



**Entergy Nuclear Northeast
Entergy Nuclear Operations, Inc.**

James A. FitzPatrick NPP
P.O. Box 110
Lycoming, NY 13093
Tel 315-342-3840

Lawrence M. Coyle
Site Vice President – JAF

JAFP-14-0106
August 28, 2014

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

Subject: Third Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051)

James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-059

- Reference:**
1. NRC Order Number, EA-12-051, Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation, ML12056A044, dated March 12, 2012
 2. NRC Interim Staff Guidance, Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation, JLD-ISG-2012-03, date August 29, 2012
 3. Industry Guidance for Compliance with NRC Order EA-12-051, To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation, NEI 12-02, dated August 24, 2012
 4. Entergy to NRC, Initial Status Report 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), JAFP-12-0125, dated October 29, 2012
 5. Entergy to NRC, James A. FitzPatrick Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying License with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), JAFP-13-0023, dated February 28, 2013

Dear Sir or Madam:

On March 12, 2012, the Nuclear Regulatory Commission (“NRC” or “Commission”) issued an order [Reference 1] to James A. FitzPatrick Nuclear Power Plant (JAF). Reference 1 was immediately effective and directed JAF to install reliable spent fuel pool level instrumentation. Specific requirements are outlined in Attachment 2 of Reference 1.

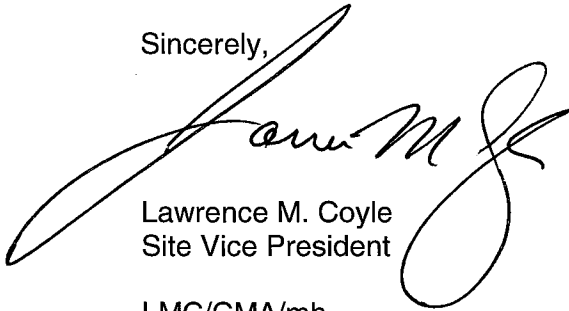
Reference 1 required submission of an initial status report 60 days following issuance of the final interim staff guidance (Reference 2) and an overall integrated plan pursuant to Section IV, Condition C.2. Reference 2 endorsed industry guidance document NEI 12-02, Revision 1 [Reference 3] with clarifications and exceptions identified in Reference 2. Reference 4 provided the JAF initial status report regarding spent fuel pool instrumentation. Reference 5 provided the JAF overall integrated plan.

Reference 1 requires submission of a status report at six-month intervals following submittal of the overall integrated plan. Reference 3 provides direction regarding the content of the status reports. The purpose of this letter is to provide the third six-month status report pursuant to Section IV, Condition C.2, of Reference 1, that delineates progress made in implementing the requirements of Reference 1. The attached report provides an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

This letter contains no new regulatory commitments. If you have any questions regarding this report, please contact Chris M. Adner, Regulatory Assurance Manager, at 315-349-6766.

I declare under penalty of perjury that the foregoing is true and correct. Executed on 28th day of August, 2014.

Sincerely,



Lawrence M. Coyle
Site Vice President

LMC/CMA/mh

Attachment: James A. FitzPatrick Nuclear Power Plant's (JAF's) Third Six-Month Status Report for the Implementation of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation

cc: Director, Office of Nuclear Reactor Regulation
NRC Regional Administrator
NRC Resident Inspector
Ms. Jessica A. Kratchman, NRR/JLD/PMB, NRC
Mr. Doug Pickett, Senior Project Manager
Ms. Bridget Frymire, NYSPSC
Mr. John B. Rhodes., President NYSERDA

JAFP-14-0106

Attachment

James A. FitzPatrick Nuclear Power Plant's (JAF's) Third Six-Month Status Report for the Implementation of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation

(9 Pages)

James A. FitzPatrick Nuclear Power Plant's (JAF's) Third Six-Month Status Report for the Implementation of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation

1. Introduction

James A. FitzPatrick Nuclear Power Plant (JAF) developed an Overall Integrated Plan (Reference 1 in Section 8), documenting the requirements to install reliable spent fuel pool level instrumentation (SFPI), in response to Reference 2. This attachment provides an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

2. Milestone Accomplishments

The following milestone(s) have been completed since January 31, 2014 and are current as of July 31, 2014.

None

3. Milestone Schedule Status

The following provides an update to milestone schedule to support the Overall Integrated Plan. This section provides the activity status of each item, and the expected completion date noting any change. The dates are planning dates subject to change as design and implementation details are developed.

- Modifications Evaluation

The Modifications Evaluation milestone target completion date has been changed to April 2015. This new milestone target completion date does not impact the Order implementation date.

- Design Engineering

The Design Engineering milestone target completion date has been changed to April 2015. This new milestone target completion date does not impact the Order implementation date.

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Submit 60 Day Status Report	October 2012	Complete	
Submit Overall Integrated Plan	February 2013	Complete	
Submit 6 Month Updates:			
Update 1	August 2013	Complete	
Update 2	February 2014	Complete	
Update 3	August 2014	Complete	
Update 4	February 2015	Not Started	
Update 5	August 2015	Not Started	

James A. FitzPatrick Nuclear Power Plant's (JAF's) Third Six-Month Status Report for the Implementation of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Update 6	February 2016	Not Started	
Update 7	August 2016	Not Started	
Modifications:			
Modifications Evaluation	2015	Not Started	April 2015
Design Engineering	2015	Not Started	April 2015
Implementation Outage	2016	Not Started	
Procedures:			
Create Procedures	2016	Not Started	
Training:			
Develop Training Plan	2016	Not Started	
Training Complete	2016	Not Started	
SFP LI Implementation	2016	Not Started	
Full Site SFPI Implementation	Fall of 2016	Not Started	
Submit Completion Report	2016	Not Started	
Respond to ISE RAIs received December 12, 2013 (Reference 3)	March 31, 2016	In Progress	
Respond to RAIs received August 29, 2013	October 3, 2013	Complete	

*Target Completion Date is the last submitted date from either the overall integrated plan or previous six-month update

4. Changes to Compliance Method

There are no additional changes to the compliance method.

5. Need for Relief/Relaxation and Basis for the Relief/Relaxation

JAF expects to comply with the order implementation date and no relief/relaxation is required at this time.

James A. FitzPatrick Nuclear Power Plant's (JAF's) Third Six-Month Status Report for the Implementation of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation

6. Open Items from Overall Integrated Plan and Interim Staff Evaluation

FitzPatrick has received an Interim Staff Evaluation that includes 18 RAIs. Responses to the RAIs are due by March 31, 2016 and are provided in Section 9 of this six-month status report. The following table provides a status of the RAIs.

RAI #	Response Status
1	See Section 9
2	In Progress
3	In Progress
4	In Progress
5	In Progress
6	In Progress
7	In Progress
8	In Progress
9	In Progress
10	In Progress
11	In Progress
12	See Section 9
13	See Section 9
14	See Section 9
15	See Section 9
16	In Progress
17	See Section 9
18	See Section 9

7. Potential Interim Staff Evaluation Impacts

There are no potential impacts to the ISE identified at this time except for those identified in Section 6.

James A. FitzPatrick Nuclear Power Plant's (JAF's) Third Six-Month Status Report for the Implementation of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation

8. References

The following references support the updates to the Overall Integrated Plan described in this attachment.

1. James A. FitzPatrick Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), JAFP-13-0023, dated February 28, 2013.
2. NRC Order Number EA-12-051, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," dated March 12, 2012.
3. James A. FitzPatrick Nuclear Power Plant – 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 NO. MF1076), Dated December 12, 2013 (ML13338A645).
4. November 26, 2013, Public Meeting Summary for the Discussion Between the NRC Staff and Industry Concerning Responses to Staff Interim Evaluations for Spent Fuel Pool Instrumentation, dated December 26, 2013 (ML13347B030).
5. James A. FitzPatrick Nuclear Power Plant - Request for Additional Information Regarding Overall Integrated Plan for Reliable Spent Fuel Pool Instrumentation (Order EA-12-051) (TAC No. MF1076), dated August 29, 2013 (ML13226A534).
6. Response to Request for Additional Information for the Overall Integrated Plan for the Commission Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation, dated October 3, 2013 (JAFP-13-0132).

James A. FitzPatrick Nuclear Power Plant's (JAF's) Third Six-Month Status Report for the Implementation of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation

9. Responses to the Interim Staff Evaluation Requests for Additional Information

RAI #1

Please provide information regarding specific procedures controlling irradiated hardware stored in the SFP. Include details of any analysis performed to determine the projected dose rate impact and the appropriate Level 2 elevation as a result of dose from irradiated material stored in the SPF.

Interim Staff Guidance JLD-ISG-2012-03 'Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation' 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."

NEI 12-02 R1 section 2.3.2, 'Level 2- level that is adequate to provide substantial radiation shielding for a person standing on the spent fuel pool operating deck' defines Level 2.

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. Additional guidance can be found in EPA-400 (Reference 4), USNRC Regulatory Guide 1.13 (Reference 5) and ANSI/ANS-57.2-1983 (Reference 6).

Entergy has selected the 10 foot option which has been determined by the NRC to meet the requirements of the order with no further evaluation or review required.

RAI #2

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.

This response will be provided in a future update.

RAI #3

For each of the mounting attachments required to fasten 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.

This response will be provided in a future update.

James A. FitzPatrick Nuclear Power Plant's (JAF's) Third Six-Month Status Report for the Implementation of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation

RAI #4

Please provide further information to describe how other material stored in the SFP will not create adverse interaction with the fixed instrument location(s).

This response will be provided in a future update.

RAI #5

Please provide analysis of the maximum expected radiological conditions (dose rate and total integrated dose) to which the sensor electronics (including power boxes, signal processors, and display panels) will be exposed. Also, provide documentation indicating the maximum total integrated dose the sensor electronics can withstand and how it was determined. Discuss the time period over which the analyzed total integrated dose was applied.

This response will be provided in a future update.

RAI #6

Please provide information indicating (a) the maximum expected ambient temperature in the room in which the sensor electronics will be located under BDB conditions, with no ac power available to run Heating Ventilation and Air Conditioning (HVAC) systems; and, (b) whether the sensor electronics are capable of continuously performing required functions under this expected temperature condition.

This response will be provided in a future update.

RAI #7

Please provide information indicating (a) the maximum expected relative humidity in the room in which the sensor electronics will be located under BDB conditions, with no ac power available to run HVAC systems; and, (b) whether the sensor electronics are capable of continuously performing required functions under this expected humidity condition.

This response will be provided in a future update.

RAI #8

Please provide a description of the specific method or combination of methods you intend to apply to demonstrate the reliability of the permanently installed equipment under BDB shock and vibration conditions.

See bridging document Topic #14 (Section 10). [Note: Preliminary responses are available in the draft bridging document. Awaiting issuance of NRC Audit Report for the SFPI vendor (MOHR).]

RAI #9

For RAI #8 above, please provide the results for the selected methods, tests and analyses used to demonstrate the qualification and reliability of the installed equipment in accordance with the Order requirements.

James A. FitzPatrick Nuclear Power Plant's (JAF's) Third Six-Month Status Report for the Implementation of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation

See bridging document Topic #14 (Section 10). [Note: Preliminary responses are available in the draft bridging document. Awaiting issuance of NRC Audit Report for the SFPI vendor (MOHR).]

RAI #10

Please provide the vendor analysis and seismic testing results and show the SFP level instrument performance reliability, following exposure to simulated seismic conditions representative of the environment anticipated for the SFP structures at JAF, has been adequately demonstrated.

This response will be provided in a future update.

RAI #11

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

This response will be provided in a future update.

RAI #12

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

See bridging document Topic #18 (Section 10). [Note: Preliminary responses are available in the draft bridging document. Awaiting issuance of NRC Audit Report for the SFPI vendor (MOHR).]

RAI #13

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

See bridging document Topics #16, 17 and 18 (Section 10). [Note: Preliminary responses are available in the draft bridging document. Awaiting issuance of NRC Audit Report for the SFPI vendor (MOHR).]

RAI #14

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

In general, relative to normal operating conditions, any applicable calibration procedure tolerances' (or acceptance criterion) will be established based on the vendor manuals stated/recommended reference accuracy (or design accuracy). The methodology used will be based on the vendor manuals and captured in plant procedures and/or programs. See bridging

James A. FitzPatrick Nuclear Power Plant's (JAF's) Third Six-Month Status Report for the Implementation of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation

document Topic #20 (Section 10). [Note: Preliminary responses are available in the draft bridging document. Awaiting issuance of NRC Audit Report for the SFPI vendor (MOHR).]

RAI #15

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

The process will be captured in Entergy procedures established based on manufacturer's recommendations and Entergy processes and procedures. The instrument automatically monitors the integrity of its level measurement system using in-situ capability. Deviation of measured test parameters from manufactured or as-installed configuration beyond a configurable threshold prompts operator intervention. See bridging document Topic #20 (Section 10). [Note: Preliminary responses are available in the draft bridging document. Awaiting issuance of NRC Audit Report for the SFPI vendor (MOHR).]

RAI #16

For the SFP level instrumentation displays located outside the main control room, please describe the evaluation used to validate the display location can be accessed without unreasonable delay following a BDB event. Include the time available for personnel to access the display as credited in the evaluation, as well as the actual time (e.g., based on walkthroughs) that it will take for personnel to access the display. Include a description of the radiological and environmental conditions on the paths personnel might take. Describe whether the display location remains habitable for radiological, heat and humidity, and other environmental conditions following a BDB event. Describe whether personnel are continuously stationed at the display or monitor the display periodically.

This response will be provided in a future update.

RAI #17

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

The calibration and test procedure developed by MOHR are provided in the technical manuals developed by MOHR. See bridging document Topics #10, 19, and 20 [Note: Preliminary responses are available in the draft bridging document. Awaiting issuance of NRC Audit Report for the SFPI vendor (MOHR).]. The objectives are to measure system performance, to determine if there is a deviation from normal tolerances, and to return the system to normal tolerances.

Diagnostic procedures developed by MOHR are provided as automated and semi-automated routines in system software alerting the operator to abnormal deviation in selected system parameters such as battery voltage, 4-20 mA loop continuity, and TDR waveform of the transmission cable. The technical objective of the diagnostic procedures is to identify system conditions that require operator attention to ensure continued reliable liquid level measurement. Manual diagnostic procedures are also provided in the event that further workup is determined to be necessary.

James A. FitzPatrick Nuclear Power Plant's (JAF's) Third Six-Month Status Report for the Implementation of Order EA-12-051, Order Modifying Licenses with Regard to Requirements for Reliable Spent Fuel Pool Instrumentation

Maintenance procedures developed by MOHR are provided in the technical manual. These allow a technician trained in EFP-IL system maintenance to ensure that system functionality is maintained.

An operation procedure will provide sufficient instructions for operation and use of the system.

Entergy procedures will be developed in accordance with the vendor manuals provided by MOHR and Entergy procedures and processes.

FLEX Support Guidelines will provide sufficient instructions for use of the SFPI during a beyond design basis external event.

RAI #18

Please provide further information describing the maintenance and testing program to be established and implemented 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 plans to ensure necessary channel checks, functional tests, periodic calibration, and maintenance will be conducted for the level measurement system and its supporting equipment.

SFPI channel/equipment maintenance/preventative maintenance and testing program requirements to ensure design and system readiness will be established in accordance with Entergy's processes and procedures and in consideration of vendor recommendations to ensure that appropriate regular testing, channel checks, functional tests, periodic calibration, and maintenance are performed (and available for inspection and audit). See bridging document Topics #10 and 20 (Section 10). [Note: Preliminary responses are available in the draft bridging document. Awaiting issuance of NRC Audit Report for the SFPI vendor (MOHR).]

10. JAF Bridging Document Between Vendor Technical Information and Licensee Use Based on NRC Staff Requests for Additional Information (RAIs) and NRC Vendor Audit

See bridging document located on the ePortal. [Note: Preliminary responses are available in the draft bridging document, which will be finalized upon issuance of the NRC audit report for the SFPI vendor (MOHR).]