



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

October 20, 2016

Mr. Jack Boyle  
Director, Nuclear Decommissioning  
Entergy Nuclear Operations, Inc.  
Vermont Yankee Nuclear Power Station  
Vernon, VT 05354

SUBJECT: NRC INSPECTION REPORT NO. 05000271/2016003, ENTERGY NUCLEAR OPERATIONS, INC., VERMONT YANKEE NUCLEAR POWER STATION, VERNON, VERMONT

Dear Mr. Boyle:

On September 30, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed its quarterly inspection under Inspection Manual Chapter 2561, "Decommissioning Power Reactor Inspection Program," at the permanently shut down Vermont Yankee Nuclear Power Station (VY). On-site inspections were performed on August 30 – September 1, 2016. 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 inspectors, 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 October 3, 2016, 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(s), 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).

J. Boyle

2

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 Powell, Chief  
Decommissioning and Technical Support  
Branch  
Division of Nuclear Materials Safety

Docket No. 05000271  
License No. DPR-28

Enclosure: Inspection Report 05000271/2016003  
w/Attachment

cc w/encl: Distribution via ListServ

J. Boyle

2

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DATE	10/19/16	10/20/16	10/20/16	

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U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

INSPECTION REPORT

Inspection No.	05000271/2016003
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:	July 1, 2016 to September 30, 2016
Inspectors:	Stephen Hammann, Senior Health Physicist Decommissioning and Technical Support Branch Division of Nuclear Materials Safety, Region I  Briana DeBoer, Health Physicist Decommissioning and Technical Support Branch Division of Nuclear Materials Safety, Region I
Approved By:	Raymond Powell, Chief Decommissioning and Technical Support Branch Division of Nuclear Materials Safety, Region I

Inspection Report No. 05000271/2016003

## **EXECUTIVE SUMMARY**

Entergy Nuclear Operations, Inc.  
Vermont Yankee Nuclear Power Station  
NRC Inspection Report No. 05000271/2016003

An announced quarterly inspection was completed at Vermont Yankee Nuclear Power Station (VY) on September 30, 2016. On-site inspections were conducted on August 30 – September 1, 2016. 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 spent fuel pool safety, radwaste management, and effluent and environmental monitoring. The inspection consisted of observations by the inspectors, 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 shut-down 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) 60801, 84750, 86750]**

The inspectors 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 inspectors performed a walk-down of groundwater monitoring wells, stack effluent monitoring system, accompanied a radiation protection technician during collection of environmental air samples, and toured the Sample Preparation Facility. The inspectors reviewed procedures, diagrams of effluent monitoring systems, the annual radiological environmental monitoring program (REMP) report, the annual radioactive effluent report, and proposed changes to the Off-Site Dose Calculation Manual (ODCM). The inspectors also reviewed the results of a REMP audit to search for programmatic weaknesses and assess the quality of the program.

The inspectors performed a walk-down of the radwaste storage locations on-site and performed a review of the radwaste program to determine whether the licensee properly packages, stores, and ships radwaste for disposal. The inspectors also reviewed the work packages for the most recent off-site shipment of radwaste and contaminated water. The review included records of shipment packaging, surveying, labeling, marking, placarding, vehicle checks, and emergency instructions to ensure compliance with the applicable NRC and Department of Transportation (DOT) regulations.

The inspectors reviewed Entergy's programs for the safe wet storage of spent fuel. The inspectors performed a walk-down of the spent fuel pool (SFP) and associated support systems to assess material condition of the components. The inspectors reviewed SFP weekly chemistry sample results for the time period between January and August 2016 in order to verify SFP chemistry parameters were within the limits of Entergy's renewed license commitments. The inspectors reviewed programs and procedures to evaluate whether the SFP instrumentation, alarms, and leakage detection systems are adequate to assure the safe wet storage of spent fuel and to satisfy the associated technical specification requirements.

b. Observations and Findings

The inspectors verified that the annual radiological effluent and the annual REMP reports were submitted as required and demonstrated that calculated doses were below regulatory dose criteria of 10 CFR 50, Appendix I. The inspectors verified effluent monitors and area radiation monitors were checked, calibrated, and maintained as specified in the ODCM. The inspectors determined environmental sampling stations are properly maintained and all equipment is operable.

The inspectors verified solid radwaste was adequately stored, monitored, and inventories were maintained as described in the safety analysis report. The inspectors verified Entergy has provided training and periodic retraining on the DOT and NRC regulatory requirements, including hazmat training. The inspectors verified that radioactive waste shipping paperwork was properly completed and Entergy personnel were knowledgeable of their duties and responsibilities. The inspectors determined radwaste intended for eventual disposal at a land disposal facility were properly classified, described, packaged, marked, and labeled and were in proper condition for transportation.

The inspectors verified SFP chemistry and cleanliness controls were being adequately implemented and that SFP instrumentation, alarms, and leakage detection systems used during decommissioning are adequate to assure the safe wet storage of spent fuel. The inspectors verified that Entergy is performing all required surveillances and maintenance on systems which support SFP operations.

c. Conclusions

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

**3.0 Exit Meeting Summary**

On October 3, 2016, the inspectors presented the inspection results, via teleconference, to Jack Boyle, Director, Nuclear Decommissioning, and other members of Entergy's staff. The inspectors confirmed that proprietary information was not removed from the site.

**PARTIAL LIST OF PERSONS CONTACTED**

Licensee

J. Boyle, Decommissioning Director  
H. Breite, Sr. Lead Engineer  
C. Chappell, Manager – Design and Programs  
C. Daniels, Senior Manager Production  
S. Dorval, RP Supervisor  
J. Ewell, Senior HP Specialist  
A. Miller, RP Technician  
M. Pletcher, Radiation Protection and Chemistry Manager  
G. Roediger, Senior Chemistry Technician  
S. Shippee, RP Technician  
T. Silko, Licensing  
K. Swanger, Manager - Construction  
K. Whippie, Chemistry Specialist

State of Vermont

A. Leshinskie, Engineer

**ITEMS OPEN, CLOSED, AND DISCUSSED**

None

**LIST OF DOCUMENTS REVIEWED**

Condition Reports

CR-VTY-2016-00571, 00583, 00596, 00610, 00625, 00741, 00712, 00752

Audits and Reports

QA-2-6-2015-VY-1, Combined Chemistry, Effluents and Environmental Monitoring Audit  
QA-4-5-10-11-2016-VY-1, Quality Assurance Audit Report

Drawings

G-191176 SH.3, Torus as CST

Procedures

EN-RW-101, Radioactive Waste Management, Rev. 3  
EN-RW-102, Radioactive Waste shipping, Rev. 11  
EN-RW-103, Radioactive Waste Tracking, Rev. 4  
V-EN-RW-104, Scaling Factors, Rev. 11  
V-EN-RW-105, Process Control Program, Rev. 5  
V-EN-RW-108, Radioactive Shipment Accident Response, Rev. 2  
AP 4601, Environmental Radiation Surveillance Program, Rev. 19  
OP 2505, Handling, Transfer and Storage of On-Site Radioactive Material, Rev. 22  
OP 4605, Environmental Radiation Sampling and Analysis, Rev. 47  
RPRP-RW-2511, Radwaste Cask/Liner Handling, Rev. 5



Procedures-Completed Surveillance Procedures

GZ Well Data – July through August 2016

V-EN-LI-102, Performance Improvement Plan, Attachment 9.14, LHRA Entry Assessment

SBFPC-A, Vibration Trending Data

SBFPC-B, Vibration Trending Data

SFPC Pump Discharge Pressure

Spent Fuel Pool Chemistry Data, January to August 2016

SW Pump Running Hours

Miscellaneous

10 CFR 50.65, Maintenance Rule Scoping Basis Document

49 CFR 172, Subpart H training qualifications

Determination and Application of Background Cesium-137 Concentrations to Various VYNPS  
Soils and Sediments – prepared by Duke Engineering & Services

Process Water Inventory

Vermont Yankee Nuclear Power Station Off-Site Dose Calculation Manual, Rev 36

Water Management Inventory

**LIST OF ACRONYMS USED**

ADAMS	Agencywide Document and Access Management System
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
SAFSTOR	Safe Storage
SFP	Spent Fuel Pool
VY	Vermont Yankee Nuclear Power Station