

Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc.

(Vermont Yankee Nuclear Power Station)

Docket No. 50-271

Renewed Facility Operating License

Renewed Operating License No. DPR-28

The U.S. Nuclear Regulatory Commission (NRC or the Commission), having previously made the findings set forth in Facility Operating License No. DPR-28, dated February 28, 1973, has now found that:

- a. This paragraph deleted by Amendment No. 263.
- b. The facility is prohibited from operating the reactor in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission; and
- c. There is reasonable assurance (i) that the activities authorized by this license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission; and
- d. Entergy Nuclear Vermont Yankee, LLC is financially qualified and Entergy Nuclear Operations, Inc. is technically and financially qualified to engage in the activities authorized by this license, in accordance with the rules and regulations of the Commission; and
- e. Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. have satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements" of the Commission's regulations; and
- f. The issuance of this license will not be inimical to the common defense and security or to the health and safety of the public; and
- g. After weighing the environmental, economic, technical and other benefits of the facility against environmental costs and considering available alternatives, the issuance of this license (subject to the conditions for

Renewed Facility Operating License No. DPR-28  
Amendment No. 263

protection of the environment set forth herein) is in accordance with 10 CFR Part 51, of the Commission's regulations and all applicable requirements of said Part 51 have been satisfied; and

- h. Actions have been identified and have been or will be taken with respect to: (1) managing the effects of aging on the functionality of structures and components that have been identified to require review under 10 CFR 54.21(a)(1) during the period of extended operation, and (2) time-limited aging analyses that have been identified to require review under 10 CFR 54.21(c), such that there is reasonable assurance that the activities authorized by this license will continue to be conducted in accordance with the current licensing basis, as defined in 10 CFR 54.3 for the facility, and that any changes made to the facility's current licensing basis in order to comply with 10 CFR 54.29(a) are in accordance with the Act and the Commission's regulations.

Accordingly, Facility Operating License No. DPR-28, as amended, issued to Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. is superseded by Renewed Facility Operating License No. DPR-28 and is hereby amended in its entirety to read:

1. This renewed license applies to the Vermont Yankee Nuclear Power Station (the facility), a single cycle, boiling water, light water moderated and cooled reactor, and associated electric generating equipment. The facility is located on Entergy Nuclear Vermont Yankee, LLC's site, in the Town of Vernon, Windham County, Vermont, and is described in the application as amended.
2. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:
  - A. Pursuant to Sections 104b of the Atomic Energy Act of 1954, as amended (the Act), and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," Entergy Nuclear Vermont Yankee, LLC to possess and use, and Entergy Nuclear Operations, Inc., to possess and use the facility as a utilization facility at the designated location on the Entergy Nuclear Vermont Yankee, LLC site.
  - B. Entergy Nuclear Operations, Inc., pursuant to the Act and 10 CFR Part 70, to possess at any time special nuclear material that was used as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation as described in the Final Safety Analysis Report, as supplemented and amended.
  - C. Entergy Nuclear Operations, Inc., pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use at any time any byproduct, source, and special nuclear material as sealed neutron sources that were used for reactor startup, sealed sources that were used for calibration of reactor instrumentation and are used in radiation monitoring equipment, and as fission detectors in amounts as required.

Renewed Facility Operating License No. DPR-28  
Amendment No. 263

- D. Entergy Nuclear Operations, Inc., pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components.
  - E. Entergy Nuclear Operations, Inc., pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not to separate, such byproduct and special nuclear material as may be produced by operation of the facility.
3. This renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations: 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Section 50.54 and 50.59 of 10 CFR Part 50, and Section 70.32 of 10 CFR Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:
- A. This paragraph deleted by Amendment No. 263.
  - B. Technical Specifications  
  
The Technical Specifications contained in Appendix A, as revised through Amendment No. 265, are hereby incorporated in the license. Entergy Nuclear Operations, Inc. shall operate the facility in accordance with the Technical Specifications.
  - C. Reports  
  
Entergy Nuclear Operations, Inc. shall make reports in accordance with the requirements of the Technical Specifications.
  - D. This paragraph deleted by Amendment No. 226.
  - E. Environmental Conditions  
  
Pursuant to the Initial Decision of the presiding Atomic Safety and Licensing Board issued February 27, 1973, the following conditions for the protection of the environment are incorporated herein:
    - 1. This paragraph deleted by Amendment No. 206, October 22, 2001.
    - 2. This paragraph deleted by Amendment 131, 10/07/91.

3. This paragraph deleted by Amendment No. 206, October 22, 2001.
4. If harmful effects or evidence of irreversible damage in land or water ecosystems as a result of facility operation are detected by Entergy Nuclear Operations, Inc.'s environmental monitoring program, Entergy Nuclear Operations, Inc. shall provide an analysis of the problem to the Commission and to the advisory group for the Technical Specifications, and Entergy Nuclear Operations, Inc. thereafter will provide, subject to the review by the aforesaid advisory group, a course of action to be taken immediately to alleviate the problem.
5. Entergy Nuclear Operations, Inc. will grant authorized representatives of the Massachusetts Department of Public Health (MDPH) and Metropolitan District Commission (MDC) access to records and charts related to discharge of radioactive materials to the Connecticut River.
6. This paragraph deleted by Amendment No. 206, October 22, 2001.
7. This paragraph deleted by Amendment No. 206, October 22, 2001.
8. Entergy Nuclear Operations, Inc. will permit authorized representatives of the MDPH and MDC to examine the chemical and radioactivity analyses performed by Entergy Nuclear Operations, Inc.
9. Entergy Nuclear Operations, Inc. shall immediately notify MDPH, or an agency designated by MDPH, in the event concentrations of radioactive materials in liquid effluents, measured at the point of release from the Vermont Yankee facility, exceed the limit set forth in the facility Offsite Dose Calculation Manual. Entergy Nuclear Operations, Inc. will also notify MDPH in writing within 30 days following the release of radioactive materials in liquid effluents in excess of 10 percent of the limit set forth in the facility Offsite Dose Calculation Manual.
10. A report shall be submitted to MDPH and MDC by May 15 of each year of plant operation, specifying the total quantities of radioactive materials released to the Connecticut River during the previous calendar year. The report shall contain the following information:
  - (a) Total curie activity discharged other than tritium and dissolved gases.
  - (b) Total curie alpha activity discharged.
  - (c) Total curies of tritium discharged.
  - (d) Total curies of dissolved radio-gases discharged.

- (e) Total volume (in gallons) of liquid waste discharged.
  - (f) Total volume (in gallons) of dilution water.
  - (g) Average concentration at discharge outfall.
  - (h) This paragraph deleted by Amendment No. 206, October 22, 2001.
  - (i) Total radioactivity (in curies) released by nuclide including dissolved radio-gases.
  - (j) Percent of the facility Offsite Dose Calculation Manual limit for total activity released.
11. This paragraph deleted by Amendment No. 206, October 22, 2001.
12. This paragraph deleted by Amendment No. 206, October 22, 2001.
13. Entergy Nuclear Operations, Inc. shall establish and maintain a system of emergency notification to the states of Vermont and New Hampshire, and the Commonwealth of Massachusetts, satisfactory to the appropriate public health and public safety officials of those states and the Commonwealth, which provides for:
- a. Notice of site emergencies as well as general emergencies.
  - b. Direct microwave communication with the state police headquarters of the respective states and the Commonwealth when the transmission facilities of the respective states and the Commonwealth so permit, at the expense of Entergy Nuclear Operations, Inc.
  - c. A verification or coding system for emergency messages between Entergy Nuclear Operations, Inc. and the state police headquarters of the respective states and the Commonwealth.
14. Entergy Nuclear Operations, Inc. shall furnish advance notification to MDPH, or to another Commonwealth agency designated by MDPH, of the time, method and proposed route through the Commonwealth of any shipments of nuclear fuel and wastes to and from the Vermont Yankee facility which will utilize railways or roadways in the Commonwealth.
- F. This paragraph deleted by Amendment No. 263.

G. Security Plan

Entergy Nuclear Operations, Inc. shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822), and the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans<sup>1</sup>, which contain Safeguards Information protected under 10 CFR 73.21, is entitled: "Vermont Yankee Nuclear Power Station Security Plan, Training and Qualification Plan, and Safeguards Contingency Plan, Revision 0," submitted by letter dated October 18, 2004, as supplemented by letter dated May 16, 2006.

Entergy Nuclear Operations, Inc. shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). Entergy Nuclear Operations, Inc. CSP was approved by License Amendment No. 247, as supplemented by changes approved by License Amendment Nos. 251, 259, and 265.

H. This paragraph deleted by Amendment No. 107, 8/25/88.

I. This paragraph deleted by Amendment No. 131, 10/7/91.

J. License Transfer Conditions

On the closing date of the transfer of Vermont Yankee Nuclear Power Station (Vermont Yankee), Entergy Nuclear Vermont Yankee, LLC shall obtain from Vermont Yankee Nuclear Power Corporation all of the accumulated decommissioning trust funds for the facility, and ensure the deposit of such funds into a decommissioning trust for Vermont Yankee established by Entergy Nuclear Vermont Yankee, LLC. If the amount of such funds does not meet or exceed the minimum amount required for the facility pursuant to 10 CFR 50.75, Entergy Nuclear Vermont Yankee, LLC shall at such time deposit additional funds into the trust and/or obtain a parent company guarantee (to be updated annually) and/or obtain a surety pursuant to 10 CFR 50.75(e)(1)(iii) in a form acceptable to the NRC and in an amount or amounts which, when combined with the decommissioning trust funds for the facility that have been obtained and deposited as required above, equals or

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<sup>1</sup> The Training and Qualification Plan and Safeguards Contingency Plan are Appendices to the Security Plan.

exceeds the total amount required for the facility pursuant to 10 CFR 50.75. The decommissioning trust, and surety if utilized, shall be subject to or be consistent with the following requirements, as applicable:

a. Decommissioning Trust

- (i) The decommissioning trust agreement must be in a form acceptable to the NRC.
- (ii) With respect to the decommissioning trust funds, investments in the securities or other obligations of Entergy Corporation and its affiliates, successors, or assigns shall be prohibited. In addition, except for investments tied to market indexes or other non-nuclear-sector mutual funds, investments in any entity owning one or more nuclear power plants are prohibited.
- (iii) The decommissioning trust agreement must provide that no disbursements or payments from the trust, other than for ordinary administrative expenses, shall be made by the trustee until the trustee has first given the NRC 30 days prior written notice of payment. The decommissioning trust agreement shall further contain a provision that no disbursements or payments from the trust shall be made if the trustee receives prior written notice of objection from the Director of the Office of Nuclear Reactor Regulation.
- (iv) The decommissioning trust agreement must provide that the agreement cannot be amended in any material respect without 30 days prior written notification to the Director of the Office of Nuclear Reactor Regulation.
- (v) The appropriate section of the decommissioning trust agreement shall state that the trustee, investment advisor, or anyone else directing the investments made in the trust shall adhere to a "prudent investor" standard, as specified in 18 CFR 35.32(a)(3) of the Federal Energy Regulatory Commission's regulations.

b. Surety

- (i) The surety agreement must be in a form acceptable to the NRC and be in accordance with all applicable NRC regulations.
- (ii) The surety company providing any surety obtained to comply with the Order approving the transfer shall be one of those listed by the U.S. Department of the Treasury in the most recent edition of Circular 570 and shall have a coverage limit sufficient to cover the amount of the surety.

- (iii) Entergy Nuclear Vermont Yankee, LLC shall establish a standby trust to receive funds from the surety, if a surety is obtained, in the event that Entergy Nuclear Vermont Yankee, LLC defaults on its funding obligations for the decommissioning of Vermont Yankee. The standby trust agreement must be in a form acceptable to the NRC, and shall conform with all conditions otherwise applicable to the decommissioning trust agreement.
- (iv) The surety agreement must provide that the agreement cannot be amended in any material respect, or terminated, without 30 days prior written notification to the Director of the Office of Nuclear Reactor Regulation.

Entergy Nuclear Vermont Yankee, LLC shall take all necessary steps to ensure that the decommissioning trust is maintained in accordance with the application for approval of the transfer of this license to Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc., and the requirements of the Order approving the transfer, and consistent with the safety evaluation supporting the Order.

Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. shall take no action to cause Entergy Global Investments, Inc., or Entergy International Holdings Ltd. LLC, or their parent companies to void, cancel, or modify the lines of credit to provide funding for Vermont Yankee as represented in the application without prior written consent of the Director of the Office of Nuclear Reactor Regulation.

- K. This paragraph deleted by Amendment No. 263.
- L. This paragraph deleted by Amendment No. 263.
- M. This paragraph deleted by Amendment No. 263.
- N. Mitigation Strategy License Condition

Develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

- (a) Fire fighting response strategy with the following elements:
  - 1. Pre-defined coordinated fire response strategy and guidance
  - 2. Assessment of mutual aid fire fighting assets
  - 3. Designated staging areas for equipment and materials
  - 4. Command and control
  - 5. Training of response personnel
- (b) Operations to mitigate fuel damage considering the following:
  - 1. Protection and use of personnel assets
  - 2. Communications



3. Minimizing fire spread
  4. Procedures for implementing integrated fire response strategy
  5. Identification of readily-available pre-staged equipment
  6. Training on integrated fire response strategy
  7. Spent fuel pool mitigation measures
- (c) Actions to minimize release to include consideration of:
1. Water spray scrubbing
  2. Dose to onsite responders
- O. This paragraph deleted by Amendment No. 263.
- P. The information in the UFSAR supplement, submitted pursuant to 10 CFR 54.21(d), as revised during the license renewal application process, and as supplemented by Commitment Nos. 1-5, 6 (as revised by Entergy Nuclear Vermont Yankee, LLC letter dated May 19, 2011), 7-36, 38, 39, 42, 43, and 45-55 of Appendix A of Supplement 2 of NUREG-1907 shall be incorporated as part of the UFSAR which will be updated in accordance with 10 CFR 50.71(e). As such, Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. may make changes to the programs and activities described in the UFSAR supplement and Commitment Nos. 1-5, 6 (as revised by Entergy Nuclear Vermont Yankee, LLC letter dated May 19, 2011), 7-36, 38, 39, 42, 43, and 45-55 of Appendix A of Supplement 2 of NUREG-1907 provided Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. evaluates such changes pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements in that section.
- Q. This paragraph deleted by Amendment No. 256, April 17, 2013.
- R. This paragraph deleted by Amendment No. 263.
- S. This paragraph deleted by Amendment No. 263.
4. This license is effective as of the date of issuance and is effective until the Commission notifies the licensee in writing that the license is terminated.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed By  
Eric J. Leeds

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation

Enclosures:  
Appendix A - Technical Specifications

Date of Issuance: March 21, 2011

Renewed Facility Operating License No. DPR-28  
Amendment ~~252, 256~~, 263

APPENDIX A  
TO  
OPERATING LICENSE DPR-28  
TECHNICAL SPECIFICATIONS  
AND BASES  
FOR  
VERMONT YANKEE NUCLEAR POWER STATION  
VERNON, VERMONT  
ENERGY NUCLEAR OPERATIONS, INC.  
AND  
ENERGY NUCLEAR VERMONT YANKEE, LLC  
DOCKET NO. 50-271

VYNPS

TABLE OF CONTENTS

	<u>Page No.</u>		
1.0	DEFINITIONS .....	1	
	<u>LIMITING CONDITIONS OF OPERATION</u>		<u>SURVEILLANCE</u>
3.0	LIMITING CONDITIONS OF OPERATION and SURVEILLANCE REQUIREMENT (SR) APPLICABILITY .....	2	... 4.0
	BASES .....	4	
3.1	RADIOACTIVE EFFLUENTS .....	6	... 4.1
	A. Liquid Holdup Tanks .....	6	... A
	BASES .....	7	
3.2	SPENT FUEL STORAGE .....	8	... 4.2
	A. Fuel Storage Pool Water Level .....	8	... A
	B. Spent Fuel Pool Water Temperature .....	8	... B
	BASES .....	9	
5.0	DESIGN FEATURES .....	10	
6.0	ADMINISTRATIVE CONTROLS .....	12	

1.0 DEFINITIONS

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1.0 DEFINITIONS

The succeeding frequently used terms are explicitly defined so that a uniform interpretation of the specifications may be achieved.

- A. Certified Fuel Handler - A Certified Fuel Handler is an individual who complies with the provisions of the Certified Fuel Handler training program.
- B. Immediate - Immediate means that the required action will be initiated as soon as practicable considering the safe operation of the unit and the importance of the required action.
- C. Operable - A system, subsystem, train, component or device shall be operable or have operability when it is capable of performing its specified function(s). Implicit in this definition shall be the assumption that all necessary attendant instrumentation, controls, normal or emergency electrical power sources, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s).
- D. Operating - Operating means that a system or component is performing its intended functions in its required manner.

3.0 LIMITING CONDITIONS FOR  
OPERATION APPLICABILITY

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4.0 SURVEILLANCE REQUIREMENT (SR)  
APPLICABILITY

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SR 4.0.1

SRs shall be met during the specified conditions in the Applicability for individual LCOs, unless otherwise stated in the SR. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the LCO. Failure to perform a Surveillance within the specified frequency shall be failure to meet the LCO except as provided in SR 4.0.3. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.

SR 4.0.2

Unless otherwise stated in these specifications, periodic surveillance tests, checks, calibrations, and examinations shall be performed within the specified surveillance intervals. These intervals may be adjusted plus 25%.

SR 4.0.3

If it is discovered that a surveillance was not performed within its specified frequency, declaring applicable Limiting Conditions for Operation (LCOs) not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified frequency, whichever is greater. This delay period is permitted to allow performance of the surveillance. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

3.0 LIMITING CONDITIONS FOR  
OPERATION APPLICABILITY

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4.0 SURVEILLANCE REQUIREMENT (SR)  
APPLICABILITY

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SR 4.0.3 (Continued)

If the surveillance is not performed within the delay period, applicable LCOs must immediately be declared not met, and applicable LCOs must be entered.

When the surveillance is performed within the delay period and the surveillance is not met (i.e., acceptance criteria are not satisfied), applicable LCOs must immediately be declared not met, and applicable LCOs must be entered.

TS 4.0 Surveillance Requirement (SR) ApplicabilitySR 4.0.1 Bases

SR 4.0.1 establishes the requirement that SRs must be met during the specified conditions in the Applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This Specification is to ensure that Surveillances are performed to verify that variables are within specified limits. Failure to meet a Surveillance within the specified frequency, in accordance with SR 4.0.2, constitutes a failure to meet an LCO.

Unplanned events may satisfy the requirements (including applicable acceptance criteria) for a given SR. In this case, the unplanned event may be credited as fulfilling the performance of the SR.

SR 4.0.2 Bases

SR 4.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers unit conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

The 25% extension does not significantly degrade the reliability that results from performing the surveillance at its specified frequency. This is based on the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the SRs. The exceptions to SR 4.0.2 are those Surveillances for which the 25% extension of the interval specified in the frequency does not apply. These exceptions are stated in the individual Specifications. The requirements of regulations take precedence over the TS.

The provisions of SR 4.0.2 are not intended to be used repeatedly merely as an operational convenience to extend surveillance intervals (other than those consistent with refueling intervals).

SR 4.0.3 Bases

SR 4.0.3 establishes the flexibility to defer declaring an affected variable outside the specified limits when a surveillance has not been completed within the specified frequency. A delay period of up to 24 hours or up to the limit of the specified frequency, whichever is greater, applies from the point in time that it is discovered that the surveillance has not been performed in accordance with SR 4.0.2, and not at the time that the specified Frequency was not met.

This delay period provides adequate time to complete surveillances that have been missed. This delay period permits the completion of a surveillance before complying with action statements or other remedial measures that might preclude completion of the Surveillance.

SR 4.0.3 Bases (Continued)

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the surveillance, the safety significance of the delay in completing the required surveillance, and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the requirements.

Failure to comply with specified surveillance frequencies is expected to be an infrequent occurrence. Use of the delay period established by SR 4.0.3 is a flexibility which is not intended to be used as an operational convenience to extend surveillance intervals. While up to 24 hours or the limit of the specified frequency is provided to perform the missed surveillance, it is expected that the missed surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the surveillance as well as any plant configuration changes required to perform the surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel and the time required to perform the surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants." This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action. The missed surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation may use quantitative, qualitative, or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the importance of the component. Missed surveillances for important components should be analyzed quantitatively. If the results of the risk evaluation determine the risk increase is significant, this evaluation should be used to determine the safest course of action. All missed surveillances will be placed in the licensee's Corrective Action Program.

If a surveillance is not completed within the allowed delay period, then the variable is considered outside the specified limits and the completion times of the Action Statements for the applicable LCO Conditions begin immediately upon expiration of the delay period. If a surveillance is failed within the delay period, then the variable is outside the specified limits and the completion times of the Action Statements for the applicable LCO Conditions begin immediately upon the failure of the surveillance.

Completion of the surveillance within the delay period allowed by this Specification, or within the completion time of the ACTIONS, restores compliance with SR 4.0.1.



3.1 LIMITING CONDITIONS FOR OPERATION

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3.1 RADIOACTIVE EFFLUENTS

Applicability:

Applies to the release of all radioactive effluents from the plant.

Objective:

To assure that radioactive effluents are kept "as low as is reasonably achievable" in accordance with 10CFR50, Appendix I and, in any event, are within the dose limits for Members of the Public specified in 10CFR20.

Specification:

A. Liquid Holdup Tanks

1. The quantity of radioactive material contained in any outside tank\* shall be limited to less than or equal to 10 curies, excluding tritium and dissolved or entrained noble gases.
2. With the quantity of radioactive material in any outside tank\* exceeding the limit of Specification 3.1.A.1, immediately take action to suspend all additions of radioactive material to the tank. Within 48 hours, reduce the tank contents to within the limit.

4.1 SURVEILLANCE REQUIREMENTS

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4.1 RADIOACTIVE EFFLUENTS

Applicability:

Applies to the required surveillance of all radioactive effluents released from the plant.

Objective:

To ascertain that all radioactive effluents released from the plant are kept "as low as is reasonably achievable" in accordance with 10CFR50, Appendix I and, in any event, are within the dose limits for Members of the Public specified in 10CFR20.

Specification:

A. Liquid Holdup Tanks

1. The quantity of radioactive material contained in each of the liquid holdup tanks\* shall be determined to be within the limits of Specification 3.1.A.1 by analyzing a representative sample of the tank's contents within one week following the addition of radioactive materials to the tank. One sample may cover multiple additions.

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\*NOTE: Tanks included in this Specification are only those outdoor tanks that are not surrounded by liners, dikes, or walls capable of holding the tank's contents, or that do not have tank overflows and surrounding area drains connected to the liquid radwaste treatment system.

BASES:

3.1 RADIOACTIVE EFFLUENTS

A. Liquid Holdup Tanks

The tanks listed in this Specification include all outdoor tanks that contain radioactivity that are not surrounded by liners, dikes, or walls capable of holding the tank contents, or that do not have tank overflows and surrounding area drains connected to the liquid radwaste treatment system.

Restricting the quantity of radioactive material contained in the specified tanks provides assurance that in the event of an uncontrolled release of the tanks' contents, the resulting concentrations would be less than the limits of 10CFR Part 20.1001-20.2402, Appendix B, Table 2, Column 2, at the nearest potable water supply and in the nearest surface water supply in an Unrestricted Area.

3.2 LIMITING CONDITIONS FOR OPERATION

3.2 SPENT FUEL STORAGE

Applicability:

Applies to storage of spent fuel.

Objective:

To assure safe storage of spent fuel.

Specification:

A. Fuel Storage Pool Water Level

Whenever irradiated fuel is stored in the fuel storage pool the pool water level shall be maintained at a level of at least 36 feet.

B. Spent Fuel Pool Water Temperature

Whenever irradiated fuel is stored in the spent fuel pool, the pool water temperature shall be maintained below 150°F.

4.2 SURVEILLANCE REQUIREMENTS

4.2 SPENT FUEL STORAGE

Applicability:

Applies to the parameters which monitor the storage of spent fuel.

Objective:

To verify that spent fuel is being stored safely.

Specification:

A. Fuel Storage Pool Water Level

Whenever irradiated fuel is stored in the fuel storage pool, the pool level shall be recorded daily.

B. Spent Fuel Pool Water Temperature

Whenever irradiated fuel is in the spent fuel pool, the pool water temperature shall be recorded daily. If the pool water temperature reaches 150°F, all operations tending to raise the pool water temperature shall cease and measures taken immediately to reduce the pool water temperature below 150°F.

BASES:

3.2 & 4.2      SPENT FUEL STORAGE

- A. To assure that there is adequate water to shield and cool the irradiated fuel assemblies stored in the pool, a minimum pool water level is established. This minimum water level of 36 feet is established because it would be a significant change from the normal level, well above a level to assure adequate cooling (just above active fuel).
  
- B. The Spent Fuel Pool Cooling System is designed to maintain the pool water temperature below 125°F during normal operations. If the reactor core is completely discharged, the temperature of the pool water may increase to greater than 125°F.

5.0 DESIGN FEATURES5.1 Site

The station is located on the property on the west bank of the Connecticut River in the Town of Vernon, Vermont, which Entergy Nuclear Vermont Yankee, LLC either owns or to which it has perpetual rights and easements. The site plan showing the exclusion area boundary, boundary for gaseous effluents, boundary for liquid effluents, as well as areas defined per 10CFR20 as "controlled areas" and "unrestricted areas" are on plant drawing 5920-6245. The minimum distance to the boundary of the exclusion area as defined in 10CFR100.3 is 910 feet.

The licensee will at all times retain the complete authority to determine and maintain sufficient control of all activities through ownership, easement, contract and/or other legal instruments on property which is closer to the reactor center line than 910 feet. This includes the authority to exclude or remove personnel and property within the exclusion area. Only activities related to plant operation are permitted in the exclusion area.

5.2 Spent Fuel Storage

- A. The  $K_{eff}$  of the fuel in the spent fuel storage pool shall be less than or equal to 0.95.
- B. Spent fuel storage racks may be moved (only) in accordance with written procedures which ensure that no rack modules are moved over fuel assemblies.
- C. The number of spent fuel assemblies stored in the spent fuel pool shall not exceed 3353.
- D. The maximum core geometry infinite lattice multiplication factor of any segment of the fuel assembly stored in the spent fuel storage pool or the new fuel storage facility shall be less than or equal to 1.31 at 20°C.

BASES:5.1 SITE

Exclusion area means that area surrounding the reactor, as measured from the reactor center line, in which the reactor licensee has the authority to determine all activities including exclusion or removal of personnel and property from the area. This area may be traversed by a highway, railroad, or waterway, provided those are not so close to the facility as to interfere with normal operations of the facility and provided appropriate and effective arrangements are made to control traffic on the highway, railroad, or waterway, in case of an emergency, to protect the public health and safety.

Contract provisions for property agreements in the exclusion area will ensure that the licensee retains sufficient control of all activities in the exclusion area including the authority to exclude or remove personnel and property, thereby (1) maintaining compliance with 10CFR50.67 radiological limits for the exclusion area, and (2) ensuring that any and all activities, now or in the future, in the exclusion area would not negatively affect nuclear safety, safe plant operation or violate current plant design or licensing basis.

Any property transaction in the exclusion area, as is the case for any activity which has the potential to adversely affect nuclear safety or safe plant operation, requires a review in accordance with 10CFR50.59. Additionally, any property transaction would be required to comply with other regulatory requirements (e.g., 10CFR50.83) as applicable.

6.0 ADMINISTRATIVE CONTROLS6.1 RESPONSIBILITY

- A. The plant manager shall be responsible for overall facility operation and shall delegate in writing the succession to this responsibility during absences.
- B. The plant manager or designee shall approve, prior to implementation, each proposed test, experiment, or modification to systems or equipment that affect nuclear safety.
- C. The shift supervisor shall be responsible for the shift command function.

6.2 ORGANIZATIONA. Onsite and Offsite Organizations

Organizations shall be established for facility staff and corporate management. These organizations shall include the positions for activities affecting safety of the nuclear fuel.

- 1. Lines of authority, responsibility, and communication shall be established and defined for the highest management levels through intermediate levels to and including all operating organizational positions. These relationships shall be documented and updated, as appropriate, in the form of organizational charts, functional descriptions of departmental responsibilities and relationships, and job descriptions for key personnel positions, or in equivalent forms of documentation. These requirements shall be documented in the Quality Assurance Program Manual. The plant-specific titles of those personnel fulfilling the responsibilities of the positions delineated in these Technical Specifications shall be documented in the Technical Requirements Manual.
- 2. The plant manager shall be responsible for overall facility safe operation and shall have control over those on-site activities necessary for safe storage and maintenance of the nuclear fuel.
- 3. A specified corporate officer shall have corporate responsibility for overall plant nuclear safety and shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to the plant to ensure safe management of nuclear fuel.
- 4. The individuals who train the Certified Fuel Handlers, carry out health physics, or perform quality assurance functions may report to the appropriate on-site manager; however, these individuals shall have sufficient organizational freedom to ensure their ability to perform their assigned functions.

6.2 ORGANIZATION (Cont'd)B. Facility Staff

The facility staff organization shall include the following:

1. Each duty shift shall be composed of at least one shift supervisor and one Non-certified Operator. The Non-certified Operator position may be filled by a Certified Fuel Handler.
2. At least one person qualified to stand watch in the control room (Non-certified Operator or Certified Fuel Handler) shall be present in the control room when nuclear fuel is stored in the spent fuel pool.
3. All fuel handling operations shall be directly supervised by a Certified Fuel Handler.
4. Shift crew composition shall meet the requirements stipulated herein. Shift crew composition may be less than the minimum requirement of Specification 6.2.B.1 for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members, provided immediate action is taken to restore the shift crew composition to within the minimum requirements and all of the following conditions are met:
  - a. no fuel movements are in progress; and
  - b. no movement of loads over fuel are in progress; and
  - c. no unmanned shift positions during shift turnover shall be permitted while the shift crew is less than the minimum.
5. An individual qualified in radiation protection procedures shall be present on-site during the movement of fuel and during the movement of loads over fuel.
6. Deleted
7. The shift supervisor shall be a Certified Fuel Handler.
8. Deleted

C. Facility Staff Qualifications

1. Each member of the facility staff shall meet or exceed the minimum qualifications of ANSI/ANS 3.1-1978 for comparable positions with exceptions specified in the Quality Assurance Program Manual (QAPM).
2. An NRC approved training and retraining program for Certified Fuel Handlers shall be maintained.

6.3 Deleted

6.4 PROCEDURES

Written procedures shall be established, implemented, and maintained covering the following activities:

- A. Normal startup, operation and shutdown of systems and components needed for the safe storage of nuclear fuel.
- B. Fuel handling operations.



6.4 PROCEDURES (Cont'd)

- C. Actions to be taken to correct specific and foreseen potential malfunctions of systems or components needed for the safe storage of nuclear fuel.
- D. Emergency conditions involving potential or actual release of radioactivity.
- E. Preventive and corrective maintenance operations which could have an effect on the safety of the nuclear fuel.
- F. Surveillance and testing requirements.
- G. Fire protection program implementation.
- H. Process Control Program in-plant implementation.
- I. Off-Site Dose Calculation Manual implementation.

6.5 HIGH RADIATION AREA

As provided in paragraph 20.1601(c) of 10 CFR 20, the following controls shall be applied to high radiation areas in place of the controls required by paragraphs 20.1601(a) and 20.1601(b) of 10 CFR 20:

- A. High Radiation Areas with dose rates greater than 0.1 rem/hour at 30 centimeters, but not exceeding 1.0 rem/hour at 30 centimeters from the radiation source or from any surface penetrated by the radiation:
  - 1. Each entryway to such an area shall be barricaded and conspicuously posted as a high radiation area. Such barricades may be opened as necessary to permit entry or exit of personnel or equipment.
  - 2. Access to, and activities in, each such area shall be controlled by means of Radiation Work Permit (RWP) or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
  - 3. Individuals qualified in radiation protection procedures and personnel continuously escorted by such individuals may be exempted from the requirement for an RWP or equivalent while performing their assigned duties provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.
  - 4. Each individual or group entering such an area shall possess:
    - a. A radiation monitoring device that continuously displays radiation dose rates in the area, or
    - b. A radiation monitoring device that continuously integrates the radiation dose rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or
    - c. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area, or

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- d. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,
  1. Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or
  2. Be under the surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with individuals in the area who are covered by such surveillance.
5. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.
- B. High Radiation Areas with dose rates greater than 1.0 rem/hour at 30 centimeters from the radiation source or from any surface penetrated by the radiation, but less than 500 rads/hour at 1 meter from the radiation source or from any surface penetrated by the radiation:
  1. Each entryway to such an area shall be conspicuously posted as a high radiation area and shall be provided with a locked or continuously guarded door or gate that prevents unauthorized entry, and, in addition:
    - a. All such door and gate keys shall be maintained under the administrative control of the shift supervisor, and/or radiation protection manager, or his or her designee.
    - b. Doors and gates shall remain locked except during periods of personnel or equipment entry or exit.
  2. Access to, and activities in, each such area shall be controlled by means of an RWP or equivalent that includes specification of radiation dose rates in the immediate work area(s) and other appropriate radiation protection equipment and measures.
  3. Individuals qualified in radiation protection procedures may be exempted from the requirement for an RWP or equivalent while performing radiation surveys in such areas provided that they are otherwise following plant radiation protection procedures for entry to, exit from, and work in such areas.

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4. Each individual or group entering such an area shall possess one of the following:
  - a. A radiation monitoring device that continuously integrates the radiation rates in the area and alarms when the device's dose alarm setpoint is reached, with an appropriate alarm setpoint, or
  - b. A radiation monitoring device that continuously transmits dose rate and cumulative dose information to a remote receiver monitored by radiation protection personnel responsible for controlling personnel radiation exposure within the area with the means to communicate with and control every individual in the area, or
  - c. A self-reading dosimeter (e.g., pocket ionization chamber or electronic dosimeter) and,
    1. Be under the surveillance, as specified in the RWP or equivalent, while in the area, of an individual qualified in radiation protection procedures, equipped with a radiation monitoring device that continuously displays radiation dose rates in the area; who is responsible for controlling personnel exposure within the area, or
    2. Be under the surveillance, as specified in the RWP or equivalent, while in the area, by means of closed circuit television, of personnel qualified in radiation protection procedures, responsible for controlling personnel radiation exposure in the area, and with the means to communicate with and control every individual in the area.
  - d. In those cases where option (b) and (c), above, are impractical or determined to be inconsistent with the "As Low As is Reasonably Achievable" principle, a radiation monitoring device that continuously displays radiation dose rates in the area.
5. Except for individuals qualified in radiation protection procedures, or personnel continuously escorted by such individuals, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them. These continuously escorted personnel will receive a pre-job briefing prior to entry into such areas. This dose rate determination, knowledge, and pre-job briefing does not require documentation prior to initial entry.
6. Such individual areas that are within a larger area where no enclosure exists for the purpose of locking and where no enclosure can reasonably be constructed around the individual area need not be controlled by a locked door or gate, nor continuously guarded, but shall be barricaded, conspicuously posted, and a clearly visible flashing light shall be activated at the area as a warning device.

6.6 REPORTING REQUIREMENTS

The following reports shall be submitted in accordance with 10 CFR 50.4.

- A. Deleted
- B. Deleted
- C. Deleted
- D. Radioactive Effluent Release Report

The Radioactive Effluent Release Report covering the operation of the facility shall be submitted by May 15 of each year and in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the facility. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM) and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR 50, Appendix I, Section IV.B.1.

- E. Annual Radiological Environmental Operating Report

The Annual Radiological Environmental Operating Report covering the operation of the facility during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and an analysis of trends of the results of the radiological environmental surveillance activities for the report period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Calculation Manual (ODCM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

The Annual Radiological Environmental Operating Report shall include summarized and tabulated results of all radiological environmental samples taken during the report period pursuant to the table and figures in the ODCM. In the event that some results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as possible in a supplementary report.

6.7 PROGRAMS AND MANUALS

The following programs shall be established, implemented and maintained:

- A. Deleted
- B. OFF-SITE DOSE CALCULATION MANUAL (ODCM)

An Off-Site Dose Calculation Manual shall contain the current methodology and parameters used in the calculation of off-site doses due to radioactive gaseous and liquid effluents for the purpose of demonstrating compliance with 10 CFR 50, Appendix I, in the calculation of gaseous and liquid effluent monitoring alarm/trip setpoints, and in the conduct of the environmental radiological monitoring program.

The ODCM shall also contain the radioactive effluent controls and radiological environmental monitoring activities and descriptions of the information that should be included in the Radioactive Effluent Release Report and the Annual Radiological Environmental Operating Report required by Specification 6.6.D and Specification 6.6.E, respectively.

6.7 PROGRAMS AND MANUALS (Cont'd)

1. Licensee initiated changes to the ODCM:
  - a. Shall be submitted to the Commission in the Radioactive Effluent Release Report for the period in which the change(s) was made effective. This submittal shall contain:
    - i. Sufficient information to support the change together with appropriate analyses or evaluations justifying the change(s) and
    - ii. A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50, and do not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.
  - b. Shall become effective upon approval by the plant manager.
  - c. Shall be submitted to the Commission in the form of a legible copy of the affected pages of the ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month/year) the change was implemented.

C. Deleted

D. Radioactive Effluent Controls Program

This program conforming to 10 CFR 50.36a provides for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable. The program shall be contained in the ODCM, shall be implemented by operating procedures, and shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

- a. Limitations on the functional capability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM;
- b. Limitations on the concentrations of radioactive material released in liquid effluents from the site to unrestricted areas, conforming to 10 times the concentration values in Appendix B, Table 2, Column 2, to 10 CFR 20.1001 - 20.2402;
- c. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents pursuant to 10 CFR 20.1302 and with the methodology and parameters in the ODCM;
- d. Limitations on the annual and quarterly doses or dose commitment to a member of the public from radioactive materials in liquid effluents released from the facility to unrestricted areas, conforming to 10 CFR 50, Appendix I;

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- e. Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days;
- f. Limitations on the functional capability and use of the liquid and gaseous effluent treatment systems to ensure that appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a period of 31 days would exceed 2 percent of the guidelines for the annual dose or dose commitment, conforming to 10 CFR 50, Appendix I;
- g. Limitations on the dose rate resulting from radioactive material released in gaseous effluents from the site to areas at or beyond the site boundary shall be limited to the following:
  - 1. For noble gases: less than or equal to a dose rate of 500 mrems/yr to the total body and less than or equal to a dose rate of 3000 mrems/yr to the skin, and
  - 2. For iodine-131, iodine-133, tritium, and for all radionuclides in particulate form with half lives greater than 8 days: less than or equal to a dose rate of 1500 mrems/yr to any organ;
- h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from the facility to areas at or beyond the site boundary, conforming to 10 CFR 50, Appendix I;
- i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives greater than 8 days in gaseous effluents released from the facility to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and
- j. Limitations on the annual dose or dose commitment to any member of the public, beyond the site boundary, due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

E. TECHNICAL SPECIFICATIONS (TS) BASES CONTROL PROGRAM

This program provides a means for processing changes to the Bases of these Technical Specifications.

- a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.
- b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:
  - 1. A change in the TS incorporated in the license, or
  - 2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59

6.7 PROGRAMS AND MANUALS (Cont'd)

- c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.
- d. Proposed changes that meet the criteria of Specification 6.7.E.b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).