

April 12, 2002

EA-02-041-1

Mr. L. W. Myers  
Senior Vice President  
FirstEnergy Nuclear Operating Company  
Beaver Valley Power Station  
Post Office Box 4  
Shippingport, Pennsylvania 15077

SUBJECT: BEAVER VALLEY POWER STATION - NRC INSPECTION REPORT  
50-334/02-03, 50-412/02-03

Dear Mr. Myers:

The NRC conducted an in-office inspection of details of the public alert and notification system (ANS) for the Beaver Valley Power Station (BVPS) between February 1 and March 15, 2002. This inspection was a follow-up to our unresolved item identified in Inspection Report 50-334; 50-412/01-008, issued October 17, 2001, pertaining to personal home alerting devices (PHADs), which are a part of the ANS. The enclosed report documents the inspection findings that were discussed via telephone on March 15, 2002, with yourself, and other members of your staff.

This inspection examined activities conducted under your licensee as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspection consisted of a thorough examination of your emergency plan, the design documentation for the ANS, and results from your staff's testing and surveying the ANS since the issue was identified.

The PHAD issue was Unresolved when the inspection report was issued in October 2001, because more information was needed to determine its significance. Specifically, input from FEMA was needed to determine if the PHADs were integral to the ANS, and information was needed from you regarding the general operating condition of the PHADs. On October 19, 2001, the NRC sent a letter (Accession Number ML012880390) to FEMA requesting answers to several questions regarding PHADs. We received FEMA's reply on February 5, 2002 (Accession Number ML020650586).

Based on the results of this inspection, one preliminary finding of substantial safety significance (Yellow) was identified. The finding is associated with the failure to ensure that the ANS, as designed and approved by FEMA, was maintained and operable to perform its function. Specifically, there was no assurance that the PHADs were being tested and maintained so as to fulfill their design function within the ANS. The finding has substantial safety significance because portions of the emergency planning zone would not be adequately covered by the ANS

to alert the public in Beaver County of a radiological emergency at the BVPS. The failure to maintain the ANS design function is an apparent violation of 10 CFR Part 50.47(b)(5) and is being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600. The current Enforcement Policy is accessible from the NRC Web Site at <http://www.nrc.gov>.

We believe that we have sufficient information to make our final significance determination for failure to maintain the design function of the ANS. Nevertheless, you have the opportunity to either request a regulatory conference to discuss your evaluation and any differences with the NRC evaluation of this issue, or to send us your position in writing. Please contact Mr. Richard Conte at (610) 337-5183 within 7 days of the date of this letter to inform the NRC of your intentions. If we have not heard from you within 10 days, we will continue with our significance determination and enforcement decision, and you will be advised by separate correspondence of the results. Since the NRC has not made a final determination in this matter, no Notice of Violation is being issued at this time. In addition, please be advised that the characterization of the apparent violation described in the enclosed report may change as a result of further review.

Also, based upon the results of our inspection, the NRC has determined that a Severity Level IV violation of NRC requirements occurred. This issue involved a change made to the emergency plan regarding the PHADs, which decreased the plan's effectiveness without receiving prior NRC approval. This issue was not assessed by the Significance Determination Process, consistent with Section IV.A.3 of the Enforcement Policy, because this change impacted the regulatory process. However, this violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A of the Enforcement Policy. This violation is described in the subject inspection report. If you deny this violation, you should provide a responses within 30 days of the Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Beaver Valley Power Station.

It is our understanding that compensatory measures are in place regarding the degraded PHADs. In the short term, your staff has informed Beaver County and they will perform automatic route alerting of areas designated to be covered by the PHADs. In the long term, we understand that you will be installing additional pole mounted sirens that will replace the PHADs. This change to your ANS should be submitted to FEMA for their review and approval, after which you may change your emergency plan to reflect the change.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/ADAMS.html> (The Public Electronic Reading Room).

Mr. L. W. Myers

-3-

If you have any questions please contact me at 610-337-5126.

Sincerely,

**/RA/**

Wayne D. Lanning, Director  
Division of Reactor Safety

Docket Nos. 50-334, 50-412  
License Nos. DPR-66, NPF-73

Enclosure: Inspection Report 50-334/02-03, 50-412/02-03

cc w/encl : L. W. Pearce, Plant General Manager  
R. Fast, Director, Plant Maintenance  
F. von Ahn, Director, Plant Engineering  
R. Donnellon, Director, Maintenance  
M. Pearson, Director, Services and Projects  
J. Lash, Personnel Development  
L. Freeland, Manager, Nuclear Regulatory Affairs & Corrective Actions  
M. Clancy, Mayor, Shippingport, PA  
Commonwealth of Pennsylvania  
State of Ohio  
State of West Virginia  
P. Cote, Acting Regional Director, FEMA Region III

Mr. L. W. Myers

-4-

Distribution w/encl w/Att:

Region I Docket Room (with concurrences)

D. Kern, DRP - NRC Resident Inspector

H. Miller, RA/J. Wiggins, DRA

J. Rogge, DRP

N. Perry, DRP

T. Haverkamp, DRP

S. Figueroa, OE

B. Sheron, NRR

D. Dambly, OGC (RidsOgcMailCenter)

D. Holody, EO, RI

R. Urban, ORA, RI

F. Congel, OE (RidsOeMailCenter)

D. Barss, NRR

T. Bergman, OEDO

E. Adensam, NRR (RidsNrrDlpmLpdi)

D. Collins, PM, NRR

R. Clark, Backup PM, NRR

DOCUMENT NAME: G:\OSB\SILK\BV2002003.WPD

After declaring this document "An Official Agency Record" it **will** be released to the Public.

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	RI/DRS		RI/DRS		RI/DRS		RI/DRP		RI/DRS	
NAME	DSilk		RConte		JTrapp		JRogge (NSP for)		WLanning	
DATE	04/03/02		04/12/02		04/04/02		04/04/02		04/12/02	

OFFICE	RI/OE									
NAME	DHolody (RJU for)									
DATE	04/12/02		04/ /02		04/ /02		04/ /02		04/ /02	

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos: 50-334, 50-412

License Nos: DPR-66, NPF-73

Report No: 2002-003

Licensee: FirstEnergy Nuclear Operating Company

Facility: Beaver Valley Power Station

Dates: February 1 to March 15, 2002 (In-office)

Inspectors: J. Laughlin, Operations Engineer, DRS  
D. Silk, Senior Emergency Preparedness Inspector, DRS

Approved by: Richard J. Conte, Chief  
Operational Safety Branch  
Division of Reactor Safety

## SUMMARY OF FINDINGS

IR 05000334-02-03, IR 05000412-02-03, on 09/1/01-03/15/2002; FirstEnergy Nuclear Operating Company; Units 1 and 2; Alert and Notification System.

The inspection was conducted by two regional inspectors. The inspection identified one preliminary Yellow finding and a non-cited violation. The significance of most findings are indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process web site at <http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html>.

### A. Inspector Identified Findings

#### Cornerstone: Emergency Preparedness

- Preliminary Yellow. The personal home alerting devices (PHADs), which are part of the alert and notification system (ANS), had not been adequately tested or maintained to ensure that the design function of alerting essentially 100 percent of the public could be met.

This was a violation of 10 CFR 50.47(b)(5) for not ensuring adequate means to provide early notification to the public. This finding was of substantial safety significance because portions of the emergency planning zone would not be adequately covered by the ANS to alert the public of a radiological emergency at the Beaver Valley Power Station. **(AV 50-334; 50-412/02-003-01)** (Section 1EP2).

- No Color. The licensee changed its emergency plan such that the PHADs were no longer considered a part of the siren notification system but were considered a supplemental part of the ANS. This change was determined to be a decrease in the effectiveness of the emergency plan. Decreases in the effectiveness of an emergency plan must receive NRC review and approval prior to implementation.

The licensee entered this issue into its corrective action program (Condition Report 02-02195) and will change the emergency plan back to the original wording. The implementation of a change which decreased the effectiveness of the emergency plan is being treated as a non-cited violation consistent with Section VI.A of the Enforcement Policy, issued on May 1, 2000 (65 FR 25388). **(NCV 50-334; 50-412/02-003-02)** (Section 1EP4)

- No Color. The inspectors identified an issue related to the adequacy of corrective actions regarding the PHADs. In a 1998 audit, the licensee had identified that there was no procedure to formalize PHAD maintenance and testing. In a subsequent audit, it was determined that the 1998 audit finding had been closed without addressing the issue. The licensee then developed a procedure to address the initial issue, however, the audit and corrective actions were narrowly focused on adequacy of documentation of PHAD testing but did not consider overall PHAD operability. (Section 4OA2).

## Emergency Preparedness [EP]

### 1EP2 Alert Notification System (ANS) Testing

#### a. Inspection Scope

Because of the potential safety impact of unresolved item **URI 50-334; 50-412/01-008-02** pertaining to the status of and significance of the personal home alerting devices (PHADs), the inspectors conducted in-office reviews of the licensee's emergency plan (E-Plan); Emergency Alert and Notification System Design Report for the Beaver Valley Power Station (BVPS); FEMA-REP-10, Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants; and Condition Report (CR) 01-7173, ANS PHADs Annual Full Cycle Activation. Since FEMA is the agency responsible for reviewing and approving ANS systems, the inspectors directed this issue to FEMA by posing a series of questions related to the licensee's ANS and in particular the PHADs. FEMA responded on February 5, 2002 (Accession Number ML020650586) and it was forwarded to the licensee by letter dated February 18, 2002 (Accession Number ML020650390). The inspectors also reviewed the licensee's test and survey data of the PHADs during this period. The purpose of the correspondence with FEMA and this follow up inspection was to determine if the PHADs are integral to the BVPS ANS and their operational status despite an absence of test records and inadequate testing methods. This information was used to determine if the licensee met planning standard 10 CFR 50.47(b)(5) for public notification.

#### Background

During the August 2001 inspection (IR 50-334&412/01-008), the inspectors determined that the BVPS E-Plan Appendix F, Revision 12 states that there are two types of devices: 1) Large pole-mounted sirens, and 2) Personal Home Alerting Devices (PHADs). Concerning PHADs, the E-Plan states "In certain areas of the EPZ (emergency planning zone), the terrain makes it impossible to adequately notify everyone by use of the pole-mounted sirens. Some residents of the EPZ live outside the effective audible range of the sirens. Therefore, the utility has installed PHADS adjacent to the electric meter at each of these residents."

The inspectors questioned the adequacy of testing the PHAD system as well as their operability. Specifically, there was no approved testing procedure as of the inspection conclusion and the test consisted of several individuals listening for an indeterminate number of PHADs to sound, indicating that some devices received an activation signal, not that all 1200 devices were functional. Although the licensee stated that the PHADs were tested annually since about 1987, there was no testing documentation available. Additionally, the licensee had no feedback mechanism (either electronic from the devices during testing or resident feedback) to identify, evaluate, and correct PHAD deficiencies, nor was there any evaluation to determine if more PHADs were necessary based on population redistribution and/or new residential construction. Thus, an Unresolved item was documented for the August 2001 inspection.

b. Findings

The personal home alerting devices (PHADs), which are part of the alert notification system (ANS), had not been adequately tested or maintained to ensure that the design function of alerting essentially 100 percent of the public could be met.

The NRC sent to FEMA a letter containing several questions related to the ANS and PHADs in particular. Based on the FEMA response, the PHAD horns were determined to be an integral part of the BVPS outdoor emergency warning system. FEMA applied criteria from NUREG-0654/FEMA-REP-1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants. 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.

Further, during the October 25, 2001, annual siren test (in which pole mounted sirens and PHADs are actuated—CR 01-7173), licensee personnel located in each of the five PHAD control substation areas could not confirm that the PHADs had actuated. The licensee had mailed surveys to 1000 residents previously identified as having PHADs installed. The licensee received 213 replies with the following results:

- 10% said the PHAD sounded
- 38% said the PHAD did not sound
- 33% said the PHAD was no longer installed
- 19% said they were not home for the test

This information indicates that at least 71% of the PHADs were either missing or non-functional. Based upon licensee estimates that the PHADs cover about 3% of the EPZ population and the fact that a high percentage of the PHADs were not available, the exclusion of the population covered by the PHADs means that the licensee does not meet the FEMA criteria of “essentially 100 percent” as stated above.

The inspector used Inspection Manual Chapter 0609, Appendix B, “Emergency Preparedness Determination Process,” to assess the risk significance of the finding related to 10 CFR 50.47(b)(5). This issue was determined to be more than minor because it was a programmatic problem that has a credible potential to impact safety and was more than an isolated case because of the potential inability to notify certain Beaver County populace of an emergency at BVPS. This issue impacts the Emergency Planning cornerstone in that it involves a failure to meet a planning standard of 10 CFR 50.47(b). The inspectors determined that the PHADs are not capable of performing their function within the ANS design to ensure notification of the populace and therefore the licensee does not meet planning standard 10 CFR 50.47(b)(5) regarding public notification. The Appendix B SDP is entered because the finding involves a failure to meet (perform the function of) a regulatory requirement. Because 10 CFR 50.47(b)(5) is a Risk Significant Planning Standard, the issue is of substantial safety significance (Preliminary Yellow).



Part 10 CFR 50.54(q) states that licensees will follow and maintain in effect an E-Plan which meets the planning standards of 10 CFR 50.47(b) and the requirements of 10 CFR Part 50, Appendix E. The 10 CFR 50.47(b)(5) requires, in part, that means to provide early notification to the populace within the plume exposure pathway EPZ have been established. The BVPS E-Plan Appendix F, Revision 12 states that the siren system consists of pole mounted sirens and PHADs. It also states that the licensee is responsible for system maintenance and periodic testing to ensure the proper working order of the sirens. **(AV 50-334; 50-412/02-003-01)**

Because of the degraded condition of the PHADs, the licensee has informed offsite agencies to perform automatic route alerting in areas covered by the PHADs to ensure that residents in those areas are alerted. Longer term corrective actions include installing additional sirens to replace the PHADs.

#### 1EP4 Emergency Action Level and Emergency Plan Changes

##### a. Inspection Scope

A regional in-office review of Revision 13 to Appendix F of the E-Plan was performed to determine if the change decreased the effectiveness of the E-Plan. The review was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04. The applicable requirements in 10 CFR 50.54(q), 10 CFR 50.47(b), and 10 CFR 50 Appendix E were used as reference criteria.

##### b. Findings

The licensee reviewed the ANS for the BVPS and concluded that the pole mounted sirens alone met the guidance for public notification and changed the E-Plan to reflect that conclusion. However, in the February 5, 2002, letter, FEMA made the determination that the PHADs are an integral part of the ANS. Therefore, the licensee's change to Appendix F that designates the PHADs as a supplemental means of notification was determined by the NRC to be a decrease in the effectiveness of the E-Plan and is a violation of regulatory requirements because NRC approval was required prior to implementation.

This issue was determined to be more than minor because if left uncorrected it would become a more significant safety concern because the PHADs would not receive the appropriate licensee attention and thereby adversely impact the notification of certain populace in Beaver County. This issue impacts the Emergency Planning cornerstone because it involves a failure to meet a regulatory requirement involving the regulatory process. This is a violation of 10 CFR 50.54(q) which states that the licensee cannot implement changes that decrease the effectiveness of the E-Plan without obtaining prior NRC approval. By designating the PHADs as supplemental in the change to Appendix F on September 18, 2001, the licensee decreased the effectiveness of the E-Plan because the PHADs were integral to the ANS.

The consequences of this change are minimal because the change did not directly cause the nonfunctionality of the PHADS and the licensee has informed offsite agencies to perform automatic route alerting in areas covered by the PHADS to ensure that residents in those areas can be alerted. The licensee entered this issue into its corrective action program (CR 02-02195) and will change Appendix F back to the original wording of Revision 12. Longer term corrective actions include installing additional sirens to replace the PHADS. Once the additional sirens are installed and tested, the licensee will need to coordinate with FEMA regarding the status of the PHADS within the ANS. The implementation of the change to Appendix F of the E-Plan, which decreased the effectiveness of the Plan, is being treated as a non-cited violation, consistent with Section VI.A of the Enforcement Policy, issued on May 1, 2000 (65 FR 25388). **(NCV 50-334; 50-412/02-003-02)**

#### **4. OTHER ACTIVITIES [OA]**

##### **40A2 Identification and Resolution of Problems**

During the initial identification of the Preliminary Yellow finding, it was determined that the licensee had opportunities to identify and resolve the PHAD issue. The March 2001 licensee Quality Assurance (QA) audit of the EP program identified ineffective corrective actions concerning the PHADS. Specifically, the 1998 QA audit had identified that there was no procedure to formalize maintenance and testing of the PHADS and the associated documentation (CR 980481). A corrective action (CA) committed EP to update procedure EP-7, "Alert Notification System Maintenance and Testing," to correct this deficiency. This CA was closed by another CA concerning the 1999 siren system update, but it was never completed. Following another QA audit finding in 2001, the EP-7 revision was completed in April, 2001, requiring testing/documentation of PHADS. However, the inspector determined that this procedure still contained an inadequate testing method. In addition, the audit was narrowly focused on adequacy of documentation but did not consider PHAD operability. This narrow focus of the issue was a contributing factor to the indeterminate status of the PHADS. If the licensee had viewed the testing issue more broadly, the purpose and status of the PHADS could have been identified and resolved.

##### **40A6 Meetings, including Exit**

The inspectors presented the inspection results to Mr. L. Myers and other licensee personnel, during a telephone conference on March 15, 2002. The licensee acknowledged the findings presented and agreed with the accuracy of the facts supporting those findings.

**ATTACHMENT 1  
SUPPLEMENTAL INFORMATION**

KEY POINTS OF CONTACT

H. Szklinski, Emergency Planner  
S. Vicinie, Emergency Preparedness Manager

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-334; 50-412/02-003-01	AV	Failure to adequately test or maintain the sirens (PHADs) to meet the original design basis of the ANS. (Section 1EP2)
--------------------------	----	--

Closed

50-334; 50-412/02-003-02	NCV	Decreased the effectiveness of the E-Plan without prior NRC approval by designating the PHADs as supplemental. (Section 1EP4)
--------------------------	-----	---

50-334; 50-412/01-008-02	URI	Potential failure to meet planning standard 10 CFR 50.47(b)(5) for public notification. (Section 1EP2)
--------------------------	-----	--

Discussed

None

## ATTACHMENT 2

### LIST OF DOCUMENTS REVIEWED

#### Procedures

BVPS Emergency Plan Appendix F (Rev 12)  
BVPS Emergency Plan Appendix F (Rev 13)

#### Condition Reports

CR 980481, NO Formal Maintenance / Testing Program For PHADs  
CR 01-7173, ANS PHADs Annual Full Cycle Activation

#### Other Documents

10 CFR 50.54(q) review for Emergency Preparedness Plan Appendix F  
Beaver Valley Power Station Site Specific Offsite Radiological Emergency Preparedness Alert  
and Notification System Quality Assurance Verification  
Emergency Alert Notification System Design Report for Beaver Valley Power Station  
February 5, 2002, letter from FEMA to NRC (Accession Number ML020650586)  
FEMA-REP-10, Guidance for the Evaluation of Alert and Notification Systems for Nuclear  
Power Plants  
NUREG-0654/FEMA-REP-1, Rev 1, Criteria for Preparation and Evaluation of Radiological  
Emergency Response Plans and Preparedness in Support of Nuclear Power Plants

### **Attachment 3**

#### LIST OF ACRONYMS USED

ANS	Alert and Notification System
BVPS	Beaver Valley Power Station
CA	Corrective Action
CR	Condition Report
EP	Emergency Preparedness
EPZ	Emergency Planning Zone
FEMA	Federal Emergency Management Agency
PHAD	Personal Home Alerting Device
QA	Quality Assurance
RSPS	Risk Significant Planning Standard
SDP	Significance Determination Process