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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
Before Administrative Judges:  
Sheldon J. Wolfe, Chairperson  
Emmeth A. Luebke  
Jerry Harbour

OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

_____ )	
In the Matter of )	
PUBLIC SERVICE COMPANY OF NEW )	Docket Nos.
HAMPSHIRE, ET AL. )	50-443/444-OL-1
(Seabrook Station, Units 1 and 2) )	(On-Site EP and
_____ )	safety issues)
	March 20, 1987

MOTION OF ATTORNEY GENERAL JAMES M. SHANNON  
TO FILE A LIMITED REPLY TO APPLICANTS'  
ANSWER TO ATTORNEY GENERAL'S MOTION TO RECONSIDER

Attorney General James M. Shannon hereby moves the Licensing Board pursuant to 10 CFR § 2.730(a) and (c) for permission to file a limited reply to Applicants' Answer to Motion of Attorney General James M. Shannon to Reconsider Late-Filed Contention with Revised Basis and to Reopen the Record, dated March 13, 1987, in order that the Attorney General may apprise the Board of two apparent misrepresentations in Applicants' pleading. The reply the Attorney General seeks to make is attached hereto as "Exhibit A."

As basis for this motion Attorney General Shannon states that Applicants have made two misrepresentations in their

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pleading in response to the Attorney General's motion. In order that this issue to reopen the record may be fairly decided the Board should be apprised of such misrepresentations and all facts relevant thereto. Therefore the Attorney General seeks permission to file this limited reply.

Respectfully submitted,

JAMES M. SHANNON  
Attorney General

By:

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Dated: March 20, 1987

Exhibit "A"

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
Before Administrative Judges:  
Sheldon J. Wolfe, Chairperson  
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	March 20, 1987

ATTORNEY GENERAL JAMES M. SHANNON'S  
REPLY TO APPLICANTS' ANSWER TO  
ATTORNEY GENERAL'S MOTION TO RECONSIDER

Attorney General James M. Shannon hereby files this limited reply to Applicants' Answer to Motion of Attorney General James M. Shannon to Reconsider Late-Filed Contention with Revised Basis and to Reopen the Record, dated March 13, 1987. The Attorney General files this reply to apprise the Board of two apparent misrepresentations in Applicants' pleading. The two misrepresentations and the Attorney General's response thereto are as follows:

1. Applicants state at page 3 of their pleading, that "utilization of the appropriate 1/3 octave band is the correct procedure." Repeating this conclusion, the Callendrello

Affidavit submitted in support of Applicants' Answer states that FEMA guidance specifies that "background noise level should be measured in th[e] one-third octave band . . . ." Calendrello Affidavit at p. 2, citing Standard Guide for the Evaluation of Alert and Notification for Nuclear Power Plants, FEMA-43, dated September, 1983. Applicants' pleadings thus imply that measurements taken in the full octave band are inappropriate and not in accord with the FEMA guidance.

In fact, FEMA made clear when publishing the more recent guidance, Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants, FEMA-REP-10, dated November, 1985, that background sound measurements can be taken in either the one-third or the full octave band. See 50 Fed. Reg. 43084, 43085 ["Attachment A" hereto].

It is clear, then, that background sound measurements taken by both the Attorney General and the Applicants were performed in appropriate octave band widths and that a material dispute as to fact exists concerning whether the siren system in Merrimac indeed "exceeds the average measured summer daytime ambient sound pressure levels by 10 dB" as required by FEMA. See FEMA-REP-10, at E-8, E-9. In fact, HMM Associates, upon whom Applicants rely for their current measurements, stated in the Seabrook Station Public Alert and Notification System Final Design Report, dated January 1984, [Final Design Report], that sound levels observed at each of the Seabrook sites "typically

span a range of 30 dB or more." Final Design Report at p. 12 ["Attachment B" hereto]. It is not surprising, therefore, that the measurements submitted by the Attorney General and the Applicants vary somewhat. Taken as they were on different times for short periods of time, they serve to prove only that winter background noise varies a great deal, probably due to the variation in background noise generated by traffic and wind bluster. This raises the question of how one goes about measuring the "average summer daytime" background noise, as FEMA-REP-10 requires. Logic and common sense suggest that such an "average" can be computed only from a series of measurements over a number of days with differing wind, weather, and traffic conditions. Furthermore, it would be more appropriate to take these measurements using the L50 level, not the L90 level. This, in fact, is what Applicants' experts at HMM recommended in the Final Design Report they conducted [see "Attachment B"]. In this report HMM stated that in determining the "average daytime level," as required by FEMA, sound measurements should be provided in the L50 level, that is the sound level that is exceeded 50% of the time, rather than in the L90 level (the level used by Applicants to indicate compliance with the FEMA standard), which only indicates the sound level exceeded 90% of the time. It is clear from all this that a reopening of the record is therefore warranted to determine whether sirens in Merrimac do meet the FEMA standard

and, thus, whether there exists reasonable assurance that the notification sirens in Merrimac will be heard by that entire populace.

2. Applicants state at page 5 of their Answer, as if it were relevant, that, "At a time when the siren system had yet to be designed and constructed, Massachusetts showed no interest at all in raising a contention about the sirens of any kind."

In fact Massachusetts twice filed contentions related to the lack of a siren system prior to the design and construction of such system. See Commonwealth of Massachusetts Supplement to Petition to Intervene, dated April 20, 1982, Contention 4; Contentions of Attorney General Francis X. Bellotti Relative to Emergency Planning for the State of New Hampshire, dated June 23, 1983, Contention III. When the siren system was later designed, it called for six sirens to be located in Merrimac, see Final Design Report, dated January, 1984, at p. 18. Those six sirens were then reduced to three, see, e.g., State of New Hampshire RERP Rev. 1, Vol. 1, p. 2.1-11, dated June 1986, and it is only now that Applicants have indicated that they intend to install only two of those three sirens. It is only now, therefore, that the Attorney General has cause to once again raise this issue of siren coverage. The Attorney General strongly resents Applicants' attempts to call into question the motives of the Attorney General in raising this motion; such name-calling as

Applicants stoop to at page 5 of their Answer should have no place in this litigation. If Applicants had last summer determined average background noise levels for Merrimac in accordance with the FEMA guidance, of which they were well aware, there would, perhaps, never have been a need for the Attorney General to file these motions to ensure adequate siren coverage.

Respectfully submitted,

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Dated: March 20, 1987

# **federal register**

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**Wednesday  
October 23, 1985**

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**Part III**

## **Federal Emergency Management Agency**

**Guide for the Evaluation of Alert and  
Notification Systems for Nuclear Power  
Plants; Notice of Availability**

## FEDERAL EMERGENCY MANAGEMENT AGENCY

### Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants

**AGENCY:** Federal Emergency Management Agency (FEMA).

**ACTION:** Notice of availability of a final guidance document for the evaluation of alert and notification systems for nuclear power plants and summary of comments on interim edition.

**SUMMARY:** FEMA is issuing FEMA-REP-10, *Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants*, incorporating public comments on the interim use draft, previously published as FEMA-43. Copies will be available for public distribution on November 1, 1985. Copies will be distributed for information and use to state and local governments with nuclear power plants operating, planned, or under construction; utilities; other affected federal agencies; and interested industry persons affected by nuclear power. Copies are available at the address listed below.

**FOR FURTHER INFORMATION CONTACT:** Craig S. Wingo, Chief, Field Operations Branch, Technological Hazards Division, Federal Emergency Management Agency, Washington, DC 20472 (Telephone 202-646-3026).

**SUPPLEMENTARY INFORMATION:** On September 15, 1983, FEMA published in the *Federal Register* a notice of the availability of FEMA-43, an interim guidance document titled *Standard Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants*, for public comment and use pending the issuance of a final edition (43 FR 41516). This document was developed to elaborate upon the requirements of 44 CFR Part 350 related to alert and notification systems and to provide guidance regarding the evaluation of these systems. FEMA-43 intended to: (1) Assist state and local planners and utilities in understanding the acceptance criteria that FEMA will use to assess the adequacy of alert and notification systems; and (2) to assist FEMA personnel in uniformly interpreting and applying the applicable planning standards and criteria from NUREG-0654/FEMA-REP-1, Rev. 1, during actual evaluations of the alert and notification systems.

#### Public Comments

The notice of availability of FEMA-43 was published in the *Federal Register* on September 15, 1983, with a comment period through December 1, 1983.

Specific comments were provided by six state government agencies, four individual utilities, three utility industry groups, two local government organizations, and one Nuclear Regulatory Commission (NRC) staff member. These comments and FEMA's response to them are summarized as follows:

**Content of Submittals—**One-half of those who provided comments, including all four of the individual utilities, two of the utility industry groups, and two of the states, expressed some concern about the level of detail required by FEMA-43 for alert and notification system design reports. These comments addressed the overall scope of the guide as well as specific aspects of the recommended format for submittals (Appendix 1) and the requirements for maps, case-by-case analysis of institutional alerting systems, presentation of the rationale for broadcast system selection, and description of the administrative means of alerting the public.

In response to these comments, FEMA re-evaluated its map requirements and eliminated the requirements for case-by-case analysis of institutional alerting systems and presentation of the rationale for broadcast system selection. FEMA-REP-10 summarizes the map requirements in Appendix 2, which includes modifications to eliminate requirements for duplicative information on map(s) and to indicate that any map(s) will be acceptable if they clearly and accurately depict required information. FEMA has also revised Appendix 1 in FEMA-REP-10 to eliminate prescriptive format requirements and to make it more useful as an aid for ensuring completeness in the preparation of alert and notification system sections of existing plans and for state and local personnel developing a plan for the first time. However, apart from those changes, editorial clarifications, and modifications made in response to other comments, FEMA believes that the level of detail required previously by FEMA-43 and now by FEMA-REP-10 is necessary and appropriate. In particular, the information required in describing the means of alerting is consonant with that specified in Appendix 3 of NUREG-0654/FEMA-REP-1, Rev. 1.

**Relationship of FEMA-43 to Existing Plans and Guidance—**Fourteen of the commenters raised issues concerning the relationship of FEMA-43 to existing plans and guidance. Two of the state government agencies, one utility, and the NRC staff member expressed concerns about the effect of FEMA-43 on existing plans. Four of the state and

two of the local government agencies, all four utilities, and two of the utility industry groups took exception to NUREG-0654/FEMA-REP-1, Rev. 1, guidance quoted in FEMA-43. Finally, the NRC staff member noted that NUREG-0654/FEMA-REP-1, Rev. 1, is currently undergoing review and revision, and therefore, conforming changes to FEMA-43 may be required.

In response to these comments, FEMA notes that, prior to the publication of FEMA-43, approval of state plans under 44 CFR Part 350 was conditioned upon an evaluation, which could not be completed at that time on the adequacy of alert and notification systems. Those portions of such plans responsive to alert and notification requirements would be subject to review under FEMA-REP-10, and a final finding would be issued to grant full approval, if warranted. However, FEMA does not intend that FEMA-REP-10 require states to restructure or resubmit previously submitted plans (or even plans already prepared for submittal). In such cases, an attachment to the plan may be prepared addressing only the alert and notification system and referencing existing documents to the extent practical. FEMA also notes that the planning and preparedness standards and related criteria contained in NUREG-0654/FEMA-REP-1, Rev. 1, are incorporated in 44 CFR 350.5 directly and by reference. Comments concerning NUREG-0654/FEMA-REP-1, Rev. 1, are not appropriate to FEMA-43 and should have been provided in response to the publication or public comment of the proposed 44 CFR 350. Finally, FEMA agrees that criteria affecting alert and notification systems as well as other parts of 44 CFR 350 may change if NUREG-0654/FEMA-REP-1, Rev. 1, is modified at some future date.

**FEMA-43 Acceptance Criteria—**Twelve of those who provided comments raised issues related to acceptance criteria for specific alert and notification system components. One of those who commented felt that, overall, FEMA-43 emphasized the required content of the design report at the expense of providing specific criteria for reviewers to use in evaluating submittals. Addressing siren system criteria, one utility and a utility industry group recommended that field survey ambient sound level measurements include the full (rather than the one-third) octave band in which the predominant siren sound occurs. One local government group also recommended that siren systems be required to have backup power. Concerning tone alert radios, two

utilities and a utility industry group contended that the development and maintenance of a tone alert radio address register was overly burdensome and should be required only if public surveys indicate a problem with tone alert radio distribution. These groups also thought the requirement for annual written instructions was excessive. However, a local government commented that more frequent written instructions were required and that increased training was needed for institutional tone alert radio users. Addressing the Emergency Broadcast System (EBS), three state government agencies, all four utilities, and two utility industry groups commented on the recommendation that the broadcast of EBS messages at least every 15 minutes during a general emergency was excessive, particularly if a different message had to be prepared for each broadcast. One utility industry group also noted that since individual radio station participation in the EBS is voluntary, it may not be possible to obtain the formal participation agreements required in FEMA-43.

In response to these comments, FEMA has modified the field survey ambient sound measurement recommendations to permit use of the full octave band in which the predominant siren sound level occurs, and replaced the requirement for written agreements that individual broadcasting stations will participate in the EBS with a requirement for documentation indicating that they are able to participate in the EBS.

FEMA has not included a specific requirement that backup power be provided for siren systems for the following reasons. Due to electric power grid interconnections, the loss of normal power to a significant number of sirens would most likely occur coincident with a power outage covering the entire EPZ. Such large power losses are infrequent and are usually caused by adverse weather conditions. Since nuclear power plant general emergencies are extremely unlikely, the likelihood that these two events will occur simultaneously is extraordinarily small. A power outage may prompt many people to turn on their battery-powered radios in an attempt to determine its cause. In light of those considerations, FEMA does not believe it necessary to specifically require backup power for siren systems.

FEMA has not modified the guidance concerning tone alert registers and instructions. Several electric utilities have already developed tone alert radio registers without any apparent excessive burden. FEMA reviews of alert and notification systems have not

identified any concerns about distribution of instructional materials. Should such concerns be identified during the public surveys conducted as a part of these reviews, FEMA will address them on a case-by-case basis.

The recommended minimum broadcast interval has not been changed because FEMA believes that frequent broadcasts are necessary to be certain that the public remains adequately informed during an emergency. However, FEMA notes that this broadcast interval is recommended rather than required and that, if no significant new information has developed during the 15-minute interval, it would be appropriate to rebroadcast the preceding message.

*Drills and Exercise*—The comments addressed four areas on the conduct and evaluation of drills and exercises. Four utilities and two utility industry groups commented that the purpose of communication drills was to test the equipment and system rather than to determine that specific individuals were available for a drill. One state agency commented that the maintenance of drill records for at least 5 years seemed excessively burdensome. One state agency, four utilities, and two utility industry groups disagreed with the exclusion of individuals with direct or supervisory responsibility for planning or operation of the alert and notification system from the exercise critique, evaluation process. Finally, one state agency took exception to consideration of Planning Standard N in FEMA-43 since NUREG-0654/FEMA-REP-1, Rev. 1, makes no direct mention of its applicability to alert and notification systems.

In response to those comments, FEMA included modifications in FEMA-REP-10 to indicate that decision makers need not participate in communication drills, to eliminate the 5-year retention requirement for exercise and drill records, and to permit individuals with direct and supervisory responsibility for planning or operation of the alert and notification system to participate in the exercise criteria evaluation process. However, FEMA regards communication drills as more than mere tests of equipment. As stated in NUREG-0654/FEMA-REP-1, Rev. 1, "a drill is a supervised instruction period aimed at testing, developing, and maintaining skills." The skills referred to are those of the personnel responsible for operating the equipment. FEMA also believes that consideration of Planning Standard N in FEMA-REP-10 is appropriate since exercising the alert and notification system is an integral part of the exercise

of overall emergency response capability.

*Public Surveys*—Six of those who provided comments addressed the public survey techniques that FEMA-43 specifies for use during the alert and notification system demonstration. Three utilities and a utility industry group recommended that the guide make it clear that the public survey will be conducted only for initial system approval and will not be repeated unless significant system design changes are made. One local government organization suggested that the survey include a determination of what the respondent in fact knows about the meaning of the alerting signal and what he or she was instructed to do on perceiving the signal. Finally, one state government agency suggested that the survey sample size be re-examined.

In response to these comments, the discussion of survey sample size in FEMA-REP-10 has been clarified. The survey sample size is determined using accepted standard statistical techniques discussed in numerous texts covering sampling theory. The specific derivation for this application is presented in Appendix 3 of FEMA-REP-10. However, FEMA has decided that once an alert and notification system has been officially approved under the FEMA-REP-10 process, future public surveys will not be required unless one of the following conditions is encountered:

- there is significant change in the emergency planning zone population around the nuclear power plant;
- there is significant modification to the physical components of the alert and notification system; or
- there is a serious problem identified in some aspect of the alert and notification system.

FEMA also notes that the Office of Management and Budget, in approving the public survey program, stated that FEMA should not be expected to make certain that the public has read or understands the alert and notification information provided to it.

*Siren Testing and Operability*—Two utilities and two utility industry groups recommended that the guide be modified to indicate that scheduled testing programs differing from the one specified in FEMA-43 may be acceptable.

In response to these comments, FEMA has adopted a less prescriptive approach to evaluating routine siren testing and operability that is described in Appendix 4 of FEMA-REP-10.

*FEMA-43 Scope*—Three state government agencies, one local

Attachment "B"

(contains cited portion of Final  
Design Report only)

**SEABROOK STATION  
PUBLIC ALERT AND NOTIFICATION SYSTEM**

**FINAL DESIGN REPORT**

Prepared for  
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE  
Manchester, New Hampshire  
January 1984

**HMM Associates, Inc.**  
Concord, Massachusetts

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The background noise that contributes to the masking of a siren sound is contained in a relatively narrow frequency band centered on the frequency of the predominant siren tone. This band, sometimes called the "critical band," is very narrow: typically 1/6 to 1/10 of an octave wide. Filters for measuring the background noise in such a narrow band are not readily available. The sirens to be installed around Seabrook Station will produce tones at 700 Hz. Hence, the measurements reported here were made with an octave-band filter centered at 500 Hz (i.e., a filter spanning the range from 353 Hz to 707 Hz).

Because the octave band contains much more noise energy than the critical band of interest, the measured data were converted to equivalent 1/3 octave band levels by subtracting 5 dB (i.e.,  $10 \log(1/3)$ ). FEMA suggests the use of 1/3 octave bands for ambient noise measurements.<sup>[7]</sup> Of course, the critical band is even narrower than 1/3 octave, so the data reported herein are somewhat higher than the actual background noise of interest, and hence more conservative.

#### 2.4.6 Results

The data sheets from each of the seventeen measurement locations are given in Appendix A. The data are in the form of "L-levels." The  $L_{10}$  is the level that was exceeded 10% of the time during the 1/2-hour sampling period; the  $L_{50}$  was exceeded 50% of the time; the  $L_{90}$ , 90% of the time; etc. The maximum and minimum momentary levels that were observed are also reported, along with the equivalent level:  $L_{eq}$ . The  $L_{eq}$  is the level of a hypothetical steady sound that would have had the same energy over the half-hour period as the actual, fluctuating noise. Because sound is measured on a logarithmic scale, the  $L_{eq}$  tends to be influenced by brief, intense noises.

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[7] FEMA-43, "Standard Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants," September 1983. Section E.6.2.1, pp. E-6.

The data in Appendix A include the -5 dB correction to 1/3-octave-band levels.

The levels observed at each site typically span a range of 30 dB or more. This raises the question as to which level in that range should be used as the masking level. An estimate that is often used is the  $L_{90}$  level. This is called the "residual" level, and it generally characterizes the background in the absence of brief transient noise sources like passing vehicles. [8]

For the purposes of this study a more conservative value, the  $L_{50}$ , is used. The  $L_{50}$ 's are tabulated on Table 2.3. The  $L_{50}$ , or median level, could be considered representative of the "average daytime level" used by FEMA in FEMA-REP-1 and FEMA-43. For sirens operating 15 minutes or longer, the  $L_{50}$  would establish the highest possible masking level. For sirens operating less than 15 minutes, there would be some chance of masking at higher levels. This chance would increase as the siren duration decreased. Examination of the  $L_{50}$  levels on Table 2.3 indicates that only one exceeds the 50 dB "rural" design level provided by FEMA/NRC. This is 53 dB at site #10 in downtown Portsmouth. The site is clearly in an urban area where FEMA/NRC's 60 dB design background level applies.

Three other sites are worth mentioning. At site 3 in Salisbury, 50 dB was observed and at Site 8 in Seabrook 48 dB was observed. Both sites are close to Interstate 95 and receive relatively steady traffic noise from that source. The siren system for these locations is designed for 60 dB (i.e., urban) background noise. Finally, at site 16 in downtown Exeter, 48 dB was observed. Siren coverage in that area is also designed for a 60 dB background. At all other sites, the  $L_{50}$  was 45 dB or less.

In conclusion, the background noise measurements confirm that the FEMA/NRC design levels are suitable, and quite conservative.

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[8] US EPA NTID 300.3, "Community Noise," December 1971.

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OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

Docket No.(s) 50-443/444-OL-1

CERTIFICATE OF SERVICE

I, Carol S. Sneider, hereby certify that on March 20, 1987 I made service of the within document, by mailing copies thereof, postage prepaid, by first class mail, or as indicated by an asterisk, by Federal Express mail, to:

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