



Benjamin C. Waldrep
526 South Church Street
Charlotte, NC 28202

Mailing Address:
Mail Code EC07H / P.O. Box 1006
Charlotte, NC 28201-1006

704-382-8162

704-382-4541 fax

10 CFR 50.4

Serial: RA-13-002
February 28, 2013

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

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 AND 50-324 / RENEWED LICENSE NOS. DPR-71 AND DPR-62

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1
DOCKET NO. 50-400 / RENEWED LICENSE NO. NPF-63

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261 / RENEWED LICENSE NO. DPR-23

**SUBJECT: CAROLINA POWER & LIGHT COMPANY'S OVERALL INTEGRATED PLANS
IN RESPONSE TO MARCH 12, 2012, COMMISSION ORDER MODIFYING
LICENSES WITH REGARD TO REQUIREMENTS FOR RELIABLE SPENT
FUEL POOL INSTRUMENTATION (ORDER NUMBER EA-12-051)**

REFERENCE:

1. NRC Letter, E.J. Leeds (NRC) to All Power Reactor Licensees and Holders of Construction Permits in Active or Deferred status, *Issuance of Order to Modify Licenses With Regard To Reliable Spent Fuel Pool Instrumentation*, dated March 12, 2012, Accession No. ML12054A679
2. NRC Japan Lessons-Learned Project Directorate, JLD-ISG-2012-03, *Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation, Revision 0*, dated August 29, 2012, Accession No. ML12221A339
3. NEI 12-02, *Industry Guidance for Compliance with NRC Order EA-12-051, "To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," Revision 1*, dated August 2012, Accession No. ML12240A307

Ladies and Gentlemen:

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued an Order (i.e., Reference 1) to Carolina Power & Light Company (CP&L). Reference 1 was immediately effective and directs CP&L to have a reliable indication of the water level in associated spent fuel pools (SFP).

The Order requires submission of an overall integrated plan, including a description of how compliance with the requirements described in Reference 1 will be achieved, to the NRC for review by February 28, 2013. This letter fulfills that requirement; specific details of the plan are outlined in the following attachments:

- Attachment 1: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
- Attachment 2: Shearon Harris Nuclear Power Plant, Unit No. 1

A001
MRR

- Attachment 3: H.B. Robinson Steam Electric Plant, Unit No. 2

The attached overall integrated plans reflect the current design information as of the writing of this letter, much of which is still preliminary, pending completion of on-going evaluations and analyses. As further design details and associated procedure guidance are finalized, supplemental information will be communicated to the NRC in the 6-month status reports required by Reference 1.

CP&L has identified no known impediments to compliance with the Order by the specified implementation due date (i.e., within two refueling cycles after submittal of the overall integrated plan, or December 31, 2016, whichever is earlier). The implementation due dates of the Order for the listed units are as indicated below.

Unit	Prior to Startup from Refueling Outage or By
Brunswick Steam Electric Plant, Unit No. 1	B121 (Spring 2016)
Brunswick Steam Electric Plant, Unit No. 2	B222 (Spring 2015)
Shearon Harris Nuclear Power Plant, Unit No. 1	H119 (Spring 2015)
H. B. Robinson Steam Electric Plant, Unit No. 2	R229 (Spring 2015)

This letter contains no new regulatory commitments.

If you have any questions or require additional information, please contact Donna Alexander, Manager - Nuclear Regulatory Affairs, at (919) 546-5357.

I declare under the penalty of perjury that the foregoing is true and correct. Executed on February 28, 2013.

Sincerely,



Benjamin Waldrep
Vice President
Corporate Governance and Operations Support

Attachments:

1. Overall Integrated Plan: Brunswick Steam Electric Plant, Unit Nos. 1 and 2
2. Overall Integrated Plan: Shearon Harris Nuclear Power Plant, Unit No. 1
3. Overall Integrated Plan: H.B. Robinson Steam Electric Plant, Unit No. 2

cc: USNRC Region II
USNRC Resident Inspector - BSEP, Unit Nos. 1 and 2
USNRC Resident Inspector - SHNPP, Unit No. 1
USNRC Resident Inspector - HBRSEP, Unit No. 2
C. Gratton, NRR Project Manager - BSEP, Unit Nos. 1 and 2
A. T. Billoch Colón, NRR Project Manager - SHNPP, Unit No. 1; HBRSEP, Unit No. 2
D. H. Jaffe, NRR/JLD/PMB, NRC

ATTACHMENT 1

OVERALL INTEGRATED PLAN:

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-325 AND 50-324

RENEWED LICENSE NOS. DPR-71 AND DPR-62

Overall Integrated Plan: Brunswick Steam Electric Plant, Unit Nos. 1 and 2

Applicability:

This integrated plan applies to the Brunswick Steam Electric Plant, Unit Nos. 1 and 2, Docket Nos. 50-325 and 50-324, and Renewed License Nos. DPR-71 and DPR-62.

Schedule:

In accordance with Order EA-12-051 (Order), the installation of reliable spent fuel pool (SFP) level instrumentation for the SFP associated with Unit 1 is scheduled for completion prior to the end of the B121 refueling outage that is scheduled for spring 2016. The installation of reliable SFP level instrumentation for the SFP associated with Unit 2 is scheduled for completion prior to the end of the B222 refueling outage that is scheduled for spring 2015.

Identification of Spent Fuel Pool Water Levels:

Both Unit 1 and Unit 2 SFPs consist of a single pool located in separate building structures. The bottom of the SFP is water depth 0 feet (78 feet 7 inches plant elevation). The highest point of any fuel racks with fuel seated in the SFP is approximately 95 feet 7 $\frac{3}{4}$ inches plant elevation. In accordance with the guidance in NEI 12-02, the SFP water level instrumentation system will be capable of continuously monitoring three distinct water levels:

- Level 1 – The water level adequate to support operation of the normal fuel pool cooling system is approximately 37 feet 9 inches (116 feet 4 inches plant elevation).
- Level 2 – The water level adequate to provide substantial radiation shielding for a person standing on the SFP operating deck (i.e., greater than 10 feet above the highest point of any fuel racks) is approximately 105 feet 7 $\frac{3}{4}$ inches plant elevation.
- Level 3 – The water level where fuel remains covered but actions to implement make-up water addition should no longer be deferred will be established based on the accuracy of the chosen instrumentation and the highest point of any fuel racks at approximately 95 feet 7 $\frac{3}{4}$ inches plant elevation.

The approximate range of the instrumentation system will be from 95 feet 7 $\frac{3}{4}$ inches to 116 feet 4 inches plant elevation.

Instruments:

The SFP water level instrumentation for Brunswick Steam Electric Plant, Units 1 and 2, will be consistent with the guidelines of NRC JLD-ISG-2012-03 and NEI 12-02. Final selection of the type of instrument to be used in this application is currently in process and will be appropriately incorporated into the requisite submittal updates.

The instrumentation will consist of two separate permanent fixed instrument channels per pool to monitor the SFP water level continuously, from normal water level (approximately 116 feet 4 inches plant elevation) down to a level at the highest point of any fuel racks at approximately 95 feet 7 $\frac{3}{4}$ inches plant elevation. Level monitoring can be performed under conditions that could restrict personnel access to the pool, such as structural damage, high radiation levels, or

Overall Integrated Plan: Brunswick Steam Electric Plant, Unit Nos. 1 and 2

heat and humidity from a boiling pool. Because both channels will be permanent, they are considered redundant and neither is designated as "primary" or "backup."

Reliability:

Reliability of the instrument channels will be assured by conformance with the guidelines of NRC JLD-ISG-2012-03 and NEI 12-02.

Instrument Channel Design Criteria:

Instrument channel design will be consistent with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02.

Arrangement:

In accordance with the guidance in NEI 12-02, the level instrument channels will be installed in diverse locations and physically 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.

Sensing Component

The sensing component of each level instrument channel will be installed separately within the SFP in order to reduce common susceptibility to missiles and other external events. The final location and mounting will be determined by the detailed design.

Electronics

Electronics associated with the level instrumentation will be located outside the SFP operating area due to sensitivity to radiation. The final location will be determined by the detailed design.

Cable Routing

Cable routings will be installed that will provide reasonable protection from missiles that may result from damage to the structure over the SFP and refuel floor. The conduit and cable routing will be determined by the detailed design.

Mounting:

Each permanently installed instrument channel will be mounted to retain its design configuration during and following the maximum seismic ground motion considered in the design of the SFP structure in accordance with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02.

Qualification:

The channels will be capable of performing their function and maintaining the required accuracy, except during the period when a potential seismic event is occurring, including harsh conditions where the equipment is installed.

Overall Integrated Plan: Brunswick Steam Electric Plant, Unit Nos. 1 and 2

Sensing components and cables for the channels will be reliable at temperature, humidity, and radiation levels consistent with the SFP water at saturation conditions over an extended period of time.

Sensing components and cables will be qualified for expected conditions at the installed location assuming the SFP has been at saturation for an extended period.

Sensing components and cables located at the SFP will be qualified to withstand peak and total integrated dose radiation levels for their installed location based on post-event SFP water level equal to Level 3 for an extended period of time.

Additionally, the instrument channels will be tested, where possible, and analytically evaluated to remain functional after a potential seismic event with the exception of the battery charger and replacement batteries.

Augmented Quality provisions will be applied to ensure that rigor of the qualification documentation reviews and in-plant modification installation oversight is sufficient to ensure compliance with the qualification requirements described above. This approach to quality assurance is consistent with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02.

Independence:

Independence will be established in accordance with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02. Both instrument channels for each SFP will be of the same technology, permanently installed, separated by distance, and electrically independent of one another.

Both channels for each SFP will have their own sensing component reasonably separated in accordance with NEI 12-02, separate cable routes, and separate electronics.

Power supplies:

Instrument channels will each be powered normally by a separate station power source and will have rechargeable or replaceable batteries with sufficient capacity to maintain the level indication function until the normal power is restored, consistent with the guidance in NEI 12-02.

Accuracy:

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

Accuracy will consider SFP post-event conditions, e.g., saturated water or steam environment. Additionally, instrument accuracy will be sufficient to allow trained personnel to determine when the actual level exceeds the specified 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.

Overall Integrated Plan: Brunswick Steam Electric Plant, Unit Nos. 1 and 2

Testing:

Testing and calibration will be consistent with the guidelines of NRC JLD-ISG-2012-03, NEI 12-02 guidance and vendor recommendations.

Channel degradation due to age or corrosion is not expected but can be identified by monitoring trends.

Station procedures and preventive maintenance tasks will be developed to perform required surveillance testing, calibration, backup battery maintenance, functional checks, and visual inspections of the sensing components.

Display:

The instrument displays for the channels will be located in a mild environment under normal and expected beyond design basis conditions that are accessible to plant personnel properly trained in the use of the equipment. The display will be consistent with the guidelines of NRC JLD-ISG-2012-03 and NEI 12-02.

Instrument Channel Program Criteria:

Instrument channel program criteria will be consistent with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02.

Training

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

Procedures

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

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

Testing and Calibration

Testing and calibration of the instrumentation will be consistent with vendor recommendations or other documented basis. Calibration will be specific to the mounted instruments and the displays. A maintenance procedure will be written to direct calibration and repair of the instruments.

Overall Integrated Plan: Brunswick Steam Electric Plant, Unit Nos. 1 and 2

Need for Relief and Basis:

Brunswick Steam Electric Plant is not requesting relief from the requirements of Order EA-12-051 or the guidance in NRC JLD-ISG-2012-03 and NEI 12-02 at this time.

ATTACHMENT 2

OVERALL INTEGRATED PLAN:

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT NO. 1

DOCKET NO. 50-400

RENEWED LICENSE NO. NPF-63

Overall Integrated Plan: Shearon Harris Nuclear Power Plant, Unit No. 1

Applicability:

This integrated plan applies to the Shearon Harris Nuclear Power Plant, Unit No. 1, Docket No. 50-400 and Renewed License No. NPF-63.

Schedule:

In accordance with Order EA-12-051 (Order), the installation of reliable spent fuel pool (SFP) level instrumentation is scheduled for completion prior to the end of the H119 refueling outage that is scheduled for spring 2015.

Identification of Spent Fuel Pool Water Levels:

Shearon Harris Nuclear Power Plant consists of three separate pools (i.e., Pools A, B, and C) on the same elevation that are interconnected by normally removed gates, except for limited periods of maintenance or non-refueling operations. Pools A, B, and C will be considered a single pool with one instrumentation channel installed in each pool. A fourth pool (i.e., Pool D) located at the north end of Fuel Handling Building is unused without any stored spent fuel (see Figure 1 on page 5). The SFP level instrument channels will be installed to monitor the water level on the three active SFPs. The bottom of the SFP is at 246 feet plant elevation. The top of the fuel racks in Pools A and B are approximately 260 feet plant elevation and the top of the fuel racks in Pools C is approximately 260.7 feet plant elevation. Therefore, the highest point of any fuel racks with fuel seated in the SFP is approximately 260.7 feet plant elevation. The bottom of the canals at each gate interconnecting Pools A, B, and C are approximately 260 feet plant elevation. Additionally, the bottom of the transfer canal, between Gates 1 and 5, slopes from 260.5 feet plant elevation in approximately the middle of the canal down to approximately 260 feet plant elevation at Gates 1 and 5. Thus the highest point separating Pool C from Pools A and B is 260.5 feet plant elevation which is below the highest point of any fuel racks at 260.7 feet plant elevation.

In accordance with the guidance in NEI 12-02, the SFP water level instrumentation system will be capable of continuously monitoring three distinct water levels:

- Level 1 – The water level adequate to support operation of the normal fuel pool cooling system is approximately 284.5 feet plant elevation.
- Level 2 – The water level adequate to provide substantial radiation shielding for a person standing on the SFP operating deck (i.e., greater than 10 feet above the highest point of any fuel racks) is approximately 270.7 feet plant elevation.
- Level 3 – The water level where fuel remains covered but actions to implement make-up water addition should no longer be deferred will be established based on the accuracy of the chosen instrumentation and the highest point of any fuel racks at approximately 260.7 feet plant elevation.

The approximate range of the instrumentation system will be from 260.7 feet to 284.5 feet plant elevation.

Overall Integrated Plan: Shearon Harris Nuclear Power Plant, Unit No. 1

Instruments:

The SFP water level instrumentation for Shearon Harris Nuclear Power Plant will be consistent with the guidelines of NRC JLD-ISG-2012-03 and NEI 12-02. Final selection of the type of instrument to be used in this application is currently in process and will be appropriately incorporated into the requisite submittal updates.

The instrumentation will consist of a single separate permanent fixed instrument channel per pool (total 3 channels) to monitor SFP water level continuously, from normal water level (approximately 284.5 feet plant elevation) down to a level at the highest point of any fuel racks at approximately 260.7 feet plant elevation. Level monitoring can be performed under conditions that could restrict personnel access to the pool, such as structural damage, high radiation levels, or heat and humidity from a boiling pool. Because the three channels will be permanent, they are considered redundant and none are designated as "primary" or "backup."

Reliability:

Reliability of the instrument channels will be assured by conformance with the guidelines of NRC JLD-ISG-2012-03 and NEI 12-02.

Instrument Channel Design Criteria:

Instrument channel design will be consistent with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02.

Arrangement:

In accordance with the guidance in NEI 12-02, the level instrument channels will be installed in diverse locations and physically 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.

Sensing Component

The sensing component of each level instrument channel will be installed separately within the SFP in order to reduce common susceptibility to missiles and other external events. The final location and mounting will be determined by the detailed design.

Electronics

Electronics associated with the level instrumentation will be located outside the SFP operating area due to sensitivity to radiation. The final location will be determined by the detailed design.

Cable Routing

Cable routings will be installed that will provide reasonable protection from missiles that may result from damage to the structure over the SFP and refuel floor. The conduit and cable routing will be determined by the detailed design.

Overall Integrated Plan: Shearon Harris Nuclear Power Plant, Unit No. 1

Mounting:

Each permanently installed instrument channel will be mounted to retain its design configuration during and following the maximum seismic ground motion considered in the design of the SFP structure in accordance with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02.

Qualification:

The channels will be capable of performing their function and maintaining the required accuracy, except during the period when a potential seismic event is occurring, including harsh conditions where the equipment is installed.

Sensing components and cables for the channels will be reliable at temperature, humidity, and radiation levels consistent with the SFP water at saturation conditions over an extended period of time.

Sensing components and cables will be qualified for expected conditions at the installed location assuming the SFP has been at saturation for an extended period.

Sensing components and cables located at the SFP will be qualified to withstand peak and total integrated dose radiation levels for their installed location based on post-event SFP water level equal to Level 3 for an extended period of time.

Additionally, the instrument channels will be tested, where possible, and analytically evaluated to remain functional after a potential seismic event with the exception of the battery charger and replacement batteries.

Augmented Quality provisions will be applied to ensure that rigor of the qualification documentation reviews and in-plant modification installation oversight is sufficient to ensure compliance with the qualification requirements described above. This approach to quality assurance is consistent with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02.

Independence:

Independence will be established in accordance with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02. The instrument channels for the SFPs will be of the same technology, permanently installed, separated by distance, and electrically independent of one another.

The channels will have their own sensing components reasonably separated in accordance with NEI 12-02, separate cable routes, and separate electronics.

Power supplies:

Instrument channels will each be powered normally by a separate station power source and will have rechargeable or replaceable batteries with sufficient capacity to maintain the level indication function until the normal power supply is restored, consistent with the guidance in NEI 12-02.

Overall Integrated Plan: Shearon Harris Nuclear Power Plant, Unit No. 1

Accuracy:

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

Accuracy will consider SFP post-event conditions, e.g., saturated water, steam environment, or concentrated boric acid water. Additionally, instrument accuracy will be sufficient to allow trained personnel to determine when the actual level exceeds the specified 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.

Testing:

Testing and calibration will be consistent with the guidelines of NRC JLD-ISG-2012-03, NEI 12-02 guidance and vendor recommendations.

Channel degradation due to age or corrosion is not expected but can be identified by monitoring trends.

Station procedures and preventive maintenance tasks will be developed to perform required surveillance testing, calibration, backup battery maintenance, functional checks, and visual inspections of the sensing components.

Display:

The instrument displays for the channels will be located in a mild environment under normal and expected beyond design basis conditions that are accessible to plant personnel properly trained in the use of the equipment. The display will be consistent with the guidelines of NRC JLD-ISG-2012-03 and NEI 12-02.

Instrument Channel Program Criteria:

Instrument channel program criteria will be consistent with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02.

Training

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

Procedures

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

Overall Integrated Plan: Shearon Harris Nuclear Power Plant, Unit No. 1

In addition, a procedure will be developed to describe what actions must be taken following the installation of a normally removed gate(s) since the impacted SFP would no longer be monitored with two redundant instrumentation channels.

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

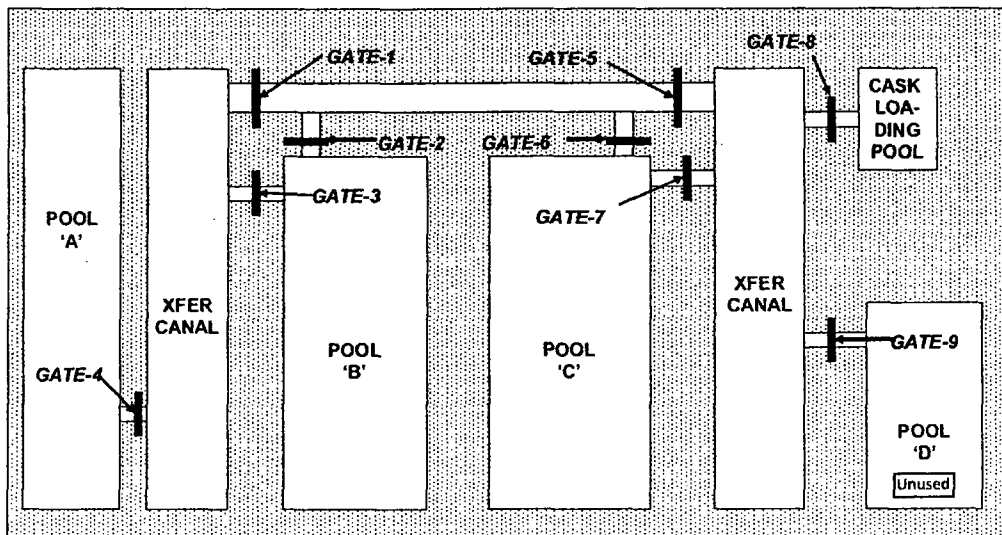
Testing and Calibration

Testing and calibration of the instrumentation will be consistent with vendor recommendations or other documented basis. Calibration will be specific to the mounted instruments and the displays. A maintenance procedure will be written to direct calibration and repair of the instruments.

Need for Relief and Basis:

Shearon Harris Nuclear Power Plant is not requesting relief from the requirements of Order EA-12-051 or the guidance in NRC JLD-ISG-2012-03 and NEI 12-02 at this time.

Figure 1, Spent Fuel Pools Layout



ATTACHMENT 3

OVERALL INTEGRATED PLAN:

H.B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

DOCKET NO. 50-261

RENEWED LICENSE NO. DPR-23

Overall Integrated Plan: H.B. Robinson Steam Electric Plant, Unit No. 2

Applicability:

This integrated plan applies to the H. B. Robinson Steam Electric Plant, Unit 2, Docket No. 50-261 and Renewed License No. DPR-23.

Schedule:

In accordance with Order EA-12-051 (Order), the installation of reliable spent fuel pool (SFP) level instrumentation is scheduled for completion prior to the end of the R229 refueling outage that is scheduled for spring 2015.

Identification of Spent Fuel Pool Water Levels:

The bottom of the SFP is at 236 feet 9 inches plant elevation. The highest point of any fuel racks with fuel seated in the SFP is approximately 252 feet plant elevation. In accordance with the guidance in NEI 12-02, the SFP water level instrumentation system will be capable of continuously monitoring three distinct water levels:

- Level 1 – The water level adequate to support operation of the normal fuel pool cooling system is approximately 273 feet plant elevation.
- Level 2 – The water level adequate to provide substantial radiation shielding for a person standing on the SFP operating deck (i.e., greater than 10 feet above the highest point of any fuel racks) is approximately 262 feet plant elevation.
- Level 3 – The water level where fuel remains covered but actions to implement make-up water addition should no longer be deferred will be established based on the accuracy of the chosen instrumentation and the highest point of any fuel racks at approximately 252 feet plant elevation.

The approximate range of the instrumentation system will be from 252 feet to 273 feet plant elevation.

Instruments:

The SFP water level instrumentation for Robinson Steam Electric Plant, Unit No. 2, will be consistent with the guidelines of NRC JLD-ISG-2012-03 and NEI 12-02. Final selection of the type of instrument to be used in this application is currently in process and will be appropriately incorporated into the requisite submittal updates.

The instrumentation will consist of two separate permanent fixed instrument channels to monitor SFP water level continuously, from normal water level (approximately 273 feet plant elevation) down to a level at the highest point of any fuel racks at approximately 252 feet plant elevation. Level monitoring can be performed under conditions that could restrict personnel access to the pool, such as structural damage, high radiation levels, or heat and humidity from a boiling pool. Because both channels will be permanent, they are considered redundant and neither is designated as "primary" or "backup."

Overall Integrated Plan: H.B. Robinson Steam Electric Plant, Unit No. 2

Reliability:

Reliability of the instrument channels will be assured by conformance with the guidelines of NRC JLD-ISG-2012-03 and NEI 12-02.

Instrument Channel Design Criteria:

Instrument channel design will be consistent with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02.

Arrangement:

In accordance with the guidance in NEI 12-02, the level instrument channels will be installed in diverse locations and physically 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.

Sensing Component

The sensing component of each level instrument channel will be installed separately within the SFP in order to reduce common susceptibility to missiles and other external events. The final location and mounting will be determined by the detailed design.

Electronics

Electronics associated with the level instrumentation will be located outside the SFP operating area due to sensitivity to radiation. The final location will be determined by the detailed design.

Cable Routing

Cable routings will be installed that will provide reasonable protection from missiles that may result from damage to the structure over the SFP and refuel floor. The conduit and cable routing will be determined by the detailed design.

Mounting:

Each permanently installed instrument channel will be mounted to retain its design configuration during and following the maximum seismic ground motion considered in the design of the SFP structure in accordance with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02.

Qualification:

The channels will be capable of performing their function and maintaining the required accuracy, except during the period when a potential seismic event is occurring, including harsh conditions where the equipment is installed.

Sensing components and cables for the channels will be reliable at temperature, humidity, and radiation levels consistent with the SFP water at saturation conditions over an extended period of time.

Overall Integrated Plan: H.B. Robinson Steam Electric Plant, Unit No. 2

Sensing components and cables will be qualified for expected conditions at the installed location assuming the SFP has been at saturation for an extended period.

Sensing components and cables located at the SFP will be qualified to withstand peak and total integrated dose radiation levels for their installed location based on post-event SFP water level equal to Level 3 for an extended period of time.

Additionally, the instrument channels will be tested, where possible, and analytically evaluated to remain functional after a potential seismic event with the exception of the battery charger and replacement batteries.

Augmented Quality provisions will be applied to ensure that rigor of the qualification documentation reviews and in-plant modification installation oversight is sufficient to ensure compliance with the qualification requirements described above. This approach to quality assurance is consistent with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02.

Independence:

Independence will be established in accordance with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02. Both instrument channels will be of the same technology, permanently installed, separated by distance, and electrically independent of one another.

Both channels will have their own sensing components reasonably separated in accordance with NEI 12-02, separate cable routes, and separate electronics.

Power supplies:

Instrument channels will each be powered normally by a separate station power source and will have rechargeable or replaceable batteries with sufficient capacity to maintain the level indication function until the normal power supply is restored, consistent with the guidance in NEI 12-02.

Accuracy:

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

Accuracy will consider SFP post-event 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 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.

Testing:

Testing and calibration will be consistent with the guidelines of NRC JLD-ISG-2012-03, NEI 12-02 guidance and vendor recommendations.

Overall Integrated Plan: H.B. Robinson Steam Electric Plant, Unit No. 2

Channel degradation due to age or corrosion is not expected but can be identified by monitoring trends.

Station procedures and preventive maintenance tasks will be developed to perform required surveillance testing, calibration, backup battery maintenance, functional checks, and visual inspections of the sensing components.

Display:

The instrument displays for both channels will be located in a mild environment under normal and expected beyond design basis conditions that are accessible to plant personnel properly trained in the use of the equipment. The display will be consistent with the guidelines of NRC JLD-ISG-2012-03 and NEI 12-02.

Instrument Channel Program Criteria:

Instrument channel program criteria will be consistent with the guidance in NRC JLD-ISG-2012-03 and NEI 12-02.

Training

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

Procedures

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

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

Testing and Calibration

Testing and calibration of the instrumentation will be consistent with vendor recommendations or other documented basis. Calibration will be specific to the mounted instruments and the displays. A maintenance procedure will be written to direct calibration and repair of the instruments.

Need for Relief and Basis:

Robinson Steam Electric Plant, Unit No. 2, is not requesting relief from the requirements of Order EA-12-051 or the guidance in NRC JLD-ISG-2012-03 and NEI 12-02 at this time.