

April 8, 2009

Mr. Michael Colomb  
Site Vice President  
Entergy Nuclear Operations, Inc.  
Vermont Yankee Nuclear Power Station  
185 Old Ferry Road  
P.O. Box 500  
Brattleboro, VT 05302-0500

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION - NRC EXAMINATION  
REPORT 05000271/2009301

Dear Mr. Colomb:

On February 13, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an examination at Vermont Yankee. The enclosed report documents the examination findings, which were discussed on March 13, 2009, with Mr. Michael Romeo of your staff.

The examination included the evaluation of four applicants for reactor operator licenses, three applicants for instant senior reactor operator licenses, and two applicants for upgrade senior reactor operator licenses. The written and operating examinations were developed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1. The license examiners determined that eight of the nine applicants satisfied the requirements of 10 CFR Part 55, and the appropriate licenses have been issued.

No findings of significance were identified during this examination.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Samuel L. Hansell, Jr., Chief  
Operations Branch  
Division of Reactor Safety

Docket No. 50-271  
License No. DPR-28

Enclosure: NRC Examination Report 05000271/2009301

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**SUNSI Review Complete: SLH (Reviewer's Initials)**

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M. Colomb

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cc w/encl:

Vice President, Operations, Entergy Nuclear Operations

Senior Vice President, Entergy Nuclear Operations

Vice President, Oversight, Entergy Nuclear Operations

Senior Manager, Nuclear Safety & Licensing, Entergy Nuclear Operations

Senior Vice President and COO, Entergy Nuclear Operations

Assistant General Counsel, Entergy Nuclear Operations

Manager, Licensing, Entergy Nuclear Operations

Hon. Molly Kelly, New Hampshire Senate

S. Lousteau, Treasury Department, Entergy Services, Inc.

D. O' Dowd, Administrator, Radiological Health Section, DPHS, State of New Hampshire

W. Irwin, Chief, CHP, Radiological Health, Vermont Department of Health

Chief, Safety Unit, Office of the Attorney General, Commonwealth of Mass.

D. Lewis, Pillsbury, Winthrop, Shaw, Pittman LLP

G. D. Bisbee, Esquire, Deputy Attorney General, Environmental Protection Bureau

J. P. Matteau, Executive Director, Windham Regional Commission

D. Katz, Citizens Awareness Network (CAN)

R. Shadis, New England Coalition Staff

G. Sachs, President/Staff Person, c/o Stopthesale

J. Volz, Chairman, Public Service Board, State of Vermont

Chairman, Board of Selectman, Town of Vernon

C. Pope, State of New Hampshire, SLO

D. O'Brien, State of Vermont, SLO

J. Giarrusso, SLO, MEMA, Commonwealth of Massachusetts

J. Angil, II, Manager, Vermont Emergency Management Agency

U. Vanags, State Nuclear Engineer, Vermont Department of Public Service

J. Block, Esquire

S. Shaw

G. Edwards

M. Colomb

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**EXAMINATION REPORT**  
**U.S. NUCLEAR REGULATORY COMMISSION**  
**REGION I**

Docket: 50-271

License: DPR-28

Report: 05000271/2009301

Licensee: Entergy Nuclear Operations, Inc.

Facility: Vermont Yankee Nuclear Power Station

Location: Vernon, VT

Dates: February 6-13, 2009

Examiners: T. Fish, Chief Examiner  
P. Presby, Operations Engineer  
G. Johnson, Operations Engineer  
H. Balian, Examiner Under-Instruction

Approved By: Samuel L. Hansell, Jr., Chief  
Operations Branch  
Division of Reactor Safety

## SUMMARY OF FINDINGS

ER 05000271/2009301; February 6-13, 2009; Vermont Yankee Nuclear Power Station; Initial Operator Licensing Examination Report.

NRC examiners evaluated the competency of four applicants for reactor operator licenses, three applicants for instant senior reactor operator licenses, and two applicants for upgrade senior reactor operator licenses at the Vermont Yankee facility. The facility licensee developed the examinations using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1. The written examination was administered by the facility on February 6, 2009. Three NRC examiners administered the operating tests from February 9-13, 2009. The license examiners determined that eight of nine applicants satisfied the requirements of 10 CFR Part 55, and the appropriate licenses have been issued.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

None.

## REPORT DETAILS

### 4. OTHER ACTIVITIES (OA)

#### 4OA5 Other Activities (Initial Operator License Examination)

##### .1 License Applications

###### a. Scope

The examiners reviewed all nine license applications submitted by the licensee to ensure the applications reflected that each applicant satisfied relevant eligibility requirements. The applications were submitted on NRC Form 398, "Personal Qualification Statement," and NRC Form 396, "Certification of Medical Examination by Facility Licensee." The examiner also audited two license applications in detail to confirm that they accurately reflected the applicants' qualifications. This audit focused on the applicants' experience, on-the-job training, and eligibility to sit for the instant senior operator license exams.

###### b. Findings

No findings of significance were identified.

##### .2 Operator Knowledge and Performance

###### a. Examination Scope

On February 6, 2009, the licensee proctored the administration of the written examinations to all nine applicants. The licensee staff graded the written examinations, analyzed the results, and presented their analysis to the NRC on February 24, 2009.

The NRC examination team administered the various portions of the operating examination to all nine applicants from February 9-13, 2009. The four applicants for reactor operator licenses participated in two dynamic simulator scenarios, in a control room and facilities walkthrough test consisting of eleven system tasks, and an administrative test consisting of four administrative tasks. The three applicants seeking an instant senior reactor operator license participated in three dynamic simulator scenarios, a control room and facilities walkthrough test consisting of ten system tasks, and an administrative test consisting of five administrative tasks. The two applicants seeking an upgrade senior reactor operator license participated in two dynamic simulator scenarios, a control room and facilities walkthrough test consisting of five system tasks, and an administrative test consisting of five administrative tasks.

###### b. Findings

All nine applicants passed all parts of the operating test. Eight of nine applicants passed the written examination. For the written examinations, the reactor operator applicants' average score was 86.8 percent and ranged from 82.4 to 91.9 percent. The senior reactor operator applicants' overall average score was 87.6 percent and ranged from 82.7 to 92.9 percent. One SRO applicant scored less than 70% on the SRO-only portion, and therefore did not pass the written exam. The examination questions and

the licensee's post-examination comments may be accessed in the ADAMS system under the accession numbers noted in the attachment.

Chapter ES-403 and Form ES-403-1 of NUREG 1021 require the facility licensee to analyze the validity of any written examination questions that were missed by half or more of the applicants. Ten questions met this criterion. The facility licensee conducted this performance analysis and submitted it to the chief examiner. Included in the analysis were post-examination comments related to three questions. The facility licensee recommended accepting two answers for one question, and that two other questions be deleted. The NRC decided to accept the facility licensee's recommendation for these three questions, and graded the exam accordingly. Attachment 2 summarizes the facility licensee's comments and associated NRC response.

### .3 Initial Licensing Examination Development

#### a. Examination Scope

The facility licensee developed the examinations in accordance with the Examination Standards. All licensee facility training and operations staff involved in examination preparation and validation were on a security agreement. The facility licensee submitted both the written and operating examination outlines on November 15, 2008. The chief examiner reviewed the outlines against the requirements of the Standards, and provided comments to the licensee. The facility licensee submitted the draft examination package on December 19, 2008. The chief examiner reviewed the draft examination package against the requirements of the Standards, and provided comments to the licensee on the examination on January 7, 2009. The examinations were within the range of acceptability for a proposed examination. The NRC conducted an onsite validation of the operating examinations and provided associated comments during the week of January 12, 2009. The facility licensee satisfactorily completed comment resolution on January 30, 2009.

#### b. Findings

No findings of significance were identified.

### .4 Simulation Facility Performance

#### a. Examination Scope

The examiners observed simulator performance with regard to plant fidelity during the examination validation and administration. Attachment 3, Simulator Fidelity Report, documents several minor observations related to simulator fidelity.

#### b. Findings

No findings of significance were identified.

.5 Examination Security

a. Examination Scope

The examiners reviewed examination security for examination development and during both the onsite preparation week and examination administration week for compliance with the Examination Standards. Plans for simulator security and applicant control were reviewed and discussed with licensee personnel.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

The chief examiner presented the examination results to Mr. Michael Romeo of the licensee's management staff on March 13, 2009.

The licensee did not identify any information or materials used during the examination as proprietary.

ATTACHMENT 1: SUPPLEMENTAL INFORMATION  
ATTACHMENT 2: SUMMARY OF FACILITY POST EXAM COMMENTS AND NRC  
RESOLUTION OF FACILITY POST EXAM COMMENTS  
ATTACHMENT 3: SIMULATOR FIDELITY REPORT

**ATTACHMENT 1**

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensee Personnel

W. Schulze	Facility Exam Developer
J. Paradis	Superintendent Operator Training – Initial Programs
M. Romeo	Training Manager

**ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened

None

Closed

None

Discussed

None

**ADAMS DOCUMENTS REFERENCED**

Accession No. ML090790243	FINAL-Written Exam
Accession No. ML090790246	FINAL-Operating Exam
Accession No. ML090960141	Facility Post Exam Comments

**ATTACHMENT 2****SUMMARY OF FACILITY POST EXAM COMMENTS AND  
NRC RESOLUTION OF FACILITY POST EXAM COMMENTS****Question 52:**

This question was related to torus temperature and boron initiation during an ATWS. The question did not have a correct answer. The torus temperature given as one of the choices should have been 110 degrees; instead the value given was 100 degrees. The facility noted the question had the correct temperature (110 degrees) in the original version of the test. A typographical error was introduced when the facility converted the working version of the exam into the version that the applicants were given. The result of this error was that the question did not have a correct answer. Accordingly, the facility recommended the question be deleted from the test.

**NRC Resolution:**

Comment accepted. The question, as administered to the applicants, does not have a correct answer. Therefore, the question has been deleted from the exam.

**Question 91:**

This question asked what action was required in response to a fire in a cable vault, coincident with the failure of the Cardox sequencer to time out. The applicants had to select their response actions from one of two cited procedures. The facility licensee discovered during their post exam review, however, that both procedures required entry, based on the plant conditions given in the question stem. Therefore, the facility recommended two answers were acceptable.

**NRC Resolution:**

Comment accepted. Based on post-exam review, the stem conditions in fact require two procedures be entered. Conditions in the question stem indicate that a fire has occurred in the cable vault – therefore operators must enter the cited procedure for a fire in the plant (OP 3020, “Fire Emergency Response”). Stem conditions also include information that indicates the Cardox automatic initiation system for the cable vault has malfunctioned – therefore operators must enter the cited procedure for a Cardox malfunction (OP 2186, “Fire Suppression Systems”). These two different procedures were part of two answer choices, and resulted in the question having two correct answers. The grading for this question was accordingly amended to accept two answers.

**Question 100:**

This question asked the applicants to “... determine the lowest torus pressure at which containment integrity could no longer be assured.” The applicants were given two graphs and key plant parameters to plot on those graphs. When correctly plotted on the pressure suppression pressure (PSP) graph, the resultant point was in the SAFE region of the graph, i.e., some pressure margin remained before “... containment integrity could no longer be assured.”

Therefore, the torus pressure associated with that point, 27 psig per the original answer key, was not a technically correct answer. Since no answer choice contained the torus pressure at which containment integrity could no longer be assured (roughly 29 psig torus pressure), the facility recommended this question be deleted from the exam.

**NRC Resolution:**

Comment accepted. The original proposed answer (27 psig) results in a point plotted in the SAFE region of the PSP curve and thus containment integrity *is assured*. The question, however, asks for the pressure at which containment integrity "...could *no longer* be assured." In that context, no answer choice is correct. Accordingly this question has been deleted from the test.

**ATTACHMENT 3****SIMULATOR FIDELITY REPORT**

Facility Licensee: Vermont Yankee  
 Facility Docket No.: 50-271  
 Operating Test Administered: February 9-13, 2009

*This form is to be used only to report observations. These observations do not constitute audit or inspection findings and, without further verification and review in accordance with IP 71111.11, are not indicative of noncompliance with 10 CFR 55.46. No licensee action is required in response to these observations.*

While conducting the simulator portion of the operating tests, examiners observed the following items:

Item	Description
Service Water Flow Indicator FI-132A	RHR-89A, RHRSW Discharge, was opened during JPM S4, "Lineup For Cntmt Spray Using Fire System to RHR Loop A" to establish a minimum flow path for the fire pump through the RHR heat exchanger. Flow should have indicated on FI-132A, but did not. Simulator Discrepancy Report 09-0020 was generated to address the observation.
Service Water Flow Indicator FI-132A and RHR Flow Indicator FI-139A	RHR-39A, Torus Spray/Clg Valve, was opened during JPM S4, "Lineup For Cntmt Spray Using Fire System to RHR Loop A" in preparation for spraying the torus; in-series Valve RHR-38A was still closed. However, flow instruments FI-132A and FI-139A both indicated flow was about 140 gpm (flow indication should have been 0 gpm with RHR-38A still closed). Simulator Discrepancy Report 09-0020 generated to address the observation.
Simulator Lighting During SBO Conditions	Overhead lighting above 9-3 and 9-4 panels went out on the simulated loss of buses supplied by Emergency Diesel Generator 'A'. CR 09-935 generated 1) to determine if simulator lighting correctly replicates reference plant control room lighting and 2) to evaluate adequacy of lighting for 9-3 and 9-4 panels under accident conditions concurrent with a loss of this associated electrical bus.