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BVY 14-015

February 26, 2014

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

SUBJECT: Vermont Yankee's Second 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)
Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

- REFERENCES:
1. NRC Order Number EA-12-051, Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation, dated March 12, 2012 (ML12054A679)
 2. NRC Interim Staff Guidance JLD-ISG-2012-03, Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation, Revision 0, dated August 29, 2012 (ML12221A339)
 3. NEI 12-02, Industry Guidance for Compliance with NRC Order EA-12-051, "To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," Revision 1, dated August 2012 (ML12240A307)
 4. Letter, Entergy to NRC, Vermont Yankee's Initial Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), BVY 12-073, dated October 26, 2012 (ML12306A086)
 5. Letter, Entergy to NRC, Vermont Yankee's 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), BVY 13-015, dated February 28, 2013 (ML13064A301)
 6. Letter, Entergy to NRC, Vermont Yankee's First 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), BVY 13-075, dated August 28, 2013 (ML13247A029)

A001
MRR

7. Letter, Entergy to NRC, Notification Of Permanent Cessation Of Power Operations, BVY 13-079, dated September 23, 2013 (ML13273A204)

Dear Sir or Madam:

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued an Order (Reference 1) to all power reactor licensees. Reference 1 was immediately effective and directs Entergy Nuclear Operations, Inc. (Entergy) to install reliable spent fuel pool level instrumentation at the Vermont Yankee Nuclear Power Station (VY). 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. Reference 1 also 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. Reference 2 endorses industry guidance document NEI 12-02, Revision 1 (Reference 3) with clarifications and exceptions. Reference 4 provided the VY initial status report regarding spent fuel pool instrumentation. Reference 5 provided the VY overall integrated plan for reliable spent fuel pool instrumentation. Reference 6 provided the first VY six-month status report.

Reference 7 notified the NRC that Entergy had decided to permanently cease power operations of VY at the end of the current operating cycle (expected in the fourth quarter of 2014). This status report reflects that decision. Entergy is evaluating its responses to Reference 1 in order to determine the appropriate actions in alignment with the decision to permanently cease power operations.


The purpose of this letter is to provide the second VY 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 and the basis, if any.

This letter contains no new regulatory commitments.

Should you have any questions regarding this submittal, please contact Mr. Coley Chappell at (802) 451-3374.

I declare under penalty of perjury that the foregoing is true and correct; executed on February 26, 2014.

Sincerely,



[CJW/JTM]

Attachment: Vermont Yankee's (VY) Second 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

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Attachment to

BVY 14-015

**Vermont Yankee's (VY) Second 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**

BVY 14-015 Attachment

Vermont Yankee's (VY) Second 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

Vermont Yankee (VY) developed an overall integrated plan (OIP)(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.

On September 23, 2013, Entergy notified the NRC that it has decided to permanently cease power operations at VY at the end of the current operating cycle (Reference 6). Entergy is evaluating its responses to Reference 2 in order to determine the appropriate actions in alignment with the decision to permanently cease power operations. A revised OIP for VY will be submitted with the August 2014 6-month status report reflecting the decision.

2. Milestone Accomplishments

The following milestone(s) have been completed since July 31, 2013, and are current as of January 31, 2014.

- First Six-Month Status Report — August 2013
- Although not part of the original milestone schedule, an Interim Staff Evaluation (ISE) for VY was received November 26, 2013 (Reference 7). The ISE also includes requests for additional information (RAIs) for NRC staff to complete its review. NRC staff clarified during the November 26, 2013 public meeting that the Interim Staff Evaluation questions supersede any previous requests for information issued by the staff concerning the spent fuel pool instrumentation (Reference 8). Therefore, the RAIs dated June 20, 2013 (Reference 3) are considered superseded by the RAIs contained in the ISE. The addition of this milestone and target completion date does not impact the Order implementation date.

3. Milestone Schedule Status

The following provides an update to Attachment 2 of the OIP providing the activity status of each item and whether the expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed. Items that were changed are discussed below.

Order EA-12-051 (Reference 2) requires completion of full implementation no later than two (2) refueling cycles after submittal of the overall integrated plan, as required in Condition C.1.a, or December 31, 2016, whichever comes first. The OIP (Reference 1) stated that the installation

VY's Second Six Month Status Report for the Implementation of SFPI

of reliable spent fuel pool level instrumentation was scheduled for completion prior to startup from the fall 2014 refueling outage. Since VY will permanently cease power operations at the end of the current operating cycle (estimated to be 4th quarter 2014), there will be no further refueling outages, startups from refueling outages, or refueling cycles. As a result, the full implementation date has been updated to reflect the December 31, 2016 implementation date specified in the order.

Milestone	Target Completion Date*	Activity Status	Revised Target Completion Date
Reliable SFPI Installed	Fall 2014 Refueling Outage	In Progress	December 2016
Respond to NRC RAIs dated June 20, 2013 (Reference 3)	July 19, 2013	Complete	**
Respond to NRC RAIs contained in Interim Staff Evaluation		See Section 6	June 2016

* - Target Completion Date is the last submitted date from either the OIP or previous six-month status report.

** - These RAI responses are being reassessed and will be addressed with the revised OIP

4. Changes to Compliance Method

On September 23, 2013, Entergy notified the NRC that it has decided to permanently cease power operations at the VY at the end of the current operating cycle (Reference 6). Entergy is evaluating its responses to Reference 2 in order to determine the appropriate actions in alignment with the decision to permanently cease power operations.

Entergy plans to submit, in the August 2014 6-month status report, a revised OIP reflecting the decommissioning plant conditions which will exist in December 2016.

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

VY expects to comply with the order implementation date and no relief/relaxation is required at this time. Relief/relaxation requests associated with the revised OIP are expected to be submitted in the August 2014 status report.

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

As discussed in Section 2, Vermont Yankee has received an Interim Staff Evaluation that includes 18 RAIs. Responses to the RAIs were requested by March 31, 2014, based on a Fall 2014 implementation date; the target completion date for the RAI responses has been revised

VY's Second Six Month Status Report for the Implementation of SFPI

as discussed in Section 3. The following table provides a status of any RAIs documented in the Interim Staff Evaluation.

RAI #	Response Status
1	To be evaluated with revised OIP
2	To be evaluated with revised OIP
3	To be evaluated with revised OIP
4	To be evaluated with revised OIP
5	To be evaluated with revised OIP
6	To be evaluated with revised OIP
7	To be evaluated with revised OIP
8	To be evaluated with revised OIP
9	To be evaluated with revised OIP
10	To be evaluated with revised OIP
11	To be evaluated with revised OIP
12	To be evaluated with revised OIP
13	To be evaluated with revised OIP
14	To be evaluated with revised OIP
15	To be evaluated with revised OIP
16	To be evaluated with revised OIP
17	To be evaluated with revised OIP
18	To be evaluated with revised OIP

7. Potential Interim Staff Evaluation Impacts

There are no potential impacts to the Interim Staff Evaluation identified at this time.

8. References

The following references support the updates to the overall integrated plan described in this attachment.

1. Vermont Yankee's 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), BVY 13-015, dated February 28, 2013. (ML13064A301)
2. NRC Order Number EA-12-051, Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation, dated March 12, 2012. (ML12054A679)
3. Vermont Yankee Nuclear Power Station – Request for Additional Information RE: Overall Integrated Plan for Reliable Spent Fuel Pool Instrumentation (Order EA-12-051) (TAC NO. MF0780), dated June 20, 2013. (ML13165A279)
4. Response to Request for Additional Information Re: Overall Integrated Plan for Reliable Spent Fuel Pool Instrumentation (Order EA-12-051), BVY 13-065, dated July 19, 2013. (ML13204A386)
5. Vermont Yankee's First 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), BVY 13-075, dated August 28, 2013 (ML13247A029)
6. Notification Of Permanent Cessation Of Power Operations, BVY 13-079, dated September 23, 2013 (ML13273A204)
7. Vermont Yankee Nuclear Power Station -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. MF0780), dated November 26, 2013 (ML13311B077)
8. "Summary of the November 26, 2013, Public Meeting to Discuss Industry Responses to Staff Interim Evaluations for Spent Fuel Pool Instrumentation," dated December 26, 2013 (ML13347B030)

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

RAI #1

Please provide the results of the calculation used to determine the water elevation necessary for the pump's required NPSH to confirm that Level 1 has been adequately identified.

This response will be provided in a future update.

RAI #2

Please provide the updated sketch or marked-up plant drawing of the SFP level instrumentation arrangement. Include the plan view of the SFP area, depicting the SFP inside dimensions, the planned locations/placement of the primary and back-up SFP level sensor, and the proposed routing of the cables that will extend from these sensors toward the location of the read-out/display device.

This response will be provided in a future update.

RAI #3

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 #4

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.

RAI #5

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 #6

Please provide an evaluation 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 #7

Please provide information indicating a) the maximum expected ambient temperature in the room in which the sensor electronics will be located under BDB conditions, when there is 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 #8

Please provide information indicating a) the maximum expected relative humidity in the room in which the sensor electronics will be located under BDB conditions, when there is 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 #9

Please provide information describing the evaluation of the local electronics cabinet and display panel shock and vibration ratings against postulated plant conditions. Also provide results of the manufacturer's shock and vibration test methods, test results, and the forces and their frequency ranges and directions applied to the display panel associated with its successful tests. Include a description of the specific method or combination of methods to demonstrate the reliability of the permanently installed local and electronics cabinet equipment under BDB shock and vibration conditions. Identify the specific commercial or military standards that will be used to define shock and vibration testing requirements, along with the proposed g-force test levels and frequency response spectra.

This response will be provided in a future update.

RAI #10

For RAI #9 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.

This response will be provided in a future update.

RAI #11

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

This response will be provided in a future update.

RAI #12

Please provide 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 #13

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.

This response will be provided in a future update.

RAI #14

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

This response will be provided in a future update.

RAI #15

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.

This response will be provided in a future update.

RAI #16

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.

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.

This response will be provided in a future update.

RAI #18

Please provide further information describing the maintenance and testing program to be established and implemented to ensure 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.

This response will be provided in a future update.