

5928-02-10208
November 4, 2002

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Three Mile Island Unit I (TMI-1)
Operating License No. DPR-50
Docket No. 50-289

Subject: Three Mile Island Nuclear Station, Unit 1 (TMI-1) Emergency
Notification System Warning Sirens (TAC No. MB6459)

References:

- 1) NRC Letter, Colburn to Skolds, "Three Mile Island Nuclear Station, Unit 1 (TMI-1) Emergency Notification System Warning Sirens (TAC NO. MB6495)," October 21, 2002.
- 2) Appendix 3 to 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 as Identified in Each Site Specific Siren Acoustical Evaluation."

Pursuant to your request, we are providing the results of our evaluation of the matters described in the Reference 1 letter above. The evaluation was conducted by the Exelon Corporate Emergency Preparedness (EP) organization on the behalf of AmerGen. In summary, and as detailed in the Attachment, the evaluation concluded that the siren alert system is designed and installed in accordance with Reference 2.

Additionally, in an attempt to obtain the location of the area of concern, a Fairview Township Official was contacted to determine if they have any siren complaints on file. After a review of their complaint log, the Township Official indicated to AmerGen that no complaints were recorded. As has been the case with previous concerns, Exelon Corporate and the AmerGen TMI EP Staff will specifically evaluate this concern, provided specific information on the location can be obtained.

To assure the best possible siren coverage with the prompt notification system, more specific information on the area of concern is requested. Upon receiving this information, the Exelon Emergency Preparedness organization will coordinate with local officials to perform an evaluation. The results and any corrective action will be submitted as a follow up response.

A045

5928-02-10208
November 4, 2002
Page 2

Separately, as a follow up to the 2000 census, AmerGen has initiated action to conduct an acoustic coverage analysis. This is a computer model of the siren sound coverage. The analysis will be completed utilizing year 2000 census data and a topographic map-based computer-modeling tool with field verified ambient noise measurements. Any necessary corrective action will be identified by the spring of 2003.

If you have any questions or require further information, please contact us.

Very truly yours,



Bruce C. Williams
Vice President, TMI-I

Attachment: Summary Evaluation of the Siren Alert System

cc: H. J. Miller, USNRC, Administrator Region I
J. D. Orr, USNRC, Senior Resident Inspector
T. G. Colburn, USNRC, Senior Project Manager
File No. 02080

ATTACHMENT

Summary Evaluation of the Siren Alert System

INTRODUCTION

In a letter from T. G. Colburn (NRC) to J. L. Skolds (Exelon), dated October 21, 2002, the United States Nuclear Regulatory Commission (NRC), Region I, forwarded the following information concerning Three Mile Island Nuclear Station, Unit 1 (TMI-1) Emergency Notification System Warning Sirens to Exelon for evaluation.

"The NRC has received the following inquiry from a stakeholder detailing concerns from a resident living within a 10-mile radius of TMI-1. The concerned citizen writes, 'My family and I live within the 10-mile radius of 3-Mile Island in Fairview Township, York County. We cannot hear the warning system (sirens) that sounds in case of an emergency at 3-Mile Island. I have called the Township office and they are well aware of the problem, since the Township officials also have a hard time hearing the sirens. The Township has been told (by the Company that operates 3-Mile Island) that the sirens CAN be heard by all within the 10-mile radius. I happened to be in my yard Friday, Sept. 6 at 6:30 [pm] when the sirens were being tested. The Patriot News reported that all the sirens worked, but the only thing I could hear was a very faint sound in the distance that I was intently listening for. If there is ever a true emergency, my neighbors and I would never hear those sirens in our homes...'"

The NRC requested that Exelon provide a response to the above concern including a) a brief description of the siren warning system, b) its operation, c) the purpose, scope and results of the September 6, 2002 siren test, and d) the basis for determining that the sirens can be heard by all residents within the 10-mile radius.

a) A brief description of the siren warning system

Sirens are used for prompt notification throughout the TMI Plume Exposure Pathway EPZ. The TMI prompt notification system consists of 79 radio controlled electromechanical sirens installed throughout the 10 mile EPZ. The siren system is operated via radio control installed at each of the 5 risk counties in the 10-mile EPZ. The siren alert system consists of 43 Cyclone omni-directional and 36 Allertor rotating sirens rated at 125 dBC (at 100 feet along its horizontal axes). Each siren is mounted atop a 50-foot utility pole. The siren sounding is intended as an alerting mechanism to have the public monitor a designated Emergency Alert System for emergency information.

b) Operation of the Siren Warning System

The prompt notification system is activated by the TMI Risk County Emergency Operations Centers. To activate the system, signals are generated at each county siren control panel. These signals are transmitted to the individual sirens where they are received and translated causing the siren to sound. The network of sirens was designed to provide a sound pressure over the plume exposure pathway of at least 60 dBC for areas with population densities less than 2000 persons per square mile and greater than 67 dBC for areas with population densities greater than 2000 person per square mile. The siren system sound levels produced do not exceed 123 dBC.

c) The purpose, scope, and results of the September 6, 2002 siren test

To ensure the TMI siren system circuitry remained consistent with current available technology and to assure system reliability, an upgrade of the communication and control circuitry was installed in the summer of 2002.

The purpose of the TMI Siren Test Program performed on September 4, 5, and 6, 2002, was to demonstrate the operability of a newly installed TMI Siren monitoring and control system. The test program included two full sounding tests conducted on September 6, 2002, and successfully demonstrated each county's ability to monitor and control all of the 79 sirens. All sirens remained operable at the completion of the test program.

The newly installed TMI Siren monitoring and control system had no impact on the existing siren acoustic performance. This upgrade did not change the location or quantity of the sirens.

d) The basis for determining that the sirens can be heard by all residents within the 10-mile radius

As recognized in Appendix 3 to NUREG-0654-FEMA-Rep. 1 Rev.1 (Ref. 2), "the design objective does not constitute a guarantee that early notification can be provided for everyone with 100% assurance or that the system when tested under actual field conditions will meet the design objective in all cases."

As stated in the NRC approved Three Mile Island Emergency Plan, the prompt notification system meets the guidelines of Appendix 3 to NUREG-0654-FEMA-Rep. 1 Rev.1 (Ref. 2).

A review of the TMI Siren System verified the design objectives and field-test results met the criteria for acceptance as outlined in Appendix 3 to NUREG-0654-FEMA-Rep. 1 Rev.1 (Ref. 2). The system provides an alerting signal to the population on an area wide basis throughout the plume exposure pathway

Requested Information

November 4, 2002

Page 3 of 3

Emergency Planning Zone (EPZ) when activated by the state or county officials. As verified by field performance, the system as designed and installed will provide direct coverage of essentially 100% of the population within 10 miles of the site. This conveys the alerting signal with sufficient timeliness and intensity to permit completion of notification by the Emergency Alert System.

CONCLUSIONS

The TMI-1 Siren System is designed and installed to meet the design objectives as required by Appendix 3 to NUREG-0654-FEMA-Rep. 1 Rev.1 (Ref. 2).

The sound coverage of the entire 10-mile EPZ is consistent with the guidelines provided in Appendix 3 to NUREG-0654-FEMA-Rep. 1 Rev.1 (Ref. 2).