



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

March 2, 2015

Vice President, Operations  
Entergy Nuclear Operations, Inc.  
Vermont Yankee Nuclear Power Station  
P.O. Box 250  
Governor Hunt Road  
Vernon, VT 05354

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION – RESCISSION OF ORDER EA-12-049, “ORDER MODIFYING LICENSES WITH REGARD TO REQUIREMENTS FOR MITIGATION STRATEGIES FOR BEYOND DESIGN BASIS EXTERNAL EVENTS” (TAC NO. MF4763)

Dear Sir or Madam:

By letter dated March 12, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12054A735), the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-12-049 to Entergy Nuclear Operations, Inc. (Entergy or the licensee). This Order requires certain actions at Vermont Yankee Nuclear Power Station (VY) associated with the Fukushima Near-Term Task Force Recommendations. Order EA-12-049 directed licensees to develop and implement strategies to maintain or restore core cooling, containment, and spent fuel pool (SFP) cooling capabilities during beyond-design-basis external events.

Section IV of Order EA-12-049 required that Entergy submit an overall integrated plan by February 28, 2013, describing how VY planned to achieve compliance with the requirements of the Order. Entergy responded to the Order by letter dated February 28, 2013 (ADAMS Accession No. ML13064A300).

Section IV of the Order also provided the NRC’s Director of the Office of Nuclear Reactor Regulation the authority to relax or rescind any or all of the conditions of the Order upon demonstration by the licensee of good cause.

By letter dated September 23, 2013 (ADAMS Accession No. ML13273A204), Entergy submitted Notification of Permanent Cessation of Power Operations for VY. In this letter, Entergy provided notification to the NRC of its intent to permanently cease power operations at the end of its current operating cycle, which occurred in the fourth calendar quarter of 2014. In addition, Entergy indicated its intent to supplement the letter certifying the date on which operations have ceased, or will cease, in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Section 50.82(a)(1)(i) and 10 CFR 50.4(b)(8). By letter dated January 12, 2015 (ADAMS Accession No. ML15013A426), Entergy certified to the NRC that it had permanently ceased power operations at VY, effective December 29, 2014. Pursuant to 10 CFR 50.82(a)(1)(ii), the licensee also certified in the letter that it had permanently defueled the VY reactor vessel and placed the fuel in the SFP.

On August 28, 2014, Entergy requested rescission of Order EA-12-049 (ADAMS Accession No. ML14246A205). In this letter, Entergy provided the following information to demonstrate good cause for the rescission of Order EA-12-049:

- Guidance and strategies to maintain or restore core cooling and primary containment capabilities are unnecessary at VY because nuclear fuel will have been permanently removed from the reactor vessel and primary containment before the required Order implementation date.
- Because fuel in the VY SFP was last irradiated (i.e., used for power generation) in December 2014, the fuel will have decayed at least 2 years by the required Order implementation date. Based on the calculated decay heat level at that date, the time to boil in the SFP will be approximately 87 hours and the time to reduce SFP water inventory to a point 10 feet above the top of the spent fuel rack will be an additional 233 hours.

The NRC staff reviewed the licensee's statements, and concludes that the lack of fuel in the core and the absence of challenges to the containment render the development of guidance and strategies to maintain or restore core cooling and containment capabilities unnecessary.

The NRC staff also reviewed the licensee's statements with regard to decay heat levels, and determined through confirmatory analysis that by the time implementation of the Order is required (December 31, 2016), the time to boil off water inventory in the SFP to a level of 10 feet above the spent fuel will be approximately 13 days.

The NRC staff concludes that, given the low decay heat levels and slow heat up rate as of December 31, 2016, the reliance on the SFP inventory for passive cooling will provide an equivalent level of protection, as that which would be provided by the initial phase of the guidance and strategies for maintaining or restoring SFP cooling capabilities, that would be necessary for compliance with Order EA-12-049 using installed equipment.

The staff further concludes that the long time to boil off the SFP inventory, to a point at which makeup would be necessary for radiation shielding purposes, eliminates the need for the transition phase of the guidance and strategies that would be necessary for compliance with Order EA-12-049 using onsite portable equipment.

Finally, the staff concludes that the low decay heat and long boil-off period provides sufficient time for the licensee to obtain off-site resources on an ad hoc basis to sustain the SFP cooling function indefinitely, eliminating the need for the final phase of the guidance and strategies that would be necessary for compliance with Order EA-12-049.

Therefore, for the reasons discussed above, the NRC staff concludes that good cause has been demonstrated to rescind the Order. All other regulatory requirements for which rescission was not specifically requested remain applicable and are not impacted by rescission of this Order. Accordingly, based upon the authority granted to the Director, Office of Nuclear Reactor Regulation, Order EA-12-049 is rescinded in its entirety for VY.

Sincerely,

A handwritten signature in black ink, appearing to read 'W M Dean', with a long horizontal flourish extending to the right.

William M. Dean, Director  
Office of Nuclear Reactor Regulation

Docket No. 50-271

cc: Listserv

Therefore, for the reasons discussed above, the NRC staff concludes that good cause has been demonstrated to rescind the Order. All other regulatory requirements for which rescission was not specifically requested remain applicable and are not impacted by rescission of this Order. Accordingly, based upon the authority granted to the Director, Office of Nuclear Reactor Regulation, Order EA-12-049 is rescinded in its entirety for VY.

Sincerely,

/RA/

William M. Dean, Director  
Office of Nuclear Reactor Regulation

Docket No. 50-271

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\*by email dated

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