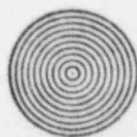


REPORT

VERIFICATION
OF
SIREN ALERTING SYSTEM
GRAND GULF NUCLEAR POWER STATION
OF
MISSISSIPPI POWER & LIGHT CO.
JACKSON, MISSISSIPPI



ACOUSTIC TECHNOLOGY INC.

BOSTON, MASS.

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ACOUSTIC TECHNOLOGY INC.

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SUMMARY

This report presents the verification of the recommended siren system sound coverage for prompt notification of the public within the radiological Emergency Planning Zone (EPZ) of the Grand Gulf Nuclear Power Station. The objective of Acoustic Technology, Inc. is to verify and achieve a siren system that is technically adequate, cost effective and reliable. The verification of the system design is a result of a systematic computer optimization process, with the goal of achieving full acoustic alerting signal for the high population areas within the EPZ. The final design consists of 33 sirens for the required acoustic coverage within the EPZ. The locations were physically selected, examined and inspected by Mississippi Power and Light before finalizing by the ATI computer model.

The warning system designed for the EPZ of Grand Gulf Nuclear Station is a composite system. This is due to the demographic characteristics of the 10-mile zone which has in general a low population density with scattered areas of relatively higher population density. Therefore, in the areas of the EPZ where the population is relatively concentrated outdoor warning sirens are used. For the remainder of the EPZ where the low population exists, tone activated radio receivers and/or mobile sirens may be used.

A prediction of siren sound coverage of a minimum 60 dBC has been made for each of the 33 siren locations. The siren system has been designed and analyzed to meet regulatory requirements and achieve the acceptance of the public as well as Federal State and Local government officials. ATI is confident that the proposed siren area alerting coverage fully meets the guidelines set forth in FEMA's CPG-17 Outdoor Warning Systems Guide and the NRC NUREG-0654 criteria.



INTRODUCTION

The nuclear accident at Three Mile Island (TMI) underscored the need for better emergency preparedness procedures for commercial nuclear power plant licensees and for state and local officials involved with a general nuclear emergency. In January, 1980, the Nuclear Regulatory Commission (NRC) and the Federal Emergency Management Administration (FEMA) issued a document for Interim use and comment entitled Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (NUREG-0654, FEMA-REP-1). Among other things, this document lists the criteria for prompt notification of the public in the event of a general nuclear emergency. These criteria are presented in Appendix 3: "Means for Providing a Prompt Notification to the Population."

The final legislation regarding prompt notification was published in the Federal Register which defines the requirements as follows: "By July 1, 1981, the nuclear power reactor licensee shall demonstrate that administrative and physical means have been established for alerting and providing prompt instructions to the public within the plume exposure pathway EPZ. The design objective shall be to have the capability to essentially complete the initial notification of the public within the plume exposure pathway EPZ within about 15 minutes. "

Acoustic Technology, Inc., under a contract from Mississippi Power and Light (MP&L) has verified the design of prompt notification siren system for areas within Grand Gulf Power Station EPZ. ATI has given full consideration to the requirements in Appendix 3 of NUREG-0654. The criteria for minimum acceptance design objectives for coverage by the system is contained in Appendix 3 as follows:



- a) Capability for providing both an alert signal and an informational or instructional message to the population on an area-wide basis throughout the 10-mile EPZ, within 15 minutes.
- b) The initial notification system will assure direct coverage of essentially 100% of the population within 5 miles of the site.
- c) Special arrangements will be made to assure 100% coverage, within 45 minutes, of the population who may not have received the initial notification within the entire plume exposure EPZ.



I. ACOUSTIC CRITERIA OF THE SIREN SYSTEM

In order to achieve a full alerting effect for the required areas within EPZ in compliance with NRC/FEMA requirements, the siren system has been analyzed to provide a minimum of 60 dBC acoustic siren signal. The 60 dBC acoustic coverage has been determined by taking into consideration hemispherical wave divergence, atmospheric absorption, vegetation, ground effects, upwind shadows, and topographic barriers.

NUREG-0654 (Appendix 3) indicates that an acoustic signal of 10 dB above the average daytime ambient level is an acceptable criterion for the design of a siren system. In addition, this 10 dB differential above average daytime ambient level is meant to provide a distinguishable signal inside a home of average residential construction under average daytime conditions.

NUREG-0654 (Appendix 3) indicates that the determination of adequate siren sound levels can be achieved by either of two options. Field surveys can be conducted to determine typical daytime ambient sound levels, and the siren system can be designed to achieve 10 dB above this documented ambient. As an alternative to field surveys, in areas with population density below 2,000 persons/square mile sound level of 50 dBA can be assumed and the siren system can be designed to produce a minimum of 60 dBC.

Since the population in the EPZ of Grand Gulf Station is below 2,000 persons/square mile, the assumed ambient sound level of 50 dBA is used to generate the minimum 60 dBC sound coverage criteria for the Grand Gulf Siren System Design.



II. SIREN ACOUSTIC COMPUTER MODEL

The siren sound levels within the Grand Gulf Nuclear Power Station plume exposure EPZ were calculated by use of computer models developed by Acoustic Technology, Inc. These models take into consideration meteorological and topographical conditions which effect sound propagation generated by the sirens. Topographical data is obtained through direct readings of land elevation from USGS maps by superimposing a grid system onto the siren propagation area. ATI Main Computer Program is used for areas with topography and ATI Program 12 is used for flat land areas. The topographical data is used to calculate the attenuation due to the barrier effects caused by the higher elevations which generate acoustic shadow zones that occur behind ridges and hills. In addition, inputs into the computer model are given for siren mounting height, siren sound level at 100 feet, atmospheric conditions, and type of ground cover (snow, trees, vegetation, water, etc.) surrounding each of the siren sites.

The computer model calculates the sound attenuation with distance due to hemispherical wave divergence, atmospheric absorption, absorption due to vegetation, trees, and ground effects, upwind shadows, and barrier attenuation. These factors will now be addressed in greater detail.

A. Hemispherical Wave Divergence:

The sound pressure level due to hemispherical divergence is uniform in all directions at a rate of 6 dB per doubling of distance.

B. Atmospheric Absorption:

Molecular (atmospheric) absorption further reduces the sound energy. Absorption is highly dependent on the temperature and relative humidity of the air and is quite pronounced at large distances and at high frequencies. To avoid over or under



design of the system, an average atmospheric conditions is used. The average conditions were determined to be 60 - 90% relative humidity and 66°F temperature.

C. Vegetation, Trees, and Ground Effects:

Ground attenuation is a function of the structure and covering of the ground and of the height of the siren and receiver above the ground. The ground covering conditions at various directions and distance from the siren to receivers were directly read from the USGS maps. Sound travels from a siren to a receiver location by two paths: the direct line-of-sight path which is the primary path of outdoor sound propagation, and the ground reflected path. Both of these propagation paths are subject to sound attenuation due to the effect of the ground cover existing between the siren and the receiver location. The amount of attenuation resulting from the sound propagation along the ground reflected path will depend on whether the ground cover is absorptive or reflective. Tall trees intercept the direct sound propagation path and can attenuate the sound from the siren substantially at the receiver location.

D. Wind Shadows:

Wind gradients near the ground are nearly always positive; that is, the windspeed increases with height. As a result, a shadow zone is most commonly encountered upwind from a siren because there the wind gradient bends the sound rays upward. Downwind, the sound rays are bent downward, and no shadow zone is produced. Crosswind, there is a zone of transition. The average wind condition at Grand Gulf Station



is 4.4 MPH. At this low speed, the wind effect is minimal.

E. Barrier Attenuation:

A mound of earth, a hill, or a structure, if large enough, is a partial barrier to sounds, and it can provide a moderate amount of sound reduction within its shadow zone. The attenuation from a barrier is estimated by the model.

The model will determine the effective barrier height which is the height above the line-of-sight from the siren to the receiver location. The other two essential dimensions are the distance from the siren to the barrier and from the barrier to the receiver. This data is used to calculate the attenuation of the barrier.

Another factor in the ATI acoustic computer model is the siren sound level rating at 100 feet. Vendors of commercial sirens claim that their sirens produce a sound level of 125 dBC at 100 ft. However, these sirens were tested in the field and in an anechoic chamber (Free Field Test) and the actual recorded sound level was approximately 122 dBC for dual tone rotating sirens. As a result of actual laboratory and field testing, the siren sound level at 100 ft that is used in the ATI computer model is 122 dBC rather than 125 dBC as claimed by siren vendors. The ratings of 122 dBC for commercial sirens should be considered as further conservatism in our design.

The sound attenuation is calculated by the computer model for each siren and the 60 dBC contour is determined. The corresponding sound level data for each siren within its propagation range is presented in tabular form in Appendix 1 and in graphical form in Appendix 2.



III. VERIFICATION OF SIREN ACOUSTIC MODEL

In order to verify the accuracy of the Acoustic Technology, Inc. model, the measured sound levels were compared to those predicted as shown in Table 1. Excellent agreement was obtained from all data points under consideration. It is noteworthy that the model predicted values are slightly less (1-3 dB) than those measured values. This indicates a further conservatism in determining the sound level contours.



COMPARISON OF MEASURED AND PREDICTED SOUND LEVELS OF SIRENS

Test	Distance from the Siren in ft.	Ground Condition	Model Predicted Level dBC	Background Noise Level dBC	Measured Sound Level dBC	Distance Between Predicted and Measured Sound Level dB
Beaver Valley Siren Test	5,600	Variable topography - Vegetation	49	45	50	-1
	1,100	Housing, trees and vegetation	95	53	97	-2
	500	Flat - Grass	107	58	109	-2
	3,600	Slight topography - vegetation	75	--	78	-3
Three Mile Island Test	4,500	Flat Grass - Housing	77	--	79	-2
St. Louis County Test	1,000	Flat - Green Grass	100	--	102	-2

TABLE 1

IV. SELECTION OF SIREN LOCATIONS

Mississippi Power & Light (MP&L) provided USGS maps with power line distribution superimposed on them. In order to avoid the extra cost of extending power lines for the installed sirens, it is essential to place sirens close to the available power lines within the EPZ. Tentative siren locations were provided by MP&L. Several computer iterations were made to determine the required acoustic coverage of the siren system. MP&L performed the site inspections for these selected sites. After the final selection was made, ATI finalized the results for the selected 33 siren locations. For each location, predictions of siren acoustic coverage (utilizing the criteria discussed in Section 1) have been made. The locations of sirens and the extent of siren coverage are presented in Appendix 3.

Initial computer iterations of the model indicated that from the sound propagation point of view it is advantageous to mount the siren at the highest elevation points along the power distribution lines. This will gain larger sound siren coverage because the effect of barriers, trees and vegetation will be minimal. Therefore, these selected locations are generally at the highest elevation points of the siren coverage areas. Some sirens which are positioned at low elevation points were selected in a manner that the elevation surrounding the siren rises gradually. In such a case, the barrier effect is minimized.

A listing of the sirens is found in Table 2.



TABLE 2
MISSISSIPPI POWER & LIGHT

GRAND GULF NUCLEAR STATION SIREN SYSTEM ANALYSIS

<u>Siren Number</u>	<u>USGS Map</u>	<u>Type of Power</u>	<u>Computer Analysis</u>
1	Grand Gulf	3 phase	Combination of Programs
2	Grand Gulf	single phase	ATI Main Program
3	Grand Gulf	3 phase	ATI Main Program
4	Grand Gulf	single phase	ATI Main Program
5	Grand Gulf	single phase	ATI Program 12
6	Grand Gulf	single phase	ATI Program 12
7	Newellton	3 phase	ATI Program 12
8	Newellton	single phase	ATI Program 12
9	Newellton	3 phase	ATI Program 12
10	Newellton	single phase	ATI Program 12
11	Newellton	single phase	ATI Program 12
12	Willows	3 phase	ATI Main Program
13	Willows	single phase	ATI Main Program
14	Willows	single phase	ATI Main Program
15	Willows	3 phase	ATI Main Program
16	Willows	single phase	ATI Main Program
17	Willows	Single phase	ATI Main Program
18	Willows	single phase	ATI Main Program
19	Port Gibson	single phase	ATI Main Program
20	Port Gibson	3 phase	ATI Main Program
21	Port Gibson	Single phase	ATI Main Program
22	Port Gibson	Single phase	ATI Main Program
23	Port Gibson	Single phase	ATI Main Program
24	Port Gibson	Single phase	ATI Main Program



TABLE 2 (continued)

<u>Siren Number</u>	<u>USGS Map</u>	<u>Type of Power</u>	<u>Computer Analysis</u>
25	St. Joseph	3 phase	ATI Main Program
26	St. Joseph	3 Phase	ATI Program 12
27	St. Joseph	single phase	ATI Program 12
28	St. Joseph	single phase	ATI Program 12
29	St. Joseph	single phase	ATI Main Program
30	St. Joseph	3 phase	ATI Main Program
31	St. Joseph	single phase	ATI Main Program
32	St. Joseph	single phase	ATI Main Program
33	St. Joseph	single phase	ATI Main Program



APPENDIX 1: Siren Sound Levels in Tabular Form



SIREN SOUND LEVELS
ATIPRGM 12 Computer Model - Flat

Distance "R" from the Siren to Receiver in Feet

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
0	108.	99.	94.	89.	84.	80.	75.	71.	67.	62.	Main Program- Topography
15	108.	98.	94.	88.	84.	80.	75.	71.	67.	61.	
30	108.	99.	94.	89.	84.	80.	76.	71.	68.	61.	
45	108.	99.	94.	89.	84.	80.	76.	73.	69.	66.	
60	106.	97.	91.	85.	79.	74.	69.	64.	60.	56.	
75	107.	100.	96.	91.	85.	80.	75.	71.	66.	62.	
90	107.	100.	96.	91.	86.	82.	79.	75.	72.	70.	
105	107.	100.	95.	90.	86.	82.	78.	75.	72.	69.	
120	107.	100.	95.	90.	85.	81.	78.	75.	71.	69.	
135	107.	100.	95.	90.	85.	81.	78.	75.	72.	70.	
150	107.	100.	95.	90.	85.	81.	78.	75.	71.	66.	
165	107.	100.	95.	90.	85.	81.	78.	73.	71.	67.	
180	107.	100.	95.	90.	85.	81.	77.	73.	69.	65.	
195	107.	100.	95.	90.	85.	81.	77.	74.	70.	66.	
210	107.	100.	95.	90.	85.	81.	78.	75.	71.	69.	
225	107.	100.	95.	90.	85.	81.	78.	75.	71.	69.	
240	106.	97.	91.	86.	81.	77.	74.	71.	68.	65.	
255	106.	97.	91.	85.	79.	74.	69.	64.	60.	56.	
270	106.	97.	91.	85.	79.	74.	69.	66.	61.	57.	
285	106.	97.	91.	85.	79.	74.	70.	66.	61.	57.	
300	106.	88.	84.	88.	84.	80.	76.	72.	68.	65.	Main Program- Topography
315	108.	99.	94.	89.	84.	80.	76.	72.	69.	65.	
330	108.	99.	94.	89.	84.	80.	75.	71.	68.	62.	
345	108.	88.	84.	89.	84.	80.	75.	71.	68.	65.	

Distance "R" in Feet

	5500	6000	6500	7000	7500	8000	
0	61.	58.	57.	55.			Main Program- Topography
15	62.	51.	54.	51.			
30	59.	62.	34.	42.			
45	62.	59.	53.	51.			
60	52.	48.	45.	41.	38.	36.	
75	58.	55.	51.	47.	44.	40.	
90	67.	64.	62.	59.	57.	55.	
105	66.	64.	61.	59.	57.	54.	
120	67.	63.	59.	55.	52.	48.	
135	66.	62.	58.	55.	51.	49.	
150	63.	59.	55.	52.	48.	45.	
165	63.	59.	56.	52.	50.	47.	
180	61.	57.	53.	50.	48.	46.	
195	62.	58.	56.	52.	50.	48.	
210	66.	63.	61.	59.	57.	53.	
225	66.	63.	61.	59.	56.	54.	
240	61.	58.	56.	52.	49.	45.	
255	52.	48.	45.	41.	38.	34.	
270	53.	50.	46.	42.	39.	36.	
285	53.	50.	46.	42.	39.	37.	
300	62.	59.	57.	55.			Main Program- Topography
315	59.	46.	47.	50.			
330	59.	57.	46.	54.			
345	62.	59.	59.	51.			

Siren 1 Siren Height = 50 FT.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Siren 2 Siren Height = 50 Ft.

Temperature = 66° F

R. H. = 60-90 %

Wind = 4.4 MPH

Distance "R" from the Siren to Receiver in Feet

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000
0	106.	99.	94.	89.	80.	80.	74.	68.	57.	61.	59.	50.	45.	45.
15	106.	99.	83.	88.	79.	75.	73.	72.	67.	58.	62.	53.	57.	54.
30	106.	99.	94.	90.	83.	68.	68.	72.	61.	61.	56.	52.	59.	48.
45	106.	99.	94.	88.	81.	68.	70.	57.	62.	58.	56.	55.	54.	56.
60	106.	99.	94.	90.	86.	72.	74.	77.	74.	70.	67.	65.	62.	59.
75	106.	99.	94.	90.	86.	83.	80.	77.	74.	71.	68.	65.	62.	60.
90	106.	99.	88.	90.	70.	79.	76.	73.	69.	66.	62.	59.	56.	52.
105	106.	99.	92.	85.	62.	60.	59.	58.	57.	55.	53.	51.	49.	47.
120	106.	99.	87.	84.	66.	82.	78.	76.	73.	69.	65.	63.	60.	58.
135	106.	99.	74.	73.	74.	75.	74.	77.	74.	71.	68.	65.	62.	60.
150	106.	99.	84.	90.	86.	83.	80.	77.	74.	71.	68.	65.	62.	59.
165	106.	99.	94.	90.	86.	83.	80.	77.	74.	71.	68.	65.	62.	60.
180	106.	99.	94.	90.	86.	83.	80.	77.	74.	71.	68.	65.	62.	60.
195	106.	99.	94.	89.	85.	81.	77.	73.	70.	66.	62.	60.	57.	55.
210	106.	99.	94.	80.	86.	82.	78.	75.	71.	68.	64.	60.	56.	54.
225	106.	99.	94.	90.	88.	84.	80.	76.	73.	70.	66.	62.	58.	55.
240	106.	99.	94.	90.	86.	83.	80.	73.	71.	68.	65.	62.	60.	56.
255	106.	99.	94.	89.	83.	79.	69.	70.	68.	52.	53.	54.	50.	47.
270	106.	99.	94.	88.	82.	71.	66.	63.	62.	62.	59.	61.	57.	42.
285	106.	99.	94.	87.	82.	65.	66.	72.	70.	65.	61.	50.	45.	47.
300	106.	99.	94.	90.	86.	78.	73.	57.	67.	64.	55.	59.	57.	40.
315	106.	99.	86.	82.	83.	76.	59.	70.	66.	64.	54.	59.	50.	46.
330	106.	99.	94.	89.	74.	73.	77.	70.	67.	65.	61.	50.	47.	54.
345	106.	99.	94.	90.	84.	73.	72.	61.	58.	59.	59.	52.	44.	47.

Angle "θ" from the East in Degrees

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Siren 3 Siren Height = 50 Ft.

Temperature = 66° F

R. H. = 60-90 %

Wind = 4.4 MPH

Distance "R" from the Siren to Receiver in Feet

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000
0	106.	89.	84.	88.	82.	74.	75.	68.	62.	62.	64.	54.	58.	47.
15	106.	99.	94.	87.	76.	79.	75.	72.	57.	66.	62.	55.	52.	54.
30	106.	93.	94.	89.	84.	78.	75.	72.	68.	65.	62.	58.	53.	47.
45	106.	89.	84.	81.	85.	78.	74.	67.	58.	61.	62.	59.	48.	49.
60	106.	99.	94.	90.	84.	78.	67.	64.	64.	66.	62.	55.	58.	55.
75	106.	99.	94.	90.	78.	80.	70.	75.	68.	66.	62.	51.	55.	48.
90	106.	89.	88.	80.	84.	66.	70.	73.	62.	63.	65.	61.	57.	54.
105	106.	99.	81.	84.	86.	83.	78.	73.	58.	66.	63.	59.	57.	45.
120	106.	99.	94.	80.	81.	82.	77.	73.	57.	67.	63.	59.	57.	52.
135	106.	89.	84.	89.	68.	75.	78.	76.	73.	69.	63.	53.	57.	42.
150	106.	99.	94.	90.	75.	76.	75.	75.	72.	68.	64.	62.	60.	57.
165	106.	99.	94.	90.	86.	81.	78.	68.	66.	69.	65.	55.	53.	58.
180	106.	99.	84.	80.	85.	81.	78.	73.	68.	61.	62.	51.	57.	54.
195	106.	99.	94.	90.	85.	81.	73.	75.	70.	67.	60.	56.	55.	56.
210	106.	99.	94.	90.	80.	80.	77.	74.	70.	66.	64.	61.	58.	43.
225	106.	89.	84.	85.	81.	83.	79.	75.	72.	70.	66.	62.	60.	58.
240	106.	99.	94.	80.	80.	83.	80.	77.	74.	70.	67.	65.	60.	58.
255	106.	99.	94.	85.	80.	78.	80.	77.	74.	71.	68.	65.	62.	60.
270	106.	89.	84.	90.	78.	74.	75.	77.	74.	71.	68.	65.	62.	59.
285	106.	99.	83.	90.	86.	75.	75.	76.	74.	70.	67.	65.	62.	58.
300	106.	99.	94.	90.	86.	83.	78.	74.	71.	62.	66.	64.	62.	59.
315	106.	99.	94.	90.	86.	82.	79.	76.	71.	68.	66.	58.	55.	59.
330	106.	93.	89.	90.	86.	82.	78.	74.	68.	66.	58.	62.	54.	51.
345	106.	99.	86.	89.	78.	79.	77.	72.	61.	59.	58.	55.	54.	57.

Angle "θ" from the East in Degrees

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



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SIREN SOUND LEVELS
ATI Main Computer Model - Topography

Siren 4 Siren Height = 50 Ft.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

Angle " θ " from the East in Degrees	Distance "R" from the Siren to Receiver in Feet													
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000
0	106.	99.	88.	90.	85.	81.	75.	67.	62.	61.	60.	61.	57.	54.
15	106.	99.	94.	80.	86.	79.	75.	67.	65.	66.	52.	62.	58.	54.
30	106.	99.	94.	84.	81.	81.	75.	72.	68.	65.	54.	55.	58.	54.
45	106.	99.	94.	89.	85.	79.	74.	65.	63.	61.	62.	58.	55.	38.
60	106.	99.	94.	90.	82.	71.	71.	67.	70.	66.	63.	59.	55.	52.
75	106.	99.	93.	82.	77.	74.	78.	73.	70.	66.	61.	58.	55.	52.
90	106.	99.	94.	85.	86.	79.	75.	61.	62.	66.	63.	53.	58.	55.
105	106.	99.	94.	76.	86.	82.	79.	74.	71.	67.	63.	57.	53.	49.
120	106.	99.	94.	90.	85.	71.	70.	74.	71.	67.	55.	55.	60.	49.
135	106.	99.	94.	90.	86.	81.	68.	73.	68.	69.	65.	51.	59.	57.
150	106.	99.	94.	90.	86.	83.	79.	76.	74.	70.	67.	65.	61.	57.
165	106.	99.	94.	90.	85.	81.	73.	74.	69.	66.	63.	53.	57.	41.
180	106.	99.	94.	84.	84.	73.	76.	65.	86.	67.	57.	62.	59.	56.
195	106.	99.	94.	89.	84.	73.	75.	73.	62.	67.	64.	54.	59.	48.
210	106.	99.	94.	89.	78.	75.	77.	66.	64.	67.	65.	55.	55.	58.
225	106.	99.	94.	88.	78.	73.	70.	74.	70.	67.	54.	62.	59.	55.
240	106.	99.	94.	88.	79.	75.	73.	73.	71.	63.	64.	62.	57.	45.
255	106.	99.	94.	89.	78.	81.	77.	73.	55.	63.	65.	63.	60.	49.
270	106.	99.	94.	89.	80.	81.	77.	74.	71.	67.	64.	54.	55.	52.
285	106.	99.	94.	90.	86.	82.	79.	76.	73.	69.	60.	63.	60.	58.
300	106.	99.	94.	90.	86.	83.	77.	74.	65.	61.	59.	63.	61.	58.
315	106.	99.	94.	90.	86.	81.	78.	68.	72.	70.	64.	62.	52.	53.
330	106.	99.	94.	90.	84.	80.	66.	68.	67.	69.	84.	62.	51.	50.
345	106.	99.	94.	90.	86.	82.	78.	74.	71.	68.	65.	61.	58.	47.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

 ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI PRGM 12 Computer Model - Flat

Distance "R" from the Siren to Receiver in Feet

Angle "θ" from the East in Degrees

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
0	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
15	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
30	107.	99.	93.	86.	81.	75.	70.	66.	62.	58.
45	107.	99.	93.	86.	81.	75.	70.	66.	62.	58.
60	107.	99.	93.	86.	81.	75.	70.	66.	62.	59.
75	107.	99.	93.	86.	81.	75.	70.	68.	64.	62.
90	107.	99.	93.	86.	81.	75.	70.	67.	64.	61.
105	107.	100.	94.	88.	84.	80.	77.	73.	70.	67.
120	107.	100.	96.	89.	85.	80.	75.	72.	69.	66.
135	107.	100.	96.	89.	84.	78.	74.	69.	65.	62.
150	107.	100.	96.	91.	85.	80.	75.	70.	68.	63.
165	107.	100.	96.	91.	85.	80.	75.	70.	66.	62.
180	107.	100.	96.	91.	85.	80.	75.	70.	68.	63.
195	107.	100.	96.	91.	86.	81.	76.	71.	67.	63.
210	107.	100.	96.	91.	86.	82.	79.	74.	70.	66.
225	107.	100.	94.	89.	85.	81.	78.	75.	72.	70.
240	107.	100.	96.	91.	87.	83.	80.	75.	71.	67.
255	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
270	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
285	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
300	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
315	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
330	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
345	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.

Distance "R" in Feet

	5500	6000	6500	7000	7500	8000
0	55.	51.	48.	44.	41.	37.
15	55.	51.	48.	44.	41.	37.
30	54.	50.	46.	43.	39.	36.
45	54.	50.	46.	43.	39.	36.
60	56.	54.	51.	49.		
75	59.	56.	54.			
90	59.	56.				
105	65.	62.	60.			
120	63.	61.	58.	56.		
135	59.	57.	54.	52.	50.	47.
150	60.	56.	52.	48.	45.	41.
165	58.	54.	51.	47.	43.	40.
180	60.	57.	53.	50.	46.	43.
195	59.	55.	52.	48.	45.	41.
210	62.	58.	54.	51.	47.	44.
225	67.	65.	62.	58.	54.	51.
240	63.	59.	57.	53.	50.	46.
255	55.	51.	48.	44.	41.	37.
270	55.	51.	48.	44.	41.	37.
285	55.	51.	48.	44.	41.	37.
300	55.	51.	48.	44.	41.	37.
315	55.	51.	48.	44.	41.	37.
330	55.	51.	48.	44.	41.	37.
345	55.	51.	48.	44.	41.	37.

MAP ENDS

Siren 5 Siren Height = 50 FT.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI PRGM 12 Computer Model - Flat

Distance "R" from the Siren to Receiver in Feet

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
0	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
15	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
30	107.	100.	96.	91.	87.	83.	79.	76.	73.	70.
45	107.	100.	96.	91.	86.	82.	79.	76.	73.	69.
60	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
75	107.	100.	96.	91.	87.	83.	78.	74.	70.	66.
90	107.	100.	96.	91.	87.	81.	77.	73.	69.	65.
105	107.	100.	96.	91.	87.	81.	77.	73.	69.	65.
120	107.	100.	94.	89.	85.	80.	76.	71.	67.	63.
135	107.	100.	96.	91.	87.	83.	79.	74.	70.	66.
150	107.	100.	96.	91.	86.	82.	79.	76.	72.	69.
165	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
180	107.	100.	96.	91.	87.	83.	80.	77.	74.	70.
195	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
210	107.	100.	96.	91.	87.	83.	80.	76.	72.	68.
225	107.	100.	96.	91.	87.	83.	78.	73.	69.	65.
240	107.	100.	96.	91.	85.	80.	75.	71.	66.	62.
255	107.	100.	96.	91.	85.	80.	75.	71.	66.	62.
270	107.	100.	96.	91.	85.	80.	75.	71.	66.	62.
285	107.	100.	96.	91.	85.	80.	75.	71.	66.	62.
300	107.	100.	96.	89.	85.	80.	75.	70.	66.	62.
315	107.	100.	96.	91.	87.	83.	78.	73.	69.	65.
330	107.	100.	96.	91.	87.	83.	80.	76.	72.	68.
345	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.

Angle "θ" from the East in Degrees

Distance "R" in Feet

	5500	6000	6500	7000	7500	8000
0	69.	66.	64.	61.	59.	57.
15	68.	66.	63.	61.	59.	57.
30	68.	65.	63.	60.	58.	56.
45	66.	64.	61.	59.	57.	55.
60	69.	67.	65.	62.	60.	59.
75	63.	61.	59.	57.	55.	53.
90	62.	60.	58.	56.	54.	52.
105	62.	60.	58.	56.	54.	52.
120	59.	57.	54.	52.	50.	48.
135	62.	58.	54.	51.	49.	47.
150	65.	61.	58.	54.	52.	50.
165	69.	67.	63.	61.	59.	57.
180	67.	63.	60.	57.	53.	51.
195	69.	65.	63.	59.	56.	52.
210	64.	60.	57.	53.	50.	46.
225	61.	57.	54.	50.	46.	43.
240	58.	55.	51.	47.	44.	40.
255	58.	55.	51.	47.	44.	40.
270	58.	55.	51.	47.	44.	41.
285	58.	55.	51.	47.	44.	41.
300	58.	54.	51.	47.	44.	40.
315	61.	57.	54.	50.	46.	43.
330	64.	60.	58.	55.	51.	48.
345	69.	66.	64.	61.	59.	57.

Siren 6 Siren Height = 50 FT.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATJ PRGM 12 Computer Model - Flat

Distance "R" from the Siren to Receiver in Feet

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
0	107.	100.	95.	90.	85.	80.	75.	71.	68.	65.
15	107.	100.	95.	90.	84.	79.	75.	72.	70.	67.
30	107.	100.	95.	89.	84.	80.	77.	74.	71.	69.
45	107.	100.	95.	89.	84.	80.	77.	74.	70.	68.
60	107.	100.	95.	89.	84.	80.	77.	73.	69.	66.
75	107.	100.	95.	89.	84.	80.	77.	74.	71.	69.
90	107.	100.	95.	90.	84.	80.	77.	74.	71.	69.
105	107.	100.	95.	90.	85.	81.	76.	73.	71.	68.
120	107.	100.	95.	90.	85.	81.	78.	75.	71.	69.
135	107.	100.	94.	88.	82.	78.	74.	71.	68.	65.
150	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
165	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
180	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
195	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
210	107.	100.	96.	91.	87.	83.	80.	77.	74.	70.
225	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
240	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
255	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
270	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
285	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
300	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
315	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
330	107.	100.	96.	91.	86.	83.	79.	75.	71.	68.
345	106.	98.	94.	89.	84.	80.	76.	73.	70.	67.

Distance "R" in Feet

	5500	6000	6500	7000	7500	8000
0	63.	61.	58.	56.	54.	52.
15	65.	62.	60.	58.	56.	54.
30	65.	63.	61.	59.	57.	53.
45	65.	63.	61.	59.	57.	54.
60	63.	61.	58.	55.	52.	48.
75	65.	63.	61.	59.	55.	52.
90	66.	62.	59.	55.	52.	50.
105	64.	62.	60.	58.	56.	54.
120	66.	63.	60.	56.	54.	52.
135	63.	61.	58.	56.	54.	52.
150	69.	67.	65.	62.	60.	59.
165	69.	67.	65.	62.	60.	59.
180	69.	65.	63.	61.	59.	57.
195	69.	67.	65.	62.	60.	59.
210	66.	62.	58.	55.	52.	48.
225	69.	67.	65.	62.	60.	59.
240	69.	67.	65.	62.	60.	58.
255	69.	67.	65.	62.	60.	58.
270	69.	67.	65.	62.	60.	59.
285	69.	65.	62.	58.	54.	51.
300	69.	67.	65.	62.	60.	57.
315	69.	67.	65.	62.	60.	59.
330	66.	63.	61.	59.	57.	55.
345	64.	61.	57.	53.	50.	46.

Siren 7 Siren Height = 50 FT.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

 ACOUSTIC TECHNOLOGY INC.

 ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI PRGM 12 Computer Model - Flat

Distance "R" from the Siren to Receiver in Feet

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
0	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
15	106.	97.	91.	85.	79.	75.	72.	69.	66.	64.
30	107.	100.	95.	90.	85.	81.	78.	73.	69.	65.
45	107.	100.	95.	90.	84.	79.	74.	71.	68.	66.
60	107.	100.	94.	87.	83.	79.	76.	73.	70.	68.
75	107.	98.	92.	86.	80.	75.	72.	69.	66.	63.
90	107.	98.	92.	86.	80.	75.	72.	69.	66.	63.
105	107.	98.	92.	86.	82.	78.	75.	72.	69.	66.
120	107.	100.	94.	87.	81.	78.	74.	71.	69.	66.
135	107.	100.	94.	87.	81.	78.	74.	71.	69.	66.
150	107.	100.	94.	87.	81.	76.	71.	68.	66.	63.
165	107.	100.	95.	90.	85.	80.	77.	73.	69.	65.
180	106.	98.	94.	89.	84.	79.	74.	70.	67.	64.
195	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
210	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
225	107.	100.	96.	91.	87.	83.	80.	77.	72.	70.
240	107.	100.	96.	91.	87.	83.	80.	75.	72.	70.
255	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
270	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
285	107.	100.	96.	91.	87.	83.	80.	77.	72.	70.
300	107.	100.	96.	91.	87.	83.	80.	77.	72.	70.
315	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
330	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
345	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.

Angle "θ" from the East in Degrees

Distance "R" in Feet

	5500	6000	6500	7000	7500	8000
0	69.	67.	65.	62.	60.	59.
15	61.	59.	57.	55.	53.	51.
30	61.	57.	54.	50.	46.	43.
45	63.	61.	59.	57.	55.	53.
60	65.	63.	61.	58.	55.	53.
75	61.	59.	57.	55.	53.	51.
90	61.	57.	55.	53.	49.	47.
105	64.	62.	60.	57.	54.	50.
120	64.	60.	58.	56.	54.	52.
135	64.	62.	59.	57.	55.	52.
150	61.	58.	56.	54.	52.	50.
165	62.	60.	57.	55.	53.	50.
180	62.	60.	58.	55.	53.	52.
195	69.	67.	65.	62.	60.	59.
210	69.	67.	65.	62.	60.	57.
225	67.	65.	63.	61.	58.	56.
240	67.	65.	62.	59.	56.	52.
255	69.	66.	63.	60.	56.	53.
270	69.	65.	61.	58.	54.	51.
285	67.	63.	60.	56.	53.	49.
300	66.	62.	59.	55.	52.	48.
315	69.	65.	62.	59.	55.	52.
330	65.	62.	64.	61.	57.	54.
345	69.	67.	65.	62.	60.	59.

Siren 8 Siren Height = 50 FT.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS
ATI PRGM 12 Computer Model - Flat

Distance "R" from the Siren to Receiver in Feet

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
0	107.	100.	96.	91.	87.	83.	79.	76.	72.	68.
15	107.	100.	96.	91.	87.	83.	79.	76.	74.	71.
30	107.	100.	96.	91.	86.	81.	77.	75.	72.	69.
45	107.	100.	96.	91.	87.	82.	79.	76.	73.	70.
60	107.	100.	96.	91.	87.	83.	79.	75.	72.	69.
75	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
90	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
105	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
120	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
135	107.	100.	96.	91.	87.	83.	80.			
150	107.	100.	96.	91.	87.	83.				
165	107.	100.	96.	91.	87.					
180	107.	100.	96.	91.	87.					
195	107.	100.	96.	91.	87.					
210	107.	100.	96.	91.	87.	83.				
225	107.	100.	96.	91.	87.	83.	80.			
240	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
255	107.	100.	96.	91.	87.	83.	80.	75.	72.	70.
270	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
285	107.	100.	96.	91.	87.	83.	80.	76.	73.	70.
300	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
315	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
330	107.	100.	96.	91.	87.	83.	79.	76.	72.	68.
345										

MAP ENDS

Distance "R" in Feet

	5500	6000	6500	7000	7500	8000
0	65.	63.	61.	59.	57.	55.
15	68.	66.	64.	62.	60.	58.
30	67.	64.	60.	58.	56.	54.
45	68.	66.	63.	61.	59.	56.
60	67.	65.	62.	60.	58.	56.
75	68.	66.	64.	62.	60.	58.
90	69.	67.	65.	62.	60.	59.
105	69.	67.	65.	62.	60.	59.
120	69.					
135						
150						
165						
180						
195						
210						
225						
240	69.					
255	69.	67.	65.	62.	60.	59.
270	67.	65.	63.	61.	59.	57.
285	69.	67.	65.	62.	59.	56.
300	68.	64.	62.	60.	58.	56.
315	69.	66.	64.	62.	59.	57.
330	67.	63.	61.	59.	57.	55.
345	66.	64.	61.	59.	57.	55.

MAP ENDS

Siren 9 Siren Height = 50 FT.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

 ACOUSTIC TECHNOLOGY INC.

 ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI PRGM 12 COMPUTER MODEL - FLAT

Distance "R" from the Siren to Receiver in Feet

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
0	107.	100.	95.	90.	85.	81.	77.	74.	71.	68.
15	106.	98.	94.	89.	84.	80.	76.	73.	70.	67.
30	106.	97.	91.	85.	79.	74.	69.	64.	60.	56.
45	106.	97.	91.	85.	79.	74.	69.	64.	60.	56.
60	106.	97.	91.	85.	79.	74.	69.	64.	60.	56.
75	107.	99.	93.	86.	81.	75.	70.	66.	62.	58.
90	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
105	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
120	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
135	107.	100.	96.	89.	84.	78.	74.	69.	65.	61.
150	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
165	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
180	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
195	107.	100.	94.	88.	82.	77.	72.	68.	63.	59.
210	106.	99.	93.	86.	81.	75.	70.	66.	62.	58.
225	107.	100.	96.	89.	84.	78.	74.	69.	65.	61.
240	107.	100.	95.	90.	85.	81.	77.	74.	71.	68.
255	107.	100.	95.	90.	85.	81.	76.	72.	68.	63.
270	107.	100.	95.	90.	84.	79.	74.	69.	65.	61.
285	107.	100.	95.	89.	83.	77.	73.	68.	65.	63.
300	107.	100.	95.	89.	83.	77.	73.	68.	65.	63.
315	107.	100.	95.	89.	83.	77.	73.	68.	64.	61.
330	107.	100.	95.	90.	84.	79.	74.	69.	65.	61.
345	107.	100.	95.	90.	84.	79.	74.	71.	66.	62.

Distance "R" in Feet

	5500	6000	6500	7000	7500	8000
0	66.	63.	61.	58.	56.	54.
15	64.	61.	57.	53.	50.	46.
30	52.	48.	45.	41.	38.	34.
45	52.	48.	45.	41.	38.	34.
60	52.	48.	45.	41.	38.	34.
75	54.	50.	46.	43.	39.	36.
90	55.	51.	48.	44.	41.	37.
105	57.	55.	51.	47.	45.	43.
120	55.	51.	48.	44.	41.	38.
135	57.	53.	49.	47.	45.	43.
150	55.	51.	48.	45.	43.	41.
165	55.	51.	49.	47.	45.	43.
180	55.	51.	49.	47.	45.	43.
195	55.	51.	48.	46.	42.	40.
210	54.	50.	46.	43.	39.	36.
225	57.	53.	49.	46.	42.	39.
240	66.	63.	59.	56.	52.	49.
255	60.	56.	52.	48.	46.	44.
270	59.	56.	54.	52.	50.	48.
285	60.	58.	56.	54.	52.	50.
300	60.	58.	56.	52.	50.	48.
315	59.	57.	54.	52.	50.	48.
330	57.	53.	50.	46.	42.	41.
345	60.	57.	54.	52.	49.	45.

Angle "θ" from the East in Degrees

Siren 10 Siren Height = 50 FT.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI PRGM 12 Computer Model - Flat

Distance "R" from the Siren to Receiver in Feet

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
0	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
15	107.	100.	96.	91.	85.	81.	78.	75.	72.	70.
30	107.	100.	96.	89.	84.	78.	75.	72.	69.	67.
45	107.	100.	94.	88.	84.	78.	75.	72.	69.	67.
60	107.	100.	94.	88.	83.	80.	75.	72.	69.	66.
75	107.	100.	96.	91.	87.	81.	78.	75.	71.	67.
90	107.	99.	94.	88.	84.	80.	77.	74.	71.	67.
105	107.	99.	94.	89.	85.	81.	78.	75.	72.	70.
120	107.	100.	96.	91.	87.	83.	79.	76.	74.	71.
135	107.	100.	95.	90.	86.	82.	79.	76.	73.	70.
150	107.	100.	95.	90.	86.	82.	79.	76.	73.	71.
165	107.	100.	95.	91.	85.	80.	77.	74.	71.	69.
180	107.	100.	95.	91.	86.	83.	79.	76.	74.	71.
195	107.	100.	96.	91.	87.	81.	78.	75.	72.	70.
210	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
225	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
240	107.	100.	95.	91.	86.	83.	79.	76.	74.	71.
255	107.	100.	95.	91.	86.	83.	79.	75.	72.	70.
270	107.	100.	95.	90.	86.	82.	79.	76.	73.	69.
285	107.	100.	95.	91.	85.	81.	77.	75.	70.	66.
300	107.	100.	96.	91.	87.	81.	78.	75.	72.	70.
315	107.	100.	96.	91.	85.	81.	78.	75.	72.	68.
330	107.	100.	96.	91.	85.	81.	78.	75.	70.	66.
345	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.

Angle "θ" from the East in Degrees

Distance "R" in Feet

	5500	6000	6500	7000	7500	8000
0	68.	64.	61.	58.	55.	53.
15	67.	65.	63.	61.	59.	57.
30	64.	62.	60.	58.	56.	54.
45	64.	61.	57.	53.		
60	63.					
75						
90						
105						
120	68.					
135	68.	66.	64.	62.		
150	68.	66.	64.	62.	60.	58.
165	65.	63.	61.	59.	57.	55.
180	69.	66.	64.	62.	60.	58.
195	67.	65.	63.	61.	59.	57.
210	69.	67.	65.	62.	60.	59.
225	69.	67.	63.	59.	57.	54.
240	69.	66.	64.	62.	60.	58.
255	67.	65.	63.	61.	58.	56.
270	65.	62.	58.	54.	51.	47.
285	62.	58.	55.	51.	48.	44.
300	66.	62.	58.	55.	51.	48.
315	64.	60.	57.	53.	50.	46.
330	62.	58.	55.	51.	48.	44.
345	69.	65.	62.	59.	57.	54.

MAP ENDS

Siren 11 Siren Height = 50 FT.
Temperature = 66° F
R. H. = 50-90 %
Wind = 4.4 MPH

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Siren 12 Siren Height = 50 Ft.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

Angle " θ " from the East in Degrees	Distance "R" from the Siren to Receiver in Feet												
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000
0	106.	99.	94.	90.	85.	81.	77.	73.	70.	67.	64.	62.	59.
15	106.	99.	94.	90.	85.	79.	76.	73.	66.	64.	55.	59.	51.
30	106.	99.	94.	88.	84.	80.	75.	70.	68.	65.	58.	44.	47.
45	106.	99.	87.	89.	82.	73.	75.	69.	66.	65.	43.	51.	42.
60	106.	99.	92.	86.	81.	75.	67.	69.	64.	63.	52.	49.	47.
75	106.	99.	83.	84.	81.	78.	73.	70.	68.	65.	58.	51.	52.
90	106.	99.	83.	86.	78.	74.	75.	69.	57.	63.	60.	45.	54.
105	106.	98.	80.	81.	77.	77.	73.	61.	55.	55.	51.	50.	48.
120	106.	98.	80.	81.	81.	77.	73.	66.	68.	65.	60.	57.	46.
135	106.	98.	80.	80.	81.	77.	66.	65.	63.	66.	62.	57.	52.
150	106.	99.	87.	89.	83.	77.	62.	65.	66.	61.	50.	48.	47.
165	106.	99.	89.	89.	83.	76.	71.	54.	57.	56.	53.	57.	54.
180	106.	99.	94.	89.	84.	80.	76.	73.	70.	68.	64.	60.	55.
195	106.	99.	92.	81.	78.	75.	77.	72.	62.	67.	63.	52.	53.
210	106.	99.	94.	88.	84.	80.	76.	73.	65.	63.	64.	61.	58.
225	106.	99.	94.	88.	83.	79.	75.	64.	61.	61.	58.	62.	58.
240	106.	99.	94.	90.	85.	81.	78.	74.	71.	69.	65.	62.	60.
255	106.	99.	94.	90.	85.	81.	78.	74.	72.	69.	66.	63.	60.
270	106.	99.	94.	90.	86.	83.	79.	75.	71.	69.	66.	64.	61.
285	106.	99.	94.	90.	86.	82.	79.	75.	72.	69.	66.	63.	60.
300	106.	99.	94.	90.	86.	83.	79.	75.	72.	69.	66.	63.	60.
315	106.	99.	94.	90.	86.	83.	79.	75.	72.	69.	66.	64.	61.
330	106.	99.	94.	90.	86.	82.	79.	75.	72.	69.	66.	63.	60.
345	106.	99.	94.	90.	86.	81.	78.	74.	71.	68.	66.	62.	58.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

 ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS
ATI Main Computer Model - Topography

Siren 13 Siren Height = 50 Ft.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

Angle " θ " from the East in Degrees	Distance "R" from the Siren to Receiver in Feet													
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000
0	106.	99.	94.	90.	86.	81.	72.	70.	68.	68.	58.	64.	57.	59.
15	106.	99.	94.	90.	86.	83.	79.	73.	65.	68.	64.	62.	52.	52.
30	106.	99.	94.	90.	85.	75.	78.	60.	66.	69.	64.	62.	59.	48.
45	106.	99.	88.	90.	86.	76.	80.	76.	74.	69.	60.	65.	62.	58.
60	106.	99.	94.	90.	86.	83.	78.	76.	70.	67.	60.	52.	60.	45.
75	106.	99.	88.	90.	86.	78.	78.	65.	67.	67.	63.	46.	58.	55.
90	106.	99.	94.	90.	80.	75.	77.	73.	62.	60.	64.	59.	57.	50.
105	106.	99.	94.	90.	86.	82.	75.	72.	70.	66.	62.	59.	40.	54.
120	106.	99.	94.	89.	85.	80.	77.	73.	71.	57.	65.	59.	42.	55.
135	106.	99.	94.	90.	86.	82.	78.	76.	73.	66.	62.	47.	49.	54.
150	106.	99.	94.	90.	85.	71.	73.	74.	64.	59.	66.	62.	48.	47.
165	106.	99.	94.	90.	86.	83.	80.	75.	71.	58.	65.	62.	60.	57.
180	106.	99.	83.	90.	86.	83.	80.	77.	74.	71.	68.	65.	62.	57.
195	106.	99.	89.	84.	86.	82.	77.	62.	70.	55.	64.	54.	60.	55.
210	106.	99.	94.	90.	86.	79.	65.	63.	63.	61.	58.	57.	55.	54.
225	106.	99.	94.	85.	84.	71.	70.	68.	71.	64.	63.	60.	58.	44.
240	106.	99.	94.	90.	86.	80.	77.	72.	63.	66.	63.	53.	53.	56.
255	106.	99.	94.	89.	85.	79.	75.	72.	57.	59.	64.	55.	54.	55.
270	106.	99.	94.	89.	85.	81.	75.	72.	68.	65.	63.	55.	54.	54.
285	106.	99.	94.	89.	84.	79.	62.	73.	70.	62.	65.	62.	60.	57.
300	106.	99.	94.	89.	84.	73.	77.	66.	65.	63.	63.	47.	54.	48.
315	106.	99.	94.	84.	85.	75.	78.	74.	70.	67.	57.	54.	58.	51.
330	106.	99.	94.	90.	86.	81.	78.	63.	66.	70.	62.	63.	60.	56.
345	106.	99.	94.	90.	86.	77.	80.	76.	72.	70.	67.	65.	60.	58.

SIREN MANUFACTURER' S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

 ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Siren 14 Siren Height = 50 Ft.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

Angle "θ" from the East in Degrees	Distance "R" from the Siren to Receiver in Feet												
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000
0	106.	99.	94.	90.	86.	81.	78.	68.	72.	68.	64.	48.	51.
15	106.	99.	94.	89.	81.	70.	72.	76.	68.	69.	65.	50.	38.
30	106.	99.	94.	89.	70.	80.	62.	67.	62.	69.	68.	51.	54.
45	106.	99.	94.	90.	85.	82.	76.	61.	60.	68.	64.	62.	52.
60	106.	99.	94.	89.	84.	74.	76.	72.	62.	66.	53.	56.	57.
75	106.	99.	94.	88.	83.	80.	76.	73.	69.	58.	56.	60.	58.
90	106.	99.	94.	88.	83.	72.	76.	72.	70.	57.	57.	53.	52.
105	106.	99.	89.	90.	86.	81.	72.	73.	69.	50.	51.	50.	54.
120	106.	99.	94.	90.	86.	83.	77.	67.	62.	69.	54.	54.	57.
135	106.	99.	94.	89.	84.	67.	72.	73.	62.	59.	55.	53.	55.
150	106.	99.	88.	89.	84.	67.	70.	73.	70.	53.	51.	53.	53.
165	106.	99.	94.	75.	80.	75.	78.	76.	72.	69.	54.	62.	80.
180	106.	99.	94.	75.	80.	80.	77.	73.	57.	56.	56.	56.	81.
195	106.	99.	94.	90.	86.	79.	64.	62.	70.	81.	64.	61.	58.
210	106.	99.	87.	89.	85.	81.	76.	72.	62.	59.	59.	62.	60.
225	106.	99.	94.	90.	84.	80.	76.	73.	69.	58.	56.	62.	59.
240	106.	99.	94.	90.	85.	76.	76.	73.	68.	87.	64.	59.	57.
255	106.	99.	94.	89.	74.	80.	68.	67.	72.	69.	65.	50.	60.
270	106.	99.	94.	90.	86.	83.	80.	78.	73.	70.	67.	65.	61.
285	106.	99.	94.	90.	80.	83.	76.	60.	60.	58.	60.	55.	55.
300	106.	99.	94.	90.	86.	77.	75.	77.	73.	69.	65.	63.	48.
315	106.	99.	94.	90.	86.	83.	78.	73.	69.	67.	59.	57.	58.
330	106.	99.	94.	90.	85.	77.	77.	73.	70.	66.	64.	50.	50.
345	106.	99.	94.	84.	86.	78.	65.	67.	66.	62.	65.	61.	59.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Siren 15 Siren Height = 50 Ft.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

Angle " θ " from the East in Degrees	Distance "R" from the Siren to Receiver in Feet												
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000
0	106.	99.	94.	90.	86.	81.	78.	74.	71.	67.	64.	59.	57.
15	106.	99.	94.	90.	81.	81.	78.	74.	68.	58.	55.	54.	55.
30	106.	99.	94.	85.	86.	77.	78.	73.	68.	65.	62.	59.	55.
45	106.	99.	94.	79.	86.	80.	70.	74.	70.	65.	63.	58.	52.
60	106.	99.	94.	84.	82.	71.	71.	67.	67.	56.	53.	53.	51.
75	106.	99.	91.	82.	82.	76.	72.	61.	61.	59.	59.	56.	51.
90	106.	99.	93.	82.	80.	69.	66.	66.	67.	62.	51.	49.	48.
105	106.	99.	92.	75.	76.	79.	77.	72.	65.	54.	54.	53.	52.
120	106.	99.	93.	73.	84.	79.	69.	68.	71.	66.	63.	59.	49.
135	106.	99.	94.	79.	85.	81.	78.	74.	70.	65.	63.	61.	55.
150	106.	99.	93.	77.	76.	75.	77.	72.	61.	61.	64.	61.	53.
165	106.	99.	93.	79.	73.	76.	78.	70.	70.	66.	64.	61.	57.
180	106.	99.	94.	90.	86.	81.	78.	74.	71.	66.	63.	58.	47.
195	106.	99.	94.	90.	85.	71.	78.	71.	71.	67.	64.	62.	59.
210	106.	99.	94.	90.	81.	83.	79.	76.	72.	69.	66.	63.	60.
225	106.	99.	94.	90.	86.	82.	79.	75.	72.	69.	66.	64.	61.
240	106.	99.	94.	90.	86.	83.	79.	76.	73.	69.	67.	64.	61.
255	106.	99.	94.	90.	86.	83.	80.	77.	73.	70.	67.	64.	61.
270	106.	99.	94.	90.	86.	83.	80.	76.	73.	70.	67.	65.	61.
285	106.	99.	94.	90.	86.	83.	80.	77.	73.	70.	67.	64.	62.
300	106.	99.	94.	90.	86.	83.	80.	77.	73.	70.	67.	64.	62.
315	106.	99.	94.	90.	86.	82.	74.	76.	73.	70.	66.	64.	57.
330	106.	99.	94.	90.	86.	77.	79.	76.	71.	62.	67.	63.	60.
345	106.	99.	94.	90.	86.	72.	78.	74.	71.	61.	64.	62.	52.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

 ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS
ATI Main Computer Model - Topography

Siren 16 Siren Height = 50 Ft.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

Angle " θ " from the East in Degrees	Distance "R" from the Siren to Receiver in Feet												
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000
0	106.	99.	94.	90.	86.	80.	78.	75.	72.	68.	66.	62.	58.
15	106.	99.	94.	90.	85.	81.	77.	74.	70.	67.	64.	62.	59.
30	106.	99.	94.	90.	84.	79.	76.	69.	65.	58.	48.	47.	48.
45	106.	99.	94.	89.	84.	75.	62.	64.	60.	57.	56.	53.	51.
60	106.	99.	94.	88.	73.	80.	72.	58.	55.	54.	53.	50.	48.
75	106.	99.	94.	76.	84.	77.	70.	62.	61.	61.	56.	53.	51.
90	106.	99.	94.	80.	86.	80.	75.	73.	82.	67.	58.	56.	55.
105	106.	99.	94.	84.	82.	79.	71.	67.	70.	66.	59.	62.	53.
120	106.	99.	86.	90.	86.	78.	75.	67.	87.	64.	53.	55.	50.
135	106.	99.	94.	90.	86.	82.	75.	68.	65.	54.	52.	51.	47.
150	106.	99.	94.	90.	85.	75.	78.	74.	68.	64.	60.	57.	54.
165	106.	99.	94.	90.	81.	81.	77.	72.	70.	62.	48.	46.	46.
180	106.	99.	94.	82.	86.	82.	78.	72.	57.	61.	64.	62.	59.
195	106.	99.	94.	90.	86.	81.	77.	66.	66.	68.	63.	58.	43.
210	106.	99.	94.	90.	86.	82.	78.	74.	58.	66.	63.	53.	54.
225	106.	99.	94.	90.	86.	83.	80.	77.	73.	70.	65.	57.	80.
240	106.	99.	94.	90.	81.	82.	78.	70.	71.	63.	58.	53.	56.
255	106.	99.	89.	89.	85.	79.	75.	61.	59.	57.	64.	62.	49.
270	106.	99.	84.	90.	86.	80.	77.	73.	70.	67.	64.	54.	54.
285	106.	99.	94.	83.	81.	81.	78.	75.	71.	68.	65.	62.	51.
300	106.	99.	94.	90.	86.	83.	80.	76.	73.	70.	67.	65.	62.
315	106.	99.	94.	90.	86.	82.	74.	75.	71.	69.	65.	52.	60.
330	106.	99.	94.	90.	86.	82.	80.	75.	71.	68.	64.	62.	58.
345	106.	99.	94.	90.	78.	81.	78.	74.	71.	68.	66.	64.	61.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

 ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Siren 17 Siren Height = 50 Ft.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

Angle "θ" from the East in Degrees	Distance "R" from the Siren to Receiver in Feet													
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000
0	106.	99.	94.	90.	86.	83.	79.	68.	74.	70.	67.	64.	61.	58.
15	106.	99.	94.	90.	86.	83.	79.	76.	73.	69.	67.	63.	60.	52.
30	106.	99.	94.	90.	86.	83.	79.	76.	73.	69.	67.	63.	58.	51.
45	106.	99.	94.	90.	86.	83.	80.	77.	73.	69.	65.	62.	58.	55.
60	106.	99.	94.	90.	86.	83.	80.	77.	73.	69.	66.	63.	60.	58.
75	106.	99.	94.	82.	79.	83.	80.	77.	73.	70.	66.	63.	61.	59.
90	106.	99.	94.	90.	86.	78.	73.	77.	74.	70.	68.	65.	62.	60.
105	106.	93.	94.	80.	86.	83.	80.	72.	74.	71.	68.	65.	62.	60.
120	106.	99.	94.	90.	85.	75.	75.	61.	56.	58.	60.	54.	54.	52.
135	106.	99.	94.	76.	86.	78.	69.	58.	61.	56.	55.	54.	52.	50.
150	106.	99.	94.	87.	82.	63.	62.	64.	61.	58.	57.	56.	55.	56.
165	106.	99.	94.	89.	82.	67.	61.	61.	60.	60.	64.	61.	57.	55.
180	106.	99.	94.	73.	74.	75.	72.	76.	72.	69.	65.	62.	55.	41.
195	106.	99.	94.	90.	86.	82.	69.	76.	73.	69.	64.	60.	58.	54.
210	106.	99.	94.	90.	86.	83.	75.	75.	71.	64.	61.	64.	61.	58.
225	106.	99.	86.	83.	86.	81.	68.	75.	73.	69.	66.	62.	60.	57.
240	106.	99.	94.	90.	85.	79.	75.	62.	70.	61.	59.	56.	58.	51.
255	106.	99.	94.	90.	86.	81.	75.	65.	70.	59.	60.	62.	59.	56.
270	106.	99.	94.	90.	86.	81.	75.	65.	70.	59.	60.	62.	55.	51.
285	106.	99.	94.	90.	85.	81.	75.	68.	54.	57.	52.	51.	55.	52.
300	106.	99.	94.	90.	86.	81.	75.	73.	65.	54.	48.	50.	48.	51.
315	106.	99.	94.	90.	86.	81.	75.	70.	65.	51.	52.	48.	49.	48.
330	106.	99.	94.	90.	86.	81.	78.	74.	70.	66.	58.	54.	51.	50.
345	106.	99.	94.	90.	86.	83.	79.	71.	74.	70.	67.	64.	61.	58.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Siren 18 Siren Height = 50 Ft.

Temperature = 66° F

R. H. = 60-90 %

Wind = 4.4 MPH

Distance "R" from the Siren to Receiver in Feet

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000
0	106.	99.	94.	90.	85.	80.	76.	72.	67.	62.	59.	56.	53.	51.
15	106.	99.	94.	88.	84.	80.	72.	67.	60.	57.	55.	52.	50.	52.
30	106.	99.	83.	89.	79.	76.	72.	65.	65.	64.	61.	58.	55.	52.
45	106.	99.	88.	90.	84.	76.	73.	70.	67.	64.	61.	42.	41.	40.
60	106.	99.	94.	90.	84.	79.	75.	70.	65.	61.	61.	44.	47.	40.
75	106.	99.	91.	85.	80.	76.	74.	56.	55.	64.	61.	44.	41.	41.
90	106.	99.	88.	85.	80.	76.	61.	70.	54.	64.	47.	43.	42.	41.
105	106.	99.	88.	89.	81.	66.	72.	68.	87.	64.	53.	58.	45.	41.
120	106.	99.	94.	89.	85.	80.	75.	70.	65.	52.	50.	50.	47.	45.
135	106.	99.	94.	90.	84.	79.	72.	65.	65.	56.	53.	47.	45.	44.
150	106.	99.	94.	89.	80.	79.	68.	68.	70.	66.	59.	48.	47.	47.
165	106.	99.	94.	90.	86.	80.	75.	61.	70.	59.	64.	60.	47.	48.
180	106.	99.	94.	89.	74.	75.	77.	66.	64.	68.	66.	62.	60.	57.
195	106.	99.	94.	90.	86.	81.	72.	76.	72.	69.	67.	64.	61.	58.
210	106.	99.	94.	90.	86.	83.	79.	76.	71.	67.	60.	62.	60.	56.
225	106.	99.	94.	90.	86.	82.	78.	73.	66.	57.	56.	49.	47.	47.
240	106.	99.	94.	90.	86.	83.	78.	73.	65.	62.	51.	49.	48.	44.
255	106.	99.	94.	90.	85.	75.	78.	73.	70.	61.	58.	51.	44.	43.
270	106.	99.	94.	90.	86.	80.	75.	72.	70.	66.	62.	56.	45.	52.
285	106.	99.	94.	90.	86.	82.	78.	74.	68.	65.	61.	54.	53.	51.
300	106.	99.	94.	90.	85.	81.	78.	74.	71.	67.	63.	59.	53.	51.
315	106.	99.	94.	90.	85.	79.	76.	72.	70.	66.	63.	61.	58.	52.
330	106.	99.	94.	90.	85.	79.	77.	70.	62.	65.	62.	59.	57.	54.
345	106.	99.	94.	89.	84.	78.	72.	68.	62.	64.	61.	58.	55.	52.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

 ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Siren 19 Siren Height = 50 Ft.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

Angle " θ " from the East in Degrees	Distance "R" from the Siren to Receiver in Feet												
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000
0	106.	99.	93.	88.	81.	72.	73.	68.	65.	62.	58.	56.	52.
15	106.	99.	93.	86.	78.	79.	72.	63.	66.	62.	60.	56.	57.
30	106.	99.	93.	88.	81.	76.	71.	62.	64.	62.	58.	57.	55.
45	106.	99.	94.	88.	82.	76.	71.	64.	61.	61.	58.	56.	53.
60	106.	99.	94.	85.	79.	76.	72.	67.	64.	63.	52.	49.	57.
75	106.	99.	91.	86.	80.	75.	71.	67.	64.	62.	60.	51.	50.
90	106.	99.	91.	85.	80.	77.	71.	68.	64.	57.	51.	50.	48.
105	106.	99.	92.	85.	81.	77.	73.	67.	65.	56.	51.	48.	45.
120	106.	99.	92.	86.	78.	79.	75.	71.	68.	57.	57.	55.	58.
135	106.	99.	93.	87.	82.	78.	75.	72.	69.	66.	64.	62.	58.
150	106.	99.	94.	88.	83.	79.	75.	71.	69.	66.	59.	61.	59.
165	106.	99.	94.	89.	84.	80.	77.	73.	70.	66.	63.	61.	59.
180	106.	99.	94.	89.	85.	80.	77.	73.	70.	66.	64.	61.	59.
195	106.	99.	94.	88.	79.	76.	77.	74.	71.	67.	64.	59.	57.
210	106.	99.	94.	90.	85.	81.	77.	74.	70.	66.	63.	60.	56.
225	106.	99.	94.	90.	85.	80.	77.	73.	70.	66.	64.	60.	56.
240	106.	99.	94.	89.	84.	80.	77.	73.	71.	66.	63.	60.	56.
255	106.	99.	94.	88.	84.	80.	76.	73.	71.	66.	63.	60.	56.
270	106.	99.	94.	88.	83.	79.	75.	73.	70.	67.	63.	61.	58.
285	106.	99.	94.	88.	82.	73.	75.	72.	70.	66.	64.	61.	58.
300	106.	99.	94.	88.	81.	76.	67.	64.	62.	60.	57.	58.	57.
315	106.	99.	93.	87.	80.	76.	71.	67.	60.	56.	60.	56.	53.
330	106.	99.	93.	87.	80.	75.	71.	64.	65.	61.	59.	56.	54.
345	106.	99.	94.	89.	83.	75.	72.	69.	61.	58.	59.	56.	52.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

 ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS
ATI Main Computer Model - Topography

Siren 20 Siren Height = 50 Ft.
Temperature = 65° F
R. H. = 60-90 %
Wind = 4.4 MPH

Angle "θ" from the East in Degrees	Distance "R" from the Siren to Receiver in Feet												
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000
0	106.	99.	94.	88.	84.	80.	77.	73.	70.	66.	63.	61.	58.
15	106.	99.	94.	89.	85.	80.	77.	73.	70.	66.	63.	61.	58.
30	106.	99.	94.	89.	84.	80.	77.	73.	71.	67.	63.	57.	48.
45	106.	99.	94.	89.	84.	80.	77.	73.	70.	66.	63.	57.	54.
60	106.	99.	94.	89.	84.	80.	77.	73.	70.	67.	64.	61.	57.
75	106.	99.	93.	88.	83.	79.	76.	73.	70.	66.	64.	62.	58.
90	106.	99.	94.	87.	82.	79.	75.	72.	68.	66.	58.	61.	58.
105	106.	99.	94.	88.	84.	79.	76.	72.	68.	66.	58.	61.	59.
120	106.	99.	94.	89.	84.	79.	75.	71.	68.	65.	62.	59.	57.
135	106.	99.	94.	88.	82.	77.	73.	68.	62.	64.	56.	59.	53.
150	106.	99.	93.	84.	83.	79.	70.	66.	62.	59.	56.	50.	47.
165	106.	99.	93.	86.	80.	75.	72.	67.	67.	64.	64.	45.	50.
180	106.	99.	93.	85.	81.	77.	75.	59.	70.	67.	64.	52.	41.
195	106.	99.	93.	85.	83.	79.	70.	73.	71.	67.	57.	46.	51.
210	106.	99.	91.	86.	83.	65.	70.	73.	64.	58.	56.	51.	52.
225	106.	99.	90.	87.	76.	71.	69.	64.	62.	65.	62.	61.	60.
240	106.	99.	90.	86.	72.	77.	67.	70.	68.	65.	64.	49.	60.
255	106.	99.	90.	86.	81.	67.	67.	64.	58.	63.	63.	52.	47.
270	106.	99.	85.	85.	74.	75.	67.	68.	65.	65.	62.	59.	51.
285	106.	98.	91.	85.	80.	66.	65.	63.	65.	64.	48.	47.	54.
300	106.	99.	90.	81.	76.	76.	73.	70.	66.	63.	59.	52.	54.
315	106.	99.	92.	88.	82.	78.	71.	67.	60.	63.	54.	53.	54.
330	106.	99.	93.	88.	83.	78.	74.	69.	67.	59.	62.	58.	55.
345	106.	99.	94.	88.	83.	79.	75.	71.	69.	66.	61.	52.	50.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

 ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS
ATI Main Computer Model - Topography

Siren 21 Siren Height = 50 Ft.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

Angle " θ " from the East in Degrees	Distance "R" from the Siren to Receiver in Feet												
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000
0	106.	89.	84.	89.	84.	80.	76.	73.	68.	66.	63.	61.	58.
15	106.	99.	94.	89.	84.	80.	77.	73.	69.	66.	63.	60.	58.
30	106.	99.	94.	89.	84.	81.	78.	72.	69.	66.	62.	58.	54.
45	106.	99.	94.	88.	85.	80.	76.	72.	68.	64.	60.	58.	53.
60	106.	99.	94.	89.	86.	80.	76.	73.	69.	66.	63.	59.	54.
75	106.	99.	94.	89.	86.	80.	76.	73.	69.	66.	63.	60.	58.
90	106.	99.	94.	89.	85.	80.	76.	73.	69.	66.	63.	60.	58.
105	106.	99.	94.	90.	84.	81.	76.	73.	69.	66.	63.	58.	54.
120	106.	99.	94.	90.	85.	80.	76.	73.	69.	66.	63.	60.	58.
135	106.	99.	94.	88.	85.	80.	76.	71.	68.	65.	62.	59.	57.
150	106.	99.	94.	89.	84.	78.	67.	70.	66.	57.	61.	56.	45.
165	106.	99.	94.	90.	84.	78.	76.	72.	65.	61.	58.	56.	56.
180	106.	99.	94.	89.	85.	78.	70.	71.	67.	62.	52.	56.	53.
195	106.	99.	94.	89.	85.	80.	74.	66.	69.	66.	62.	59.	56.
210	106.	99.	94.	89.	85.	81.	76.	69.	66.	61.	58.	56.	54.
225	106.	99.	94.	88.	84.	80.	76.	72.	68.	64.	62.	57.	55.
240	106.	99.	94.	88.	84.	79.	75.	71.	68.	64.	62.	59.	55.
255	106.	99.	94.	88.	84.	80.	76.	73.	68.	66.	62.	55.	58.
270	106.	99.	94.	88.	83.	79.	74.	71.	67.	64.	62.	59.	55.
285	106.	99.	94.	88.	83.	78.	74.	71.	66.	62.	58.	56.	54.
300	106.	99.	93.	88.	83.	79.	75.	71.	68.	65.	62.	59.	56.
315	106.	99.	94.	88.	83.	79.	75.	71.	68.	65.	62.	59.	56.
330	106.	99.	94.	88.	83.	79.	75.	71.	69.	65.	62.	59.	56.
345	106.	99.	94.	89.	84.	80.	76.	73.	69.	66.	63.	60.	58.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

 ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Siren 22 Siren Height = 50 Ft.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

Angle "θ" from the East in Degrees	Distance "R" from the Siren to Receiver in Feet												
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	7000
0	106.	99.	91.	85.	79.	76.	68.	65.	61.	58.	59.	46.	47.
15	106.	99.	91.	84.	72.	68.	68.	68.	62.	56.	61.	57.	51.
30	106.	99.	93.	88.	84.	80.	75.	70.	66.	59.	54.	59.	51.
45	106.	99.	93.	84.	80.	80.	75.	73.	68.	65.	60.	53.	49.
60	106.	99.	92.	82.	77.	79.	71.	72.	68.	65.	56.	53.	57.
75	106.	99.	92.	86.	75.	70.	75.	72.	63.	61.	58.	55.	54.
90	106.	99.	94.	86.	77.	69.	71.	72.	68.	66.	62.	51.	57.
105	106.	99.	94.	89.	84.	69.	77.	69.	70.	66.	64.	62.	59.
120	106.	99.	94.	90.	86.	81.	78.	75.	71.	68.	63.	56.	54.
135	106.	99.	94.	89.	84.	80.	76.	65.	66.	63.	65.	62.	58.
150	106.	99.	94.	90.	85.	81.	78.	73.	65.	68.	65.	62.	60.
165	106.	99.	94.	90.	86.	82.	78.	74.	71.	67.	64.	62.	59.
180	106.	99.	94.	90.	84.	81.	73.	74.	71.	68.	65.	62.	60.
195	106.	99.	94.	90.	84.	75.	72.	69.	66.	68.	65.	58.	61.
210	106.	99.	94.	89.	83.	80.	77.	68.	65.	63.	60.	54.	56.
225	106.	99.	94.	89.	85.	79.	75.	72.	62.	67.	60.	55.	54.
240	106.	99.	94.	80.	85.	73.	78.	74.	72.	69.	66.	63.	61.
255	106.	99.	93.	89.	84.	79.	66.	67.	64.	68.	61.	58.	61.
270	106.	99.	92.	82.	79.	80.	77.	69.	71.	68.	65.	62.	52.
285	106.	99.	87.	84.	84.	80.	72.	69.	71.	61.	64.	56.	57.
300	106.	99.	91.	77.	75.	72.	69.	67.	65.	62.	63.	59.	57.
315	106.	99.	83.	88.	75.	79.	71.	72.	60.	62.	62.	59.	58.
330	106.	99.	84.	90.	82.	69.	69.	70.	68.	60.	55.	54.	57.
345	106.	99.	87.	87.	84.	79.	72.	63.	66.	62.	60.	57.	54.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Siren 23 Siren Height = 50 Ft.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

Angle " θ " from the East in Degrees	Distance "R" from the Siren to Receiver in Feet													
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000
0	106.	99.	94.	90.	84.	80.	77.	69.	66.	68.	66.	62.	60.	57.
15	106.	99.	94.	90.	85.	81.	73.	75.	72.	69.	66.	63.	60.	58.
30	106.	99.	94.	90.	86.	82.	76.	63.	70.	67.	65.	62.	55.	53.
45	106.	99.	94.	90.	85.	80.	77.	72.	69.	58.	64.	62.	60.	57.
60	106.	99.	94.	90.	80.	82.	78.	74.	71.	66.	56.	55.	51.	50.
75	106.	99.	94.	90.	86.	83.	80.	75.	70.	62.	65.	52.	55.	57.
90	106.	99.	94.	90.	85.	77.	77.	69.	72.	68.	66.	64.	55.	58.
105	106.	99.	94.	88.	79.	79.	62.	73.	70.	67.	63.	55.	45.	44.
120	106.	99.	94.	87.	84.	80.	76.	63.	62.	58.	66.	62.	60.	57.
135	106.	99.	89.	88.	77.	75.	72.	73.	70.	59.	60.	62.	52.	57.
150	106.	99.	94.	90.	84.	72.	73.	70.	67.	69.	66.	61.	50.	47.
165	106.	99.	94.	90.	86.	81.	77.	73.	62.	60.	66.	63.	61.	54.
180	106.	99.	94.	89.	77.	77.	78.	70.	72.	67.	64.	62.	60.	56.
195	106.	99.	94.	90.	86.	81.	78.	74.	71.	67.	63.	55.	54.	52.
210	108.	99.	93.	82.	77.	80.	77.	72.	69.	66.	63.	61.	58.	55.
225	106.	99.	94.	89.	83.	80.	72.	69.	66.	63.	64.	62.	58.	55.
240	106.	99.	94.	90.	84.	81.	77.	73.	70.	67.	64.	62.	55.	57.
255	108.	99.	94.	90.	85.	77.	78.	73.	70.	62.	60.	63.	60.	58.
270	106.	99.	94.	89.	80.	80.	68.	69.	72.	69.	64.	62.	55.	52.
285	106.	99.	94.	90.	86.	82.	78.	73.	65.	63.	65.	62.	59.	57.
300	108.	99.	94.	89.	85.	77.	77.	64.	65.	67.	63.	61.	52.	56.
315	106.	99.	94.	90.	84.	76.	77.	74.	71.	67.	62.	60.	57.	55.
330	106.	99.	94.	89.	84.	80.	77.	72.	68.	65.	62.	55.	58.	55.
345	108.	99.	94.	89.	84.	80.	76.	72.	64.	62.	64.	62.	55.	57.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

 ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Siren 24 Siren Height = 50 Ft.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

Angle "θ" from the East in Degrees	Distance "R" from the Siren to Receiver in Feet													
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000
0	106.	99.	94.	89.	84.	77.	73.	68.	63.	62.	60.	47.	44.	43.
15	106.	99.	94.	89.	84.	79.	75.	71.	66.	57.	55.	59.	57.	54.
30	106.	99.	94.	90.	85.	80.	76.	72.	69.	66.	63.	60.	58.	55.
45	106.	99.	94.	90.	85.	80.	77.	72.	69.	66.	63.	60.	58.	56.
60	106.	99.	94.	90.	85.	81.	77.	73.	70.	66.	63.	61.	58.	56.
75	106.	99.	94.	90.	85.	81.	77.	74.	70.	67.	64.	61.	58.	55.
90	106.	99.	94.	90.	85.	81.	77.	73.	71.	67.	64.	61.	58.	56.
105	106.	99.	94.	90.	85.	81.	77.	73.	70.	67.	64.	61.	58.	56.
120	106.	99.	94.	89.	85.	81.	77.	73.	70.	67.	64.	61.	59.	56.
135	106.	99.	94.	90.	85.	81.	78.	73.	70.	67.	64.	61.	58.	56.
150	106.	99.	94.	89.	84.	73.	77.	73.	70.	66.	63.	61.	58.	56.
165	106.	99.	94.	89.	84.	81.	75.	72.	69.	66.	64.	61.	58.	56.
180	106.	99.	94.	89.	85.	77.	74.	71.	63.	65.	62.	59.	56.	52.
195	106.	99.	94.	89.	82.	78.	71.	68.	64.	55.	54.	55.	54.	40.
210	106.	99.	94.	85.	83.	78.	75.	69.	65.	56.	60.	58.	56.	54.
225	106.	99.	94.	88.	81.	78.	72.	67.	55.	57.	54.	52.	50.	51.
240	106.	99.	89.	87.	78.	79.	74.	71.	68.	65.	60.	51.	53.	52.
255	106.	99.	93.	87.	80.	69.	72.	70.	58.	51.	53.	59.	57.	39.
270	106.	99.	94.	84.	81.	68.	64.	60.	59.	63.	52.	49.	47.	53.
285	106.	99.	88.	87.	79.	77.	72.	68.	57.	65.	62.	59.	51.	54.
300	106.	99.	91.	85.	80.	77.	73.	69.	65.	66.	63.	48.	58.	42.
315	106.	99.	93.	84.	76.	72.	73.	70.	68.	65.	48.	44.	50.	47.
330	106.	99.	93.	88.	83.	75.	72.	68.	54.	55.	60.	56.	48.	52.
345	106.	99.	94.	89.	84.	79.	75.	72.	66.	61.	58.	57.	42.	43.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

 ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

AT1 Main Computer Model - Topography

Map Scale 1:62500

Siren 25 Siren Height = 50 Ft.

Temperature = 66° F

R. H. = 60-90 %

Wind = 4.4 MPH

Distance "R" from the Siren to Receiver in Feet

	1000	2000	3000	4000	5000	6000	7000
0	99.	88.	76.	73.	65.	55.	56.
15	99.	87.	75.	68.	67.	61.	56.
30	99.	90.	81.	74.	67.	58.	54.
45	99.	87.	78.	72.	66.	60.	56.
60	99.	87.	78.	70.	65.	54.	54.
75	99.	88.	79.	73.	66.	58.	52.
90	99.	88.	78.	72.	61.	60.	54.
105	99.	88.	79.	72.	61.	56.	57.
120	99.	88.	80.	72.	67.	59.	54.
135	99.	87.	79.	73.	64.	48.	47.
150	99.	88.	80.	71.	65.	52.	54.
165	99.	88.	78.	70.	65.	53.	50.
180	99.	88.	78.	66.	61.	60.	50.
195	99.	85.	72.	66.	65.	59.	50.
210	99.	88.	79.	72.	64.	59.	54.
225	99.	89.	79.	70.	60.	59.	49.
240	99.	88.	79.	73.	67.	61.	54.
255	99.	87.	79.	73.	66.	59.	54.
270	99.	88.	78.	66.	65.	59.	52.
285	99.	87.	79.	72.	65.	58.	50.
300	99.	87.	78.	68.	64.	56.	51.
315	99.	87.	76.	64.	64.	56.	50.
330	99.	87.	78.	71.	59.	60.	56.
345	99.	88.	75.	72.	64.	59.	51.

Angle "θ" from the East in Degrees

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS
ATI PRGM 12 Computer Model - Flat

Distance "R" from the Siren to Receiver in Feet

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
0	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
15	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
30	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
45	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
60	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
75	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
90	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
105	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
120	107.	100.	96.	91.	87.	83.	80.			
135	107.	100.	96.	91.	87.					
150	107.	100.	94.	88.						
165	106.	97.	91.							
180	106.	97.	91.							
195	106.	97.	91.							
210	106.	97.	91.	85.						
225	107.	100.	94.	89.	85.					
240	107.	100.	96.	89.	85.	81.	77.			
255	107.	100.	94.	88.	84.	80.	77.	72.	69.	67.
270	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
285	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
300	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
315	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
330	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
345	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.

MAP ENDS

Angle "θ" from the East in Degrees

Distance "R" in Feet

	5500	6000	6500	7000	7500	8000
0	69.	67.	65.	62.	60.	59.
15	69.	67.	65.	62.	60.	59.
30	69.	67.	65.	62.	60.	59.
45	69.	67.	65.	62.	60.	59.
60	69.	67.	65.	62.	60.	59.
75	69.	67.	65.	62.	60.	59.
90	69.	67.	65.	62.	60.	59.
105	69.	67.	65.	62.		
120						
135						
150						
165						
180						
195						
210						
225						
240						
255	64.	62.	60.	58.	60.	59.
270	69.	67.	65.	62.	60.	59.
285	69.	67.	65.	62.	60.	57.
300	69.	67.	63.	60.	57.	53.
315	68.	65.	61.	58.	54.	51.
330	68.	64.	60.	57.	53.	50.
345	69.	67.	64.	61.	57.	54.

MAP ENDS

Siren 26 Siren Height = 50 FT.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS
ATI PRGM 12 Computer Model - Flat

Distance "R" from the Siren to Receiver in Feet

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
0	107.	100.	96.	90.	85.	81.	77.	73.	70.	67.
15	107.	100.	96.	91.	87.	81.	77.	73.	70.	68.
30	107.	100.	96.	91.	87.	81.	77.	73.	71.	68.
45	107.	100.	96.	89.	84.	80.	75.	72.	69.	67.
60	107.	100.	96.	89.	85.	81.	77.	73.	71.	68.
75	107.	100.	96.	89.	85.	80.	75.	72.	69.	66.
90	107.	100.	96.	91.	87.	81.	78.	74.	71.	68.
105	107.	100.	96.	91.	87.	83.	78.	75.	72.	69.
120	107.	100.	96.	91.	87.	83.	80.	77.	74.	70.
135	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
150	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
165	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
180	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
195	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
210	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
225	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
240	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
255	107.	100.	96.	91.	87.	83.	80.	77.	74.	70.
270	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
285	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
300	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
315	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
330	107.	100.	96.	91.	87.	82.	78.	75.	73.	70.
345	107.	100.	96.	91.	86.	81.	76.	73.	71.	68.

Angle "θ" from the East in Degrees

Distance "R" in Feet

	5500	6000	6500	7000	7500	8000
0	63.	61.	59.	56.	54.	51.
15	65.	63.	61.	59.	56.	54.
30	66.	63.	61.	59.	57.	55.
45	64.	62.	60.	58.	56.	54.
60	66.	63.	61.	59.	57.	54.
75	64.	62.	60.	58.	54.	51.
90	66.	63.	60.	56.	53.	51.
105	67.	64.	62.	60.	58.	56.
120	67.	65.	63.	61.	59.	57.
135	69.	67.	65.	62.	60.	59.
150	69.	67.	65.	62.		
165	69.	67.				
180	69.	67.				
195	69.	67.				
210	69.	67.	65.	62.		
225	69.	67.	65.	62.	60.	59.
240	69.	67.	65.	62.	60.	59.
255	67.	65.	63.	61.	59.	57.
270	69.	67.	65.	62.	60.	59.
285	69.	67.	65.	62.	60.	59.
300	69.	67.	65.	62.	60.	59.
315	69.	67.	65.	62.	60.	58.
330	68.	65.	63.	61.	59.	57.
345	64.	62.	60.	58.	56.	54.

MAP ENDS

Siren 27 Siren Height = 50 FT.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI PRGM 12 COMPUTER MODEL - FLAT

Distance "R" from the Siren to Receiver in Feet

	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
0	107.	100.	96.	91.	87.	83.	79.	76.	73.	70.
15	107.	100.	96.	91.	87.	83.	79.	76.	73.	70.
30	107.	100.	96.	91.	87.	83.	79.	76.	74.	71.
45	107.	100.	96.	91.	87.	83.	80.	76.	74.	71.
60	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
75	107.	100.	95.	90.	85.	81.	78.	75.	71.	69.
90	107.	100.	95.	90.	85.	81.	77.	74.	71.	68.
105	107.	100.	95.	90.	85.	81.	77.	75.	72.	69.
120	107.	100.	95.	90.	85.	81.	78.	75.	72.	70.
135	107.	100.	95.	90.	85.	81.	78.	75.	72.	70.
150	107.	100.	95.	90.	85.	82.	78.	75.	73.	69.
165	107.	100.	95.	90.	85.	82.	78.	75.	73.	70.
180	107.	100.	95.	90.	85.	82.	78.	75.	71.	69.
195	107.	100.	95.	90.	85.	81.	78.	75.	72.	70.
210	107.	100.	95.	90.	85.	81.	78.	75.	72.	70.
225	107.	100.	95.	90.	85.	81.	77.	74.	71.	69.
240	107.	100.	95.	90.	85.	81.	77.	74.	71.	68.
255	107.	99.	93.	86.	81.	75.	70.	67.	64.	61.
270	107.	100.	96.	91.	87.	83.	80.	77.	74.	71.
285	107.	100.	96.	89.	84.	78.	75.	72.	68.	65.
300	107.	100.	96.	91.	87.	81.	78.	74.	69.	66.
315	107.	100.	96.	91.	87.	81.	78.	75.	71.	69.
330	107.	100.	96.	91.	85.	81.	77.	74.	71.	68.
345	107.	100.	96.	91.	87.	83.	79.	76.	73.	70.

Angle "θ" from the East in Degrees

Distance "R" in Feet

	5500	6000	6500	7000	7500	8000
0	67.	65.	63.	61.	57.	54.
15	67.	65.	62.	60.	58.	56.
30	68.	65.	63.	61.	58.	56.
45	69.	66.	64.	62.	58.	55.
60	69.	67.	65.	62.	60.	58.
75	66.	63.	61.	59.	56.	54.
90	66.	64.	62.	59.	57.	56.
105	67.	65.	62.	60.	58.	56.
120	67.	65.	63.	61.	59.	57.
135	67.	65.	63.	61.	57.	56.
150	67.	64.	62.	60.	58.	55.
165	66.	62.	60.	58.	55.	53.
180	66.	64.	62.	60.	58.	56.
195	67.	65.	63.	61.	59.	57.
210	67.	65.	63.	60.	57.	53.
225	67.	64.	62.	59.	57.	53.
240	66.	63.	61.	58.	56.	54.
255	59.	55.	51.	49.	47.	45.
270	69.	67.	65.	61.	57.	56.
285	63.	61.	57.	55.	53.	50.
300	64.	61.	59.	56.	54.	52.
315	66.	63.	61.	59.	57.	55.
330	66.	64.	62.	59.	56.	54.
345	67.	65.	63.	61.	57.	54.

Siren 28 Siren Height = 50 FT.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Map Scale 1:62500

Siren 29 Siren Height = 50 Ft.

Temperature = 66° F

R. H. = 60-90 %

Wind = 4.4 MPH

Distance "R" from the Siren to Receiver in Feet

	1000	2000	3000	4000	5000	6000	7000
0	99.	90.	80.	73.	66.	62.	56.
15	99.	90.	80.	73.	67.	62.	53.
30	99.	90.	81.	73.	63.	62.	50.
45	99.	90.	80.	75.	68.	63.	58.
60	99.	89.	79.	66.	67.	62.	57.
75	99.	89.	79.	72.	65.	53.	55.
90	99.	89.	79.	72.	65.	55.	49.
105	99.	89.	79.	72.	56.	53.	52.
120	99.	89.	79.	71.	53.	61.	56.
135	99.	89.	79.	68.	63.	62.	52.
150	99.	89.	79.	70.	58.	53.	47.
165	99.	89.	79.	72.	64.	58.	44.
180	99.	89.	80.	73.	65.	61.	56.
195	99.	89.	79.	72.	65.	58.	54.
210	99.	89.	81.	74.	66.	61.	47.
225	99.	90.	80.	74.	66.	59.	55.
240	99.	89.	79.	73.	66.	62.	55.
255	99.	88.	78.	70.	65.	61.	55.
270	99.	87.	78.	68.	55.	58.	49.
285	99.	85.	76.	70.	65.	59.	51.
300	99.	87.	76.	68.	62.	56.	46.
315	99.	90.	78.	68.	58.	53.	47.
330	99.	90.	79.	72.	62.	51.	53.
345	99.	90.	81.	72.	65.	55.	54.

Angle "θ" from the East in Degrees

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Map Scale 1:62500

Siren 30 Siren Height = 50 Ft.
Temperature = 66° F
R. H. = 60-90 %
Wind = 4.4 MPH

Distance "R" from the Siren to Receiver in Feet

	1000	2000	3000	4000	5000	6000	7000
0	99.	90.	80.	72.	66.	59.	55.
15	99.	89.	80.	72.	65.	60.	56.
30	99.	87.	78.	70.	64.	57.	52.
45	99.	86.	74.	70.	63.	57.	52.
60	99.	86.	74.	70.	62.	56.	51.
75	99.	85.	76.	69.	62.	55.	52.
90	99.	85.	76.	68.	62.	57.	51.
105	99.	85.	76.	68.	62.	56.	52.
120	99.	87.	78.	70.	64.	56.	51.
135	99.	89.	77.	68.	62.	51.	52.
150	99.	85.	76.	70.	64.	59.	54.
165	99.	85.	76.	70.	52.	48.	52.
180	99.	85.	76.	68.	62.	56.	51.
195	99.	85.	76.	70.	63.	58.	51.
210	99.	87.	78.	68.	62.	58.	54.
225	99.	86.	75.	68.	61.	57.	43.
240	99.	88.	77.	67.	57.	56.	53.
265	99.	89.	79.	70.	64.	56.	51.
270	99.	89.	79.	71.	65.	58.	52.
285	99.	87.	75.	69.	62.	56.	44.
300	99.	87.	76.	68.	61.	56.	47.
315	99.	89.	76.	68.	62.		
330	99.	89.	77.	68.			
345	99.	87.	76.	70.	65.		

MAP
ENDS

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Map Scale 1:62500

Siren 31 Siren Height = 50 Ft.

Temperature = 66° F

R. H. = 60-90 %

Wind = 4.4 MPH

Distance "R" from the Siren to Receiver in Feet

	1000	2000	3000	4000	5000	6000	7000
0	99.	89.	79.	65.	62.	58.	58.
15	99.	90.	82.	74.	64.	64.	59.
30	99.	90.	80.	73.	61.	58.	59.
45	99.	89.	75.	74.	69.	64.	59.
60	99.	89.	80.	73.	63.	58.	59.
75	99.	90.	83.	74.	69.	63.	58.
90	99.	90.	83.	77.	70.	63.	58.
105	99.	90.	83.	76.	70.	65.	59.
120	99.	90.	83.	74.	68.	59.	42.
135	99.	90.	81.	76.	64.	50.	47.
150	99.	90.	81.	72.	61.	58.	47.
165	99.	90.	81.	73.	65.	59.	55.
180	99.	90.	82.	74.	67.	59.	52.
195	99.	90.	82.	73.	67.	62.	57.
210	99.	82.	83.	76.	67.	62.	55.
225	99.	84.	81.	74.	66.	58.	52.
240	99.	90.	82.	74.	65.	58.	54.
255	99.	89.	81.	72.	65.	61.	55.
270	99.	89.	74.	74.	66.	59.	52.
285	99.	87.	70.	72.	64.	59.	52.
300	99.	87.	70.	70.	63.	58.	53.
315	99.	87.	79.	67.	57.	52.	47.
330	99.	89.	76.	62.	58.	53.	50.
345	99.	89.	78.	72.	66.	60.	48.

Angle "θ" from the East in Degrees

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Map Scale 1:62500

Siren 32 Siren Height = 50 Ft.

Temperature = 66° F

R. H. = 60-90 %

Wind = 4.4 MPH

Distance "R" from the Siren to Receiver in Feet

	1000	2000	3000	4000	5000	6000	7000
0	99.	90.	83.	75.	64.	64.	55.
15	99.	90.	83.	77.	70.	63.	56.
30	99.	90.	83.	78.	70.	64.	59.
45	99.	90.	81.	67.	70.	65.	59.
60	99.	90.	82.	75.	69.	63.	59.
75	99.	90.	83.	74.	67.	58.	56.
90	99.	90.	83.	76.	68.	62.	57.
105	99.	90.	81.	75.	64.	63.	58.
120	99.	90.	82.	75.	69.	63.	59.
135	99.	90.	83.	77.	69.	55.	59.
150	99.	90.	82.	74.	62.	63.	51.
165	99.	90.	80.	63.	63.	64.	58.
180	99.	90.	81.	76.	70.	62.	47.
195	99.	90.	82.	75.	70.	63.	48.
210	99.	90.	82.	76.	69.	63.	58.
225	99.	90.	83.	75.	70.	65.	60.
240	99.	90.	83.	76.	69.	62.	57.
255	99.	90.	81.	69.	69.	62.	58.
270	99.	90.	82.	73.	63.	61.	57.
285	99.	89.	75.	74.	67.	62.	54.
300	99.	89.	77.	65.	62.	56.	41.
315	99.	90.	81.	73.	67.	59.	52.
330	99.	90.	81.	73.	60.	61.	56.
345	99.	90.	82.	73.	55.	63.	56.

SIREN MANUFACTURER'S
RATING = 125 dBC

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

SIREN SOUND LEVELS

ATI Main Computer Model - Topography

Map Scale 1:62500

Distance "R" from the Siren to Receiver in Feet

Angle "θ" from the East in Degrees	1000	2000	3000	4000	5000	6000	7000
0	89.	85.	76.	60.	56.	52.	47.
15	89.	85.	70.	64.	58.	52.	51.
30	99.	85.	76.	62.	57.	52.	47.
45	99.	89.	78.	67.	62.	58.	52.
60	88.	80.	83.	73.	67.	61.	51.
75	99.	90.	83.	77.	70.	62.	57.
90	99.	90.	82.	75.	69.	64.	58.
105	88.	80.	82.	75.	69.	62.	48.
120	99.	90.	83.	75.	66.	59.	49.
135	99.	90.	82.	73.	66.	61.	54.
150	88.	80.	83.	73.	66.	62.	56.
165	99.	90.	83.	76.	69.	62.	52.
180	99.	90.	83.	77.	69.	64.	58.
195	89.	89.	81.	75.	64.	61.	57.
210	99.	90.	81.	76.	70.	64.	58.
225	99.	90.	82.	76.	70.	61.	52.
240	88.	80.	79.	73.	57.	62.	55.
255	99.	90.	76.	62.	53.	49.	47.
270	99.	90.	79.	64.	62.	45.	42.
285	89.	87.	70.	72.	48.	43.	40.
300	99.	90.	79.	73.	64.	58.	51.
315	99.	87.	78.	68.	56.	56.	45.
330	89.	89.	76.	63.	55.	52.	47.
345	99.	82.	76.	62.	62.	47.	46.

SIREN MANUFACTURER'S
RATING = 125 dBC

Siren 33 Siren Height = 50 Ft.

Temperature = 66° F

R. H. = 60-90 %

Wind = 4.4 MPH

MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.



ACOUSTIC TECHNOLOGY INC.

APPENDIX 2: Siren Sound Levels in Graphical Form

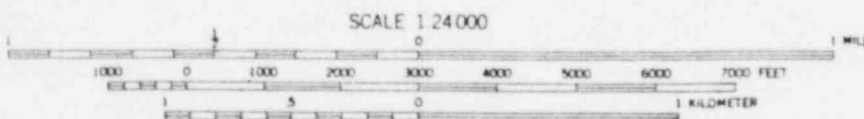
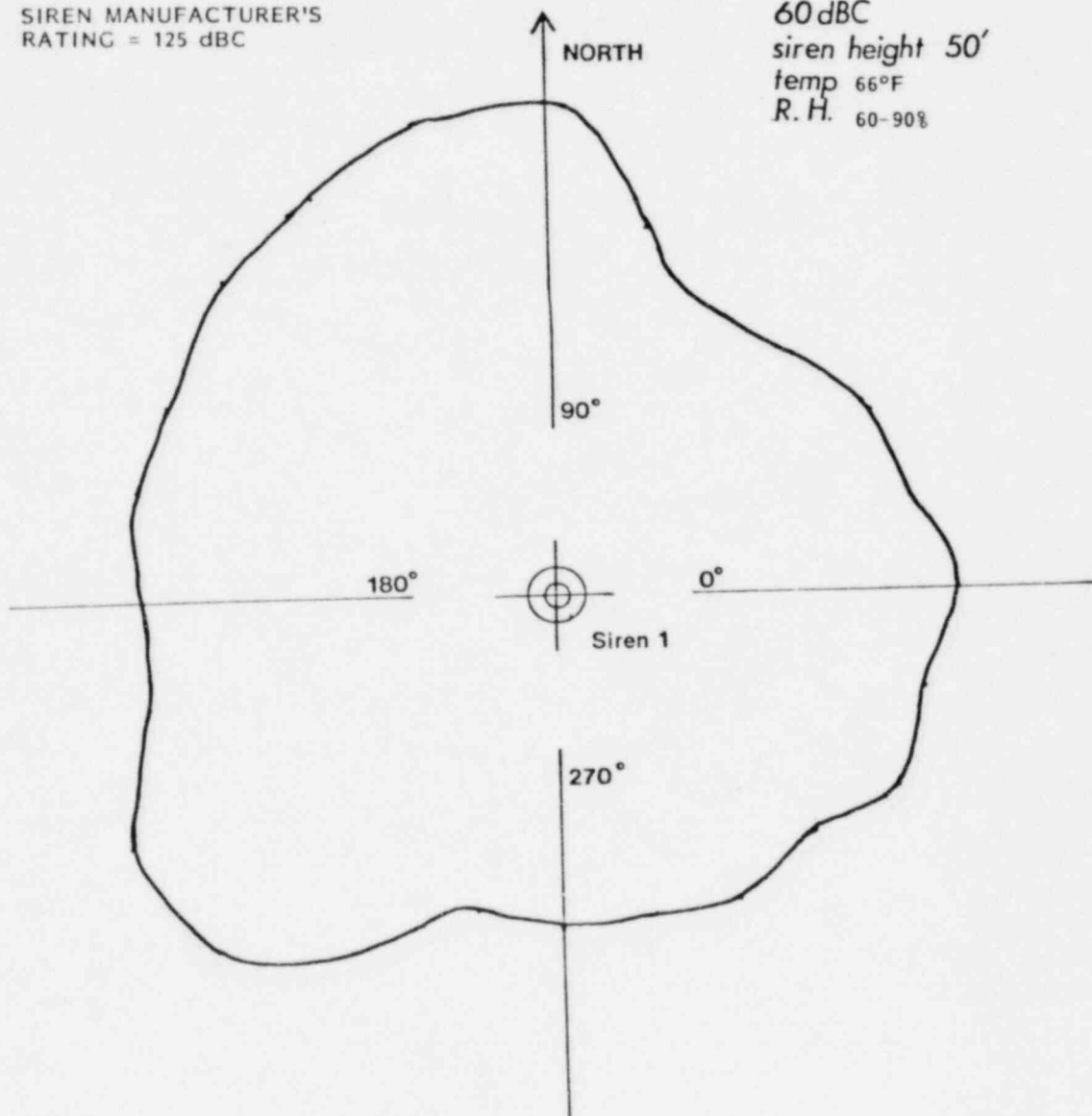
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66°F
R. H. 60-90%



ACOUSTIC TECHNOLOGY INC.

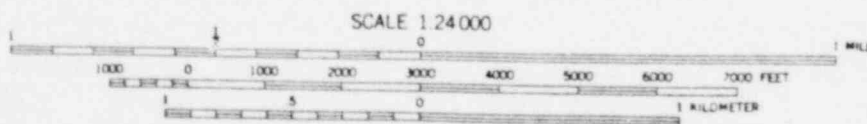
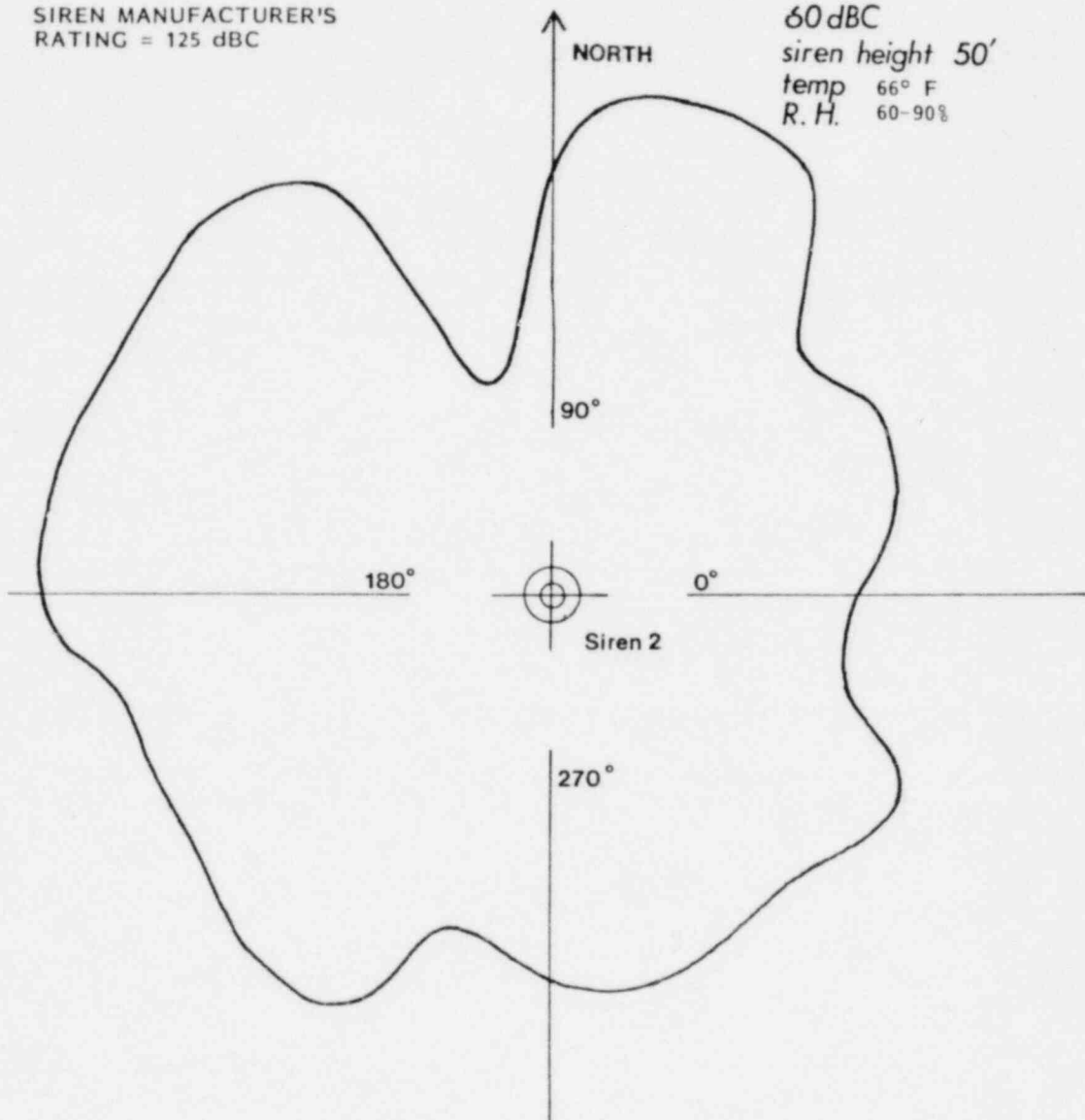
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66° F
R. H. 60-90%



ACOUSTIC TECHNOLOGY INC.

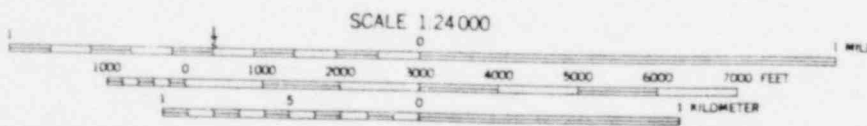
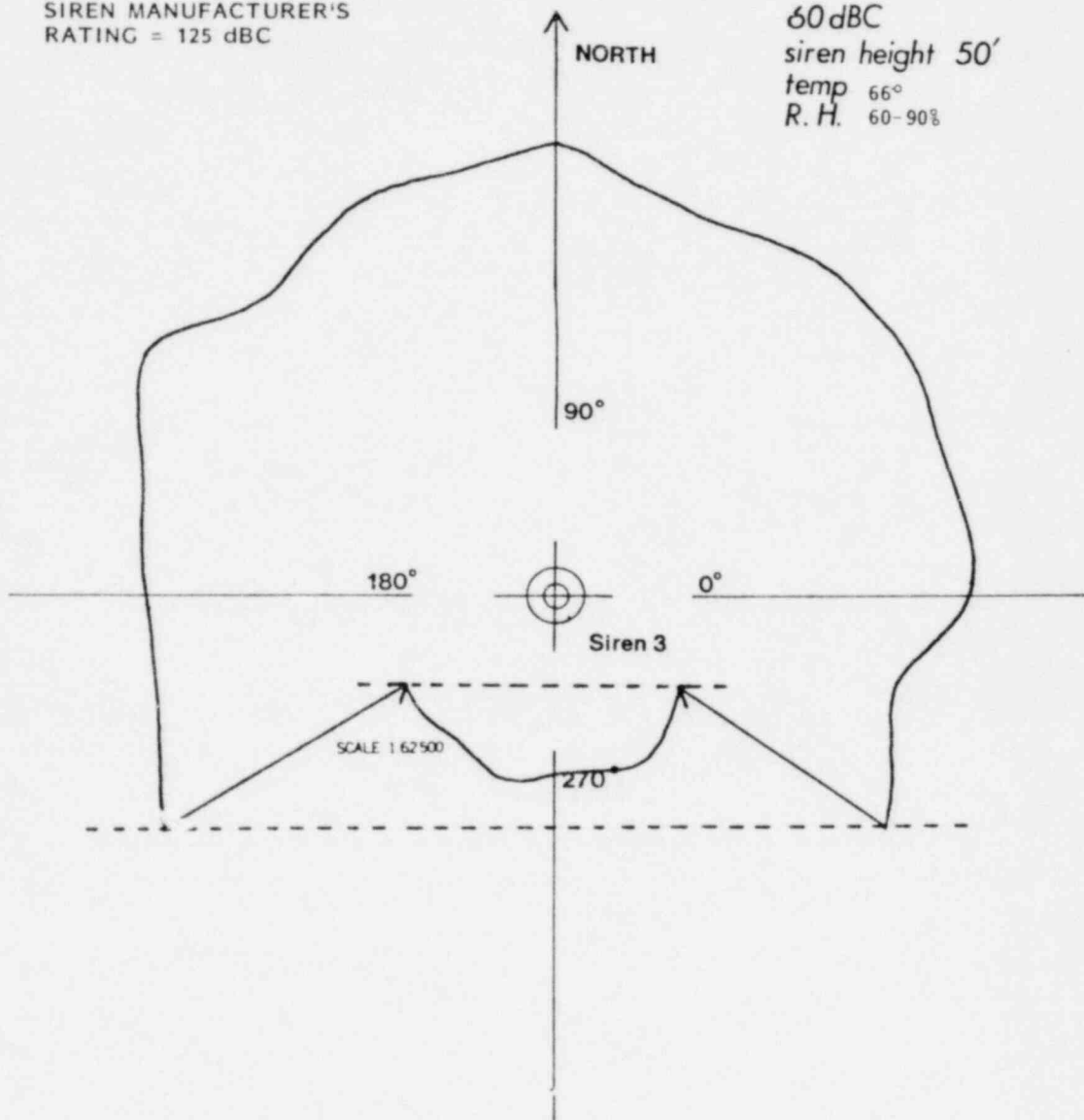
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66°
R. H. 60-90%



ACOUSTIC TECHNOLOGY INC.

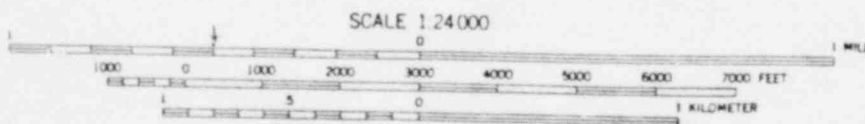
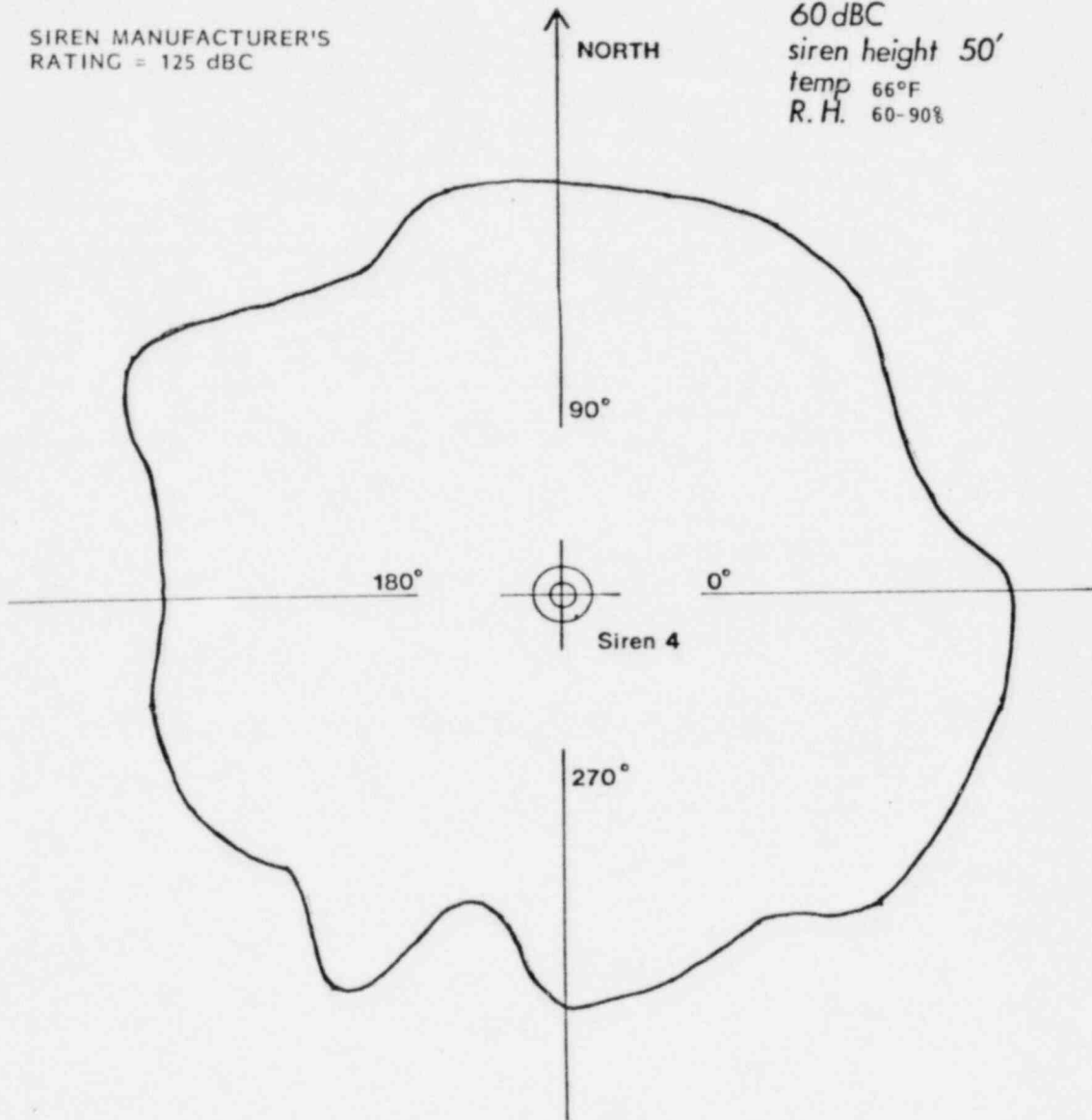
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66°F
R. H. 60-90%



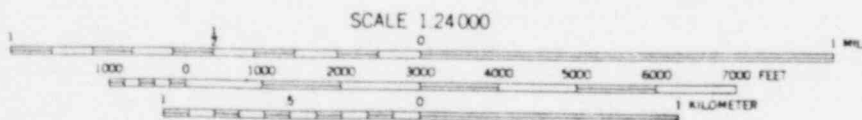
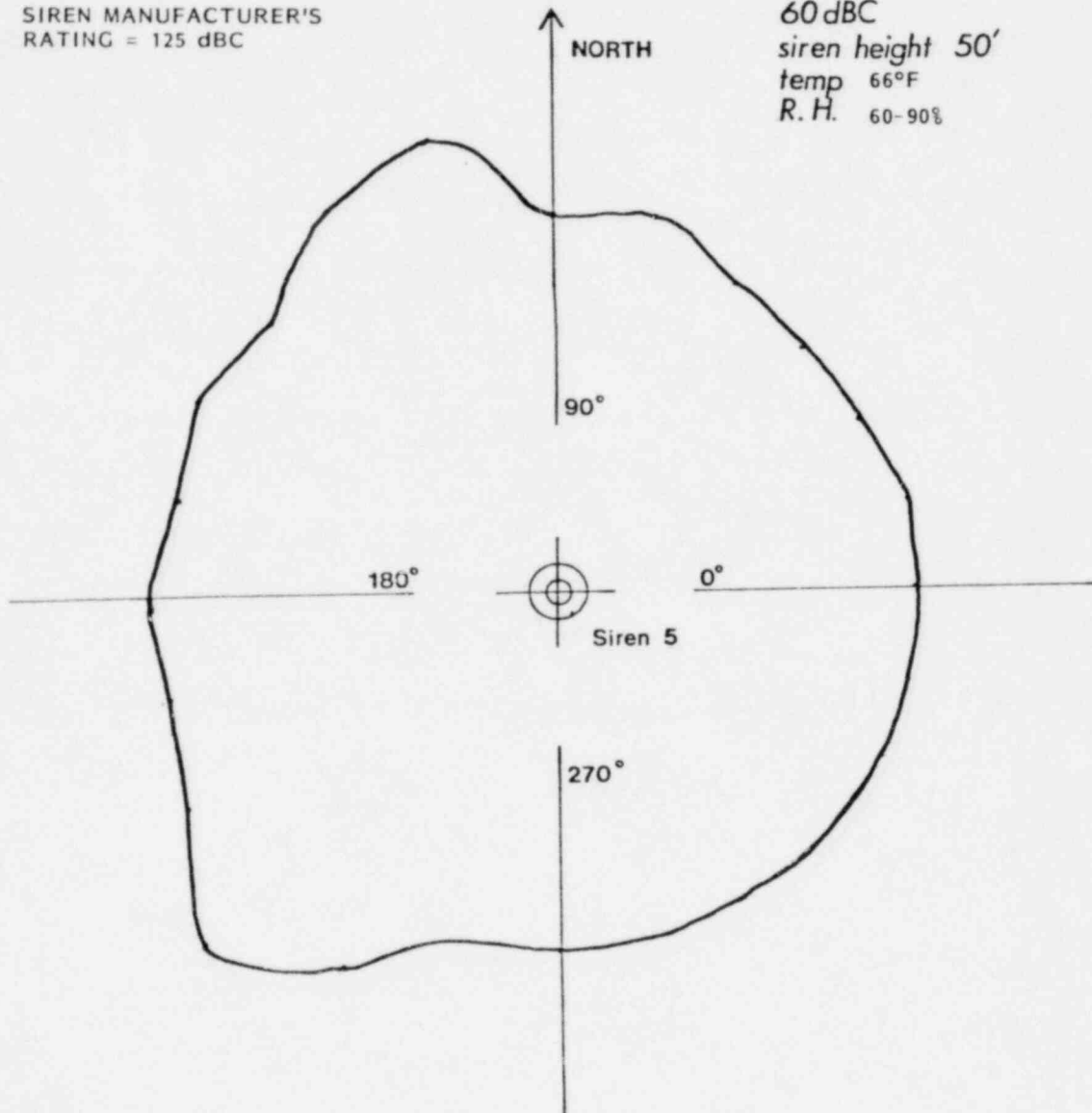
ACOUSTIC TECHNOLOGY INC.

Siren Sound Coverage

MISSISSIPPI POWER & LIGHT Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66°F
R. H. 60-90%



ACOUSTIC TECHNOLOGY INC.

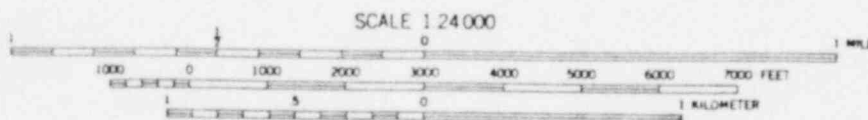
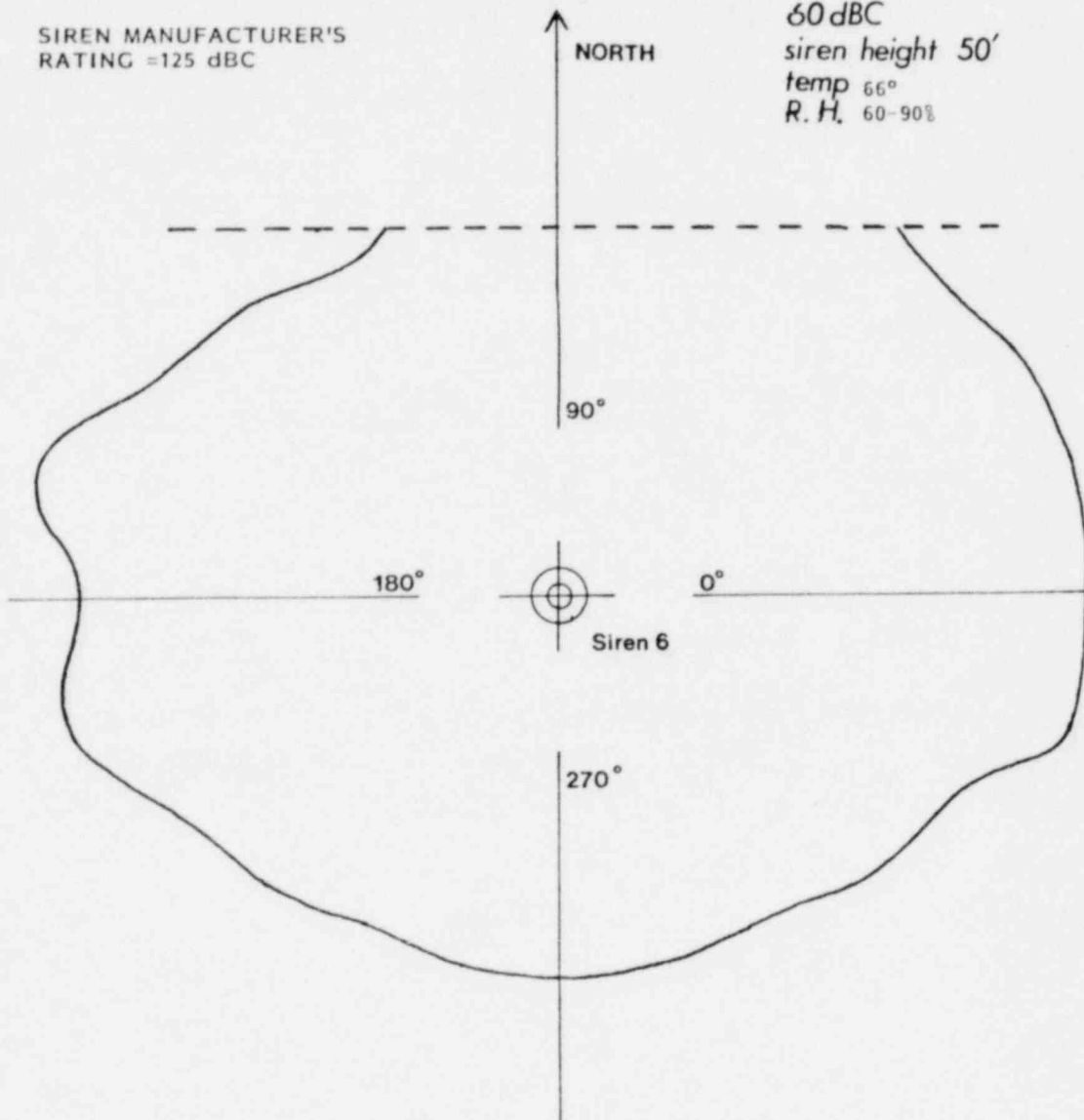
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING =125 dBC

60 dBC
siren height 50'
temp 66°
R. H. 60-90%



ACOUSTIC TECHNOLOGY INC.

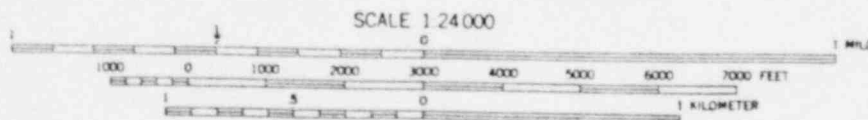
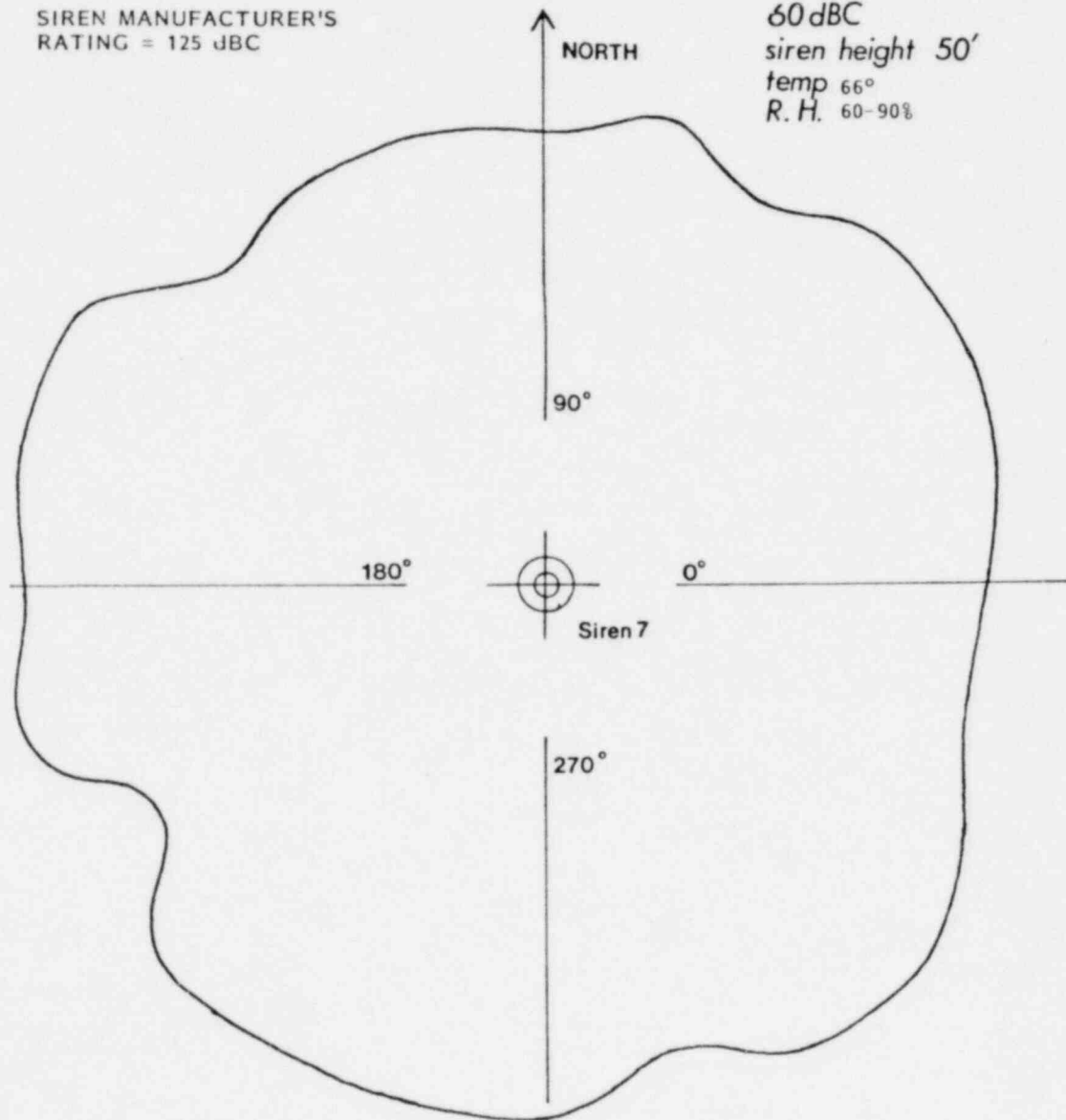
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66°
R. H. 60-90%



ACOUSTIC TECHNOLOGY INC.

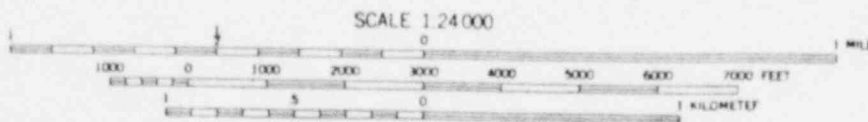
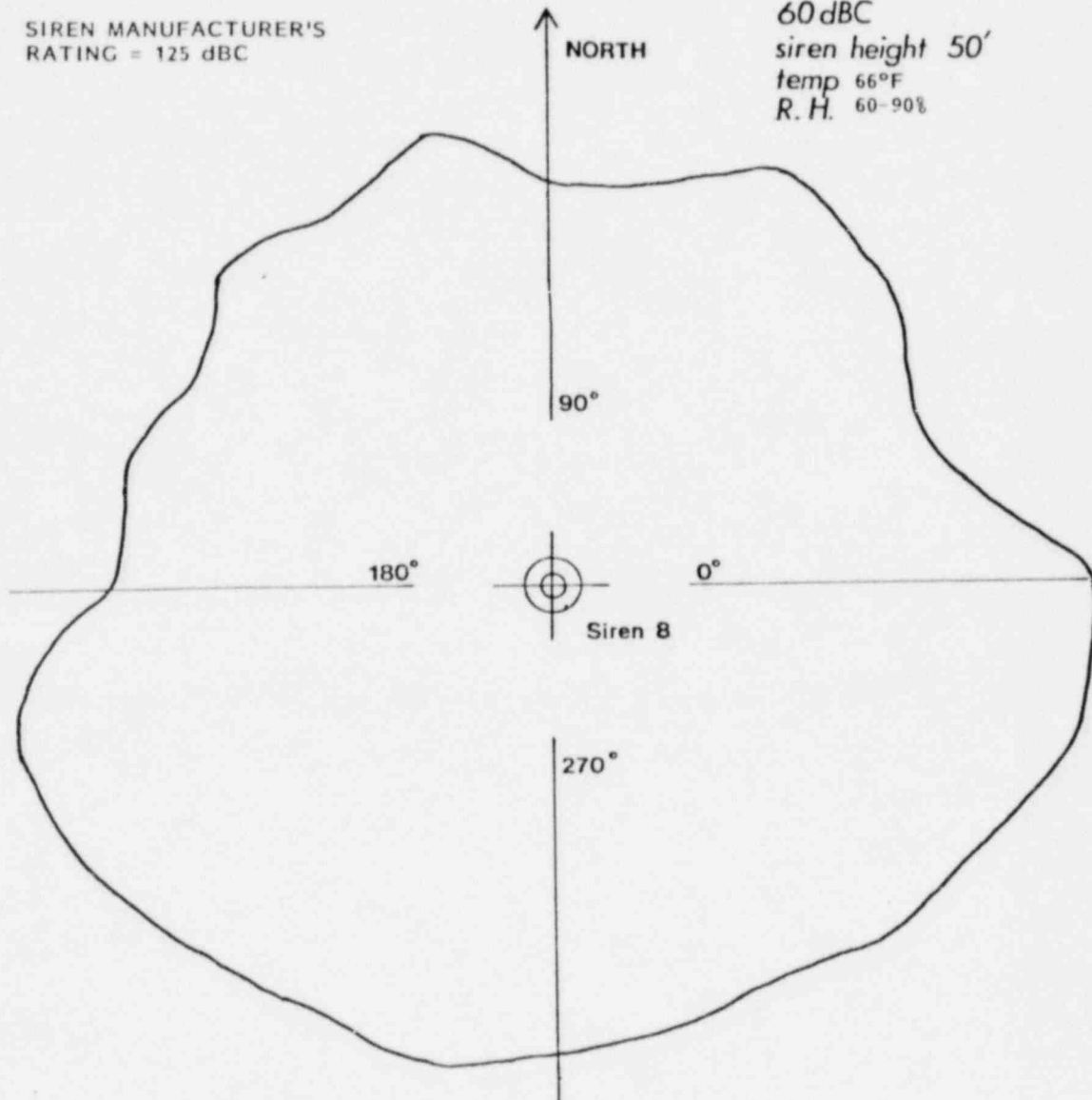
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

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RATING = 125 dBC

60 dBC
siren height 50'
temp 66°F
R. H. 60-90%

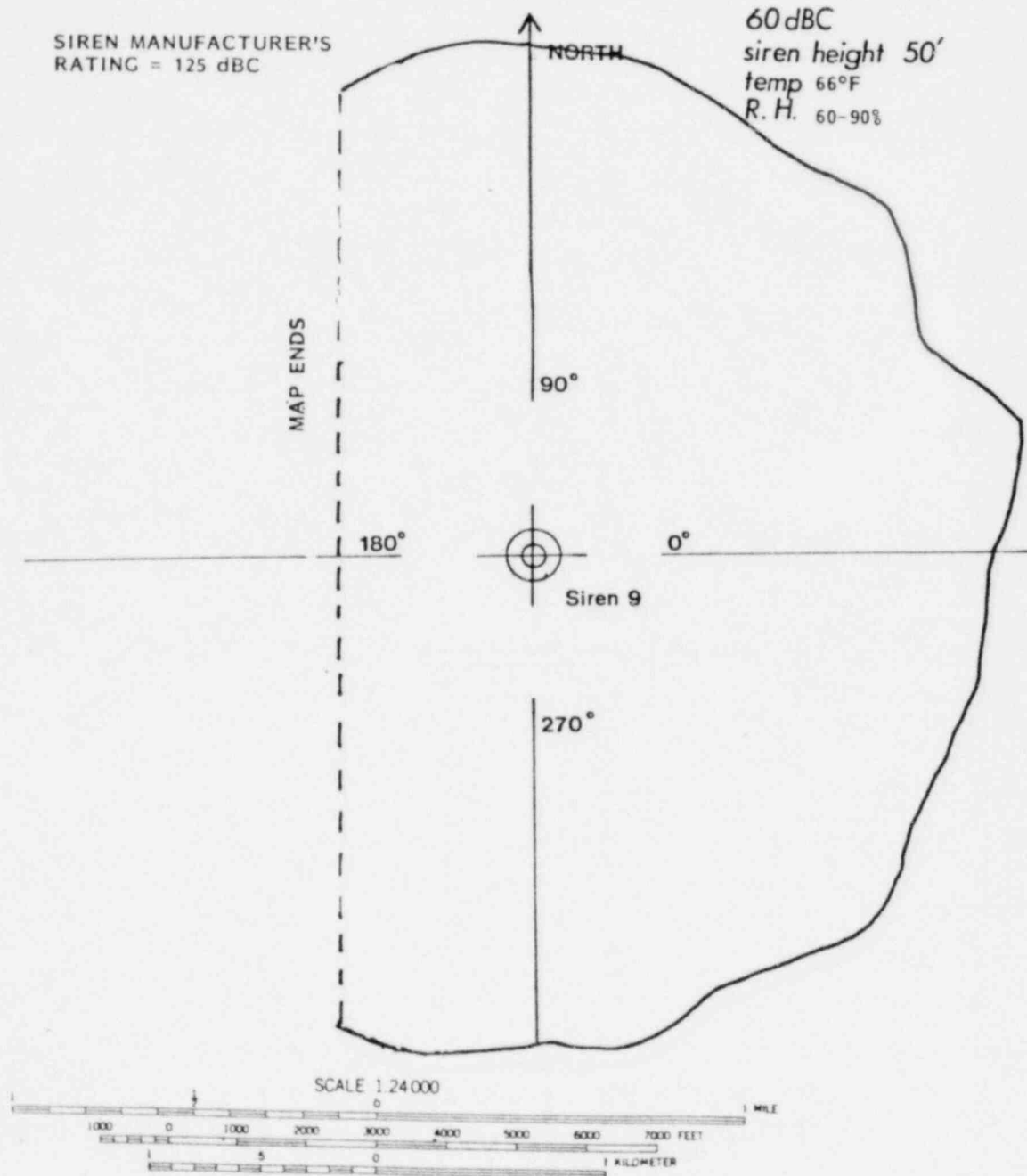


ACOUSTIC TECHNOLOGY INC.

Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis



ACOUSTIC TECHNOLOGY INC.

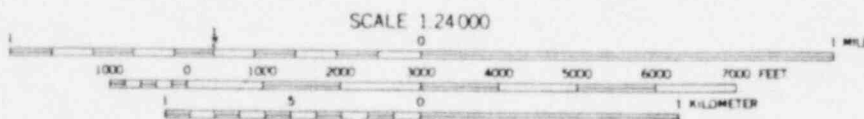
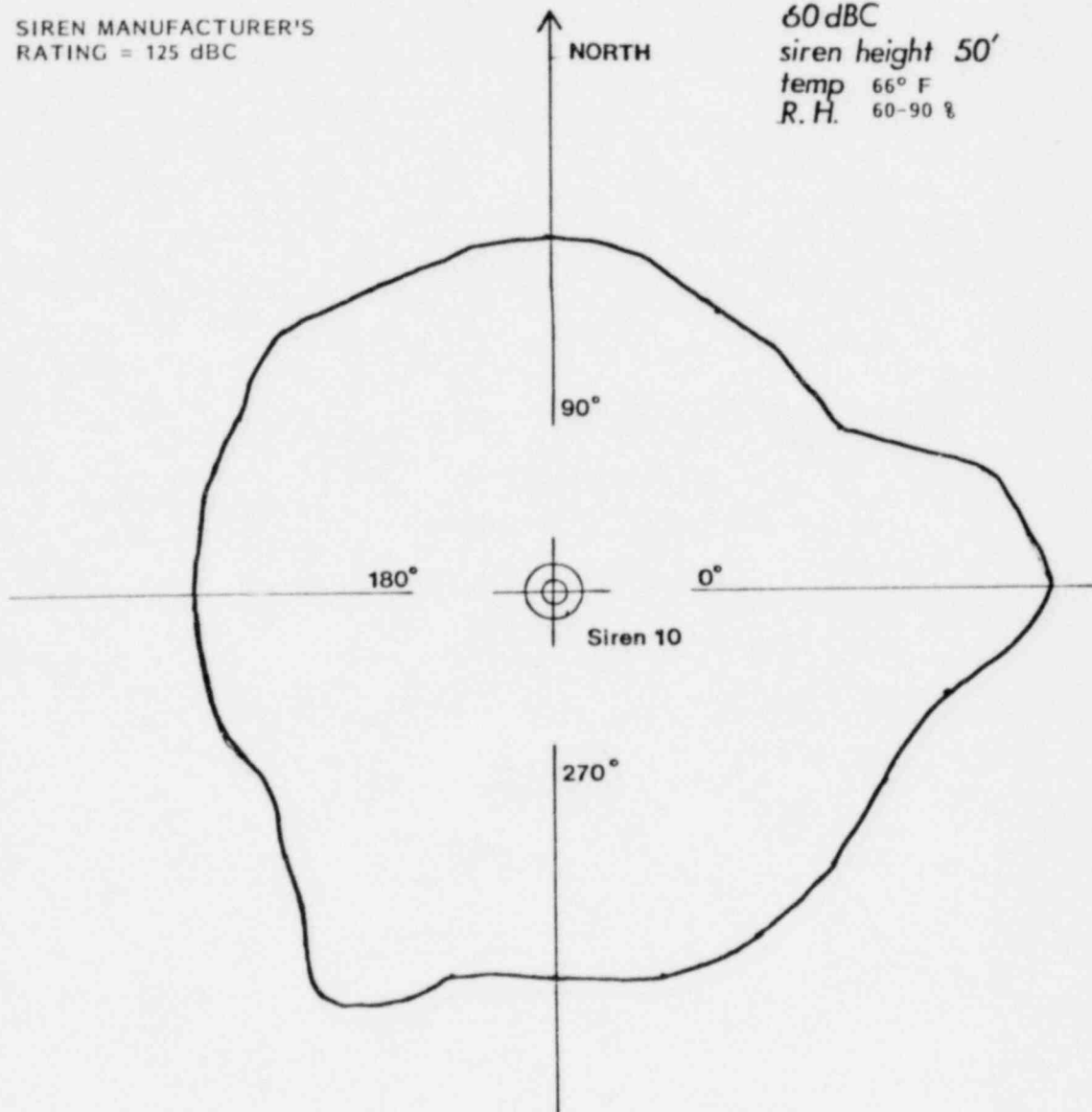
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66° F
R. H. 60-90 %



ACOUSTIC TECHNOLOGY INC.

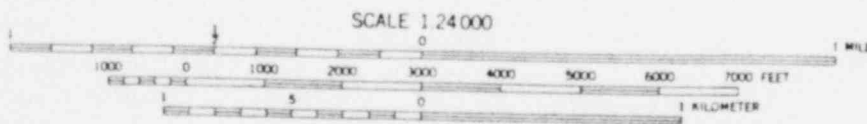
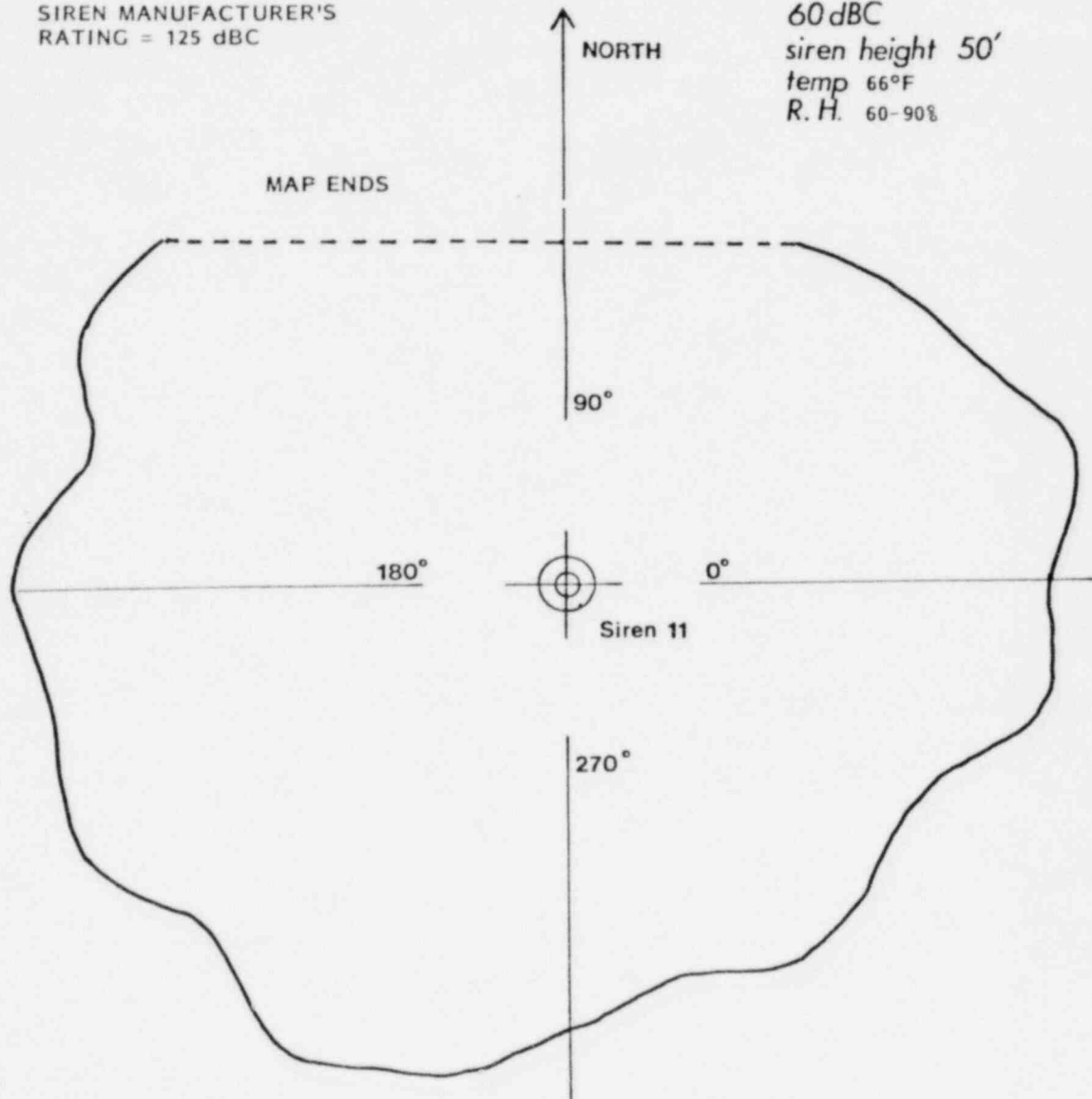
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66°F
R. H. 60-90%



ACOUSTIC TECHNOLOGY INC.

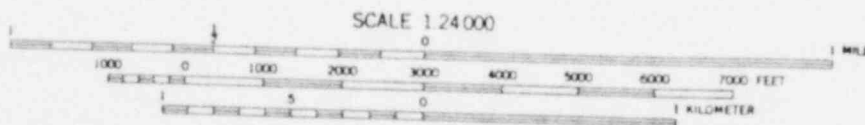
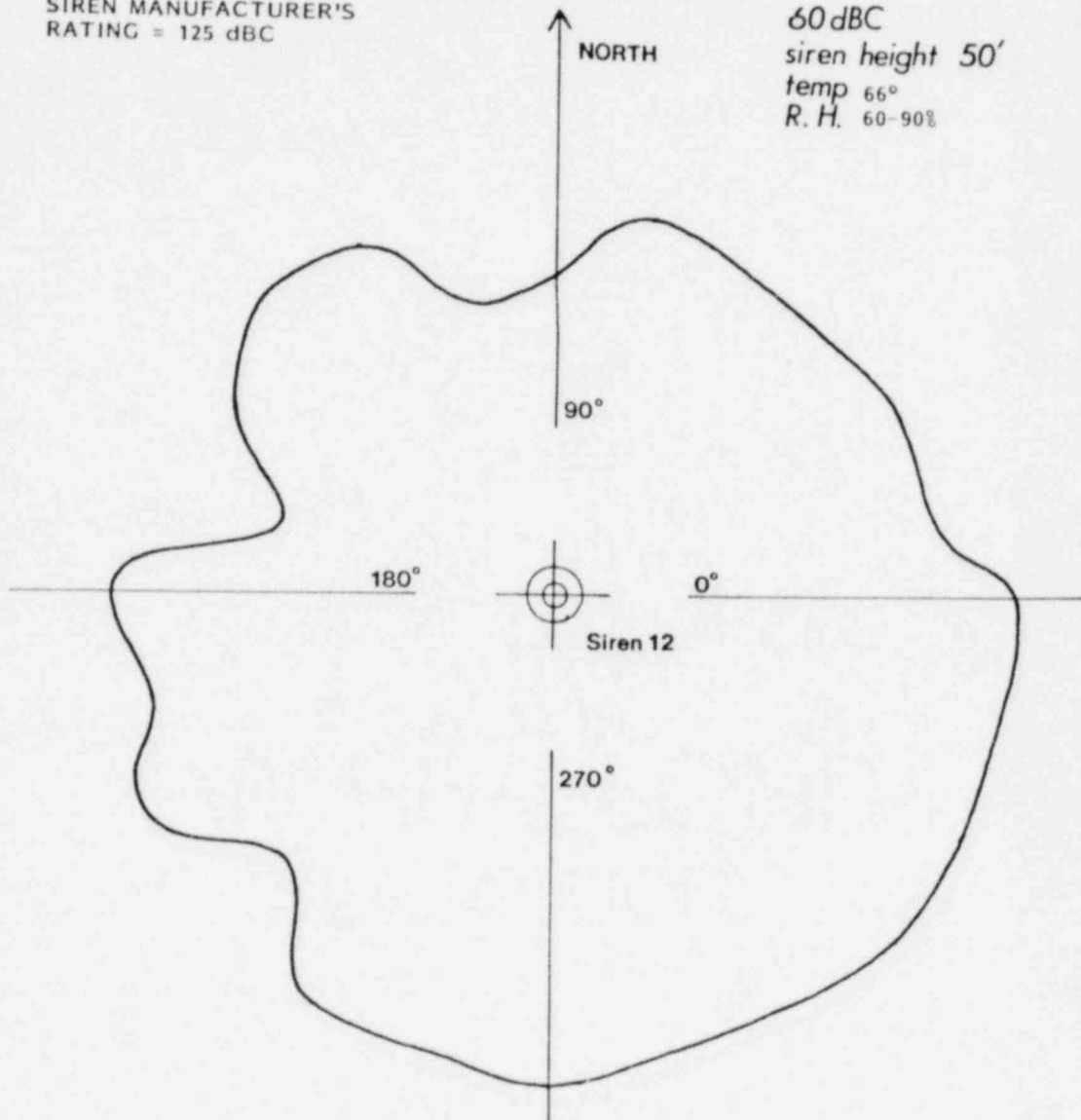
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66°
R. H. 60-90%



ACOUSTIC TECHNOLOGY INC.

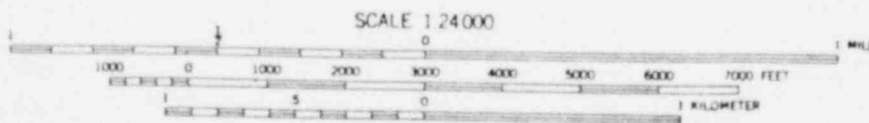
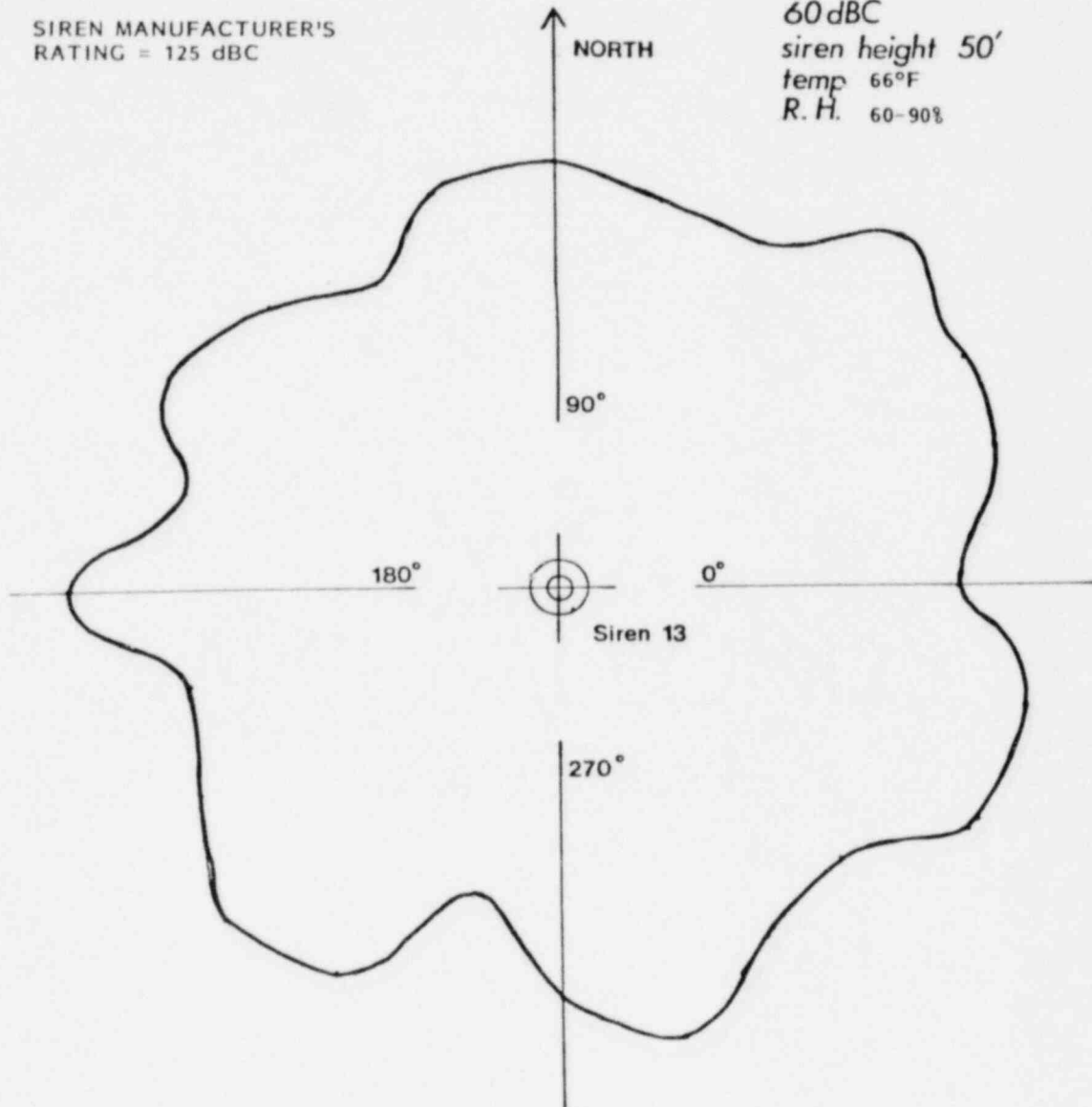
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
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ACOUSTIC TECHNOLOGY INC.

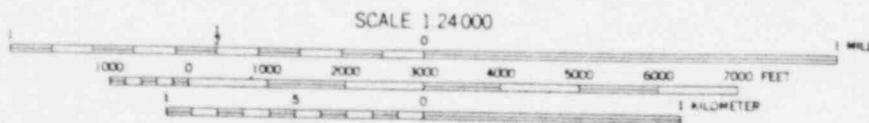
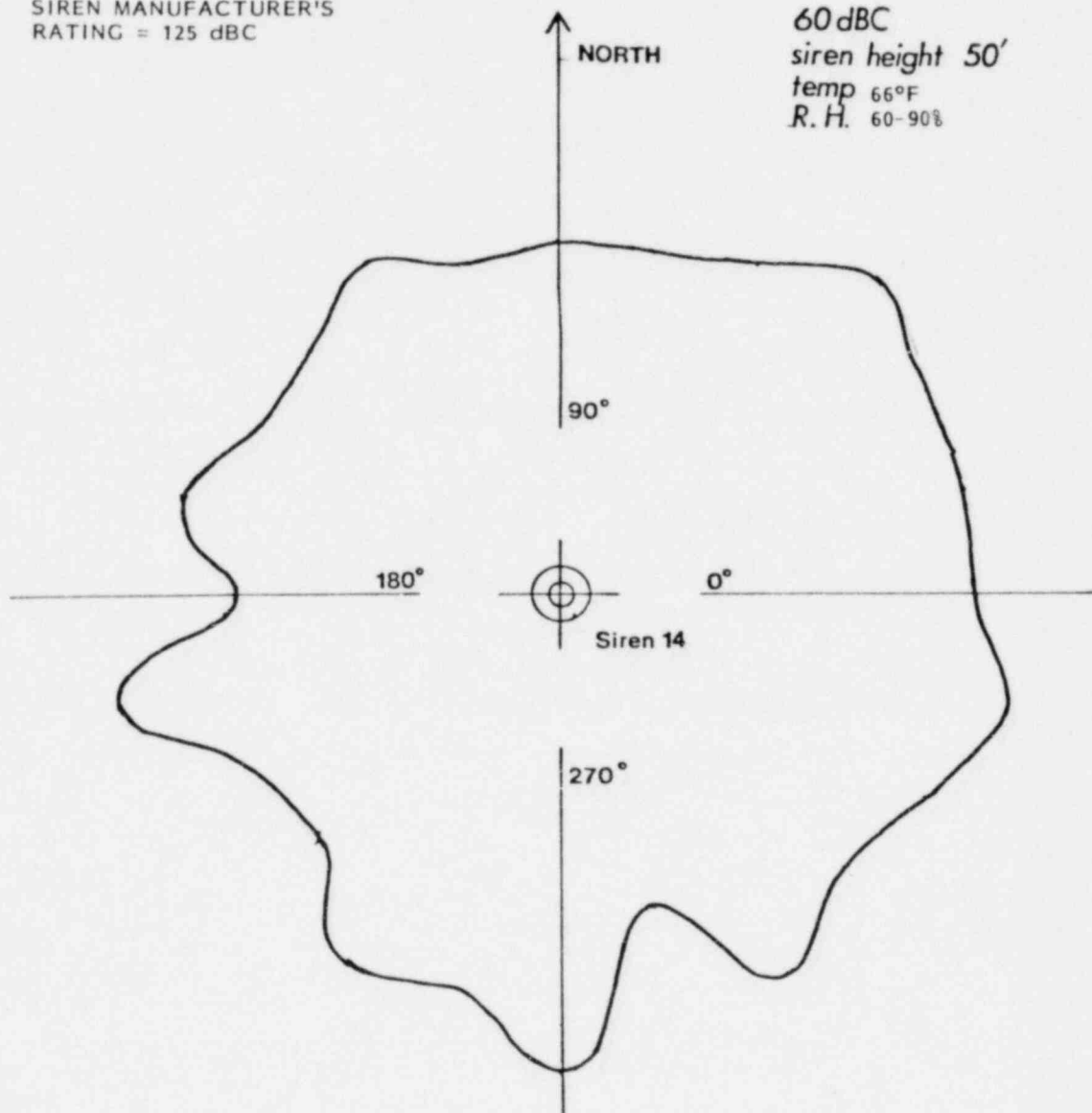
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66°F
R. H. 60-90%



ACOUSTIC TECHNOLOGY INC.

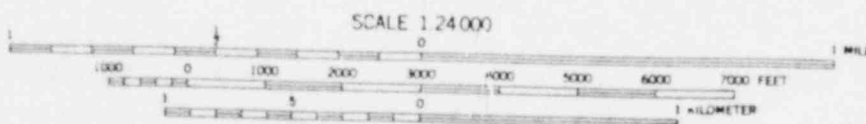
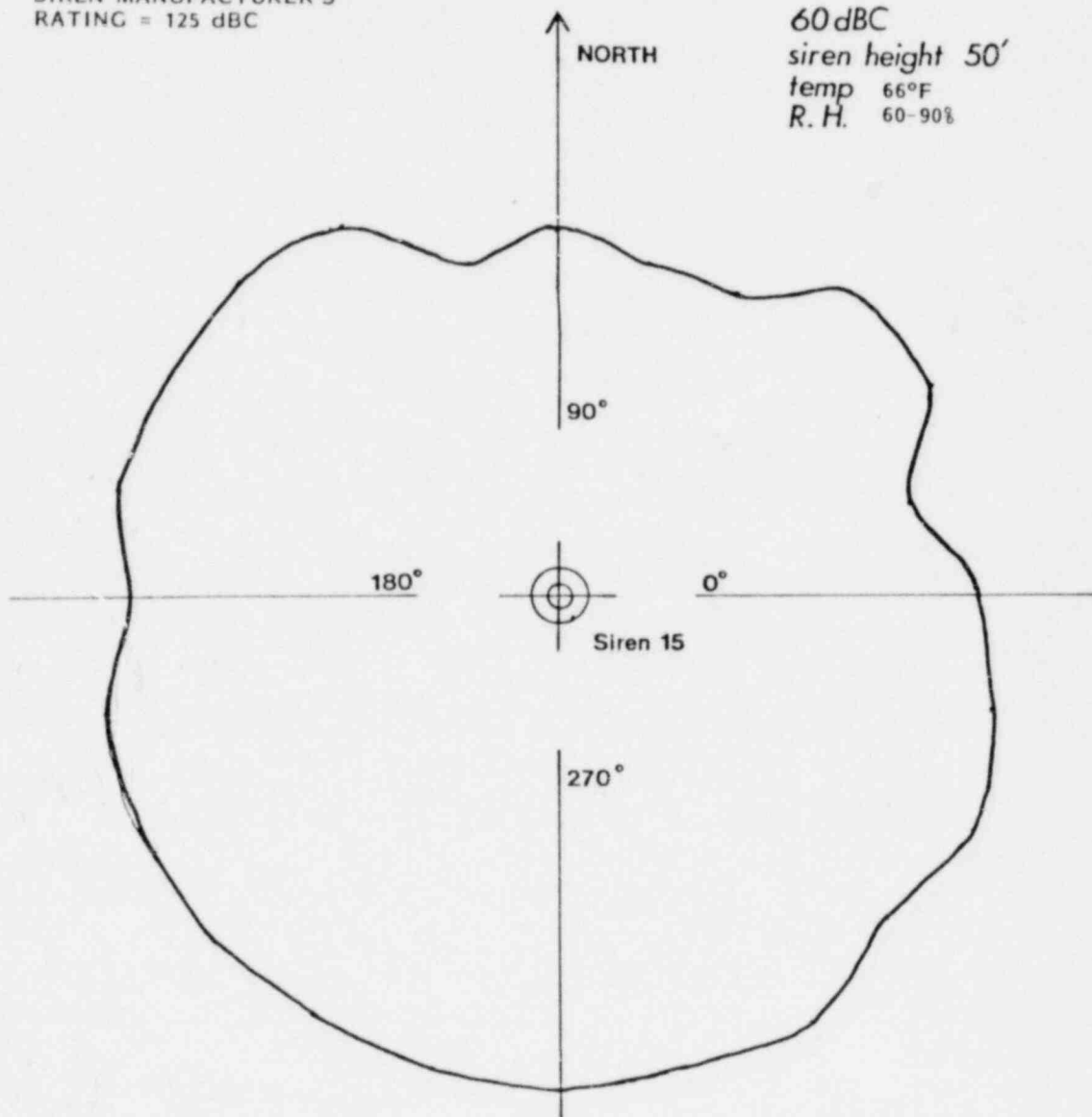
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66°F
R. H. 60-90%



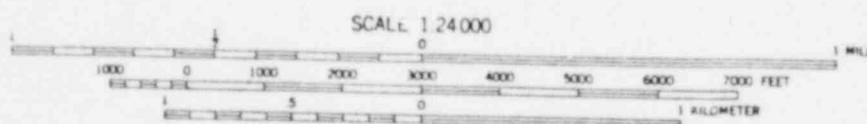
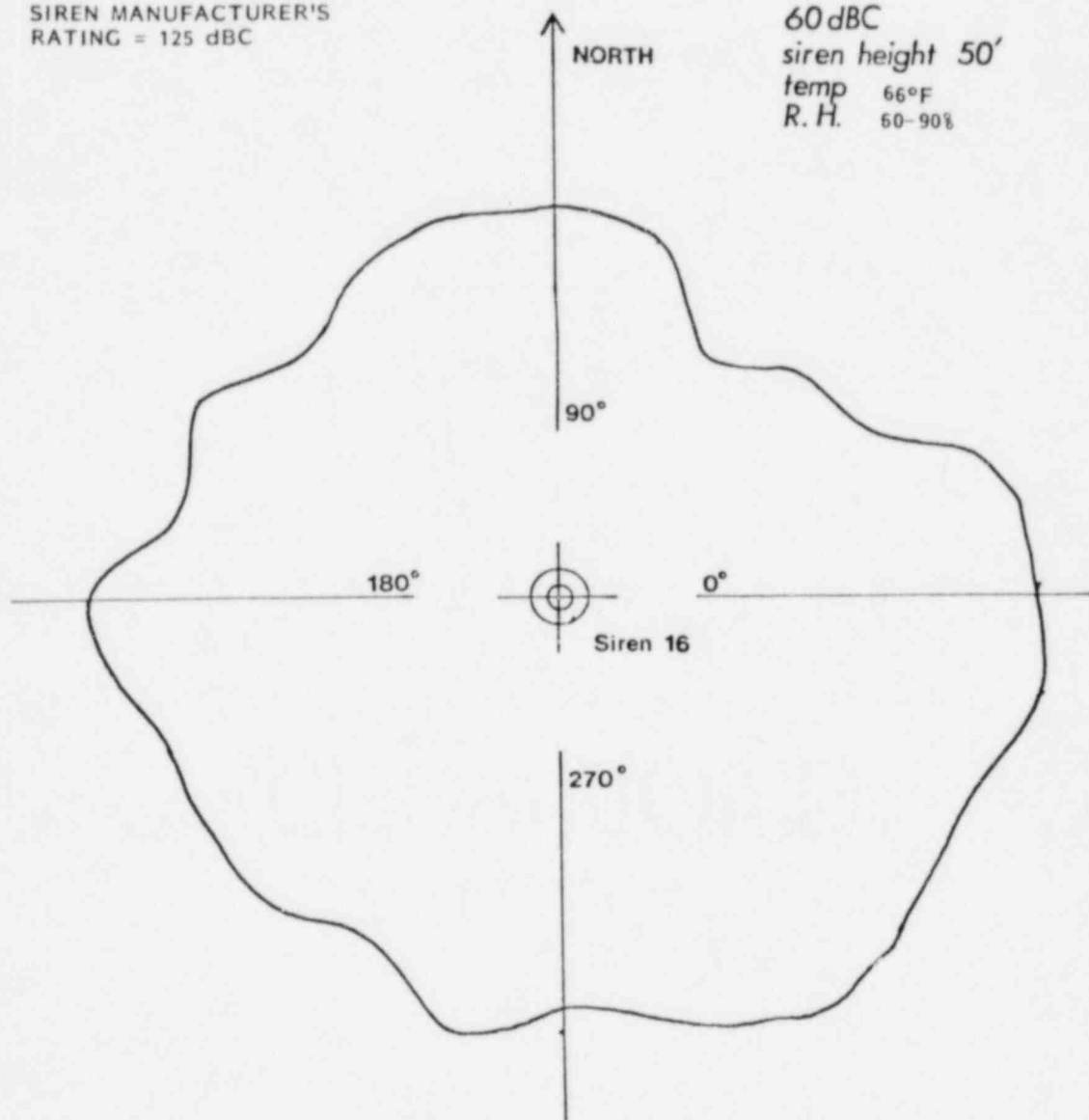
ACOUSTIC TECHNOLOGY INC.

Siren Sound Coverage

MISSISSIPPI POWER & LIGHT *Grand Gulf Nuclear Power Plant Siren System Analysis*

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66°F
R. H. 60-90%



ACOUSTIC TECHNOLOGY INC.

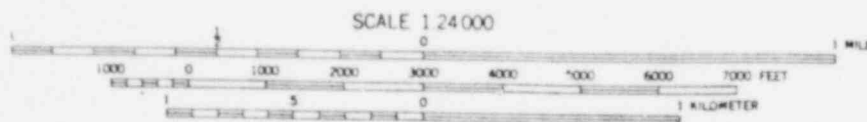
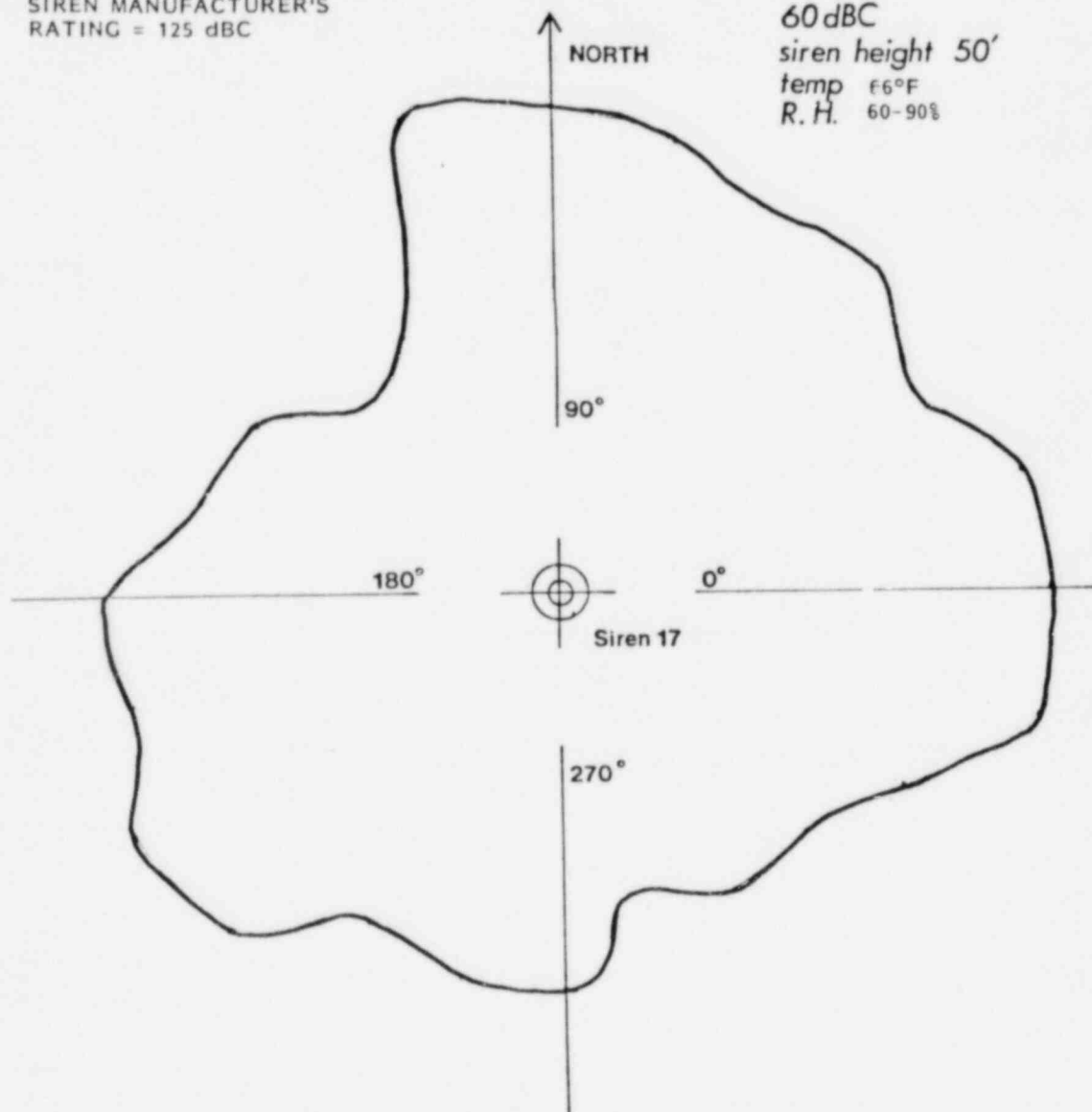
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 86°F
R. H. 60-90%



ACOUSTIC TECHNOLOGY INC.

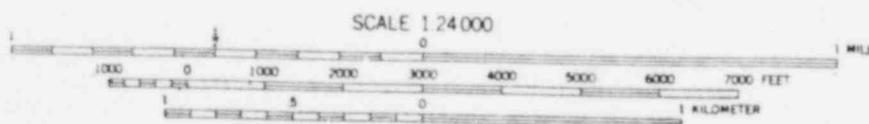
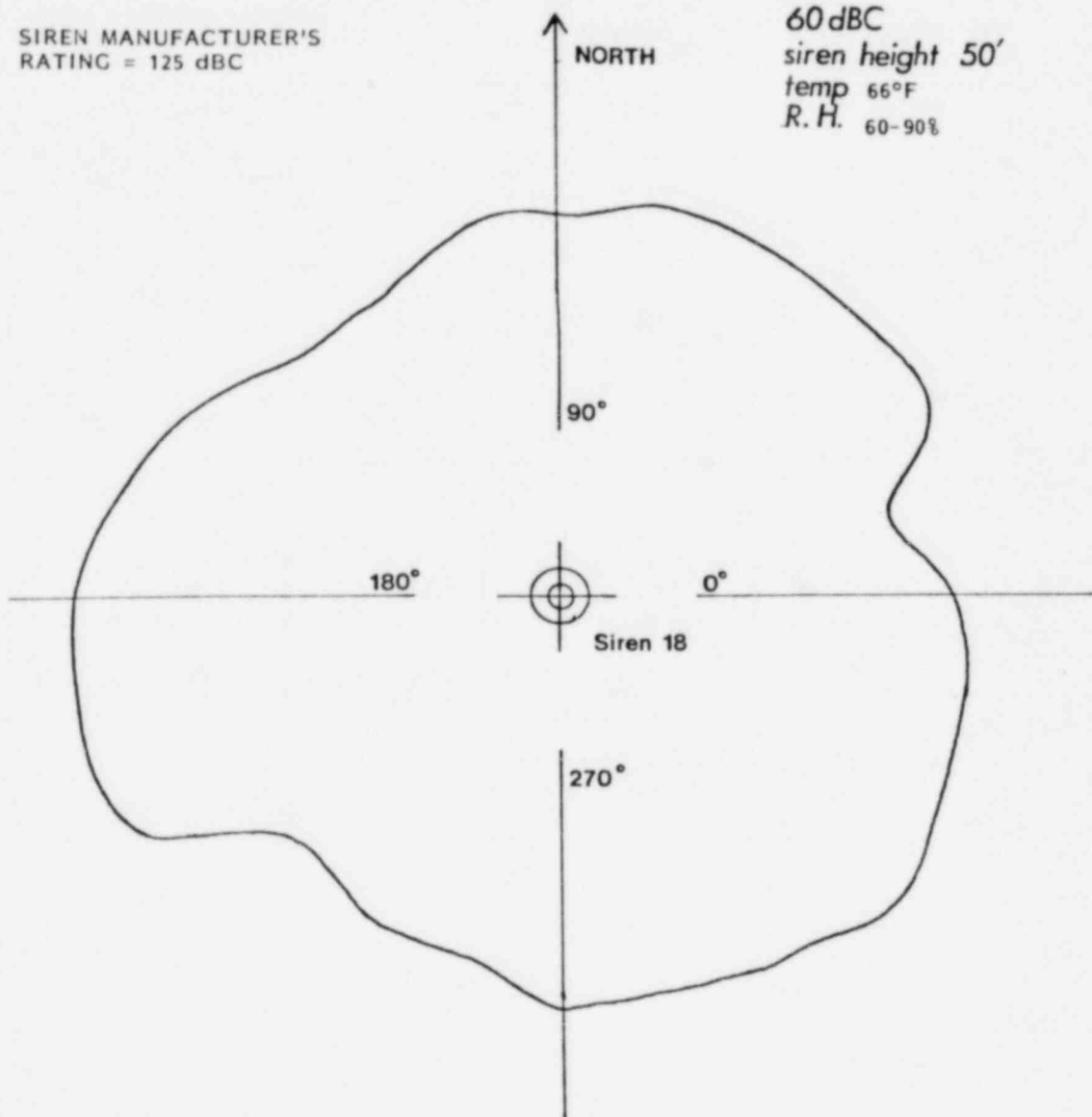
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66°F
R. H. 60-90%



ACOUSTIC TECHNOLOGY INC.

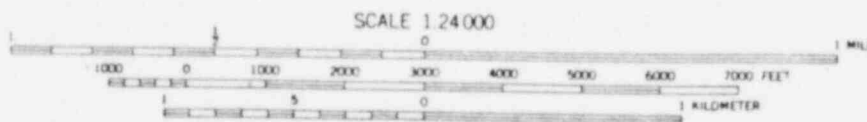
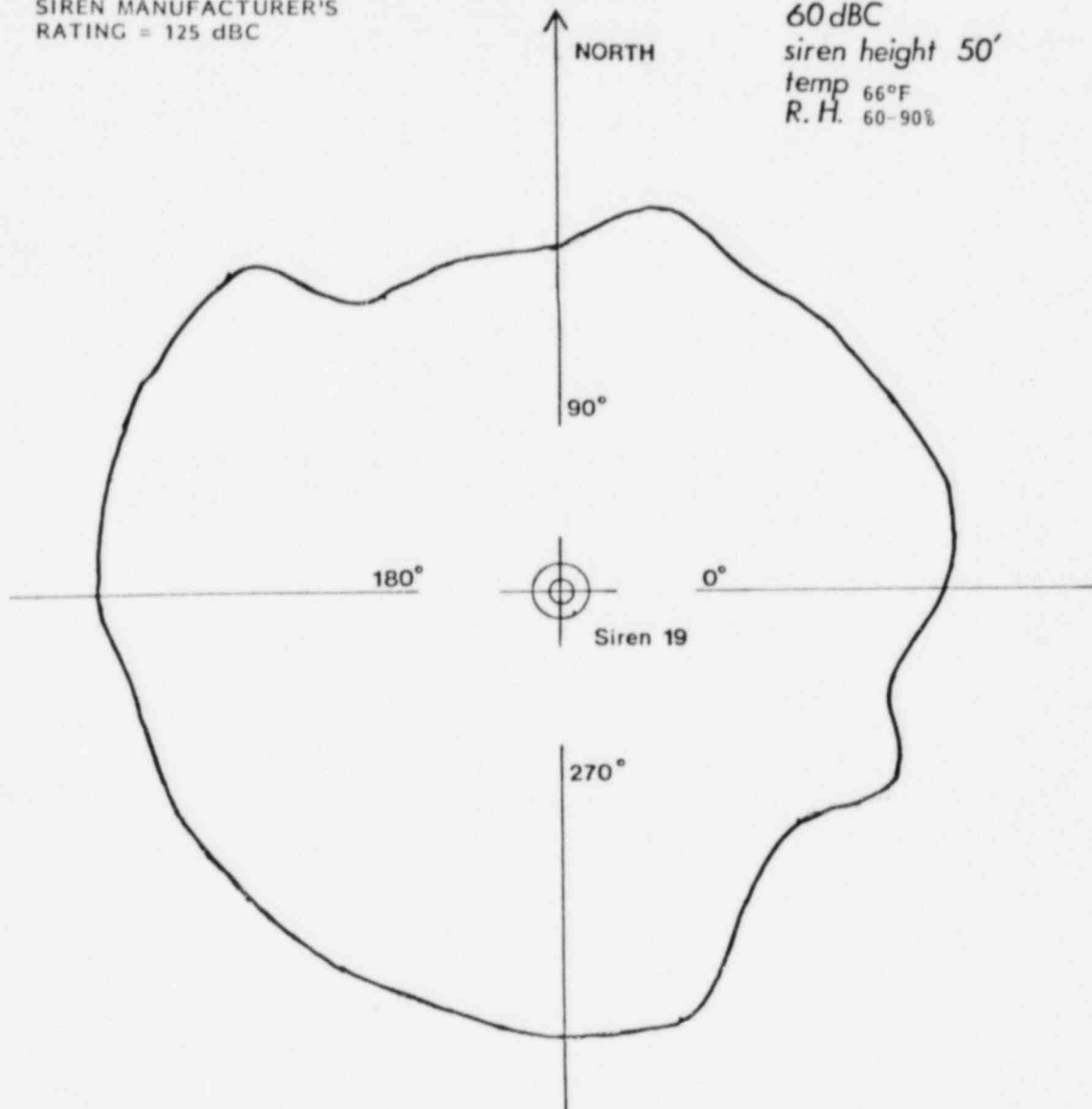
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66°F
R. H. 60-90%



ACOUSTIC TECHNOLOGY INC.

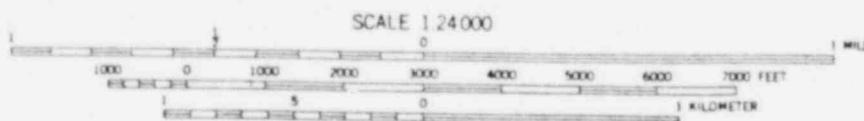
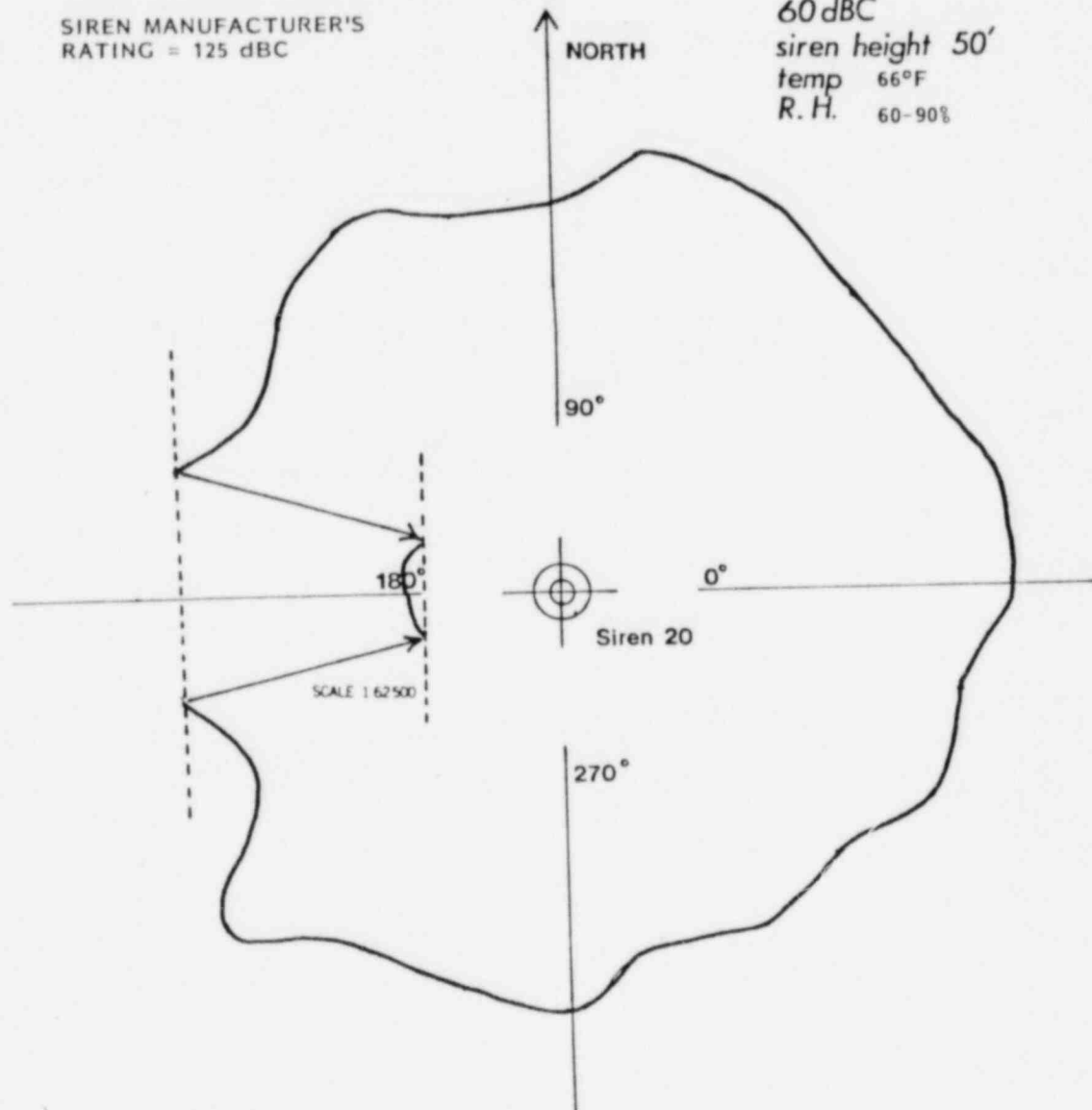
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

SIREN MANUFACTURER'S
RATING = 125 dBC

60 dBC
siren height 50'
temp 66°F
R.H. 60-90%



ACOUSTIC TECHNOLOGY INC.

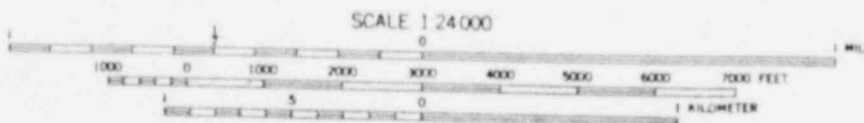
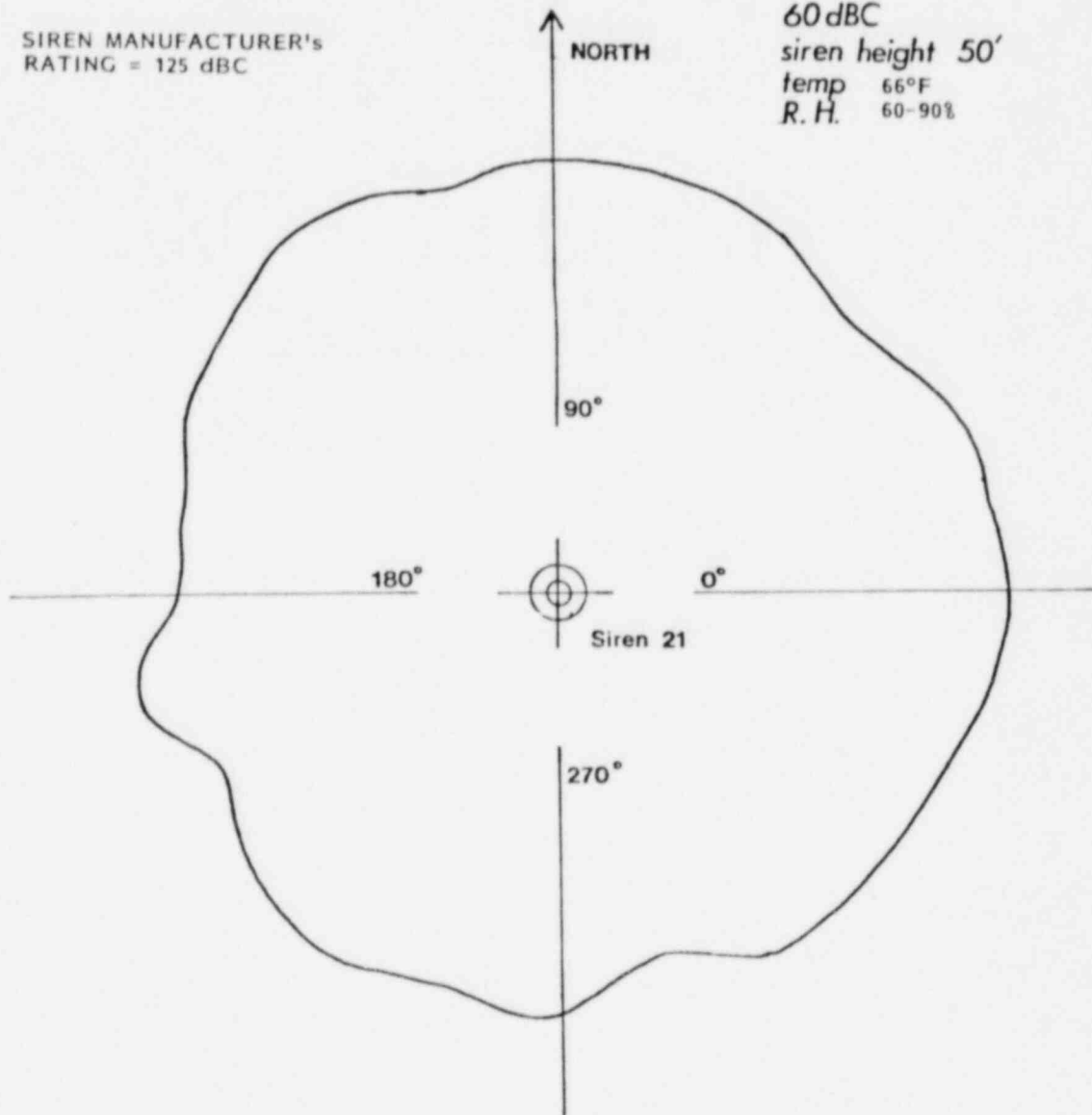
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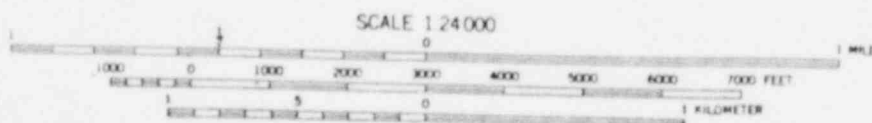
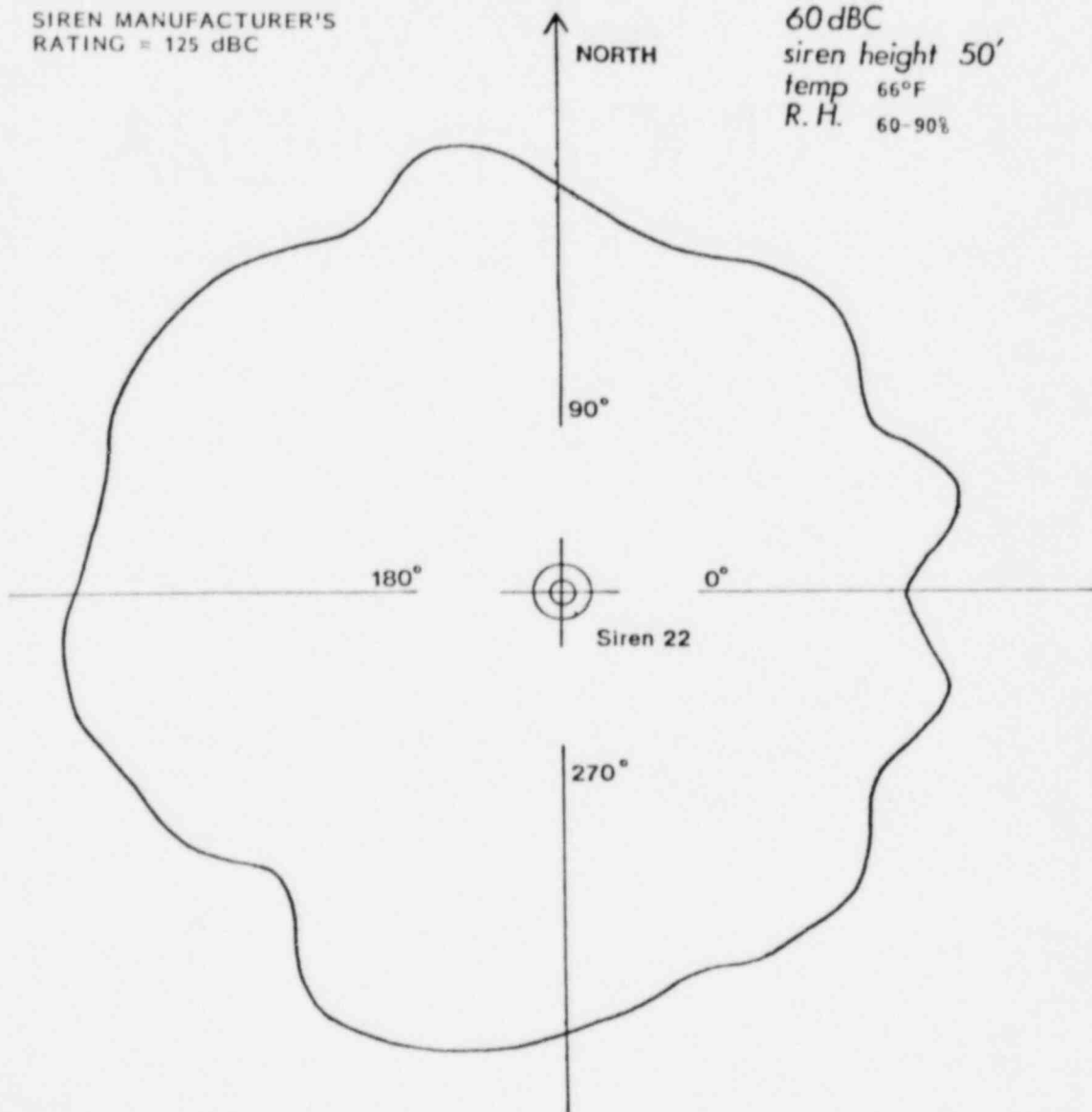
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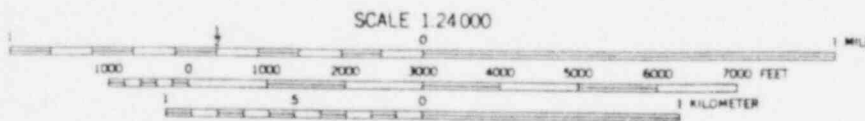
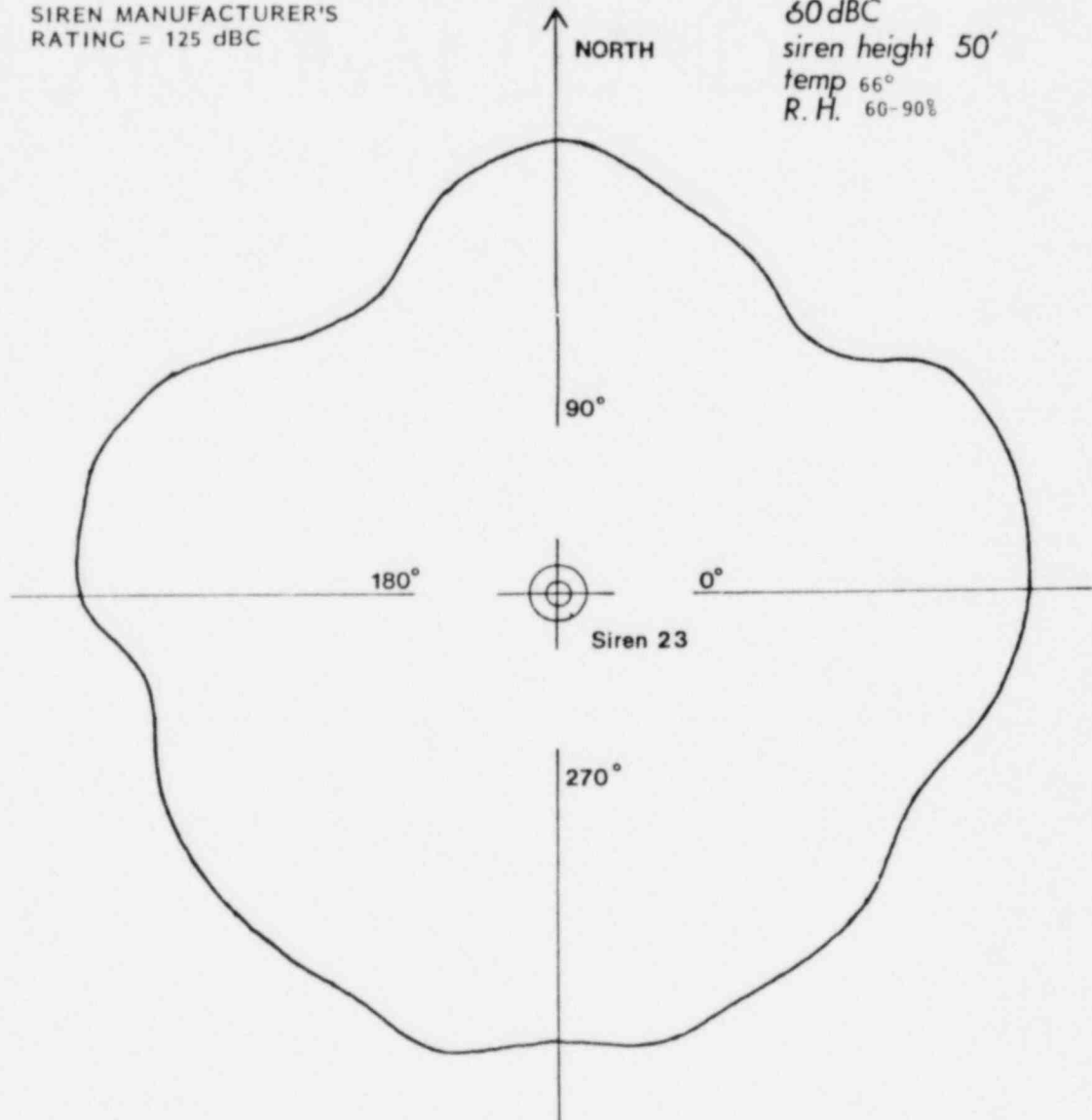
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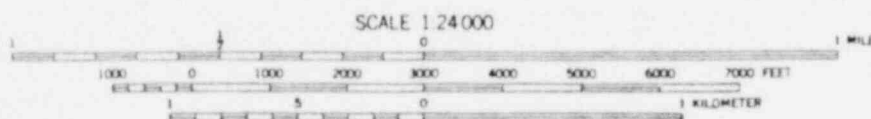
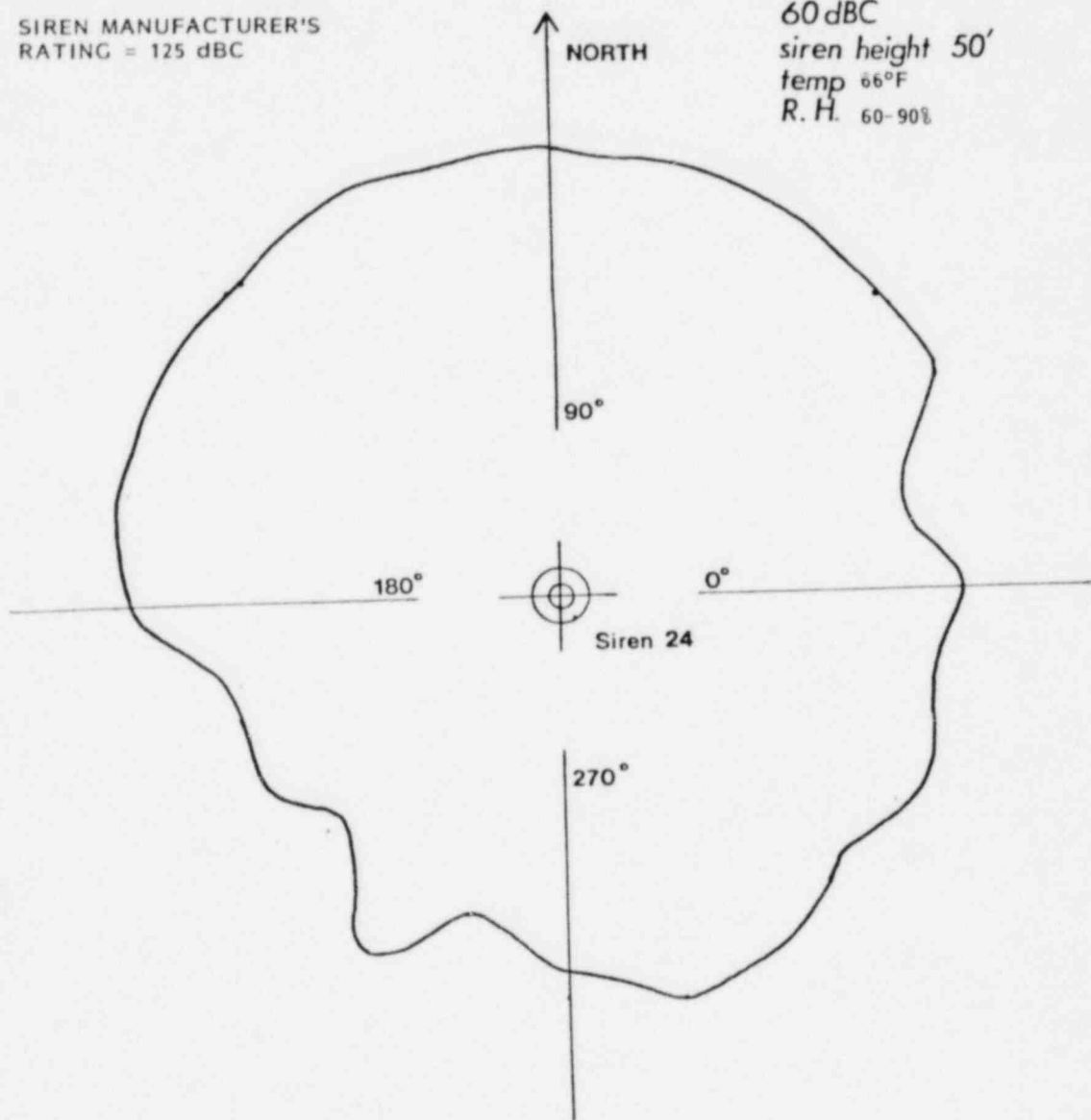
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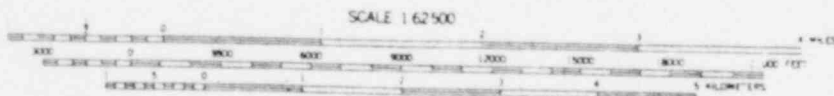
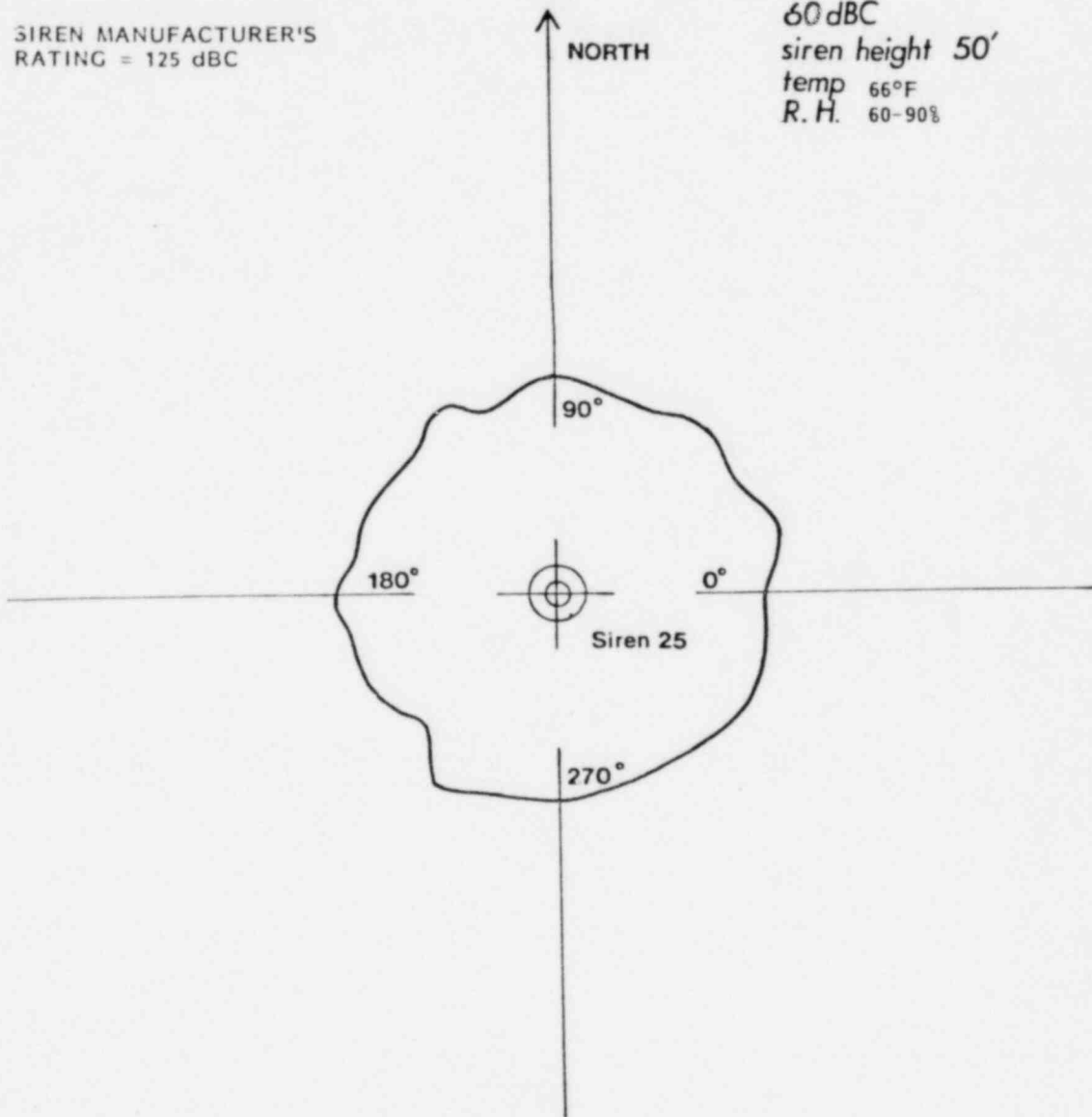
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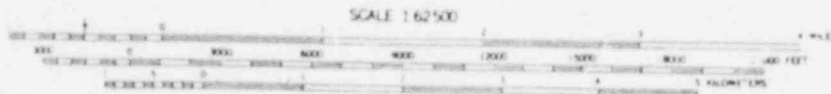
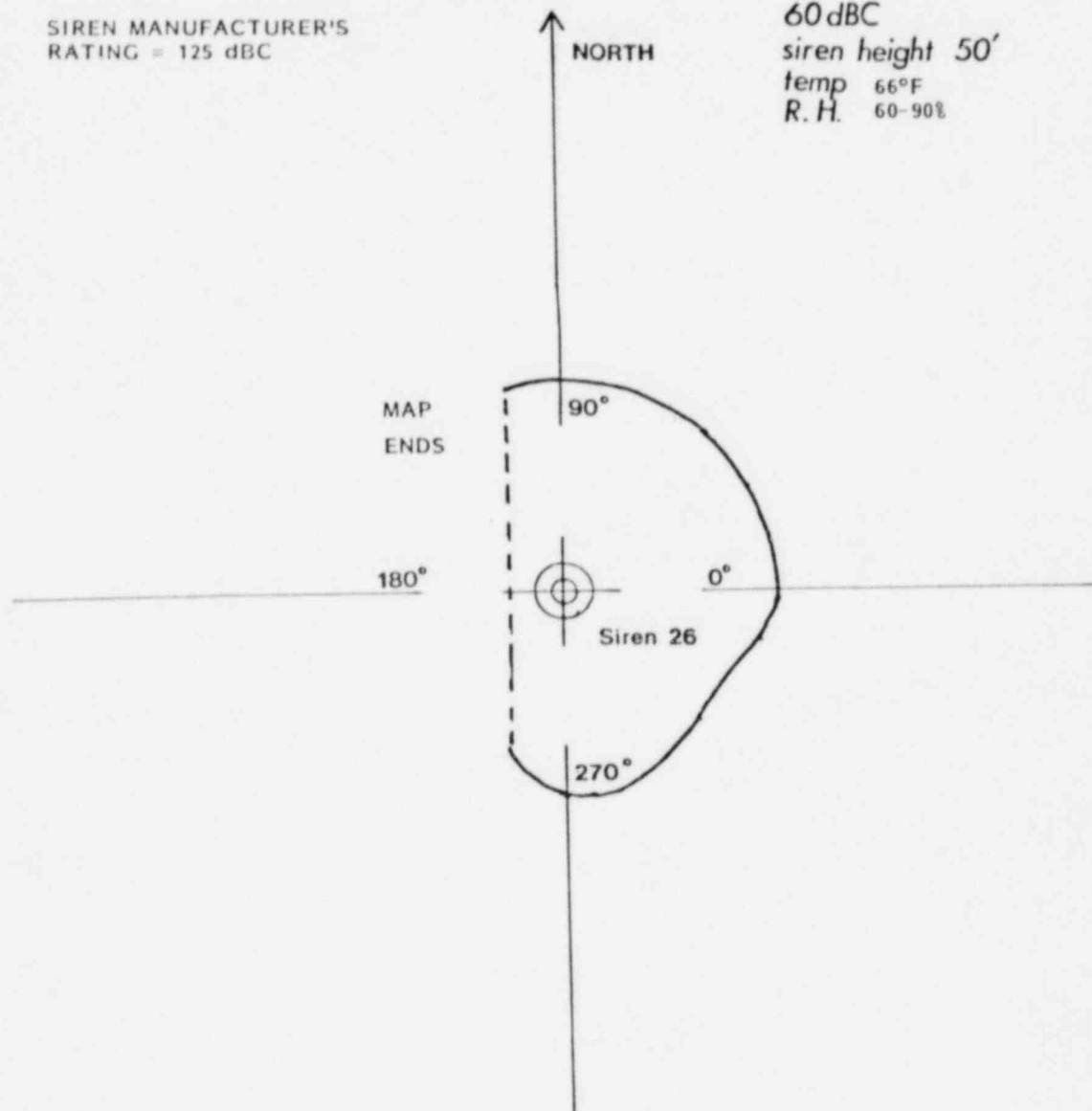
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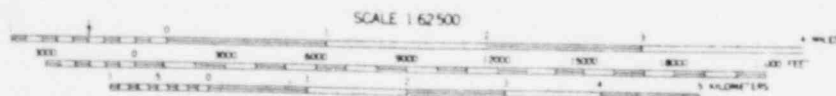
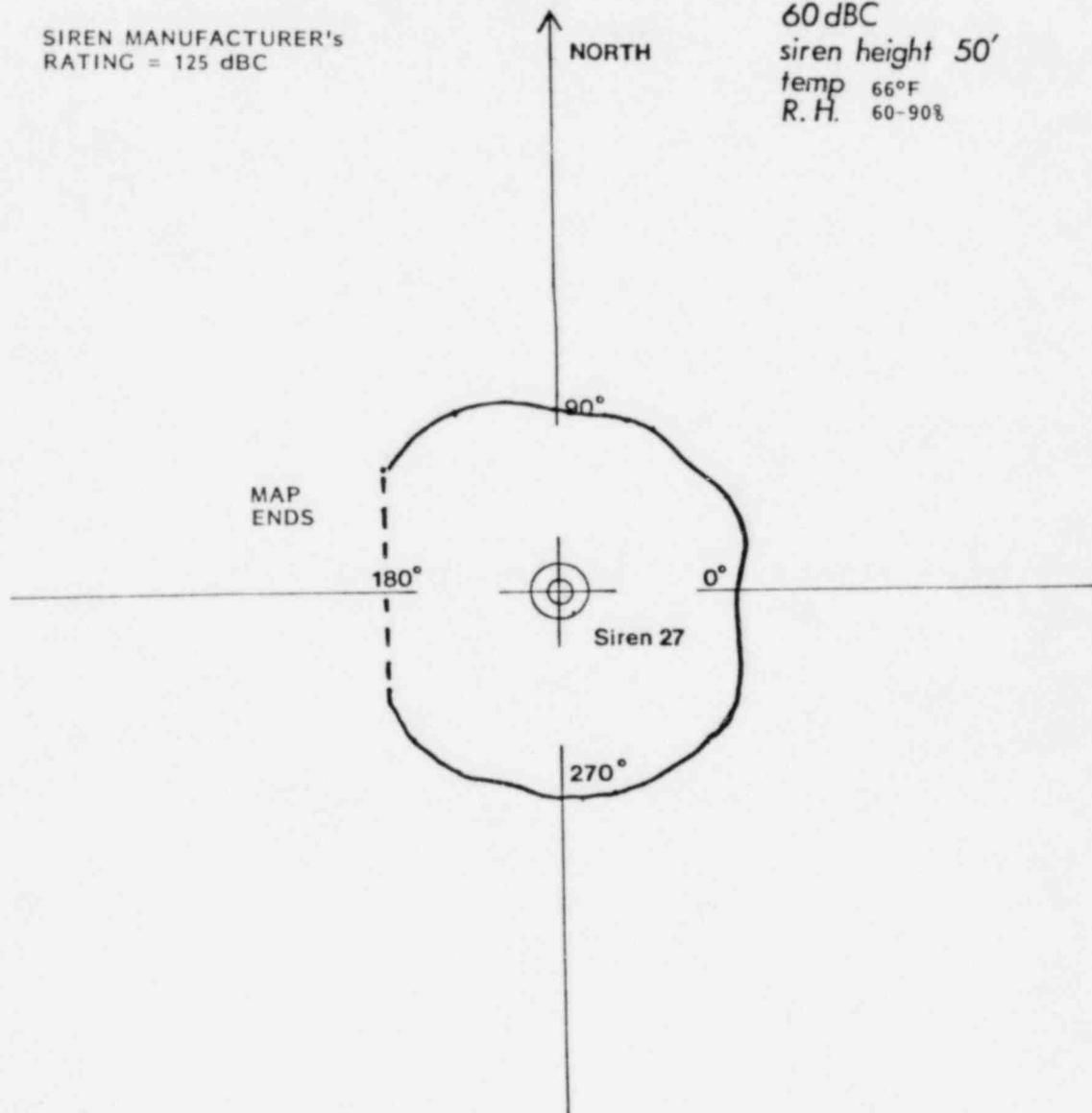
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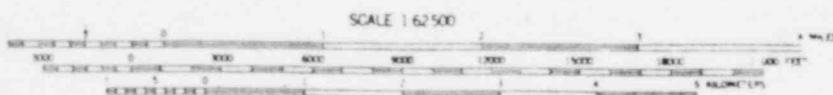
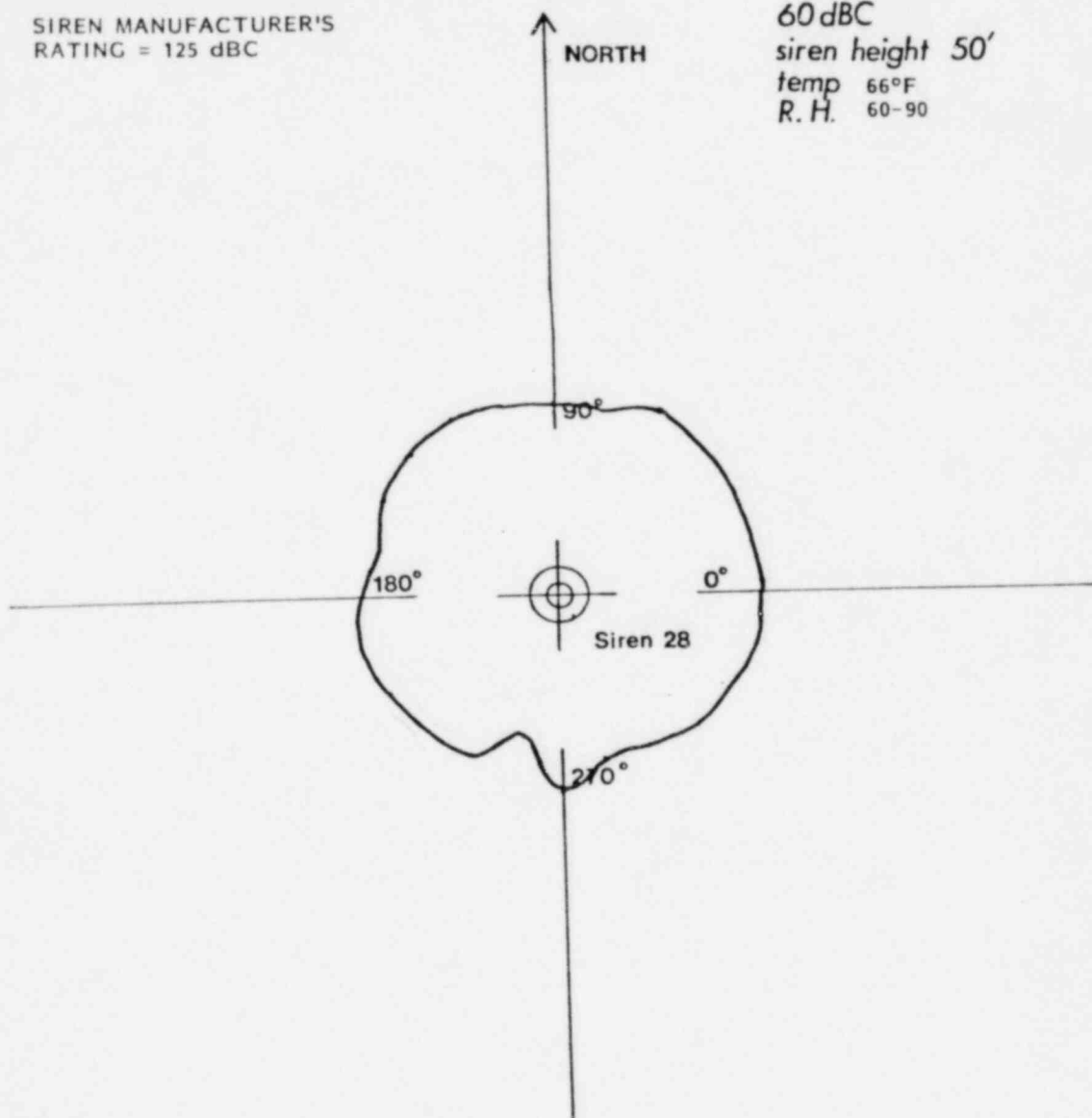
ACOUSTIC TECHNOLOGY INC.

Siren Sound Coverage

MISSISSIPPI POWER & LIGHT Grand Gulf Nuclear Power Plant Siren System Analysis

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60 dBC
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temp 66°F
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ACOUSTIC TECHNOLOGY INC.

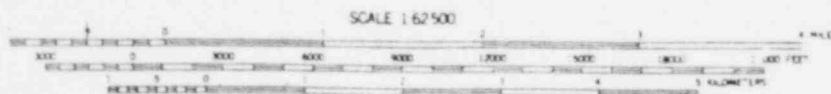
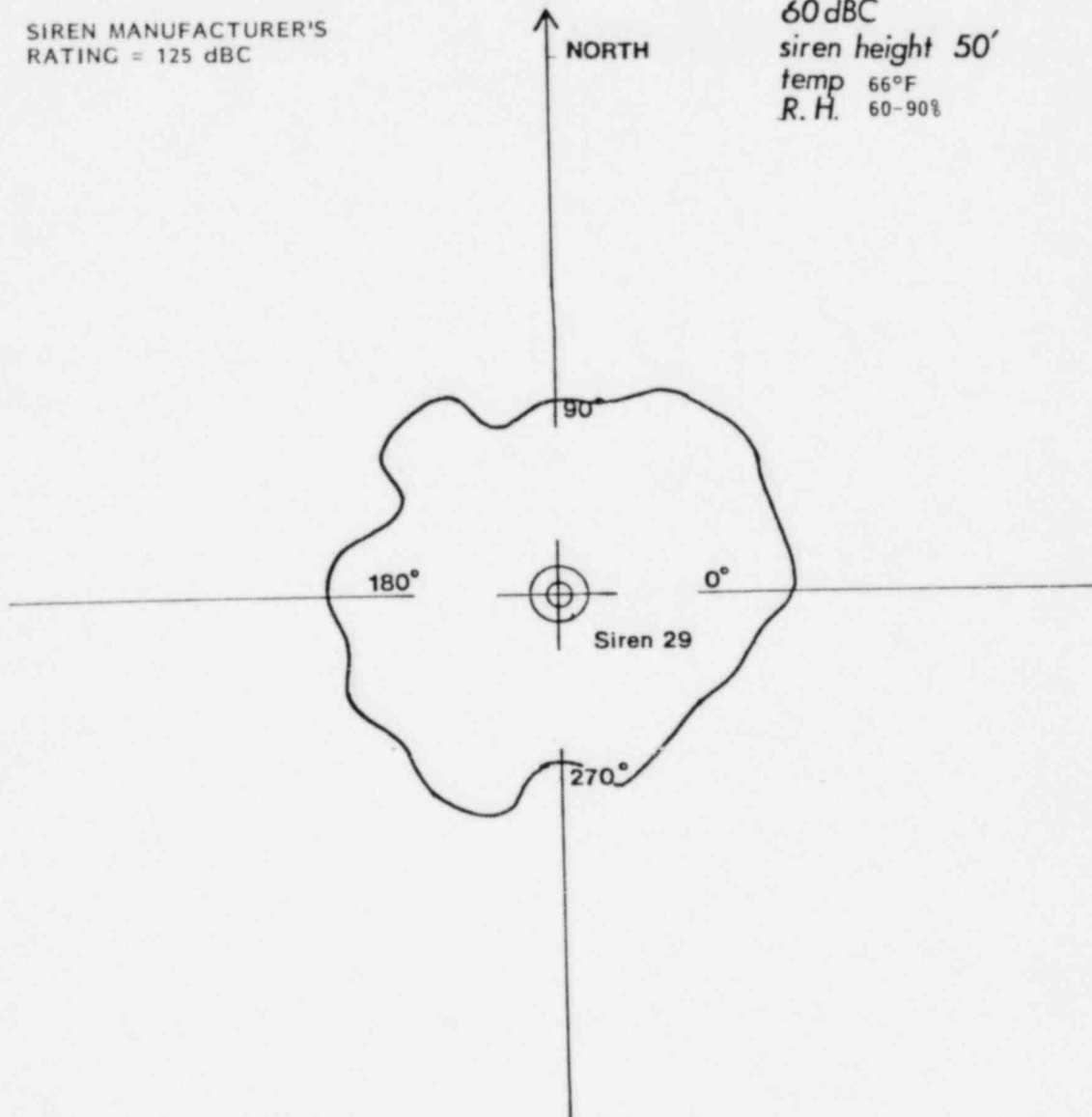
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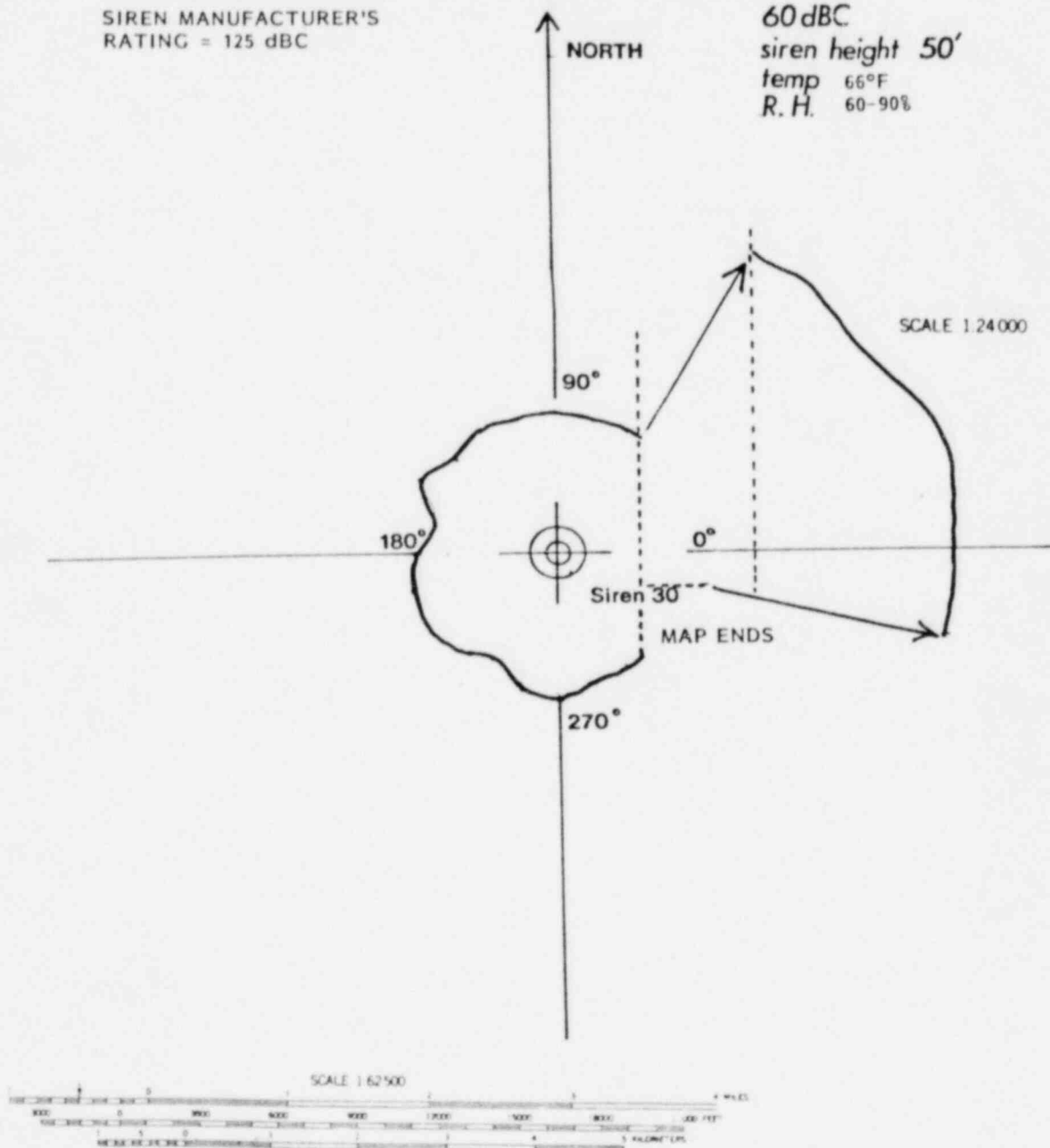
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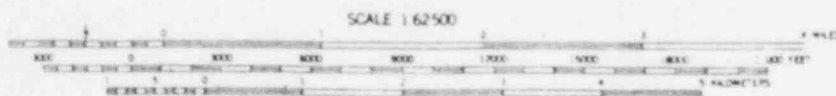
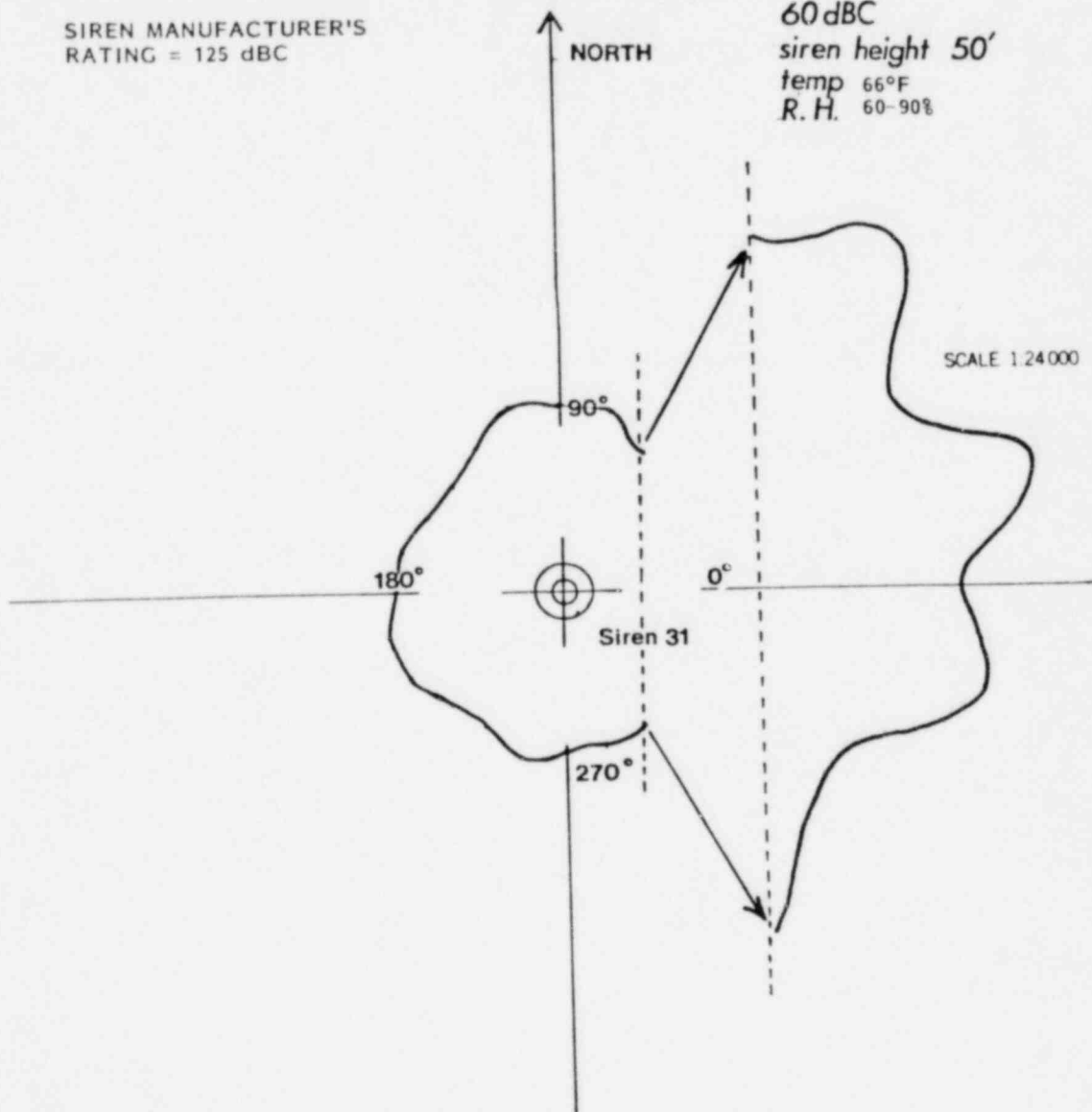
ACOUSTIC TECHNOLOGY INC.

Siren Sound Coverage

MISSISSIPPI POWER & LIGHT Grand Gulf Nuclear Power Plant Siren System Analysis

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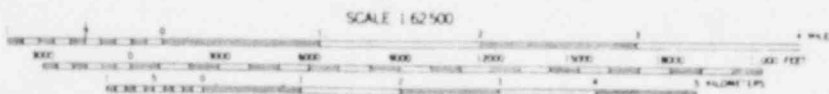
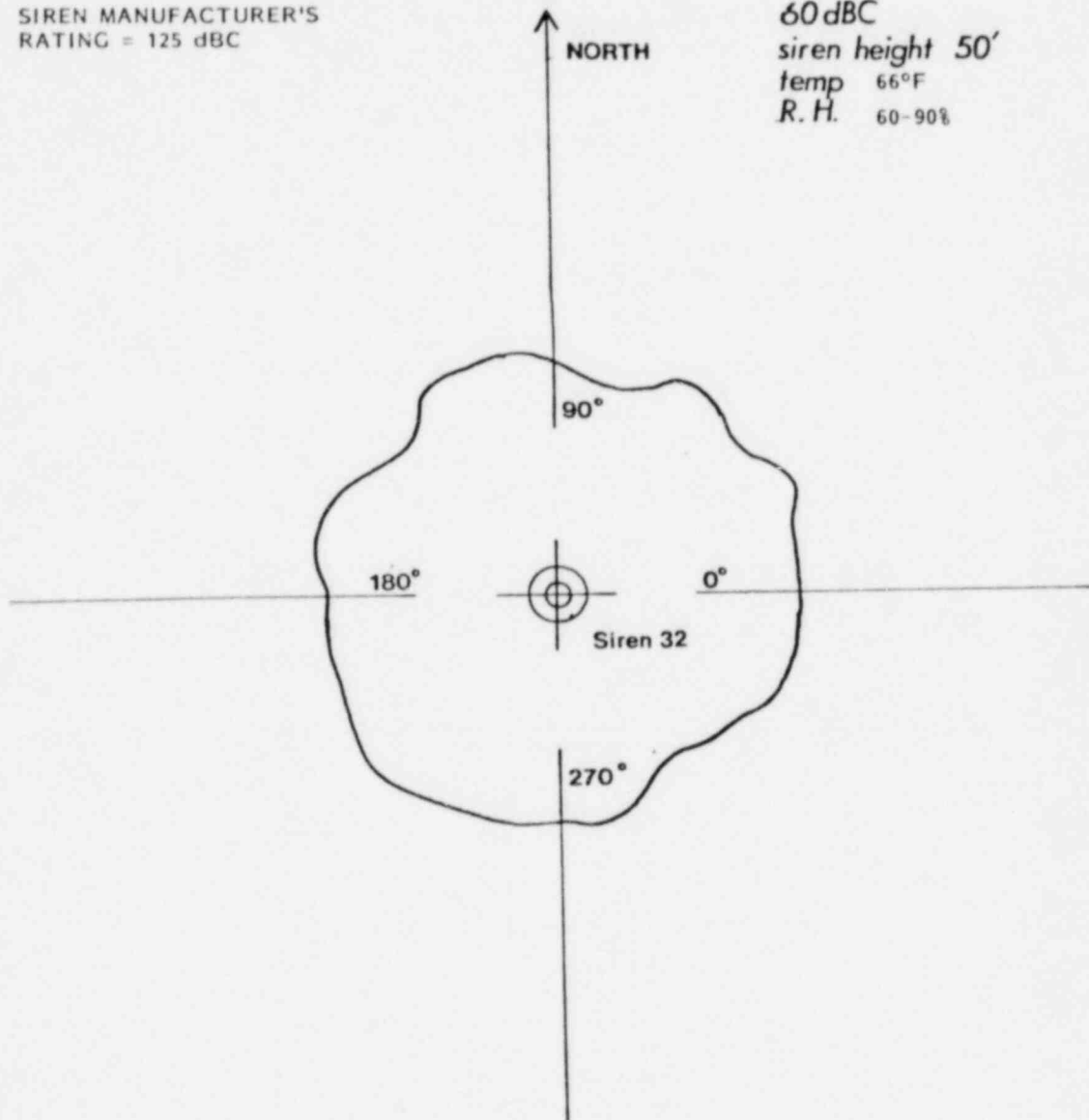
Siren Sound Coverage

MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Siren System Analysis

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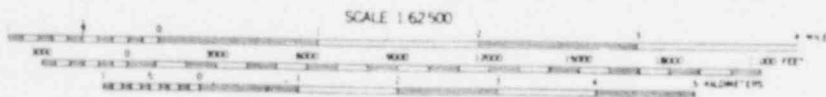
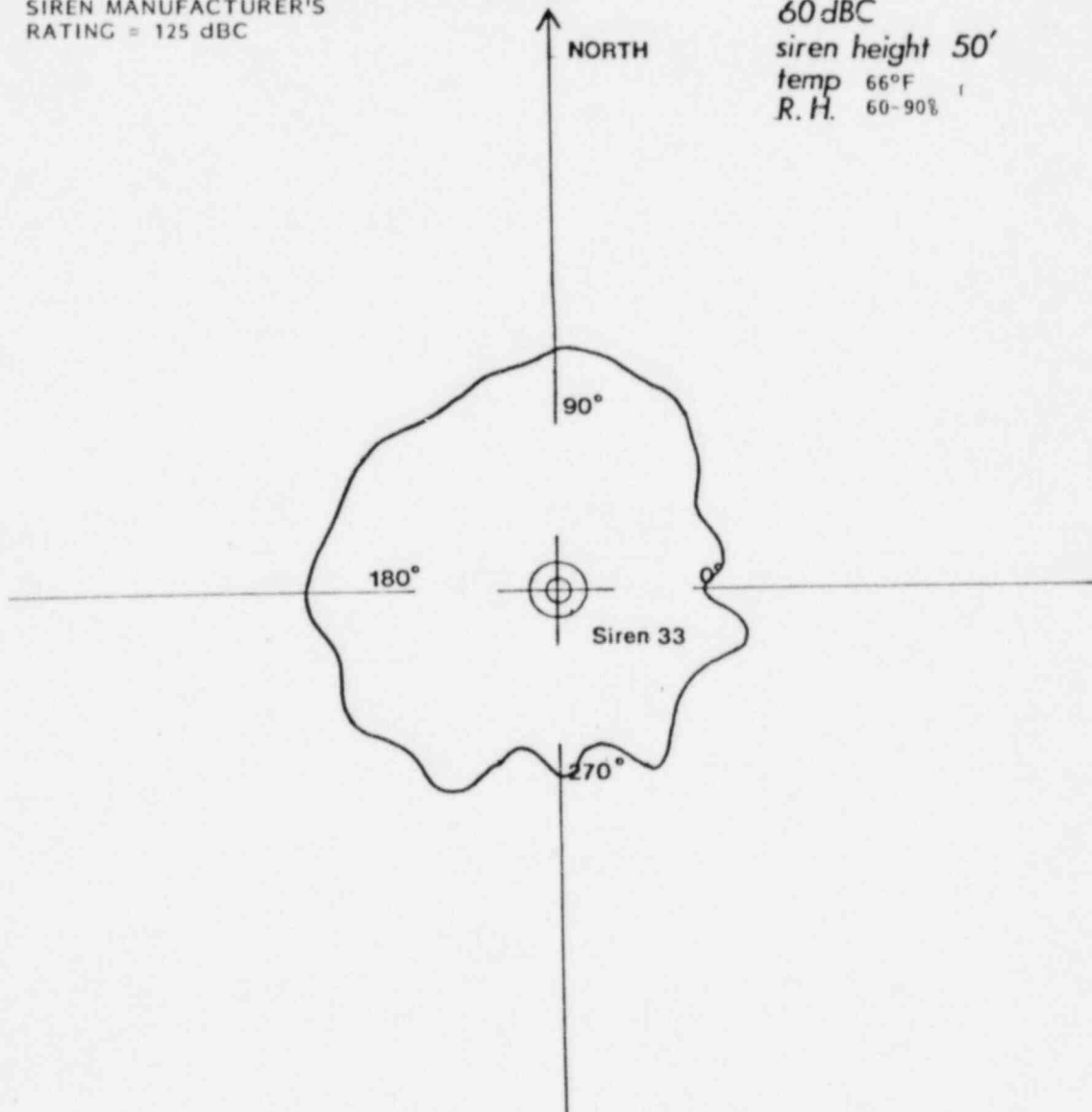
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APPENDIX 3: Topographical Maps with 60 dBC Contours



MISSISSIPPI POWER & LIGHT

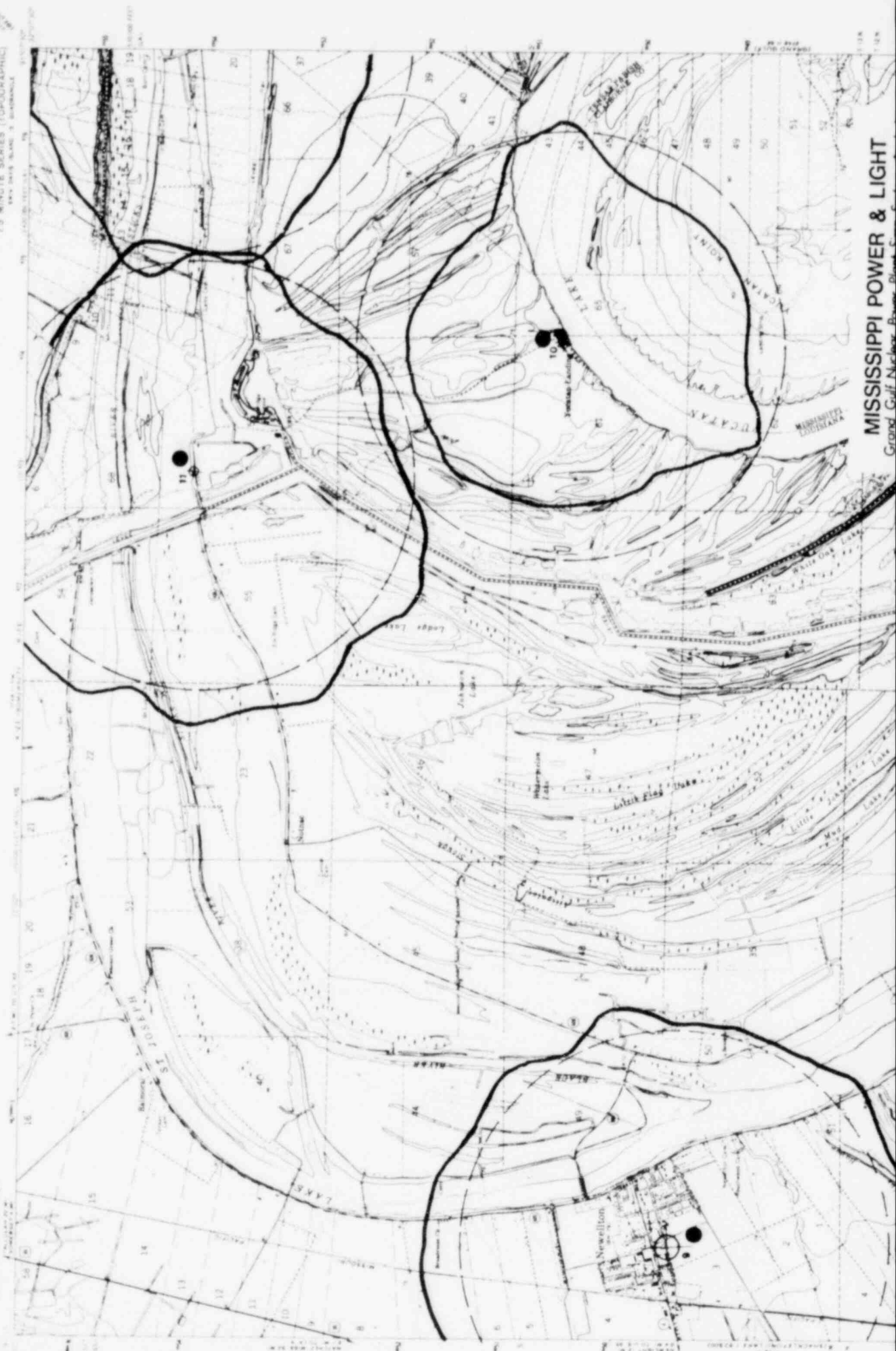
GRAND GULF NUCLEAR POWER PLANT SIREN SYSTEM ANALYSIS

TOPOGRAPHICAL MAP INDEX

MAP 1 Newellton, La. - Miss	MAP 2 Grand Gulf, Miss. - La.	MAP 3 Willows, Miss.
	MAP 5 St. Joseph, La. - Miss.	MAP 4 Port Gibson, Miss.



NEWELLTON QUADRANGLE
LOUISIANA-MISSISSIPPI
15 MINUTE SERIES (TOPOGRAPHIC)
S.W. 24 S. 24 E. 2 S. 24 E. 2 S. 24 E. 2 S.

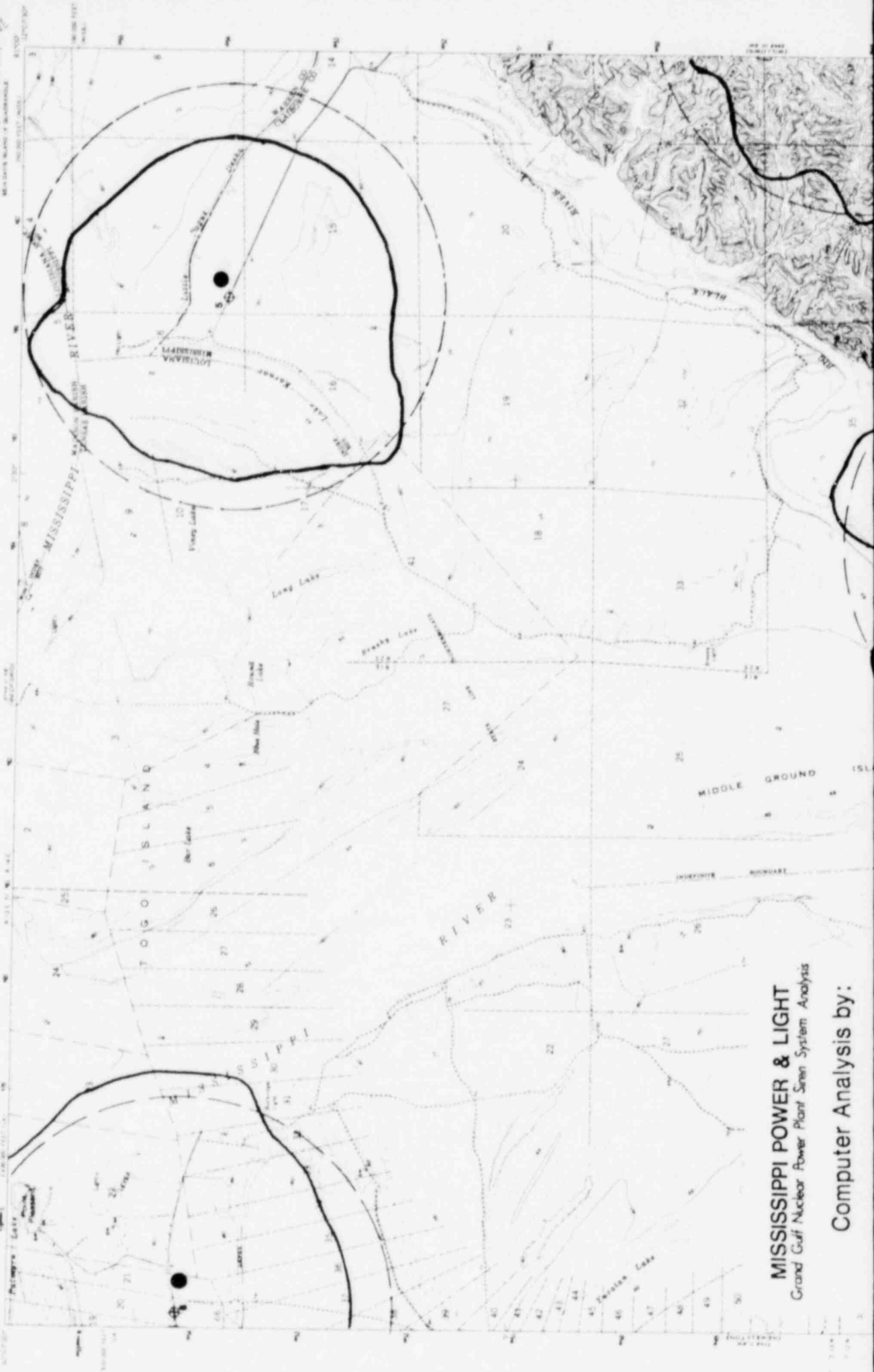


ACOUSTIC TECHNOLOGY INC.



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GRAND GULF QUADRANGLE
MISSISSIPPI-LOUISIANA
7.5 MINUTE SERIES (TOPOGRAPHIC)
REDACTED

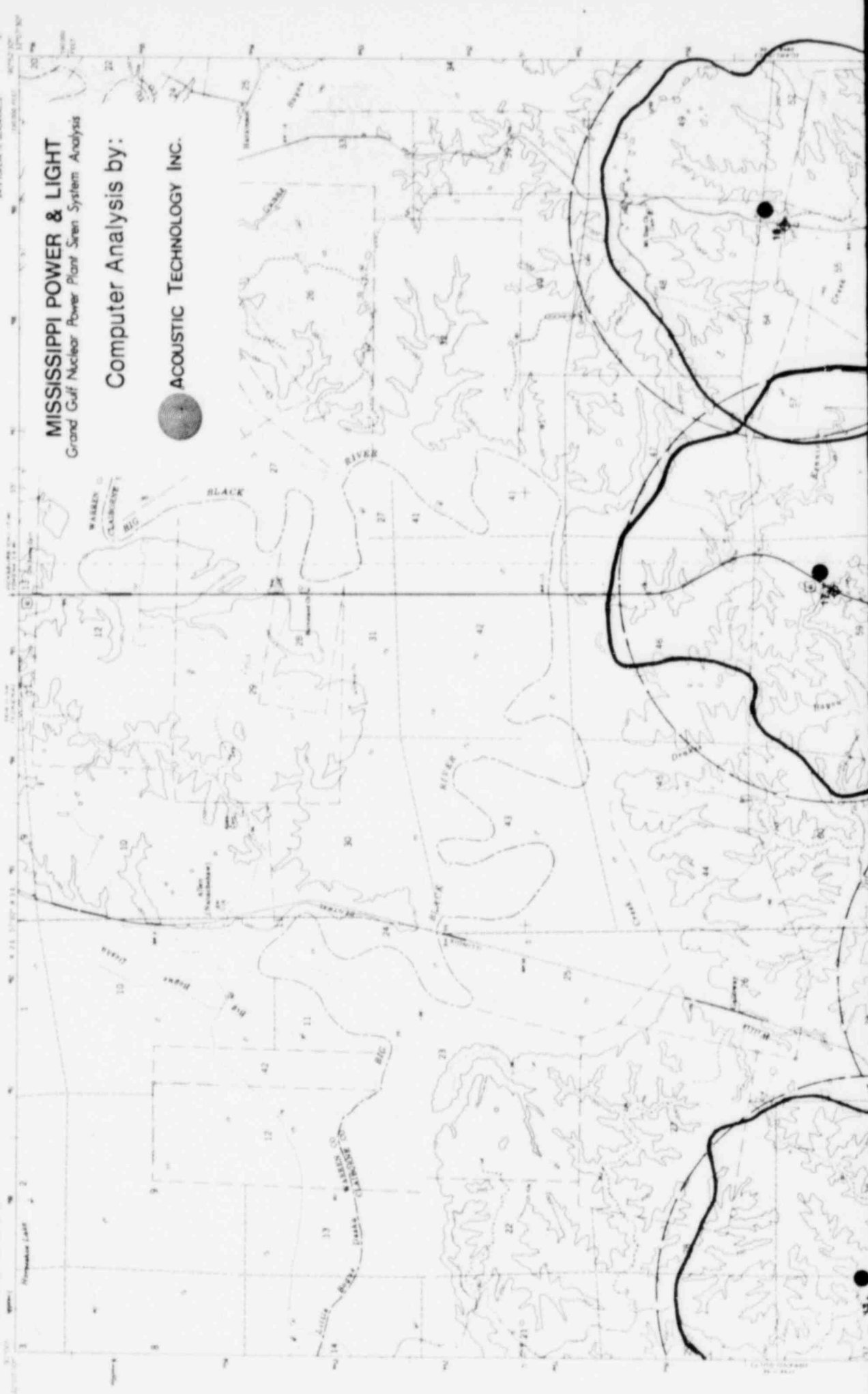


MISSISSIPPI POWER & LIGHT
Grand Gulf Nuclear Power Plant System Analysis

Computer Analysis by:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WILLOWS QUADRANGLE
MISSISSIPPI
7.5 MINUTE SERIES (TOPOGRAPHIC)
DATE 1960



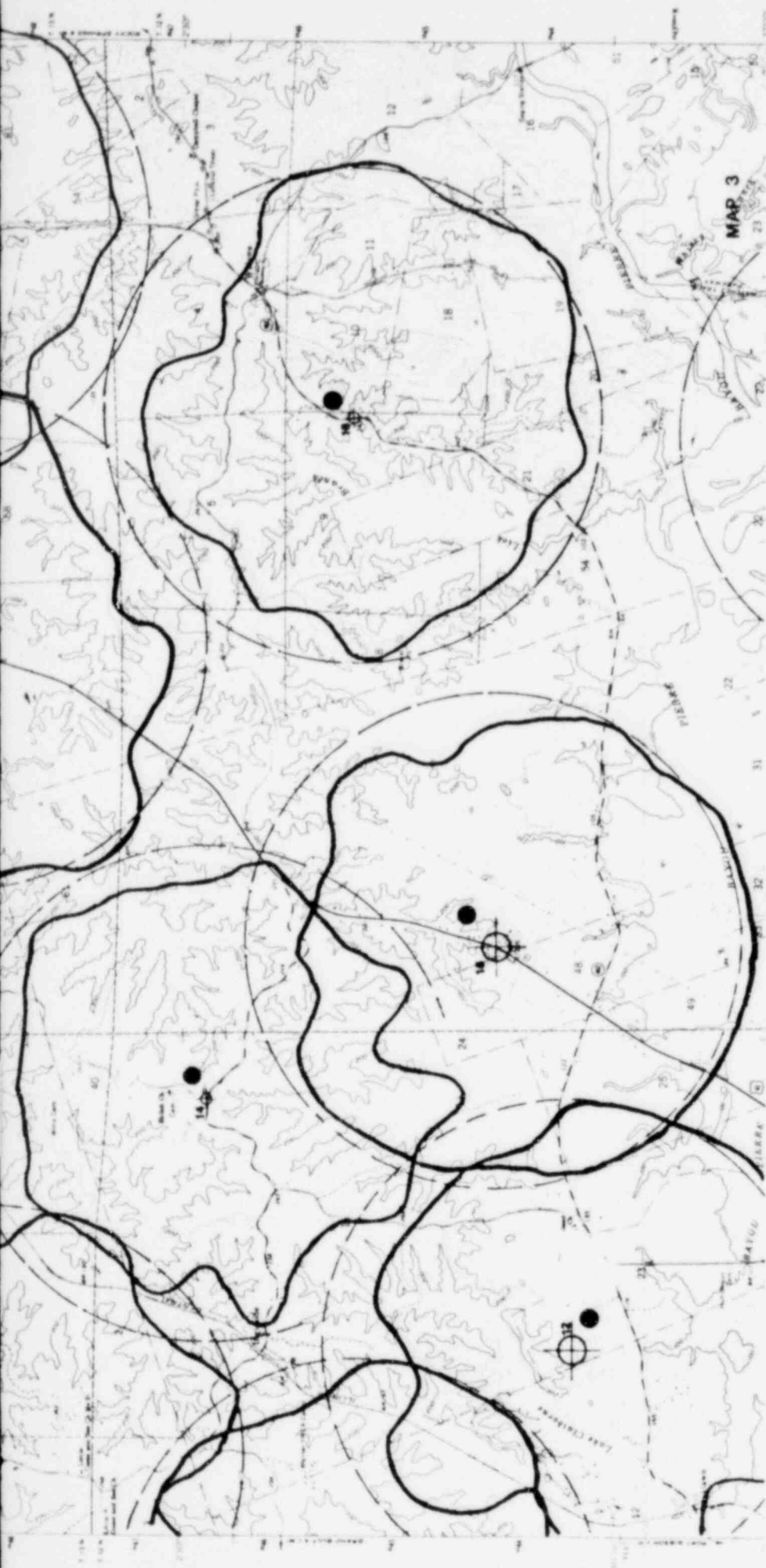
MISSISSIPPI POWER & LIGHT

Grand Gulf Nuclear Power Plant Site System Analysis

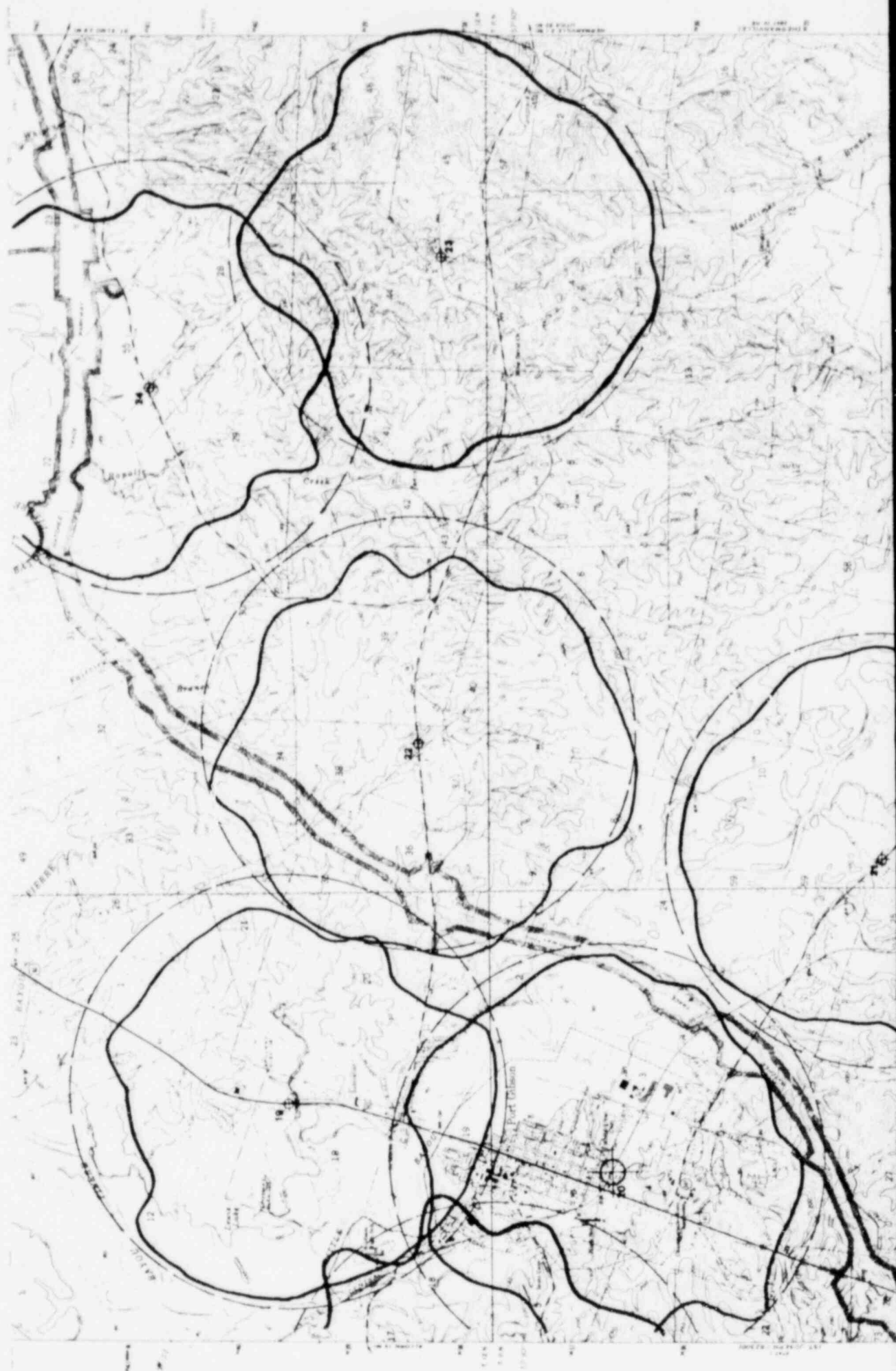
Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.



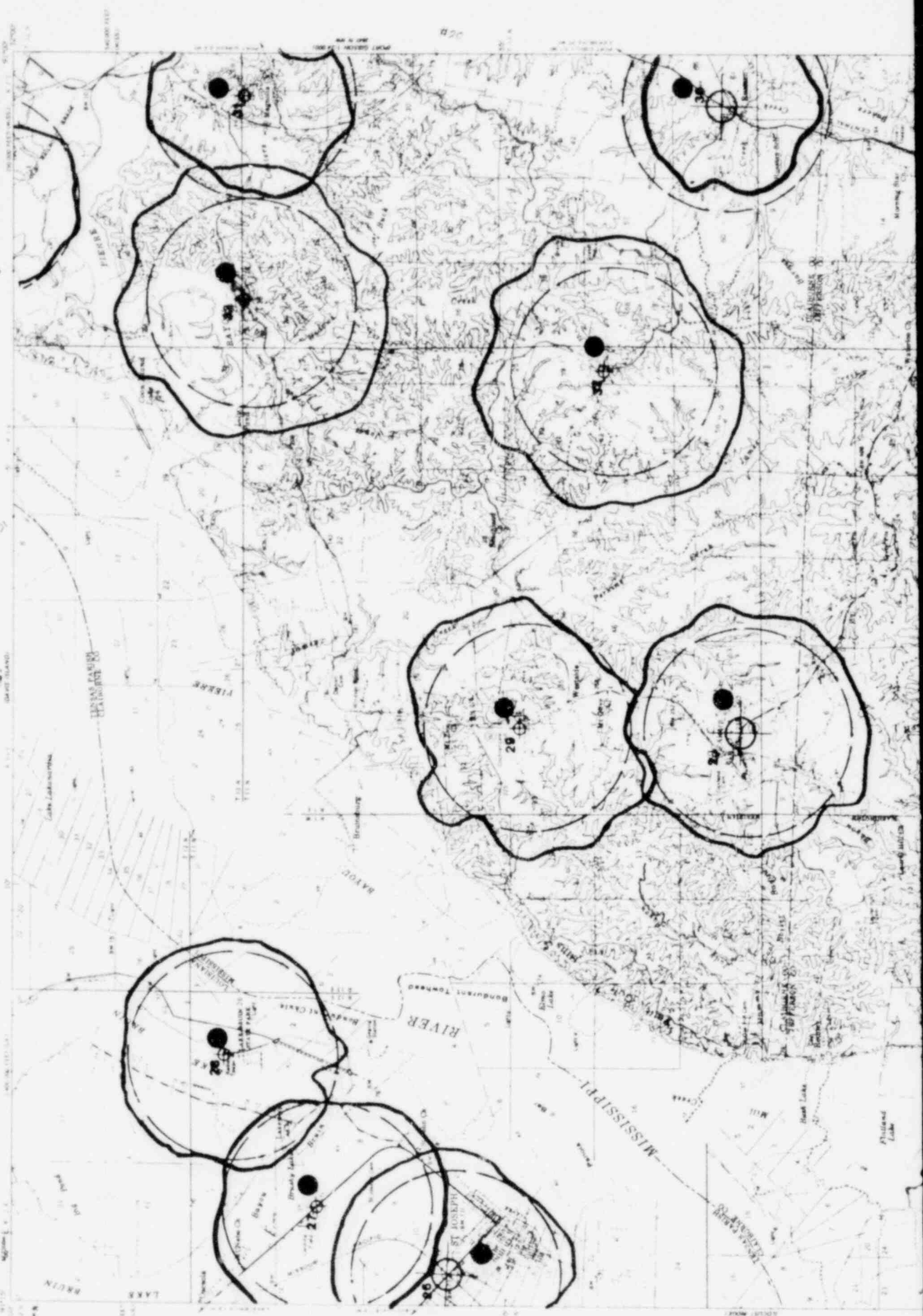


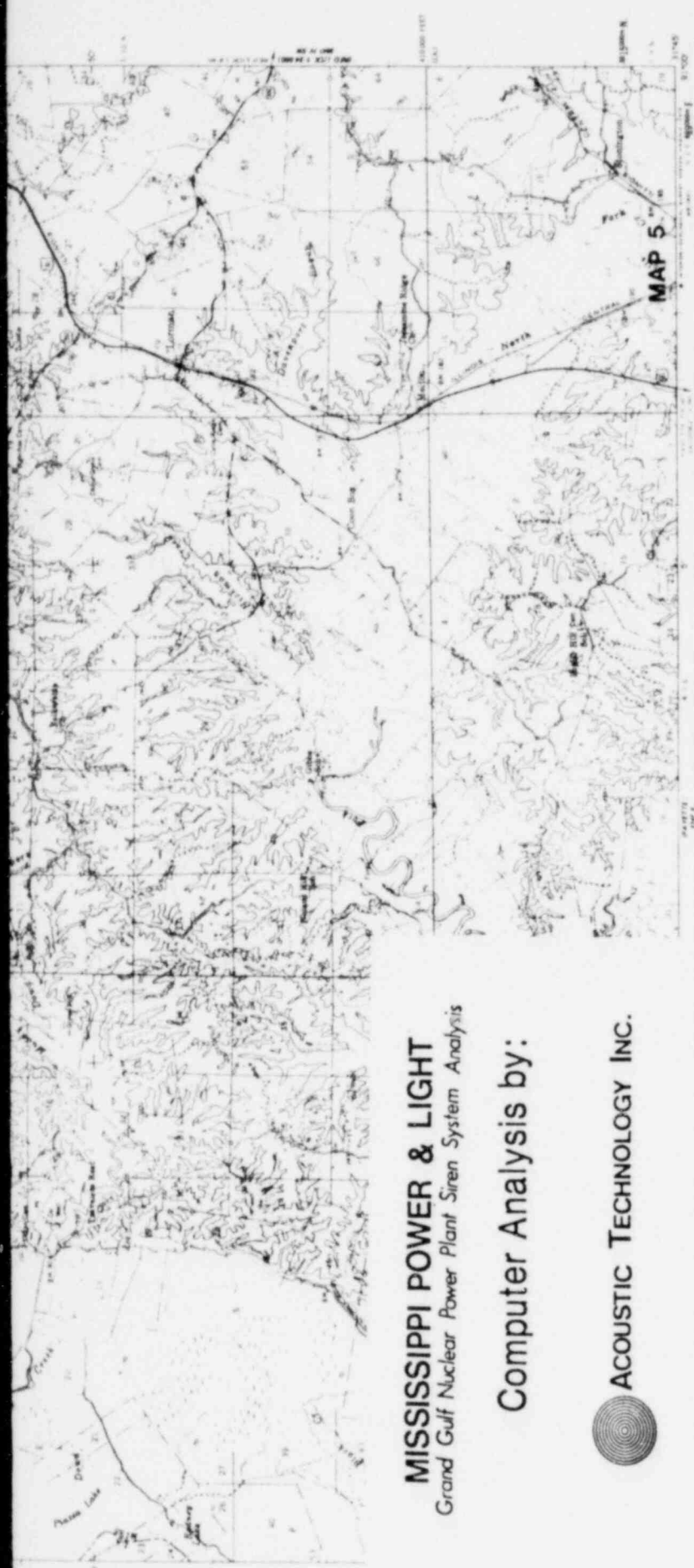
MAP 3



ST. JOSEPH QUADRANGLE
LOUISIANA-MISSISSIPPI
15 MINUTES SERIES (TOPOGRAPHIC)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY





MISSISSIPPI POWER & LIGHT Grand Gulf Nuclear Power Plant Siren System Analysis

Computer Analysis by:



ACOUSTIC TECHNOLOGY INC.

ROAD CLASSIFICATION
 Heavy Duty
 Medium Duty
 Light Duty
 Unimproved Rd
 U.S. Route
 State Route
 1948
 ST. JOSEPH, LA - MISS
 N3145-W910015
 1948
 AMS 1747 - REVISION 1743

SCALE 1:50,000
 CONTOUR INTERVAL 30 FEET
 DOTTED LINES REPRESENT SLOPE CONTOURS
 NATIONAL GEODETIC DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
 FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80226 OR RESTON, VIRGINIA 22082
 AND STATE OF LOUISIANA DEPARTMENT OF PUBLIC WORKS, BATON ROUGE, LOUISIANA 70804
 A FOLDER DESCRIBING TOPOGRAPHIC DATA AND SYMBOLS IS AVAILABLE ON REQUEST

UTM 18U AND 1988 MAGNETIC NORTH
 DECLINATION AT CENTER OF SHEET
 17M 18U
 17M 19U
 17M 20U
 17M 21U
 17M 22U
 17M 23U
 17M 24U
 17M 25U
 17M 26U
 17M 27U
 17M 28U
 17M 29U
 17M 30U
 17M 31U
 17M 32U
 17M 33U
 17M 34U
 17M 35U
 17M 36U
 17M 37U
 17M 38U
 17M 39U
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 17M 94U
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 17M 96U
 17M 97U
 17M 98U
 17M 99U
 17M 100U

MAP 5