EA-12-049.
>
> If adequate power supply for either an installed or portable level instrument credits intermittent operation, then the provisions shall be made for quickly and reliably taking the channel out of service and restoring it to service. For example, a switch on the power supply to the channel is adequate provided the power can be periodically interrupted without significantly affecting the accuracy and reliability of the instrument reading. Continuous indication of SFP level is acceptable only if the power for such indication is demonstrably adequate for the time duration specified in section 3.1[.]

In its OIP, the licensee stated, in part, that

> 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.

In its letter dated July 3, 2013, the licensee stated, in part, that

> PBNP specified a design requirement for a minimum of 72 hours of battery life after an extended loss of AC power (ELAP) event for the spent fuel pool level instrument channels. PBNP committed to implementation of on-site Phase II FLEX response assets and strategies from appropriate means available at the time of the event and up to 72 hours within the event that may include portable equipment. The specified 72 hour battery mission time will provide ample margin to allow the implementation of Phase II FLEX actions within the guidelines provided as part of the implementing documents. The backup power portion (dedicated uninterruptible power supply including dedicated batteries) for the system is sized and provided by the same vendor as the entire system, so the design criteria used for sizing of the batteries is the responsibility of the vendor. The 72 hour battery life will be tested and verified during the Factory Acceptance Test or Site Acceptance Test prior to final acceptance of the system.

The NRC staff notes the proposed power supply design and criteria for sizing of the battery appear to be consistent with NEI 12-02, as endorsed by the ISG. The staff plans to verify the final configuration of the AC supplies and the results of the licensee's calculation for required duty cycle given the final design load of the instrument channel for its installed configuration.

The NRC staff has identified this request as follows:

RAI #7

Please provide the results of the calculation depicting the battery backup duty cycle requirements demonstrating battery capacity is sufficient to maintain the level indication function until offsite resource availability is reasonably assured.

3.9 Design Features: Accuracy

Attachment 2 of Order EA-12-051 states, in part, that

> The instrument channels shall maintain their designed accuracy following a power interruption or change in power source without recalibration.

NEI 12-02 states, in part, that

> Accuracy should consider operations while under SFP conditions, e.g., saturated water, steam environment, or concentrated borated water. Additionally, instrument accuracy should 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.

In its OIP, the licensee stated, in part, that

> 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.

In its letter dated July 3, 2013, the licensee stated, in part, that

> The answer to this request requires design information that is not available at this time. Information that is available will be provided in the August 2013 semi-annual update. If complete information is not available for the August 2013 update, complete information will be provided as soon as it is available.

The NRC staff notes the information on SFP level instrumentation accuracy is not currently available for review. In its letter dated August 28, 2013, the licensee indicated the response to the staff's RAI requires design information that is not available at this time and a response will be provided to the staff in the February 2014 semi-annual update.

The NRC staff has identified this request as follows:

RAI #8

Please provide the following:

a) **An estimate of the expected instrument channel accuracy performance (e.g., in % of calibrated span) under both a) normal SFP level conditions (approximately Level 1 or higher), and b) at the BDB conditions (i.e., radiation, temperature, humidity, post-seismic and post-shock conditions) that would be present if the SFP level were at the Level 2 and Level 3 datum points.**

b) **A description of the methodology to be used for determining the maximum allowed deviation from the instrument channel design accuracy under normal operating conditions. Staff understands this information would serve as an acceptance criterion for a calibration procedure to alert operators and technicians that the channel requires adjustment to within normal design accuracy.**

(This information was previously requested as RAI-6 in the NRC electronic mail dated May 29, 2013).

3.10 Design Features: Testing

Attachment 2 of Order EA-12-051 states, in part, that

The instrument channel design shall provide for routine testing and calibration.

NEI 12-02 states, in part, that

> Static or non-active installed (fixed) sensors can be used and should be designed such that testing and/or calibration can be performed in-situ. For microprocessor based channels the instrument channel design shall be capable of testing while mounted in the pool.

In its OIP, the licensee stated that the instrument channel design will provide for routine testing and calibration consistent with Order EA-12-051 and the guidance in NEI 12-02.

In its letter dated July 3, 2013, the licensee stated, in part, that

> The answer to this request requires design information that is not available at this time. Information that is available will be provided in the August 2013 semi-

annual update. If complete information is not available for the August 2013 update, complete information will be provided as soon as it is available.

The NRC staff notes the information regarding the design of SFP level instrumentation to provide for routine testing and calibration is not currently available for review. In its letter dated, August 28, 2013, the licensee indicated the response to the staff's RAI requires design information that is not available at this time and a response will be provided to the staff in the February 2014 semi-annual update.

The NRC staff has identified this request as follows:

RAI #9

Please provide the following:

a) **A description of the capability and provisions the proposed level sensing equipment will have to enable periodic testing and calibration, including how this capability enables the equipment to be tested in-situ.**

b) **A description of the ways testing and calibration will enable performance of regular channel checks of each independent channel against the other, and against any other permanently-installed SFP level instrumentation.**

c) **A description of the functional checks to be performed, and the frequency at which they will be conducted. Describe how calibration tests will be performed, and the frequency at which they will be conducted. Provide a discussion as to how these surveillances will be incorporated into the plant surveillance program.**

d) **A description of the preventive maintenance tasks to be performed during normal operation, and the planned maximum surveillance interval that is necessary to ensure that the channels are fully conditioned to accurately and reliably perform their functions when needed.**

(This information was previously requested as RAI-7 in the NRC electronic mail dated May 29, 2013).

3.11 Design Features: Display

Attachment 2 of Order EA-12-051 states, in part, that

> Trained personnel shall be able to monitor the spent fuel pool water level from the control room, alternate shutdown panel, or other appropriate and accessible location. The display shall provide on-demand or continuous indication of spent fuel pool water level.

NEI 12-02 states, in part, that

> The intent of this guidance is to ensure that information on SFP level is reasonably available to the plant staff and decision makers. Ideally there will be an indication from at least one channel of instrumentation in the control room. While it is generally recognized (as demonstrated by the events at Fukushima Daiichi) that SFP level will not change rapidly during a loss of spent fuel pool cooling scenario more rapid SFP drain down cannot be entirely discounted. Therefore, the fact that plant personnel are able to determine the SFP level will satisfy this requirement, provided the personnel are available and trained in the use of the SFP level instrumentation (see Section 4.1) and that they can accomplish the task when required without unreasonable delay.
>
> SFP level indication from the installed channel shall be displayed in the control room, at the alternate shutdown panel, or another appropriate and accessible location (reference NEI 12-06). An appropriate and accessible location shall have the following characteristics:
>
> - occupied or 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.
>
> If multiple display locations beyond the required "appropriate and accessible location" are desired, then the instrument channel shall be designed with the capability to drive the multiple display locations without impacting the primary "appropriate and accessible" display.

In its OIP, the licensee stated that remote indication will be provided in the Primary Auxiliary Building (PAB) as it will provide an indication that will be accessible during post-accident conditions.

In its letter dated July 3, 2013, the licensee stated, in part, that

> The proposed location for the SFP wide range level instrument displays will be on the 26 foot elevation of the PAB near the C-59 Waste Disposal Control Panel. The displays will be approximately 40 feet below the level sensors in an adjacent area, outside the area surrounding the SFP floor and are physically separated from each other within the PAB. They will be physically protected from the environmental and radiological conditions resulting from a beyond design basis (BDB) event.

> The 26 foot elevation of the PAB is contained within a Seismic Class I structure that has multiple access routes. Normal access is provided from the south through the Radiation Protection Checkpoint. Alternate access routes are available from the Unit 1 Turbine Hall 8 foot elevation through door number 20 to the PAB and up the stairs to the C-59 panel area. Another alternate access route is available from Unit 2 Turbine Hall 8 foot elevation through door number 12 to the PAB and up the stairs to the C-59 area. Environmental conditions on the 26 foot and 8 foot levels are expected to remain habitable and accessible at saturation conditions in the SFP.
>
> The 26 foot elevation near the C-59 panel is a designated watch station and normally manned with a qualified Auxiliary Operator to promptly read displays and communicate with decision makers during the various SFP drain down scenarios and external events. Hand-held radios, person-to-person contact or the PBX phone system are communication systems available to transmit the information.
>
> The information from the SFP level instrument is promptly accessible for various drain-down scenarios and external events based on the reasons laid out in the response to RAI-8.a.

The NRC staff has concerns with the licensee's lack of information regarding the accessibility, habitability, availability of personnel and communications as it relates to the location of the SFP level instrumentation displays.

The NRC staff has identified this request as follows:

RAI #10

Please describe the evaluation used to validate that the display location can be accessed without unreasonable delay following a BDB event. Include the time available for personnel to access the display as credited in the evaluation, as well as the actual time (e.g., based on walk-throughs) that it will take for personnel to access the display. Additionally, include a description of the radiological and environmental conditions on the paths personnel might take. Describe whether the display location remains habitable for radiological, heat and humidity, and other environmental conditions following a BDB event. Describe whether personnel are continuously stationed at the display or monitor the display periodically.

3.12 Programmatic Controls: Training

Attachment 2 of Order EA-12-051 states, in part, that

> Personnel shall be trained in the use and the provision of alternate power to the primary and backup instrument channels.

NEI 12-02 states, in part, that

> The personnel performing functions associated with these SFP level instrumentation channels shall be trained to perform the job specific functions necessary for their assigned tasks (maintenance, calibration, surveillance, etc.). SFP instrumentation should be installed via the normal modification processes. In some cases, utilities may choose to utilize portable instrumentation as a portion of their SFP instrumentation response. In either case utilities should use the Systematic Approach to Training (SAT) to identify the population to be trained. The SAT process should also determine both the initial and continuing elements of the required training.

In its OIP, the licensee stated, in part, that

> 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.

The licensee's proposed plan to train personnel in the use and the provision of alternate power to the primary and backup instrument channels, including the approach to identify the population to be trained appears to be consistent with NEI 12-02, as endorsed by the ISG.

3.13 Programmatic Controls: Procedures

Attachment 2 of Order EA-12-051 states, in part, that

> Procedures shall be established and maintained for the testing, calibration, and use of the primary and backup spent fuel pool instrument channels.

NEI 12-02 states, in part, that

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

In its OIP, the licensee stated that procedures will be developed using guidelines and vendor instructions to address the maintenance, operation, and abnormal response issues associated with the new SFP instrumentation.

In its letter dated July 3, 2013, the licensee stated, in part, that

> The answer to this request requires design information that is not available at this time. Information that is available will be provided in the August 2013 semi-annual update. If complete information is not available for the August 2013 update, complete information will be provided as soon as it is available.

The NRC staff notes the information regarding the procedures for testing, calibration, and use of the primary and backup SFP instrument channels is not currently available for review. In its letter dated, August 28, 2013, the licensee indicated the response to the staff's RAI requires design information that is not available at this time and a response will be provided to the staff in the February 2014 semi-annual update.

The NRC staff has identified this request as follows:

RAI #11

Please provide a list of the procedures addressing operation (both normal and abnormal response), calibration, test, maintenance, and inspection that will be developed for use of the SFP instrumentation. Include a brief description of the specific technical objectives to be achieved within each procedure.

(This information was previously requested as RAI-9 in the NRC electronic mail dated May 29, 2013. However, based on feedback from the licensee, it has been revised as above).

3.14 Programmatic Controls: Testing and Calibration

Attachment 2 of Order EA-12-051 states, in part, that

> Processes shall 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.

NEI 12-02 states, in part, that

> Processes shall be established and maintained for scheduling and implementing necessary testing and calibration of the primary and backup SFP level instrument channels to maintain the instrument channels at the design accuracy. The testing and calibration of the instrumentation shall be consistent with vendor recommendations or other documented basis.

In its OIP, the licensee stated, in part, that

> 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.

In its letter dated July 3, 2013, the licensee stated, in part, that

> The answer to this request requires design information that is not available at this time. Information that is available will be provided in the August 2013 semi-

> annual update. If complete information is not available for the August 2013 update, complete information will be provided as soon as it is available.

The NRC staff notes the information regarding the processes for testing and calibration of SFP instrument channels is not currently available for review. In its letter dated, August 28, 2013, the licensee indicated the response to the staff's RAI requires design information that is not available at this time and a response will be provided to the staff in the February 2014 semi-annual update.

The NRC staff has identified these requests as follows:

RAI #12

Please provide the following:

a) **Further information describing the maintenance and testing program the licensee will establish and implement to ensure that regular testing and calibration is performed and verified by inspection and audit to ensure conformance with design and system readiness requirements. Include a description of plans to ensure necessary channel checks, functional tests, periodic calibration, and maintenance will be conducted for the level measurement system and its supporting equipment.**

b) **A description of the guidance in NEI 12-02 section 4.3 on compensatory actions for one or both non-functioning channels will be addressed.**

c) **A description of the planned compensatory actions to be taken in the event one of the instrument channels cannot be restored to functional status within 90 days.**

(This information was previously requested as RAI-10 in the NRC electronic mail dated May 29, 2013).

RAI #13

Please provide a description of the in-situ calibration process at the SFP location that will result in the channel calibration being maintained at its design accuracy.

3.15 Instrument Reliability

NEI 12-02 states, in part, that

> A spent fuel pool level instrument channel is considered reliable when the instrument channel satisfies the design elements listed in Section 3 [Instrument Design Features] of this guidance and the plant operator has fully implemented the programmatic features listed in Section 4 [Program Features].

In its OIP, the licensee stated that the reliability of the primary and backup channels is to be assured through conformance with the guidance in NEI 12-02 and the NRC staff's ISG, and that such reliability will be demonstrated through testing, analysis, qualification, and operating experience.

Upon acceptable resolution of the RAIs noted above, the NRC staff will be able to make a conclusion regarding the reliability of the SFP instrumentation.

4.0 CONCLUSION

The NRC staff is unable to complete its evaluation regarding the acceptability of the licensee's plans for implementing the requirements of Order EA-12-051 due to the need for additional information as described above. The staff will issue an evaluation with its conclusion after the licensee has provided the requested information.

status updates, as the information becomes available. However, the staff requests that all information be provided no later than March 31, 2014, to ensure that any issues are resolved prior to the date by which the licensee must complete full implementation of Order EA-12-051. The licensee should adjust its schedule for providing information to ensure that all this information is provided by the requested date.

If you have any questions regarding this letter, please contact me at 301-415-3049 or via e-mail at Terry.Beltz@nrc.gov.

Sincerely,

/RA/

Terry A. Beltz, 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

Enclosure:
Interim Staff Evaluation and
Request for Additional Information

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