



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PA 19406-2713

July 12, 2018

Corey Daniels  
Director, Nuclear Decommissioning  
Vermont Yankee Nuclear Power Station  
320 Governor Hunt Road  
Vernon, VT 05354

SUBJECT: NRC INSPECTION REPORT NO. 05000271/2018002, ENTERGY NUCLEAR OPERATIONS, INC., VERMONT YANKEE NUCLEAR POWER STATION, VERNON, VERMONT

Dear Mr. Daniels:

On June 30, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed its quarterly inspection under Inspection Manual Chapter 2561, "Decommissioning Power Reactor Inspection Program," at the permanently shutdown Vermont Yankee Nuclear Power Station (VY). On-site inspections were performed on June 4-6, 2018. In-office reviews of information supplied by Entergy Nuclear Operations, Inc. were also performed during the inspection period. The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations, and the conditions of your license. The inspection consisted of observations by the inspector, interviews with personnel, and a review of procedures and records. The results of the inspection were discussed with you and other members of the VY staff on July 9, 2018, and are described in the enclosed report. No findings of safety significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC document system (ADAMS), accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Current NRC regulations and guidance are included on the NRC's website at [www.nrc.gov](http://www.nrc.gov); select **Radioactive Waste; Decommissioning of Nuclear Facilities**; then **Regulations, Guidance and Communications**. The current Enforcement Policy is included on the NRC's Website at [www.nrc.gov](http://www.nrc.gov); select **About NRC, Organizations & Functions; Office of Enforcement; Enforcement documents**; then **Enforcement Policy** (Under 'Related Information'). You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 8:00 a.m. to 5:30 p.m. EST, Monday through Friday (except Federal holidays).

C. Daniels

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No reply to this letter is required. Please contact Steve Hammann at 610-337-5399 if you have any questions regarding this matter.

Sincerely,

*/RA/*

Raymond J. Powell, Chief  
Decommissioning, ISFSI, and Reactor Health  
Physics Branch  
Division of Nuclear Materials Safety

Docket No. 05000271  
License No. DPR-28

Enclosure: Inspection Report 05000271/2018002  
w/Attachment

cc w/encl: Distribution via ListServ

C. Daniels

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

INSPECTION REPORT

Inspection No. 05000271/2018002  
Docket No. 05000271  
License No. DPR-28  
Licensee: Entergy Nuclear Operations, Inc. (Entergy)  
Facility: Vermont Yankee Nuclear Power Station (VY)  
Location: Vernon, VT 05354  
Inspection Dates: April 1, 2018 to June 30, 2018  
Inspector: Stephen Hammann, Senior Health Physicist  
Decommissioning, ISFSI, and Reactor Health Physics Branch  
Division of Nuclear Materials Safety, Region I  
Approved By: Raymond Powell, Chief  
Decommissioning, ISFSI, and Reactor Health Physics Branch  
Division of Nuclear Materials Safety, Region I

## **EXECUTIVE SUMMARY**

Entergy Nuclear Operations, Inc.  
Vermont Yankee Nuclear Power Station  
NRC Inspection Report No. 05000271/2018002

An announced quarterly inspection was completed at Vermont Yankee Nuclear Power Station (VY) on June 30, 2018. On-site inspections were conducted on June 4-6, 2018. In-office reviews of information supplied by Entergy Nuclear Operations, Inc. (Entergy) were also performed during the inspection period. The inspection included a review of occupational radiation exposure, effluent and environmental monitoring, and radioactive waste management and transportation. The inspection consisted of observations by the inspector, interviews with Entergy personnel, a review of procedures and records, and plant walk-downs. The NRC's program for overseeing the safe operation of a shutdown nuclear power reactor is described in Inspection Manual Chapter (IMC) 2561, "Decommissioning Power Reactor Inspection Program."

Based on the results of this inspection, no findings of safety significance were identified.

## **REPORT DETAILS**

### **1.0 Background**

On January 12, 2015, VY certified the permanent removal of fuel from the reactor vessel [Agencywide Document and Access Management System (ADAMS) Accession No. ML15013A426]. This met the requirements of 10 Code of Federal Regulations (CFR) 50.82(a)(1)(i) and 50.82(a)(1)(ii). On January 20, 2015, the NRC notified VY that the Operating Reactor Assessment Program would cease on January 24, 2015, and that implementation of the Decommissioning Power Reactor Inspection Program would begin on January 25, 2015 (ADAMS Accession No. ML15020A482). VY is currently in the SAFSTOR phase of decommissioning as described in IMC 2561.

### **2.0 SAFSTOR Performance and Status Review**

#### **a. Inspection Scope [Inspection Procedures (IPs) 83750, 84750, 86750]**

The inspector performed an on-site inspection on June 4-6, 2018. In-office reviews of information supplied by Entergy were also performed during the inspection period. The inspection consisted of observations by the inspector, interviews with Entergy personnel, a review of procedures and records, and plant walk-downs.

The inspector reviewed the occupational radiation exposure program to verify it meets regulatory requirements. The inspector observed radiation protection (RP) technician job coverage of dry fuel storage activities, toured the instrument room, and interviewed RP management and technicians. The inspector reviewed dose records for 2017, drywell radiation surveys, as low as reasonably achievable (ALARA) plans, and radiation work permits. The inspector also reviewed training and qualifications of RP staff.

The inspector reviewed activities and documentation associated with effluent and environmental monitoring to ensure that the licensee effectively controls, monitors, and quantifies releases of radioactive materials in liquid, gaseous, and particulate forms to the environment. The inspector performed a walk-down of groundwater monitoring wells, and accompanied a chemistry technician during collection of environmental air samples and toured the Sample Preparation Facility. The inspector reviewed procedures, diagrams of effluent monitoring systems, the annual radiological environmental monitoring program (REMP) report, the annual radioactive effluent report, and the Off-Site Dose Calculation Manual (ODCM).

The inspector performed a review of the radioactive waste program to determine whether the licensee properly packages, stores, and ships radioactive waste for disposal. The inspector completed a walk-down of the radioactive waste storage locations on-site, and the frac tanks used for contaminated water. The inspector also reviewed the shipment packages for the two most recent shipments of contaminated water to ensure compliance with the applicable NRC and Department of Transportation (DOT) regulations.

b. Observations and Findings

The inspector determined that survey records were clear and complete, and RP technicians used appropriate instruments for the surveys. The inspector noted most routine surveys, instrument calibrations and daily source checks of instruments are performed on back shift. The inspector verified technician training and qualifications were up to date. The inspector verified that ALARA plans were performed as needed and were effective in limiting worker exposure and occupational dose for 2017 was acceptable for the scope of the radiological activities being performed. The inspector noted that the RP staff may be supplemented with contractors depending on the project.

The inspector verified that effluent releases to the environment were being properly controlled, monitored, and quantified as required by NRC regulations. The inspector verified that the annual radiological effluent and the annual REMP reports demonstrated that calculated doses were below regulatory dose criteria of 10 CFR 50, Appendix I. The inspector verified effluent monitors and area radiation monitors were checked, calibrated, and maintained as specified in the ODCM.

The inspector verified solid radioactive waste was adequately stored, monitored, and inventories were up to date. The inspector verified that radioactive waste shipping paperwork was properly completed and Entergy personnel were knowledgeable of their duties and responsibilities. The inspector determined that no solid radioactive waste had been shipped since August 2017 and contaminated water shipped for disposal met DOT and NRC requirements.

c. Conclusions

Based on the results of this inspection, no findings of safety significance were identified.

**3.0 Exit Meeting Summary**

On July 9, 2018, the inspector presented the inspection results, via teleconference, to Corey Daniels, Director, Nuclear Decommissioning, and other members of Entergy's staff. The inspector confirmed that proprietary information was not removed from the site.

## **PARTIAL LIST OF PERSONS CONTACTED**

### Licensee

H. Breite, Sr. Lead Engineer  
C. Chappell, Manager - Design and Programs  
C. Daniels, Director, Nuclear Decommissioning  
S. Dorval, RP Supervisor  
J. Ewell, Senior RP Specialist  
S. Hill, Training Superintendent  
M. Pletcher, Radiation Protection and Chemistry Manager  
G. Roediger, Senior Chemistry Tech  
T. Silko, Licensing  
K. Swanger, Manager - Construction

## **ITEMS OPEN, CLOSED, AND DISCUSSED**

None

## **LIST OF DOCUMENTS REVIEWED**

### Audits and Reports

2017 Annual Radiological Environmental Operating Report  
2017 Radioactive Effluent Release Report  
QA-2-6-14-15-2017-VY-1 Vermont Yankee Combined Chemistry, Effluents, Environmental Monitoring, Radiation Protection, and Radioactive Waste Audit

### Condition Reports

CR-VTY-2017-00829, 01111, 01207, 01211, 01213  
CR-VTY-2018-0017, 0095, 00139, 00233 00285, 00289, 00378, 00379, 00658, 00696, 00830  
CR-HQN-2018-00148

### Procedures and Programs

AP 0548, Controlled Area Exposure Monitoring, Rev 8  
AP 4601, Environmental Radiation Surveillance Program, Rev. 20  
CHOP-STAK-2611, Stack Effluent Sampling and Analysis, Rev. 2  
DP 0545, Fuel Pool Storage Requirements, Rev. 17  
DP 0640, Chemistry Department Scheduling, Rev. 68  
DP 4531, Radioactive Contamination Surveys, Rev. 32  
EN-RP-102, Radiological Control, Rev. 4  
EN-RP-201, Dosimetry Administration, Rev 4  
EN-RP-202, Personnel Monitoring, Rev. 9  
EN-RP-203, Dose Assessment, Rev. 6  
EN-RP-208, Whole Body Counting/In-Vitro Bioassay, Rev. 6  
EN-RW-101, Radioactive Waste Management, Rev. 3  
OP 4605, Environmental Radiation Sampling and Analysis, Rev. 49  
OP4530, Dose Rate Radiation Surveys, Rev. 29  
V-EN-RP-110-DP, ALARA Program, Rev. 2  
V-EN-RW-105, Process Control Program, Rev. 5



Procedures and Programs (Cont'd)

PP 7603, Environmental Program, Rev. 6

TDD 1.0 SAFSTOR Systematic Approach to Training (SAT), Rev. 4

Miscellaneous

2017 Dose Exposure

ALARA Plan – Drywell entry

Drywell Piping/Component Profile

Off-Site Dose Calculation Manual, Rev 39

Radwaste Shipment Package 2018-031, 032

SAFSTOR RP Task List Training Matrix, Rev. 2

Survey Logbook #: 180248, 180253, 180254, 180255, 180256, 180289, 180290, 180291, 180292, 180293

**LIST OF ACRONYMS USED**

ADAMS	Agencywide Document and Access Management System
ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
DOT	Department Of Transportation
Entergy	Entergy Nuclear Operations, Inc.
IMC	Inspection Manual Chapter
IP	Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission
ODCM	Off-Site Dose Calculation Manual
REMP	Radiological Environmental Monitoring Program
RP	Radiation Protection
VY	Vermont Yankee Nuclear Power Station