

UNITED STATES OF AMERICA  
 NUCLEAR REGULATORY COMMISSION  
 OFFICE OF NUCLEAR REACTOR REGULATION

J. E. Dyer, Director

In the Matter of	)	Docket No. 50-271
	)	
ENERGY NUCLEAR VERMONT YANKEE, LLC	)	License No. DPR-28
and	)	
ENERGY NUCLEAR OPERATIONS, INC.	)	
	)	
Vermont Yankee Nuclear Power Station	)	
	)	

DIRECTOR'S DECISION UNDER 10 CFR 2.206

I. INTRODUCTION

By letter dated December 7, 2004, Mr. Raymond Shadis of the New England Coalition (the Petitioner) filed a Petition pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 2.206. The Petitioner requested that the Nuclear Regulatory Commission (NRC or Commission) take immediate and decisive action to address the degraded alert and notification system (ANS) at the Vermont Yankee Nuclear Power Station (Vermont Yankee). Specifically, the Petition requested that the NRC order Vermont Yankee to go into cold shutdown and/or take other such action to restore reasonable assurance of adequate protection of public health and safety until Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. (Entergy or the licensee) has provided a workable emergency warning or alert system and the NRC has verified the operability of the system. The Petition included two other requests: (1) the NRC should review all inspection findings and licensee documents on emergency response and notification to determine the extent of condition, including, but not limited to, the extent of condition as it affects emergency response, quality assurance, root cause analysis, and the licensee's corrective action program; and (2) the licensee should

arrange for an independent audit of the emergency response plan (including its assumptions, methodologies, and treatment of human and component performance failures) to determine the extent to which the plan is functional and provides reasonable assurance of adequate protection of the public health and safety through the entire range of accidents assumed in 10 CFR Part 50, Appendix E.

As a basis for the requests, the Petitioner cited concerns about tone-alert radios, route alerting, and licensee performance.

The NRC's Petition Review Board (PRB) met on December 13, 2004, to discuss the request to immediately order the cold shutdown of Vermont Yankee because of the degraded condition of the ANS. NRC staff responsible for reviewing emergency preparedness issues also participated in this meeting. The PRB determined that based on a recently completed inspection of the Vermont Yankee emergency preparedness program, documented in an inspection report dated November 12, 2004, the proposed immediate action was not necessary. As discussed in the inspection report, the NRC identified a violation of the emergency planning standard in 10 CFR 50.47(b)(5) because the licensee's method of distributing tone-alert radios to members of the public outside the area covered by sirens did not meet the intent of the design basis for the ANS. However, the report concluded that this preliminary finding "does not present an immediate safety concern because the licensee has informed the towns to be prepared to do route alerting to ensure that those residents outside of siren coverage are notified in the event of an emergency."

Route alerting relies on emergency personnel from the affected towns notifying residents by public address systems on emergency vehicles. On December 13, 2004, following the PRB meeting, the NRC staff notified the Petitioner by telephone that the NRC denied the request for immediate action, since there is no immediate safety concern according to the inspection report dated November 12, 2004.

In a teleconference on January 6, 2005, the Petitioner and two representatives from the organization Nuclear Free Vermont, Mr. Edward Anthes and Ms. Judy Davidson, provided information to the PRB as further explanation and support for the Petition. The teleconference was transcribed and the transcription was treated as a supplement to the Petition.

In an acknowledgment letter dated January 26, 2005, the NRC informed the Petitioner that the Petition was accepted for review under 10 CFR 2.206 and had been referred to the Office of Nuclear Reactor Regulation for appropriate action.

Copies of the Petition, transcript, and acknowledgment letter are available for inspection at the Commission's Public Document Room (PDR) at One White Flint North, Public File Area O1 F21, 11555 Rockville Pike (first floor), Rockville, Maryland and from the NRC's Agencywide Documents Access and Management System (ADAMS) Public Electronic Reading Room on the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> under ADAMS Accession No. ML050180430. Persons who do not have access to ADAMS or who have problems in accessing the documents in ADAMS should contact the NRC PDR reference staff by telephone at 1-800-397-4209 or 301-415-4737 or by e-mail to [pdr@nrc.gov](mailto:pdr@nrc.gov).

By letter dated May 24, 2005, the NRC staff sent copies of the proposed Director's Decision to the Petitioner and to Entergy and requested comments. By letter dated June 24, 2005, the Petitioner provided comments on the proposed Director's Decision. Those comments are addressed in this Director's Decision.

## II. DISCUSSION

As a basis for the requested actions, the Petitioner raised several concerns about the Vermont Yankee ANS. These concerns and the NRC staff's evaluation of the concerns are discussed below.

## II.a Route Alerting Requirements

### Petitioner's Concerns

During the teleconference on January 6, 2005, the Petitioner questioned whether allowing up to 45 minutes for notification by route alerting meets the design objective of providing prompt public notification "within about 15 minutes," as stated in 10 CFR Part 50, Appendix E.

### NRC Staff Evaluation

According to 10 CFR 50.54(q), nuclear power plant licensees shall follow and maintain in effect emergency plans which meet the standards in 10 CFR 50.47(b) and the requirements in 10 CFR Part 50, Appendix E.

In accordance with 10 CFR 50.47(b)(5), the emergency response plan must establish "means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone" (i.e., the 10-mile emergency planning zone (EPZ)).

In 10 CFR Part 50, Appendix E, Section IV, details are provided on the information that emergency plans must contain to demonstrate compliance with the standards set forth in 10 CFR 50.47(b). Section IV.D.3 of Appendix E states that "[t]he **design objective** of the prompt public notification system shall be to have the capability to **essentially** complete the **initial notification** of the public within the plume exposure pathway EPZ within **about 15 minutes**" [emphasis added].

Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," Revision 4 (July 2003), states that the criteria and recommendations in Revision 1 of NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," dated

November 1980, are acceptable to the NRC staff for complying with the 10 CFR 50.47 standards that must be met in onsite and offsite emergency response plans.

NUREG-0654/FEMA-REP-1, Appendix 3, Section B.2, gives the following minimum acceptable design objectives for coverage by the prompt notification system:

- a) Capability for providing both an alert signal and an informational or instructional message to the population on an area wide basis throughout the 10-mile EPZ, within 15 minutes.
- b) The initial notification system will assure direct coverage of essentially 100% of the population within 5 miles of the site.
- c) Special arrangements will be made to assure 100% coverage within 45 minutes of the population who may not have received the initial notification within the entire plume exposure EPZ.

Federal oversight of radiological emergency planning and preparedness for commercial nuclear facilities involves both the Federal Emergency Management Agency (FEMA) and the NRC. Consistent with President Carter's directive in December 1979 and the longstanding memorandum of understanding between FEMA and the NRC, FEMA takes the lead in reviewing and assessing offsite planning and response (including the ANS) and in assisting State and local governments, while the NRC reviews and assesses onsite planning and response. Using FEMA's input, the NRC then makes a determination on the overall state of emergency preparedness.

FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," dated September 1991, is used by FEMA staff for planning, preparing, and evaluating radiological emergency preparedness (REP) exercises. Section D of FEMA-REP-14 provides an interpretation and application of the guidance in NUREG-0654/FEMA-REP-1 for each of the objectives in an REP exercise. Section D.10, "Alert and Notification," provides guidance on

demonstrating the capability to promptly alert and notify the public within the 10-mile EPZ. With respect to route alerting, the FEMA guidance provides various criteria, depending on the design objective of the route alerting. Three different design objectives for route alerting are discussed: (1) primary route alerting, (2) exception area route alerting, and (3) backup route alerting.

Primary route alerting refers to route alerting anywhere within the 10-mile EPZ that is credited as the primary method of alerting and notifying the public (e.g., in areas not covered by sirens). Primary route alerting should be completed within 15 minutes of the decision by authorized offsite officials to activate the ANS.

Exception area route alerting refers to route alerting in areas 5 to 10 miles from the nuclear plant (areas specified in the offsite response organization's (ORO's) plan) to which the 15-minute alerting and notification does not apply. Exception areas are reviewed and approved by FEMA on a case-by-case basis. Generally, exception areas are remote areas, rural areas, open-water areas, rivers, hunting areas, recreational areas, private compounds, beaches, national forests, and other low-population areas that require special alerting and notification procedures. For this design objective, the route alerting should be completed within 45 minutes of the decision by authorized offsite officials to activate the ANS.

Backup route alerting refers to route alerting anywhere within the 10-mile EPZ and is used in the event of a failure of a part of the primary ANS (e.g., siren failure).

The Vermont Yankee ANS credits sirens and tone-alert radios as the primary methods for providing prompt public notification (i.e., primary route alerting is not credited). In addition, there are no FEMA-approved exception areas for Vermont Yankee. The only route alerting credited for the Vermont Yankee ANS is backup route alerting with prescribed routes, to be used in the event of a failure of a part of the primary ANS.

Based on the above, the NRC staff concludes that for Vermont Yankee, backup route alerting completed within 45 minutes of detection of a failure of the primary ANS meets the intent for prompt public notification as required by 10 CFR 50.47(b)(5) and 10 CFR Part 50, Appendix E, Section IV.D.3.

As noted previously, the NRC identified a violation associated with the emergency planning standard in 10 CFR 50.47(b)(5) because the licensee's method of distributing tone-alert radios to members of the public outside of siren coverage was not meeting the intent of the design basis for the ANS. As a compensatory measure, the licensee notified the affected towns to be prepared to do route alerting. The licensee took corrective actions and, as of March 31, 2005, had distributed tone-alert radios to all residents within the 10-mile EPZ that requested a radio.

## II.b Route Alerting Capabilities

### Petitioner's Concerns

During the teleconference on January 6, 2005, the Petitioner and the representatives of Nuclear Free Vermont raised concerns about the ability of route alerting to provide the necessary notifications. Their concerns were that: (1) route alerting is not practical in poor weather (e.g., snow, ice, mud) since roads would be impassable; (2) the 45-minute timeframe does not include the time needed to get to where the route starts but only the time a person takes to drive the route; (3) route alerting has no provisions for going up driveways and on private roads and getting to people who work outdoors (e.g., farmers, hikers, loggers); (4) it hasn't been demonstrated that route alerting works when people's windows are closed in the winter, when they're watching television, or the stereo is on; (5) route alerting relies on volunteers and some towns don't have enough volunteers or vehicles to drive all the routes; (6) the FEMA drills only require that one route be completed, this does not demonstrate that all routes can be completed; and (7) route alerting does not address the needs of the

special-needs population (e.g, people who are deaf or cannot see an operator driving by or do not have transportation).

*NRC Staff Evaluation*

As noted previously, FEMA takes the lead in assessing offsite State and local planning and response, while the NRC assesses the onsite planning and response. Using FEMA's input, the NRC then makes a determination on the overall state of emergency preparedness.

In April 2003, FEMA conducted an exercise in the 10-mile EPZ around Vermont Yankee. The purpose of the exercise was to assess the level of State and local preparedness to respond to a radiological emergency. The exercise was held in accordance with FEMA's policies and guidance on the exercise of State and local radiological emergency response plans (RERPs) and procedures. During this exercise, FEMA evaluated the capability to perform route alerting within the required 45 minutes. A total of 17 route alert routes were demonstrated (5 in Vermont, 5 in New Hampshire, and 7 in Massachusetts). All of the 17 routes (one for each EPZ community) were completed in less than 45 minutes. No deficiencies were identified during the exercise in any of the areas evaluated, including route alerting. FEMA-REP-14 defines a deficiency as "an observed or identified inadequacy of organization performance in an exercise that could cause a finding that offsite emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant." Accordingly, FEMA concluded that the offsite RERPs and preparedness for the States of Vermont, New Hampshire, the Commonwealth of Massachusetts and their affected local jurisdictions site-specific to Vermont Yankee, can be implemented and provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at Vermont Yankee.



FEMA provided the following information on the Petitioner's concerns:

- (1) FEMA assumes that the emergency vehicles are appropriate for the seasons and weather conditions in the region and can successfully complete routes under these conditions.
- (2) The time frame for demonstrating route alerting begins when the local emergency operations center is notified that there has been a failure of a siren or a tone-alert transmitter.
- (3) There are no specific requirements for how close the route-alerting vehicle must get to a residence (e.g., in the use of private roads and driveways). The driver is expected to follow the prescribed route.
- (4) The sound levels considered acceptable for route alerting should be distinguishable from normal background levels (i.e., 10 decibels above background).
- (5) Local OROs have identified in their RERPs the routes for notifying members of the public in the event of failure of the primary means of notification (i.e., sirens or tone-alert radios). OROs are expected to have emergency response personnel and vehicles available to perform route alerting, and, in the extremely unlikely event of failure of all sirens and radios, OROs would be expected to utilize the personnel and vehicles to notify the public as expeditiously as possible.
- (6) A different route is demonstrated in each EPZ community at each biennial exercise, so that all routes are demonstrated over time.
- (7) Cards are sent annually to all residents for special needs information. The responses are kept in a confidential database at local emergency operation centers. Special-needs coordinators notify these people as appropriate.

In a letter dated February 10, 1999, FEMA notified the NRC that it had completed an analysis of the Vermont Yankee ANS and determined that there was reasonable assurance that the system was adequate to alert and promptly notify the public in the event of a radiological emergency at Vermont Yankee. Based on recent discussions with the NRC staff and taking the Petitioner's concerns into consideration, FEMA has reiterated the position stated in FEMA's February 10, 1999, letter.

Based on FEMA's input, the NRC staff finds reasonable assurance that route alerting at Vermont Yankee will provide the necessary notifications. FEMA did identify deficiencies during the May 24, 2005, exercise; however, these deficiencies do not change the NRC's reasonable assurance finding. The deficiencies identified during the exercise have been corrected.

#### II.c Tone-alert Radios

##### Petitioner's Concerns

The Petition asserted that "many radios, if not most or all radios, are not working, are not receiving or annunciating a periodic test signal, and lack simple, inexpensive contemporary reliability and safety features." During the teleconference on January 6, 2005, the Petitioner and the representatives of Nuclear Free Vermont raised additional concerns pertaining to use of tone-alert radios: (1) a large segment of the population still doesn't have the tone-alert radios; (2) the radios warn of every weather event that's coming for 100 miles around (e.g., thunderstorms) and, therefore, people turn the radios off due to the frequent disturbances caused by the weather alerts; (3) there are problems with the radio battery backup system (the batteries don't hold a charge, so if the power goes out the people don't have usable radios); (4) individual citizens have too much responsibility (they must request a radio, maintain it and get new batteries); (5) the radio instructions for programming the channel are too complicated; and (6) when the radio loses power, it loses its programming if the battery isn't sufficiently charged.

The Petition also stated that “in restoring the emergency notification system, if it is decided to continue with the radio alert systems, certain practicalities and improvements should be considered.” The petitioners recommended that: (1) licensee personnel periodically test the radios in their functional locations and conditions since the burden of checking radio batteries and replacing them falls to the affected public and many people forget to maintain their radios; (2) replacement radios should have a "chirp" function, similar to smoke detectors, to warn that batteries are low; (3) rugged waterproof compact radios should be provided to people who work outdoors; and (4) the distribution of new radios provides an opportunity for distributing potassium iodine tablets and printed emergency instructions.

*NRC Staff Evaluation*

As noted previously, the Vermont Yankee ANS credits sirens and tone-alert radios as the primary methods of prompt public notification. FEMA document FEMA-REP-10, “Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants,” dated November 1985, provides guidance for FEMA's review of the ANS-related aspects of State and local offsite radiological emergency plans. Chapter 1, Section E.6.2, of FEMA-REP-10, elaborates on the acceptance criteria for meeting the design objectives for prompt public notification discussed in NUREG-0654/FEMA-REP-1, Appendix 3, Section B.2. Specific acceptance criteria for tone-alert radios are provided in Chapter 1, Section E.6.2.3, of FEMA-REP-10. Section E.6.2.3 states, in part, that:

Although absolute control of tone-alert radios is forfeited once they are given to the public for use in residences, the following steps can be taken to ensure that the public (in geographic areas where the radios are used as a primary alerting method) is offered the opportunity to benefit from the availability of tone-alert radios. At a minimum, an effective and continual tone-alert radio distribution and maintenance program should be established that includes the following:

- Tone-alert radios should be offered to the public in geographic areas (where needed) and a “best-effort” attempt must be made to place the radios. A record system (register) containing an accurate list of addresses (names are optional) must be maintained for these geographic areas using the tone-alert radios. The addresses of residents refusing tone-alert radios should also be noted.
- A maintenance program offering operating checks should be available at least annually to the public in geographic areas using the tone-alert radios. This maintenance program and the register program (mentioned above) may be integrated.
- Tests offering the public a means to self-test its receivers are desired at least monthly. However, a final determination of testing frequency rests with the appropriate State and local government officials. These test results need not be monitored.
- Written guidance should accompany the tone-alert radios. These instructions should address, where applicable, tone-alert radios:
  - General usage;
  - Self-testing frequency and method;
  - Suggested location (to facilitate efficient monitoring);
  - Maintenance program; and
  - Telephone numbers for repair or replacements.

As a reminder, this written guidance should be provided annually to each tone-alert radio recipient. This portion of the tone-alert radio program may also be integrated with the register and maintenance programs (mentioned above).

- A determination should be made that the broadcast medium for initiating the tone-alert signal has adequate availability (24 hours a day, 7 days a week), signal strength, and signal quality.

When a tone-alert program (as defined above) has been implemented, NUREG-0654/FEMA-REP-1, Revision 1, criteria are satisfied for the tone-alert portion of an alert and notification system.

In a letter dated February 10, 1999, FEMA notified the NRC that it had completed an analysis of the Vermont Yankee ANS. The letter stated that the Vermont Yankee ANS satisfies the requirements of NUREG-0654/FEMA-REP-1, Revision 1, and FEMA-REP-10. On this basis, FEMA's letter concluded that there is reasonable assurance that the system is adequate to alert and promptly notify the public in the event of a radiological emergency at Vermont Yankee. Enclosed with the letter was a report dated June 1996 titled "Vermont Yankee Nuclear Power Station, Site-Specific Offsite Radiological Emergency Preparedness Alert and Notification System, Quality Assurance Verification." A section of the report analyzed the tone-alert radio part of the Vermont Yankee ANS. The report used the guidance in FEMA-43, which has since been superseded by FEMA-REP-10. However, the FEMA-43 guidance on tone-alert radios was nearly identical to the guidance in FEMA-REP-10. This report concluded that the tone-alert system developed for Vermont Yankee meets FEMA guidelines on tone-alert radio systems.

In October 2004, the NRC completed an inspection of the Vermont Yankee emergency preparedness program, as documented in an inspection report dated November 12, 2004. The inspection included a review of the overall status of the tone-alert radio program to ensure that the original ANS design criteria were still being met. The NRC identified a violation of the emergency planning standard in 10 CFR 50.47(b)(5) because the licensee's method of distributing tone-alert radios to members of the public outside the areas covered by sirens did

not meet the intent of the design basis for the ANS. Specifically, the NRC determined that Entergy did not have an active program in place to ensure that all residents outside of siren coverage who needed a tone-alert radio were offered one. Additionally, new residents to the EPZ (outside of siren coverage) might not have had an opportunity to receive tone-alert radios, and residents who had already received tone-alert radios might not be aware of efforts to maintain the radios. These conditions did not fulfill the design criteria used by FEMA when it accepted the licensee's ANS for Vermont Yankee; therefore, the NRC concluded that the licensee did not satisfy the planning standard in 10 CFR 50.47(b)(5).

In a letter to Entergy dated February 2, 2005, the NRC concluded that the inspection finding associated with the tone-alert radios was of low-to-moderate safety significance (a White finding) because "an emergency preparedness risk significant planning standard, namely, the ability to provide early notification and clear instruction to the populace within the plume exposure pathway EPZ, was degraded." The significance of the finding was mitigated by the fact that the majority of the population remained protected by the sirens and a large percentage of the tone-alert radios remained functional throughout the EPZ. The letter also indicated that the NRC recognized that some of the individuals who were not issued tone-alert radios may be notified via other various informal or unplanned methods. However, the licensee does not take credit for these other methods of notification for the Vermont Yankee ANS; therefore, the NRC cannot assume that these methods would be successful. The White finding was determined to be a violation of 10 CFR 50.47(b)(5) and, accordingly, a Notice of Violation was enclosed with the letter.

Entergy responded to the NRC's February 2, 2005, Notice of Violation in a letter dated March 3, 2005. The letter discussed corrective actions that have been taken and corrective actions that were planned to address the tone-alert radio issues. Some of the specific corrective actions identified were as follows:

- As an immediate compensatory measure, towns in the EPZ were prepared to use route alerting for notification in place of the tone-alert radios in the event of an emergency.
- In September 2004, Entergy completed a card mailing to all residences in the 10-mile EPZ to solicit requests for new tone-alert radios.
- In December 2004, Entergy completed the annual calendar mailing of emergency information to residences in the EPZ. As a result of this mailing and the previously-mentioned card mailing, Entergy received requests for approximately 1300 tone-alert radios. Entergy distributed the tone-alert radios, along with the instructions for use, to everyone who requested one. The instructions contain a toll-free number for reporting problems.
- Entergy met with town emergency management directors to understand the historical and current processes used to maintain and track households in possession of tone-alert radios.
- Entergy updated the tone-alert radio computer database based on inputs from the postcard and calendar mailings and inputs from the town emergency management directors.
- An offsite emergency preparedness support procedure has been developed to describe the responsibilities of Entergy, State, and town personnel with respect to tone-alert radios. The procedure addresses distribution, maintenance and testing of the tone-alert radios and provides guidance for reviewing and updating the computer database.
- Entergy will perform an annual mailing of a replacement battery to residents who have accepted a tone-alert radio. This mailing will also be used to update

residents on the use and testing of the radios. These actions are scheduled to be completed by October 31, 2005.

In addition to the specific corrective actions needed to restore compliance with the regulations, Entergy indicated that it planned to make enhancements to the emergency notification systems, including:

- The EPZ siren system will be upgraded and enhanced. The upgrade will replace all existing sirens and the associated control components. Installation and final testing was completed earlier this year.
- Entergy intends to implement an automated telephone notification system. No specific schedule date was provided for this effort.

The NRC conducted a supplemental inspection to determine if the licensee understood the root and contributing causes of the White finding, to assess the licensee's extent of condition review, and to determine if the corrective actions prevent recurrence. The inspection was conducted during the week of May 23, 2005, and the inspection report was issued on July 11, 2005. The inspection report concluded that the licensee's staff understood the root and contributing causes, that the licensee had adequately addressed the extent of condition, and that the corrective actions were adequate to prevent recurrence.

As discussed previously, FEMA's letter to the NRC dated February 10, 1999, stated that FEMA had completed an analysis of the Vermont Yankee ANS and determined that there is reasonable assurance that the system is adequate to alert and promptly notify the public in the event of a radiological emergency at Vermont Yankee. A 1996 FEMA report enclosed with the FEMA letter concluded that the tone-alert radio system developed for Vermont Yankee meets FEMA guidelines for tone-alert radio systems. FEMA headquarters and FEMA Region I staff are aware of the NRC-identified violation of 10 CFR 50.47(b)(5) for the failure of the



tone-alert radio program to meet the intent of the design basis for the Vermont Yankee ANS. Based on recent discussions with the NRC staff, and taking into consideration Entergy's corrective actions as well as the Petitioner's concerns, FEMA has reiterated the position stated in its letter dated February 10, 1999.

Based on FEMA's input, and on our own inspection of the licensee's proposed and completed corrective actions, the NRC staff concludes that there is reasonable assurance that the tone-alert radio program at Vermont Yankee will provide the necessary notifications.

#### II.d Licensee Performance

##### *Petitioner's Concerns*

The petition raised several concerns about licensee performance. Specifically, the petition stated that repeated failures of both physical components and human performance in the area of emergency response and emergency notification are cumulatively sufficient for a determination that Vermont Yankee is operating without a functional emergency response plan and that there are serious systematic flaws in licensee management and operations. The petition also stated that the licensee has established in recent years an extremely poor record in the area of emergency response with wholly inadequate quality assurance, root-cause analysis, and corrective action after procedural, human error, and system failures. The Petitioner provided the following examples to support the concerns:

- The most recent emergency exercise was shot through with organizational and communication failures that duplicated those of the previous exercise.
- During the April 2004 transformer fire, operators displayed a shocking unfamiliarity with use of dedicated emergency notification telephone, ultimately abandoning them to use ordinary phones.
- In another recent instance, an emergency transmitter generator was inadvertently activated when a utility lineman disconnected power supply lines.

The generator then ran until partially filled fuel tanks were exhausted; all without being detected by the licensee.

The petition also stated that the Vermont Yankee public warning system is not operable and cannot at this time pass minimum standards of operability under 10 CFR Part 50, Appendix E, and other applicable regulations. During the teleconference on January 6, 2005, the Petitioner emphasized that the operability question is related to what he believes is a series of failures in emergency notification and emergency response preparedness and that the NRC should determine whether these repeated failures indicate a systemic or management failure.

*NRC Staff Evaluation*

The emergency exercise cited by the Petitioner was the biennial full-participation exercise at Vermont Yankee in April 2003. The NRC staff documented its evaluation of the exercise in an inspection report dated May 20, 2003. The NRC identified one issue of very low safety significance (Green) that was determined to be a non-cited violation of NRC requirements. Specifically, the licensee failed to take adequate corrective actions for eight problems that were found to be repetitive from previous emergency preparedness exercises and drills conducted since 2001 and were again identified during the 2003 biennial exercise. The inspection report indicated that although problems were encountered, the licensee found alternative methods during the exercise for completing the actions needed to meet the exercise objectives and protect the public health and safety. During the most recent emergency preparedness inspection at Vermont Yankee, the inspector assessed the licensee's ability to assess repetitive issues and take effective corrective actions. This is documented in NRC Inspection Report 05000271/2004009, dated November 12, 2004. No findings of significance were identified.

Details regarding the transformer fire are documented in a licensee event report (LER) dated August 16, 2004, and in NRC inspection reports dated July 26 and November 8, 2004.

As discussed in the LER, the licensee declared an "Unusual Event" at 6:50 a.m. because of a fire lasting longer than 10 minutes. The fire was extinguished by 7:17 a.m. through the combined efforts of the automatic fire suppression system, the site's fire brigade, and the local volunteer fire department. During the event, one of the NRC resident inspectors observed that the licensee's control room personnel encountered difficulty in using a new phone system for contacting the emergency management organizations in Vermont, New Hampshire, and Massachusetts. As a result, the licensee used an alternate phone and did not complete the notifications until 7:21 a.m. Section IV.D.3 of Appendix E to 10 CFR Part 50 states that licensees shall have the capability to notify responsible State and local governments within 15 minutes after declaring an emergency. Although the phone system has the capability to provide the notifications within 15 minutes, actual notifications took longer than 15 minutes because of the problems in using the phone system. Consistent with the guidance in NRC Inspection Manual Chapter 0612, the NRC staff determined that Entergy's delay in notifying the States of the Unusual Event was of minor significance. There was no actual safety consequence to the delay since the States were all notified of the event and did not need to take any action. The delay had little or no potential to impact safety since the delayed notification was due to operator error in using the upgraded system and methods were available to make the required notifications. Entergy provided training to address the human performance problem.

The third example cited by the Petitioner relates to a Vermont Yankee 10 CFR 50.72 event notification report dated July 21, 2004. The licensee was notified by its radio and siren vendor that the Ames Hill transmitter (which activates tone-alert radios) was inoperable between 7:30 p.m. on July 20, 2004, and 10:55 a.m. on July 21, 2004, due to a loss of normal power and a failure of its backup generator. The NRC Region I staff has reviewed the events and circumstances surrounding the Ames Hill transmitter failure and did not identify any findings of significance. If an emergency at Vermont Yankee requires use of the tone-alert radios, the

Vermont Emergency Management (VEM) organization notifies the National Weather Service (NWS) in Albany, New York. If the NWS determines that the tone-alert radios cannot be activated, as would be the case if the Ames Hill transmitter was inoperable, the NWS would inform VEM and the emergency management organizations in New Hampshire and Massachusetts. The States, in turn, inform the affected towns to do backup route alerting.

The NRC staff reviews Vermont Yankee performance under the Reactor Oversight Process for the Emergency Preparedness cornerstone. During the fourth quarter in 2004, there was one White finding and one Green finding, which were both documented in an inspection report dated November 12, 2004. The White finding involved the tone-alert radio issue discussed previously. The Green finding involved the licensee's failure to assign continuous onshift responsibilities for reading the facility seismic monitoring system, thereby affecting the ability to promptly classify a seismic event. There were no other findings in the Emergency Preparedness cornerstone in 2004, or in the first quarter of 2005. In addition, all performance indicators in the Emergency Preparedness cornerstone are currently at a level requiring no additional NRC oversight (Green). As described in the NRC's annual assessment letter to Entergy dated March 2, 2005, overall Vermont Yankee operated in a manner that preserved the public health and safety and fully met all cornerstone objectives. Plant performance for the fourth quarter of 2004 was in the Regulatory Response column of the NRC's Action Matrix, based on the one White finding. As mentioned before, the NRC conducted a supplemental inspection and determined that the licensee's root cause evaluation, extent of condition review, and corrective actions were acceptable.

Based on the above evaluation, the NRC staff has determined that no other action beyond the normal baseline inspection activities is needed at this time to address the licensee's performance related to the Emergency Preparedness cornerstone.

III. CONCLUSION

The NRC staff has reviewed the basis for the Petitioner's requested actions. Based on the evaluations in Section II, the staff concludes that: (1) route alerting completed within 45 minutes of detection of a failure of the primary ANS meets the requirements for prompt public notification in 10 CFR 50.47(b)(5) and 10 CFR Part 50, Appendix E, Section IV.D.3; (2) there is reasonable assurance that backup route alerting for an event at Vermont Yankee will provide the necessary notifications; (3) there is reasonable assurance that fixed sirens combined with the tone-alert radio program at Vermont Yankee will provide the necessary notifications; and (4) no other action is needed at this time to address the licensee's performance related to the Emergency Preparedness cornerstone. Based on these conclusions, the NRC denies the Petitioner's requests described in Section I.

As provided in 10 CFR 2.206(c), a copy of this Director's Decision will be filed with the Secretary of the Commission for the Commission to review. As provided for by this regulation, the Decision will constitute the final action of the Commission 25 days after the date of the Decision unless the Commission, on its own motion, institutes a review of the Decision within that time.

Dated at Rockville, Maryland, this 7th day of November 2005.

FOR THE NUCLEAR REGULATORY COMMISSION

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J. E. Dyer, Director  
Office of Nuclear Reactor Regulation