Federal Emergency Management Agency
Washington, D.C. 20472

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Ms. Kathy Halvey Gibson, Chief
Emergency Preparedness and
Health Physics Section
Operator Licensing, Human Performance,
And Plant Support Branch
Division of Inspection Program Management
Office of Nuclear Reactor Regulation
Nuclear Regulatory Commission
Washington, D. C. 20555-0001

Dear Ms. Gibson:

This is in response to your letter dated October 19, 2001, concerning the testing and evaluation of personal home alerting devices (PHAD) as part of the alert and notification system (ANS) in the emergency planning zone (EPZ) of Beaver Valley Power Station (BVPS).

Presented below are answers to each of your questions as to what is stated in the design report and the basis for acceptance by FEMA of the PHAD horns.

1. *Are the PHADs integral to the BVPS ANS? That is, were they relied upon to meet the FEMA-REP-10 acceptance criteria? The licensee stated that the PHADs cover 2-3percent of the population in the 0-10 mile EPZ in Beaver County only, based on 1980 census data.*

   Based on the applicable FEMA and NRC guidance, "Guidance for the Evaluation of Alert and Notification Systems for Nuclear Power Plants," FEMA-REP-10, November 1985; "Standard Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants," FEMA- 43, September 1983; Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654/FEMA-REP-1, Rev. 1, November 1980; and the BVPS design report, the PHAD horns were determined to be an integral part of the BVPS outdoor emergency warning system.

   Appendix 3 of NUREG-0654/FEMA-REP-1 Rev. 1 requires the initial notification system to assure direct coverage of essentially 100 percent of the population within five miles of the site and to have the capability for providing an alert signal on an area wide basis throughout the 10-mile EPZ within 15 minutes. The term "essentially 100 percent" must be interpreted in manner that is

consistent with the guidance that the siren system must be enhanced. Thus, potential exclusion of 3 percent of the population out of the range of the sirens does not equate with essentially 100 percent notification.

2. *If the PHADs are not integral, what level of maintenance and testing is necessary to fulfill the licensee's commitments to NRC and FEMA ?*

The PHADs are integral to the BVPS ANS as stated in the response to question number 1.

3. *If the PHADs are integral to ANS:*

   a. *What level of testing is adequate?*

FEMA-43, Section E.6.4.2.1, General Acceptance Criteria for Special Alerting Methods, states: "In general, full-scale [special alerting] equipment testing should be conducted at least annually." FEMA recognizes that it may not be prudent or feasible to conduct full performance tests of certain systems during exercises or annually. Further, Appendix 1 of FEMA-43 requires the design report to include a description of the testing and maintenance program for any equipment necessary to employ each special alerting method. Attachment 1 to the design report described the testing that would be performed on the PHAD horns. This testing method, in conjunction with the regular inspection of all Load Management Terminals, was accepted by FEMA as meeting the applicable guidance FEMA-43.

   b. *Should the testing frequency for individual PHADs be consistent with the pole-mounted sirens?*

The applicable guidance is that the testing be prudent and feasible and, in general be performed annually.

   c. ***Should testing data on PHADs be included in the annual FEMA report, like data on pole-mounted sirens?***

The design report stated that the system testing communication statistics would be kept and that there was a system threshold limit that alerted the operator. There is no apparent reason why this information was not reported on a regular basis, as would be reasonably inferred from the design report statements and the applicable guidance from FEMA-43, Appendix 1, Section E.6.2.4. System testing communication statistics should be reported.

   d. ***In view of the number of devices (approximately 1200), do all PHADs need to be tested annually, or can they be tested over some period such as 5 years? Would the latter alternative require a sampling technique? If so, what guidance exists for such sampling (i.e., minimum number of home surveys/input while testing)?***

Approximately 15 percent of the PHADs horns Load Management Terminals were described in the design report as having two-way communication capability that is tested daily. In accordance with FEMA–43 and FEMA REP-10, full scale equipment testing should be conducted at least annually if prudent or feasible. Based on the system design, a suitable testing scheme should have already been developed and implemented consistent with the licensee commitments found in the design report.

At the time of acceptance of the BVPS ANS, Duquesne Light was both the licensed operator of BVPS and local electrical distribution company for most of Beaver County. The design report states: "Installation and maintenance of the Load Management Terminals are performed by Duquesne Light Company meter crews and visual inspection of the equipment can be made by our billing meter readers." The 15 percent testing sample was accepted, in part, because all of the Load Management Terminals would receive regular visual inspection by Duquesne Light meter readers. This inspection process would act to further assure PHAD horn system reliability. Thus, if First Energy Nuclear Operating Company (FENOC) is not continuing to perform this action--either directly or by suitable agreement between FENOC and Duquesne Light--to assure that inspection and replacement as necessary will continue to be performed by suitably trained personnel, a change in the PHAD system testing would be required to assure all PHAD horns remain operational.

4. *PHADs are only installed in Beaver County, PA. West Virginia and other areas of the 10 mile EPZ with similar terrain do not have them. Why are PHADs installed in PA only?*

At the time of the design report, Duquesne Light Company was the licensed operator of BVPS as well as the local electrical distribution company. Since the PHADs require power line carrier signals, control over the local transmission and distribution network, via the local electrical distribution company, would be required to superimpose the carrier wave signal.

5. ***The engineering design review used by FEMA for ANS approval also stated that route alerting and PHADs were supplemental to the sirens for notification. Should route alerting in the three affected counties be automatic?***

The engineering design review states: "Transferring the population density information to the system coverage map indicates that the siren system augmented by the personal home alerting device system would provide the minimum 60 dBC coverage for most areas with less than 2000 persons per square mile and a minimum of 70 dBC where population exceeds 2000 persons per square mile." The outdoor emergency warning system comprised of pole mounted sirens plus 1200 PHADs as described in the design report was evaluated and found acceptable by FEMA without consideration of route alerting. Route alerting would be used in the event of siren failure for all three counties.

6. ***Should the licensee be held to additional criteria for special alerting methods as specified in FEMA-REP-10, Section E.6.2.1, regardless of whether PHADs are integral to ANS?***

   As stated in response number 1 above, the PHAD horns are integral to the BVPS ANS. The design report was accepted by FEMA as meeting the applicable requirements of FEMA-43. There are no significant differences in criteria found in FEMA-REP-10 or FEMA-43.

Please contact me at (202) 646-3664 should you have questions or require additional information.

Sincerely,

O C Payne for

Vanessa E. Quinn
Chief
Radiological Emergency Preparedness Branch