



MISSISSIPPI POWER & LIGHT COMPANY

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P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

April 8, 1982

NUCLEAR PRODUCTION DEPARTMENT

U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D.C. 20555

Attention: Mr. Harold R. Denton, Director

Dear Mr. Denton:



SUBJECT: Grand Gulf Nuclear Station
Units 1 and 2
Docket Nos. 50-416 and 50-417
File 0260/0277/L-860.0/0755
Alerting and Notification System
Description
AECM-82/96

NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants", Appendix 3, establishes criteria for an Alerting and Notification System to be used to alert the public in the event of an emergency involving a fixed nuclear facility. The original Alerting and Notification System for Grand Gulf Nuclear Station, which meets the criteria outlined in NUREG-0654, Appendix 3, was installed prior to and was used during the NRC-reviewed Emergency Preparedness Exercise on November 4-5, 1981. Since that time we have elected to expand the system to optimize coverage of the 10-mile Emergency Planning Zone.

Included with this transmittal is a description of the expanded system, as well as product literature and a map indicating the location of the sirens.

If you have any questions, please contact this office.

Yours truly,

L. F. Dale
Manager of Nuclear Services

PBB/LRM/JDR:ph

Attachment

cc: See next page

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AECM-82/96

Page 2

cc: Mr. N. L. Stampley
Mr. R. B. McGehee
Mr. T. B. Conner
Mr. G. B. Taylor

Mr. Richard C. DeYoung, Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Alerting and Notification System
for
Grand Gulf Nuclear Station

Introduction

Appendix 3 to NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants", establishes guidelines for public Alerting and Notification Systems (ANS) around nuclear power plants. Early in 1981, Mississippi Power & Light Company (MP&L), operators of Grand Gulf Nuclear Station (GCNS), contracted for the installation of such a system, to consist of sirens and tone-alert receivers. The selection of siren locations was based on a computer model developed by Acoustic Technology, Inc. (ATI). A copy of their study is attached to this report. Although NUREG-0654 only requires the ANS to cover the 10-mile EPZ, MP&L elected to locate sirens in the 3 population areas just beyond the 10-mile radius, to address concerns expressed by residents in these population centers (Newelton and St. Joseph, Louisiana, and Alcorn State University near Lorman, Mississippi).

The completed ANS was used, but not Federally evaluated, in the November 4-5, 1981, GCNS emergency preparedness exercise. In December, 1981, MP&L, in coordination with local civil defense and law enforcement personnel, conducted sound level measurements to verify the physical placement of the sirens, as previously estimated by the ATI computer-based study. Data from the MP&L field survey indicated that, while the existing system met the criteria of Appendix 3, with some minor modifications the coverage in this EPZ could be optimized. These modifications were concurred in by both local civil defense officials in Mississippi and Louisiana. The ANS discussed in this report is the expanded system.

Equipment

The ANS is composed of sirens and tone-alert receivers. The sirens are the "Penetrator-10" model, manufactured by Alerting Communicators of America. There are 16 3-phase and 25 single-phase sirens, which are radio activated. There are 68 tone-alert receivers, Regency model MCA-611, which are also radio controlled. These have been placed in business, schools, hospitals, and other indoor areas which might contain large numbers of people. Two of the receivers are located in high-noise areas, and have visual alarms mounted on them. Product literature on the equipment is attached.

Installation

The breakdown by equipment type for the ANS is shown below:

	<u>Single-Phase Sirens</u>	<u>3-Phase Sirens</u>	<u>Tone Alert Receivers</u>
Louisiana:	7	6	26
Mississippi:	18	10	42

The locations of the ANS sirens are depicted on the enclosed map.

The sirens are installed approximately fifty feet above ground level on Class 3 wooden utility poles, which are in accordance with ANSI 05.1-1972. Siren activation and service entry components are mounted 8-10 feet above ground in such a manner to allow easy access for service and repair. Electrical wiring is in accordance with NFPA 70-1980.

Maintenance

A local individual, who was the ANS installation contractor, is being considered for the maintenance contract for the ANS. This contract will provide for a spare parts inventory to facilitate rapid repair of the system due to accidental or deliberate damage, and will ensure a minimum "down time" for the ANS. At the present, the installation contractor is performing maintenance and/or repair on an as-needed basis for MP&L.

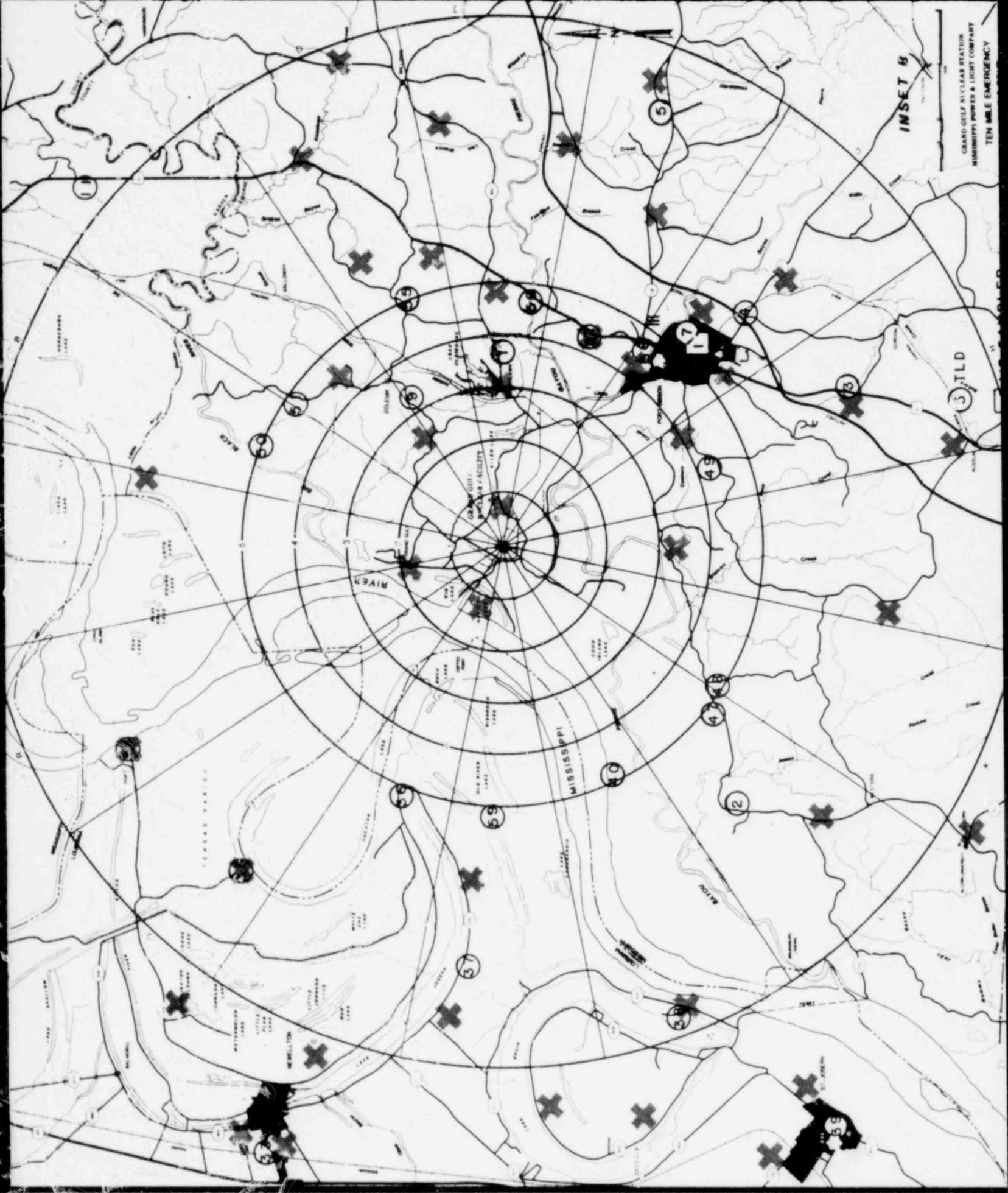
Method of Activation

The ANS is activated by the local civil defense directors in Claiborne County, Mississippi and Tensas Parish, Louisiana, either on MP&L's recommendation or their own initiative. The Mississippi portion of the system is activated and operated on a separate high-band frequency than that used in Louisiana. This prevents accidental "cross-activating" of the systems. Within each state, the ANS can be activated in an "all call" mode or selectively by affected areas.

Conclusion

MP&L, Claiborne County Civil Defense and Tensas Parish Emergency Preparedness officials are satisfied that the ANS meets the criteria outlined in NUREG-0654, Appendix 3. Further, we are confident that the system can be maintained in good working order over the 40 year operational lifetime of GGNS with a minimum of effort.

✖ - DENOTES SIREN LOCATIONS



GRAND GULF NUCLEAR STATION
MISSISSIPPI POWER & LIGHT COMPANY
TEN MILE EMERGENCY

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REGENCY
ON-CALL ALERT SERIES



Specifications

Pocket Alert • Model MCM-H11

Frequency Range	148—174MHz	Receiver		
Weight	8.5 oz. (216g) w. battery	Sensitivity	50Ω	Field Strength
Size	4.0" H x 1" D x 2.25" W	Alerting	15μV	10μV/m
	102 x 25.4 x 57mm	20db quieting	5μV	25μV/m
Power Supply	3.9 VDC nicad battery	Squelch (preset)	3μV	
	4.2 VDC mercury battery	Selectivity (EIA Sinad)	70db @ ± 30KHz	
Power Consumption	8ma (standby)	Spurious and Image Rejection	45db	
	80ma (at rated audio output)	Audio Output		
Battery Life	Mercury Nicad	Alert Tone	76.5db spl @ 12"	
Alert Mode	150 Hrs. 20 hrs.	Voice	83db spl @ 12"	
Monitor Mode			140 mW	
(2% receive duty cycle)	130 hrs. 18 hrs.	Frequency Stability	± .0025% from	
Monitor Mode			10° to + 50°C	
(10% receive Duty Cycle)	85 hrs. 11 hrs.	Channel Spacing	30KHz	
(Based on receiving five 30 sec		Tone Decoder	2-Tone Sequential	
calls in 8 hrs.)		Decoder Frequency Range	288.5—1433.4Hz	
Recharging time to		Compliance	Part 15, Subpart C	
battery life rating		Accessories		
Receiver off	9.5 hrs	MA-181	Battery	
Receiver On	19 hrs.	MA-411	Battery Charger	
		MA-412	Tone Reed	
		MA-413	Nicad Battery	

Mobile Alert • Model MCA-611

Frequency Range	30—50MHz in two bands 146—174MHz in two bands 450—500MHz in two bands	Modulation Acceptance	7KHz
Channels	2	I.F. Frequencies	1st I.F.: 10.7MHz (crystal filter) 2nd I.F.: 455KHz (ceramic filter)
Operating Temperature Range	30°C to 60°C	Tone Decoder	2-Tone Sequential
Size	8½" D x 2½" H x 6½" W	Decoder Frequency Range	208 — 3906 Hz
Weight	3.12 lbs (1.42kg)	Audio Output	5W
Voltage	117 VAC 60 cycles 12-15 VDC	F.C.C. Certification	Part 15, Subpart C
Sensitivity		Accessories	
VHF Low	5μV 20DB quieting	MA-5	Antenna Splitter
VHF High	6μV 20DB quieting	MA-17	DC Power Cord
UHF	7μV 20DB quieting	MA-18	DC Power Cord with cigarette lighter plug
Selectivity	6db at 7KHz 50db at 18KHz	MA-24	Igniter Mechanism
Spurious Rejection (except primary image)	50db	MA-63	Mobile Installation Bracket
		MA-108	Remote Speaker
		MA-301	Second Duty with All Call

Encoder • Model TG100

Paging Capacity	100 Call 90 Call with 10 "Group" Call	Timing Sequence	1 second delay 1 second first tone 250ms inter-digit time 3 seconds second tone Group Call = 4 seconds. Timing may be changed.
Number of Tones	11 (Including Diagonal Tone)	Power Requirements	8 to 16VDC unregulated at 400 ma. maximum.
Frequency Range	268.5 Hz. to 3906.0 Hz	Operating Temperature	30°C to + 85°C.
Frequency Accuracy	± .1 Hz. maximum over full operating range (± .01% @ 1000 Hz.)	Operating Controls	a) 12 button miniature keyboard b) 2 digit LED display c) LED Transmit indicator
Frequency Spread	± .1 Hz. from - 30°C to + 85°C. Within 2db from 268.5 Hz. to 1200.0 Hz.	Weight	1 pound
Output Amplitude	3V peak-to-peak @ 10K	Control Outputs	Isolated d.p.d.t. relay contacts rated at 1A.
Output Distortion	Less than 2.0%		
Output Noise	Better than 60db		


Regency COMMUNICATIONS, INC.
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