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

November 19, 2013

Mr. Mano Nazar
Executive Vice President and
Chief Nuclear Officer
Florida Power and Light Company
P.O. Box 14000
Juno Beach, Florida 33408-0420

SUBJECT: ST. LUCIE PLANT, UNTS 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. MF0990 AND MF0991)

Dear Mr. Nazar:

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 28, 2013 (ADAMS Accession No. ML13063A026), Florida Power & Light Company (the licensee) provided the Overall Integrated Plan (OIP) for St. Lucie Plant, Units 1 and 2 describing how it will achieve compliance with Attachment 2 of Order EA-12-051 by the second quarter of 2015, for Unit 1, and the fourth quarter of 2015, for Unit 2. By letter dated July 16, 2013 (ADAMS Accession No. ML13196A079), the NRC staff sent a request for additional information (RAI) to the licensee. The licensee provided supplemental information by letters dated July 26, 2013 (ADAMS Accession No. ML13219A838), and August 27, 2013 (ADAMS Accession No. ML13242A006).

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 September 30, 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 301-415-1564 or via e-mail at siva.lingam@nrc.gov.

Sincerely,

Siva P. Lingam

Siva P. Lingam, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-335 and 50-389

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
FLORIDA POWER & LIGHT COMPANY
ST. LUCIE NUCLEAR POWER PLANT, UNITS 1 AND 2
DOCKET NOS. 50-335 AND 50-389

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 28, 2013 (ADAMS Accession No. ML13063A026), Florida Power & Light Company (FPL, the licensee) provided the OIP for St. Lucie Plant, Units 1 and 2, describing how it will achieve compliance with Attachment 2 of Order EA-12-51 by the second quarter of 2015, for Unit 1, and the fourth quarter of 2015, for Unit 2. By letter dated July 16, 2013 (ADAMS Accession No. ML13196A079), the NRC staff sent a request for additional information (RAI) to the licensee. The licensee provided supplemental information by letters dated July 26, 2013 (ADAMS Accession No. ML13219A838) and August 27, 2013 (ADAMS Accession No. ML13242A006).

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 license 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 (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

St. Lucie Plant, Units 1 and 2 have separate, independent SFPs. Each SFP is approximately 33 feet (ft.) wide by 37 ft. long and 40.5 ft. deep. The Unit 1 SFP elevation is 2 inches (in.) lower than the Unit 2 SFP.

The licensee submitted its OIP on February 28, 2013. The installation of the SFP level instrumentation for the two SFPs is scheduled for completion by the second quarter of 2015, for Unit 1, and the fourth quarter of 2015, for Unit 2.

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 for both for Units, 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 a Level 1 for both units would be set at plant elevation 56 ft. 0 in. based on adequate level to support operation of the normal fuel pool cooling system. In its letter dated July 26, 2013, the licensee stated, in part, that

> For Level 1, the two points described in the NEI 12-02 guidance are; 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 (NPSH) specified by the pump manufacturer or engineering analysis. To determine the higher of the two levels the following was taken into consideration:

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. There are no siphon breakers in the suction lines at either unit at St. Lucie. The elevation of the suction line centerline is 56'-0" for both St. Lucie, Units 1 and 2.

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 suctions is at plant elevation 21'-7 ½". The required NPSH at pump runout at saturated conditions is 12'. This corresponds to an $NPSH_R$ value of plant elevation 33'-7 ½", which is lower than the 56'-0" stated in (1) above.

The higher of the above levels is (1). Therefore, Level 1 elevation is established at 56'- 0" for both the primary and backup instrumentation channels.

The SFP level instrument upper range will be at least 6 inches above Level 1 to account for channel accuracy and instrument loop uncertainty. From a practical perspective, the upper range capability will extend even higher (e.g., approximately 4 feet up to the normal operating level at elevation 60'-0".)

The NRC staff notes that Level 1 is 56 ft. and is based on adequate SFP cooling system operation; and sufficient for NPSH and represents the higher of the two points descried in NEI 12-02 for Level 1.

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, in part, that

> An elevation approximately 10' above the highest fuel rack is utilized, with specific elevations as follows:
>
> Unit 1: El. 46'-3" based on Unit 1 FSAR [Final safety Analysis Report] Fig. 1.2-19 (Reference 17) in conjunction with plant drawings 8770-11884, 8770-11885 & 8770-11890 (References 13 thru 15 respectively).
>
> Unit 2: El. 46'-5" based on Unit 2 FSAR Fig. 1.2-17 (Reference 18) and plant drawing 2998-18511 (Reference 16).
>
> These elevations are approximately 10' above the top of the fuel racks (see Level 3 elevations below). 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.

In its letter dated July 26, 2013, the licensee provided a sketch showing the elevations identified as Levels 1, 2, and 3. The Level 2 elevation provided on the referenced sketch is consistent with the elevation provided in the licensee's OIP, which is 10 ft. above the top of the spent fuel storage racks.

The NRC staff notes that the licensee designated Level 2 using the first of the two options described in NEI 12-02 for 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 the OIP the licensee states, in part, that the SFP level at which the fuel remains covered is defined as

> Unit 1: El. 36'-3", based on Unit 1 FSAR Fig. 1.2-19 (Reference 17) in conjunction with plant drawings 8770-11884, 8770-11885 & 8770-11890 (References 13 thru 15 respectively).
>
> Unit 2: El. 36'-5", based on Unit 2 FSAR Fig. 1.2-17 (Reference 18) and plant drawing 2998-18511 (Reference 16).

In its letter dated July 26, 2013, the licensee stated, in part,

> Note that FPL is modifying the previously provided elevation for Level 3 based on subsequent industry and regulatory discussions that have occurred since submittal of the OIP. ...

> St. Lucie previously designated Level 3 as the actual top of the fuel storage racks. St. Lucie is now designating Level 3 as the water level greater than 1 foot above the top of the fuel storage racks plus the accuracy of the SFP level instrument channel, which is yet to be determined. Designation of this level as Level 3 is conservative; its selection assures that the fuel will remain covered, and at that point there would be no functional or operational reason to defer action to implement the addition of make-up water to the pool.
>
> Accordingly, the previous Level 3 elevation of 36'-3" for St. Lucie Unit 1 is being revised to 37'-3" and 36'-5" for St. Lucie Unit 2 is being revised to 37'-5".

The NRC staff notes that the elevation for Level 3 is above the highest point of any spent fuel storage rack seated in the SFP, and has been conservatively increased 12 in. higher.

The NRC staff notes that 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 affixed components and that the nominal measured range will be continuous from the normal pool level elevation (60 ft.-0 in. for both units) to the top of the spent fuel racks at elevation 36 ft. 3 in. for Unit 1 and 36 ft. 5 in. for Unit 2 (see Level 3 references above).

The NRC staff notes that the range specified for the licensee's instrumentation will cover Levels 1, 2, and 3 as described in Section 3.2 above. The NRC staff notes that the licensee's proposed plan, with respect to the number of channels for both of its SFPs, 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, 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.
>
> As indicated above, the primary and backup SFP level sensors will be installed in the South side of each unit's SFP, as close to the opposite corners as practical to maintain maximum attainable separation. Sensor conditioning electronics and battery backup will be mounted in a remote location separated from the SFP by a reinforced concrete wall(s) which will provide suitable radiation shielding for the electronics.

In its letter dated July 26, 2013, the licensee indicated that the information regarding arrangement of the SFP level instrument channels was not available, but that it would be provided in the February 2014, 6 month update.

In its letter dated August 28, 2013, the licensee provided two sketches depicting the planned locations of the SFP level probes and the locations of the level instrument components. In this letter, the licensee stated, in part, that

> The following sketch shows the planned locations of the two level probes, located in the south end of the pool as close to the opposite corners as practical. As shown, the inside pool dimension of this side of the pool is 33 feet. The wiring from these sensors will be routed to maintain this distance until outside the spent fuel pool room to the extent possible. Once outside the SPF room, channel wiring will be separated in accordance with plant design basis channel separation criteria. (The sketches in this submittal are from Unit 1 drawings, but the general locations are applicable to both units. Ignore the column identifiers.) ...
>
> As shown, the signal transmitter for each channel is located outside the SFP room, one floor elevation lower in the new fuel storage area. The level indicator enclosures, including independent UPS [uninterruptible power supply] and backup batteries for each channel, are located on the ground floor of the SFP pump and filter room (plant elevation 19.5').
>
> The proposed conduit routing is shown in the final drawing below. The proposed routing uses a combination of new and existing conduits and raceways. Each channel's conduit and indicator enclosures will be separated in accordance with the plant design basis channel separation criteria. The boxes may be mounted in slightly different areas of this room for each unit based on existing mounting space and interferences, but they will be located in the same general area.

The NRC staff notes that the licensee's proposed arrangement of the primary and backup level instruments for both of its SFPs appears to be consistent with NEI 12-02, as endorsed by the ISG. However, the staff plans to review the final cable routing drawings to confirm the independence of the two SFP level instruments. The staff has identified this request as:

RAI No. 1

Please provide additional information describing how the proposed arrangement of the SFP Guided Wave Radar sensing cables and routing of the instrumentation cabling between the SFP and final mounting location(s) of the monitoring read-out panels meets the Order requirements with respect to arrangement of the SFP level instrument channels 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.

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, in part, that

> 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.

In its letter dated July 26, 2013, the licensee stated, in part, that

> The answer to this request requires design information that is under development. The information will be provided at the 6 month update after it has been obtained.

The NRC staff notes that the information regarding mounting of the SFP instrumentation is not currently available for review and that in its August 28, 2013, letter, the licensee identified the status of this activity as "In Progress." The licensee indicated that this information requires design information and that information will be provided in the February 2014 semiannual update. The NRC staff has identified these requests as:

RAI No. 2

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 floor 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-3 in NRC letter dated July 16, 2013)

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

RAI No. 3

For RAI 2(a) above, please provide the results of 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 No. 4

For each of the mounting attachments required to attach SFP Level equipment to plant structures, please describe the design inputs, and the methodology that was 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 applied to fire protection, would be applied to this project.

The NRC staff notes that 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, and...

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 SPF 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 (Reference 2) will be addressed in the engineering and design phase. 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, and...

In its letter dated July 26, 2013, the licensee stated, in part, that

> The answer to this request requires design information that is under development. The information will be provided at the 6 month update after it has been obtained.

The NRC staff notes that the information regarding qualification of the SFP instrumentation is not currently available for review and that in its August 28, 2013, letter, the licensee identified the status of this activity as "In Progress." The licensee indicated that this information requires design information and that information will be provided in the February 2014 semiannual update. The NRC staff has identified these requests as:

RAI No. 5

Please provide the following:

a) **A description of the specific method or combination of methods that will 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 that 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 the level information from the level sensor to the plant operators or emergency responders.**

c) **A description of the specific method or combination of methods that will be used to confirm the reliability of the permanently installed equipment such that following a seismic event the instrument will maintain its required accuracy.**

(This information was previously requested as RAI-4 in the NRC letter dated July 16, 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 No. 6

For RAI No. 5 above, please provide the results from 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 26, 2013, the licensee stated, in part, that

> The permanently installed primary and backup instrument channels will be fully redundant to and independent of each other with respect to physical separation and the normal electrical power sources are from separate channel sources. The physical and electrical separation minimizes the potential for a single electrical fault or common cause event to adversely affect both channels.
>
> The level sensors, located near the south-east and south-west corners of the SFP, will be physically separated to the extent practical by a distance equal to the shortest length of a pool side as allowed per NEI 12-02 Section 3.2. The length of the shortest side of the SFP at St. Lucie is approximately 33 feet. This horizontal separation minimizes a common cause event in the area of the SFP from adversely affecting both channels. This spatial separation will be maintained for the sensor cable within the SFP area. Once outside the SFP area, conduit and cable separation between the channels will be maintained to meet or exceed the current plant design and licensing basis separation criteria.

> The level transmitters, one per channel, will be physically separated from each other and are located one elevation below the level sensors in the new fuel storage area directly outside the SFP room.
>
> The third component, the level processor cabinets, one per channel, which includes the display and uninterruptible power supply (UPS), will be physically separated from each other by a distance meeting or exceeding current plant design basis separation for channels. The cabling for each channel will be located in physically independent conduits or raceways installed to seismic 1 criteria.

Additionally, in its letter dated July 26, 2013, the licensee stated, in part, that

> Each channel will be powered from separate lighting panels that are each fed from separate and independent MCCs [motor control centers] that are fed from separate and independent 6.9 KV switchgear. Each channel is equipped with its own UPS and battery backup system.

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. However, 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:

RAI No. 7

Please provide the NRC staff with the final configuration of the power supply source for each channel, as well as cable and conduit separation, so that the staff may conclude that 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 separate sources of 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 September 6, 2013, the licensee stated, in part, that

> The answer to this request requires design information that is under development. The information will be provided at the 6 month update after it has been obtained.

The NRC staff notes that the proposed criteria for sizing of the battery backup appears to be consistent with NEI 12-02, as endorsed by the ISG. However, the NRC staff plans to verify 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:

RAI No. 8

Please provide the results of the calculation depicting the battery backup duty cycle requirements demonstrating that its 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 1of NEI 12-02.

In its letter dated July 26, 2013, the licensee stated, in part, that

> The answer to this request requires design information that is under development. The information will be provided at the 6 month update after it has been obtained.

The NRC staff notes that the information regarding accuracy of the SFP instrumentation is not currently available for review and that in its August 28, 2013, letter, the licensee identified the status of this activity as "In Progress." The licensee indicated that this information requires design information and that information will be provided in the February 2014 semiannual update. The NRC staff has identified these requests as:

RAI No. 9

Please provide the following:

a) **An estimate of the expected instrument channel accuracy performance (e.g., in percentage of 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 that will be used for determining the maximum allowed deviation from the instrument channel design accuracy that will be employed under normal operating conditions as an acceptance criterion for a calibration procedure to flag to operators and to technicians that the channel requires adjustment to within the normal condition design accuracy.**

(This information was previously requested as RAI-7 in NRC letter dated July 16, 2013)

In addition, the NRC staff plans to verify that the channels will retain these accuracy performance values following a loss of power and subsequent restoration of power based on the licensee's response to the following RAI.

RAI No. 10

Please provide analysis verifying the instrumentation accuracy and that the proposed instrument performance is consistent with the estimated accuracy normal and BDB values. Please demonstrate that the channels will retain these accuracy performance values following a loss of power and subsequent restoration of power.

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, in part, that

> Instrument channel design will provide for routine testing and calibration consistent with Order EA-12-051 and the guidance in NEI 12-02. Details will be

> determined during the engineering and design phase. Instrument channel testing and calibration will be performed using existing plant work control processes.

In its letter dated July 26, 2013, the licensee stated, in part, that

> The answer to this request requires design information that is under development. The information will be provided at the 6 month update after it has been obtained.

The NRC staff notes that the information regarding the design of the SFP instrumentation to provide for routine testing and calibration is not currently available for review and that in its August 28, 2013, letter, the licensee identified the status of this activity as "In Progress." The licensee indicated that this information requires design information and that information will be provided in the February 2014 semiannual update. The NRC staff has identified this request as:

RAI No. 11

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 how such testing and calibration will enable the conduct of regular channel checks of each independent channel against the other, and against any other permanently installed SFP level instrumentation.**

c) **A description of how calibration tests and functional checks will be performed and the frequency at which they will be conducted. Discuss how these surveillances will be incorporated into the plant surveillance program.**

d) **A description of what preventive maintenance tasks are required 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-8 in the NRC letter dated July 16, 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, in part, that the design would include remote indication that would be accessible during post event conditions. In addition, the licensee indicated that the location would meet the characteristics identified in NEI 12-02.

In its letter dated July 26, 2013, the licensee stated, in part, that

> The answer to this request requires design information that is under development. The information will be provided at the 6 month update after it has been obtained.

In its letter dated August 28, 2013, the licensee stated, in part, that

> FPL Response to RAI-9.a
>
> The primary and backup instrument channel displays will be located in the spent fuel pool pump and filter area on the 19.5' elevation of the spent fuel pool building.
>
> FPL Response to RAI-9.b
>
> The primary SFP display access route from the control rooms would be down the West interior stairs to the RAB [Reactor Auxiliary Building] 19.5' elevation, out the North RAB door and across the yard into the Fuel Handling Building 19.5' elevation South door. The short outside portion of this route is above the design basis flood elevation and is sheltered from storm winds by the adjacent seismically qualified structures. The plant Severe Weather Preparations procedure also specifically installs personnel lifelines for storm access between the RAB and FHB [Fuel-Handling Building] (Reference 7).
>
> Alternate SFP display access routes from the control rooms include a diverse route out the East side of the control rooms and across the RAB 62' elevation roof to the 62' elevation FHB roof and down the South FHB exterior stairs and into the 19.5' elevation South door.
>
> Habitability at the display location is acceptable because the displays are located inside the 19.5 foot elevation of the FHB and the top of the Spent Fuel Pool is in a completely different portion of the FHB at the 62' elevation. Any steam from the SFP surface would be vented out through the FHB L-shaped hatch opening. Radiation shielding for drain down scenarios would be provided by the multiple concrete walls between the fuel assemblies and the display location. Operations personnel will be available to read the display because they will be entering the FHB to perform Emergency Operating Procedure and FLEX Support Guideline actions. Operations personnel will utilize portable plant radios to communicate SFP display information directly to the control rooms.
>
> FPL Response to RAI-9.c
>
> The information from these instruments will be promptly accessible because access to the displays and plant portable radios for communication with the control room is readily available as described above. Access would not be constrained under drain-down scenarios because the displays are located in a completely different section of the FHB from the SFP as described above.

The NRC staff notes that there is insufficient information regarding the time that would be expected to take for assigned personnel to access the display panels in the FHB and provide information to decision makers, necessary to demonstrate that personnel can access the display without unreasonable delay. In addition, the NRC staff notes that there is insufficient information regarding the potential dose rates for personnel accessing the FHB from the

identified paths, or the potential for the location to remain habitable for airborne radiological, extreme heat and humidity, or other environmental conditions that may exist. The NRC staff has identified this request as:

RAI No. 12

Please 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, please 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.

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 NRC staff notes that the licensee's proposed plan, with respect to the training personnel in the use and the provision of alternate power to the primary and backup instrument channels, including the approach to identifying 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, 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.

The NRC staff notes that the information regarding the procedures related to SFP instrumentation is not currently available for review and that in its August 28, 2013, letter, the licensee identified the status of this activity as "In Progress." The licensee indicated that this information requires design information and that information will be provided in the February 2014 semiannual update. The NRC staff has identified this request as:

RAI No. 13

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

(This information was previously requested as RAI-10 in NRC letter dated July 16, 2013, which has been revised in this Interim Staff Evaluation.)

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 26, 2013, the licensee stated, in part, that

> The answer to this request requires design information that is under development. The information will be provided at the 6 month update after it has been obtained.

The NRC staff notes that the information regarding the SFP instrumentation testing and calibration processes is not currently available for review and that in its August 28, 2013, letter, the licensee identified the status of this activity as "In Progress." The licensee indicated that this information requires design information and that information will be provided in the February 2014 semiannual update. The NRC staff has identified this request as:

RAI No. 14

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 demonstrate conformance with design and system readiness requirements. Include a description of your plans for ensuring that 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 how the guidance in NEI 12-02 Section 4.3 regarding compensatory actions for one or both non-functioning channels will be addressed.**

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

(This information was previously requested as RAI-11 in NRC letter dated July 16, 2013)

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, in part, that

> 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.

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 NRC staff will issue an evaluation with its conclusion after the licensee has provided the requested information by September 30, 2014.

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 September 30, 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 301-415-1564 or via e-mail at siva.lingam@nrc.gov.

Sincerely,

/RA/

Siva P. Lingam, Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-335 and 50-389

Enclosure:
Interim Staff Evaluation and
Request for Additional Information

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