

STATE OF VERMONT
PUBLIC SERVICE BOARD

Petition of Entergy Nuclear Vermont Yankee, LLC, and)
Entergy Nuclear Operations, Inc., for amendment of their)
certificates of public good and other approvals required)
under 10 V.S.A. §§ 6501-6504 and 30 V.S.A. §§ 231(a),) Docket No. _____
248 & 254, for authority to continue after March 21, 2012,)
operation of the Vermont Yankee Nuclear Power Station,)
including the storage of spent-nuclear fuel)

SUMMARY OF PREFILED TESTIMONY OF GARRY YOUNG

Mr. Young’s testimony examines the continued operation of the VY Station from the perspective of ongoing regulation by the U.S. Nuclear Regulatory Commission. Mr. Young testifies that continued operation of the VY Station requires no physical or operational changes (other than changes due to normal operation and maintenance activities). His testimony further provides background on the design of the VY Station, which was originally licensed to operate for 40 years, and reviews the measures Entergy VY has taken and is taking to ensure that the VY Station is well maintained. His testimony also explains the process by which the NRC has examined Entergy VY’s plans for continued operation to determine that the station can operate reliably for up to 20 years after March 21, 2012, safely and without adverse environmental impacts. Lastly, his testimony describes the regulatory regime that governs operation of the VY Station, which involves continuing inspection and monitoring of the station to ensure that it operates safely.

Mr. Young sponsors the following exhibit:

- | | |
|-----------------|-----------------------|
| Exhibit EN-GY-1 | Resume of Garry Young |
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PREFILED TESTIMONY OF GARRY YOUNG

1 Q1. State your name.

2 A1. My name is Garry Young.

3 Q2. What is your position, by whom are you employed?

4 A2. My position is Manager, License Renewal, and I am employed by Entergy Services, Inc.
5 Exhibit EN-GY-1 is a copy of my resume.

6 Q3. What is the purpose of the testimony you intend to offer?

7 A3. My testimony explains that the continued operation of the Vermont Yankee Nuclear
8 Power Station (to which I refer in my testimony as the “VY Station”) by Entergy Nuclear
9 Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc. (to which I refer in my
10 testimony collectively as “Entergy VY”), requires no physical or operational changes to
11 the VY Station (other than changes due to normal operation and maintenance activities).
12 My testimony further provides background on the design of the VY Station, which was
13 originally licensed to operate for 40 years, and reviews the measures Entergy VY has
14 taken and is taking to ensure that the VY Station is well maintained and operates reliably.
15 My testimony will also explain the process by which the NRC has examined Entergy

1 VY's plans for continued operation to determine that the station can operate for up to 20
2 years after March 21, 2012, safely and without adverse environmental impacts. Lastly,
3 my testimony describes the regulatory regime that governs operation of the VY Station,
4 which involves continuing inspection and monitoring of the station to ensure that it
5 operates safely.

6 Q4. Are any major component replacements or upgrades required for the VY Station to
7 continue operation after March 21, 2012?

8 A4. No major component replacements or upgrades are planned or required to obtain a
9 renewed operating license that will allow continued plant operation after March 21, 2012.
10 On-going maintenance and operations will continue to include monitoring, inspection,
11 and surveillance activities that may identify the need for major component replacements
12 or upgrades, like the current maintenance-and-operations activities associated with the
13 first 40 years of operation, but no major component replacements or upgrades are planned
14 solely to support license renewal.

15 Q5. Provide background on the VY Station's design and why you believe that it could operate
16 safely for an additional 20 years.

17 A5. The useful lifetime of a nuclear-power plant like the VY Station is not based on the
18 regulatory term of the operating license. The Atomic Energy Act of 1954 allows the
19 NRC to issue licenses for up to 40 years, but this 40-year term was selected by Congress
20 based on economic and antitrust considerations, not technical limitations of longer terms
21 of safe operation.

1 In 1982, the NRC established a comprehensive program for Nuclear Plant Aging
2 Research. Based on the results of that research and other industry studies, a technical
3 review group concluded that aging phenomena are manageable and do not pose technical
4 issues that preclude operation for more than 40 years. As a result, the NRC has provided
5 an option that allows owners of nuclear-power reactors to seek license renewal for up to
6 an additional 20 years with no limitations on the number of times the license may be
7 renewed. The decision on whether to seek license renewal rests entirely with nuclear-
8 power-reactor owners and typically is based on the plant's economic viability and
9 whether it can continue to meet the NRC's safety and environmental requirements.

10
11 Based on Entergy VY's comprehensive, license-renewal review of safety and
12 environmental issues, summarized in the Vermont Yankee license-renewal application,
13 the VY Station can be operated safely and reliably for an additional 20 years. This
14 conclusion was based on detailed engineering evaluations of aging effects, aging-
15 management activities, time-limited aging analyses as well as operating experience,
16 inspection and surveillance results, and environmental impact assessments of the longer
17 term of operation. These evaluations, studies and analyses were performed in accordance
18 with well-established industry and regulatory guidance that has been developed and
19 refined over the past 15 years.

20
21 Independently, the NRC has reviewed and evaluated Entergy's license-renewal
22 application and supporting documentation as part of the regulatory process to determine

1 whether to issue a renewed license to Entergy VY. The conclusions of the NRC review
2 are documented in a comprehensive safety evaluation report and a supplemental
3 environmental impact statement. The NRC will not issue a renewed license for the VY
4 Station until all safety and environmental concerns with longer-term operation are
5 adequately addressed.

6 Q6. Describe the processes in place at the VY Station today and through March 21, 2012, that
7 ensure that the VY Station is well maintained and operates safely and reliably.

8 A6. The maintenance, operations and aging-management procedures and processes in place at
9 the VY Station include surveillance, inspection and monitoring activities that have been
10 effective in ensuring plant equipment safety and reliability. These programs have been
11 demonstrated by operating experience to be successful in ensuring the on-going safety
12 and reliability of plant operations and include:

- 13 • Technical specification surveillance;
- 14 • Inservice inspection and testing activities;
- 15 • Chemistry control activities;
- 16 • Maintenance rule system and structural monitoring activities;
- 17 • Corrective Action Program;
- 18 • Operating Experience Program;
- 19 • Quality Assurance Program; and
- 20 • Additional aging management activities identified during the NRC license
21 renewal review process.

1 These surveillance, inspection and monitoring activities will continue to be implemented,
2 assessed, enhanced, and modified in accordance with Entergy VY's quality assurance,
3 continuous improvement and operating experience efforts as long as the VY Station
4 continues to operate.

5 Q7. Turn now to the NRC's process for renewing the Entergy VY operating license. Begin
6 by providing background on why the NRC licenses nuclear stations for 40 years initially
7 in light of your testimony that the plants are suited for longer-term operation.

8 A7. The Atomic Energy Act of 1954 originally specified that licenses for commercial power
9 reactors be granted for a period not exceeding 40 years: "Each such license shall be
10 issued for a specified period, as determined by the Commission, depending on the type of
11 activity to be licensed, but not exceeding forty years, and may be renewed upon the
12 expiration of such period." As I previously testified, the 40-year licensing period was
13 based on economic and antitrust considerations rather than on the technical limitations of
14 nuclear facilities.

15
16 Studies and experience to date have shown that commercial nuclear-power facilities can
17 be operated safely for more than 40 years. As a result, the NRC has provided an option
18 in Title 10 of the Code of Federal Regulations, which allows owners of nuclear-power
19 reactors to seek license renewal for up to an additional 20 years with no limitations on the
20 number of times the license may be renewed. The decision whether to seek license
21 renewal rests with nuclear-power-reactor owners and is typically based on the plant's
22 economic viability and whether it can continue to meet NRC safety and environmental

1 requirements. The NRC bases its decision whether to renew a license on whether the
2 facility will continue to meet requirements for safe operation and whether protection of
3 the environment can be assured.

4 Q8. Now describe the process by which the NRC ensures that nuclear stations will operate
5 safely if the operating licenses are extended for 20 years.

6 A8. Detailed information on the NRC's safety review for license renewal is contained in
7 NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for
8 Nuclear Power Plants." In summary, the NRC's safety review of an application for
9 license renewal has three primary components: a safety evaluation, on-site inspections,
10 and an independent review by the Advisory Committee on Reactor Safeguards (or
11 "ACRS"). The NRC staff performs a safety review of the information provided in the
12 application (as supplemented with additional information provided by the applicant at the
13 NRC's request). The results of the staff's safety review are documented in a publicly-
14 available Safety Evaluation Report (or "SER"). For the NRC to grant a renewed
15 operating license, the SER must document that the NRC staff concluded with reasonable
16 assurance that the VY Station can be operated safely in accordance with its current
17 licensing basis for the period of extended operation. The NRC issued the SER for the
18 VY Station on February 25, 2008.

19
20 In parallel with the NRC safety evaluation, a NRC team of inspectors with experience in
21 nuclear-plant safety visited the VY Station and verified that Entergy VY has
22 implemented its aging-management plans as committed to in the license-renewal

1 application. The results of the on-site plant inspections conducted as part of the license
2 renewal review are documented in inspection reports and are publicly available. The
3 inspection results are also included in the SER.

4
5 The ACRS is an independent panel of experts that advises the Commission on matters
6 related to nuclear safety. The ACRS reviews Entergy VY's license-renewal application,
7 the NRC staff's SER and the results of the on-site inspections and makes its
8 recommendation to the Commission regarding issuance of the renewed license. In order
9 for the ACRS to recommend granting a renewed operating license, they must conclude
10 with reasonable assurance that the VY Station can be operated safely in accordance with
11 its current licensing basis for the period of extended operation.

12
13 Once these three primary components of the safety review are satisfactorily completed
14 and documented, in addition to separate NRC environmental and adjudicatory reviews,
15 the Director of the NRC's office of Nuclear Reactor Regulation (or "NRR") makes the
16 final decision either to approve or deny the request to renew the license in accordance
17 with NRC regulations.

18
19 Upon issuance of a renewed operating license, the NRC maintains the existing
20 continuous inspection program to assess whether activities are properly conducted and
21 equipment is properly maintained to ensure on-going safe plant operation.

1 Q9. How do regulators oversee the VY Station's continued operation?

2 A9. The NRC maintains an inspection program for all operating nuclear-power facilities and
3 the individual plant operators who are licensed by the NRC. The NRC has over 3,400
4 employees to carry out their mission to license and regulate civilian uses of nuclear
5 materials to ensure adequate protection of public health and safety and to protect the
6 environment. More than 800 of the 3,400 NRC employees are assigned to regional
7 offices to conduct inspection, enforcement, investigation, licensing and other activities at
8 licensed nuclear facilities. At the VY Station, the NRC inspection program assesses
9 whether Entergy VY's activities are properly conducted and equipment is properly
10 maintained to ensure safe operation. The NRC provides continuous oversight of plant
11 operations to verify they are being conducted in accordance with regulations and with
12 plant-specific technical specifications to ensure the safety of the plant. The NRC has full
13 authority to take whatever action is necessary to protect the public health and safety and
14 may demand immediate action by Entergy VY, up to and including a plant shutdown.

15

16 Two NRC resident inspectors are stationed full-time at the VY Station to provide first-
17 hand, independent assessment of plant conditions and performance. The resident
18 inspectors live in the area of the plant and maintain offices at the plant during regular
19 business hours. In addition, resident inspectors spend a portion of their time at the plant
20 during weekends and evenings. The activities of the resident inspectors are
21 supplemented by engineers and specialists from the nearest regional office (*i.e.*, King of

1 Prussia, PA for Entergy VY) and headquarters staff who perform inspections in a wide
2 variety of engineering and scientific disciplines.

3
4 The NRC inspection specialists review plant operations, safety, security, emergency
5 planning, radiation protection, environmental monitoring, periodic testing of plant
6 equipment and systems, fire protection, maintenance activities and other specialized
7 areas. During the course of a year, NRC specialists may conduct 10 to 25 routine
8 inspections at the VY Station. NRC special team inspections may focus on a specific
9 plant activity, like maintenance or security, or a team may be sent to the plant to look at a
10 specific operating problem (*e.g.*, the VY Station cooling-tower failure).

11
12 The frequency, scope and depth of the NRC inspection program vary depending on the
13 plant's performance. The program consists of three major elements: (1) baseline
14 inspections – the minimum required at all plants; (2) supplemental inspections –
15 performed at those plants with performance below established thresholds; and (3) special
16 inspections that focus on a specific issue. The NRC prepares inspection reports for all
17 inspections. Baseline inspection reports, compiled by the full-time resident inspectors
18 and inspection specialists, are issued at the close of each calendar quarter. Special and
19 supplemental inspection reports are issued several weeks after completion of those
20 inspections. The NRC inspection reports are available on the NRC's website "Library"
21 link, in the NRC's online document collection system called "ADAMS," and from the
22 Public Document Room at NRC headquarters.

1 The NRC also issues annual performance reports, which are also available on the NRC's
2 website. Furthermore, the NRC staff holds a public meeting each year near the VY
3 Station to discuss the previous year's performance. This provides individuals living near
4 the plant an opportunity to find out the status of a plant's safety performance and to talk
5 with NRC staff.

6
7 In summary, the NRC has a comprehensive oversight process to inspect, measure, and
8 assess the safety performance of the VY Station. The NRC process focuses inspections
9 on areas of greatest risk, applies greater regulatory attention where there are plant-
10 performance problems, uses objective measures of performance, gives the public timely
11 and understandable assessments of plant performance and provides responses to
12 violations in a predictable and consistent manner that corresponds to the safety
13 significance of the problem. Nuclear-plant operating experience demonstrates that safety
14 and reliability have improved significantly since the late 1980's and early 1990's, in part
15 due to the maturing of the industry and in part due to the improved regulatory-oversight
16 process.

17 Q10. Various parties have raised the question whether the VY Station should undergo an
18 "independent safety assessment" or "ISA" in connection with its request for approval of
19 continued operations after March 21, 2012. Do you have any comments on this issue?

20 A10. In April 2007, the NRC was asked to consider performing an ISA at a selected nuclear-
21 power-plant site in addition to the on-going NRC regulatory-oversight process. This
22 request was based on the concerns of some individuals that the current NRC oversight

1 process did not adequately address the areas evaluated during the Maine Yankee ISA in
2 1996. As a result, the NRC performed a comprehensive comparison of the current NRC
3 oversight process in 2007 against the 1996 Maine Yankee ISA. The NRC found that it
4 has incorporated the lessons learned from the 1996 Maine Yankee ISA into the current
5 NRC oversight process and that the current process provides even greater attention to
6 safety culture (implemented by the NRC in 2006) and better focus on potentially risk-
7 significant problems. In other words, the current NRC oversight process is more
8 comprehensive and more focused on ensuring nuclear-plant safety as a result of lessons
9 learned from the 1996 Maine Yankee ISA and a number of subsequent lessons learned.

10
11 The current NRC oversight process is adequate, and there would be no benefit to public
12 health and safety to be gained from performing an additional ISA.

13 Q11. Does this conclude your testimony?

14 A11. Yes.