DESIGN OF PUBLIC WARNING SYSTEM

(TASK 1 THROUGH 4)

PALO VERDE NUCLEAR GENERATING STATION

Prepared for:

ARIZONA PUBLIC SERVICE COMPANY

PHOENIX, ARIZONA

Prepared by:

Acoustic Technology, Inc.
240 Commercial Street
Boston, MA 02109

ACOUSTIC TECHNOLOGY INC.

TABLE OF CONTENTS

LIST OF MAPS

SUMMARY

This report presents Acoustic Technology, Inc's (ATI's) alternative designs for the prompt notification of the public within the plume exposure Emergency Planning Zone (EPZ) of Palo Verde Nuclear Generating Station. The report marks the final step of the tasks outlined in the proposal submitted to Arizona Public Service Company (APS) in March, 1981.

ATI's main objective in designing its public notification systems are to design systems which meet the regulatory requirements outlined by FEMA and the NRC, are cost effective, and are acceptable both to the people living within the EPZ and to the state, local and federal government officials involved in the operation of the nuclear plant. Several warning methods have been analyzed in designing these alternatives, including mobile sirens, high power sirens, telephone notification and tone alert radios. The alternatives presented reflect the public interests of the people involved in the operation of PVNGS. ATI is confident that all of the alternatives will meet the guidelines set forth in FEMA's CPG-17 Outdoor Warning Systems Guide and the NRC NUREG-0654 criteria.

Alternative 1 proposes notifying the entire population within the EPZ of an emergency using high power sirens. Through computer analysis, thirty-six sirens have been located along existing power lines to effectively cover all populated areas within the extended EPZ with a minimum sound level of 60 dBC. In this alternative, the normal 10 mile EPZ has been extended by the Arizona Division of Emergency Services on the eastern edge to include some higher density areas including the town of Palo Verde and the relocated town of Allenville. The implementation cost of this alternative would be approximately $540,000 and the operational costs over the life of PVNGS are projected to be $620,000. Alternative 1B covers all populated areas in the normal 10 mile radius EPZ.

Thirty high power sirens are employed to cover populated areas with a minimum sound level of 60 dBC. The implementation costs would be approximately $450,000 and the operational costs are projected to be $516,000. Despite its relatively high cost, these alternatives have advantages in the fact that they are easily monitored and tested systems. They are also likely to meet wide public acceptance.

Alternative 2 is the most cost effective alternative when considering costs over the projected lifespan of PVNGS. High power sirens are used to cover areas where the population is concentrated, while tone alert radios are used to notify the rest of the population. It is feasible that a 130 dB siren (a siren which produces a sound level of 130 dB 100 feet from the mouth of the horn) will be manufactured by the time PVNGS purchases its warning system. Alternative 2 uses the 130 dB figure in its computer analysis of siren sound coverage. In Alternative 2, 10 high power sirens have been analyzed and located with ATI's computer program to cover the more densely populated areas within the EPZ with a 60 dBC sound level. As in Alternative 1, the EPZ has been extended on the eastern edge. The sirens would cover 88% of the residences within the EPZ. Approximately 150 residences/travel trailers/mobile homes would not be covered by the minimum sound level. These residences would be notified of an emergency by tone alert radio. The implementation costs of this alternative are approximately $175,000. Because of high replacement rate projected for the radios, the operational costs of over the life of PVNGS would be much higher; approximately $427,000. Alternative 2B uses sirens with a sound level of 122 dB at 100 feet, which are now commercially available, in its computer analysis. With the lower sound level reading, 11 sirens cover 83% of the residences within the EPZ with a minimum sound level of 60 dBC. Approximately 200 tone alert radios would be used to notify the residences/trailer homes not covered by the sirens.

The implementation costs of Alternative 2B are approximately $175,000. The operational costs are projected to be $508,000. The advantage of Alternative 2 and 2B is the lower cost of implementing and operating the system. The main drawback is in monitoring the system, making sure that all radios are completely operational at all times.

In Alternative 3, notification of an emergency would be provided completely through tone alert radios. There are no more than 1250 residences, mobile homes and travel trailers within the EPZ of Palo Verde. This figure includes relocation of the town of Allenville. The initial cost of implementing this system would be low; approximately $63,000. However, because of the short life span of the radio (5 years), the cost over the life of the nuclear plant is projected to be approximately $2,059.000.

The cost analysis of the three alternatives is presented in Table 3.

I. 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 of the NUREG-0654 report: "Means for Providing a Prompt Notification to the Population."

The final regulation regarding prompt notification was published in the Federal Register which defines the requirements as follows: "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 Arizona Public Service Company (APS) has designed and analyzed alternative proposals for the prompt notification of the public within the Palo Verde Nuclear Generating Station EPZ. ATI has given full consideration to the requirements of NUREG-0654. The criteria for minimum acceptance of a notification system are stated in Appendix 3 as follows:

"The minimum acceptable design objectives for coverage by the system are:

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."

II. DESIGN CONSIDERATIONS

Palo Verde Nuclear Generating Station is in Southwestern Arizona near Wintersberg, Arizona and approximately50 miles west of downtown Phoenix. The site of PVNGS and the plume exposure EPZ are entirely within the boundaries of Maricopa County. The station consists of there separate units, the first of which is scheduled to begin commercial operation in May, 1982. When all three units are complete, PVNGS will be able to produce 3,810 MW of electricity, which will be supplied to four states: Arizona, California, New Mexico, and Texas. When Unit 3 goes into operation it will be the largest nuclear plant in the United States.

Factors affecting the design of the prompt notification system have been analyzed fully by Acoustic Technology. Key factors include Planning Zone Boundaries, demography, land use, meterological conditions, access to power lines, and existing warning systems. These issues are discussed below:

Planning Zone Boundaries: In section 1 of NUREG-0654, the Emergency Planning Zone (EPZ) is defined as "the areas for which planning is needed to assure that prompt and effective actions can be taken to protect the public in the event of an accident." The short term "plume exposure" EPZ was selected to be a radius of about 10 miles, depending upon the characteristics of the site. The Arizona Division of Emergency Services has extended the EPZ of Palo Verde approximately 1 1/2 miles beyond the 10 mile radius to the east, making compliance with the requirements outlined in Appendix 3 of NUREG-0654 optional for the extended area.

Demography: Map 1 shows the population density throughout the EPZ of PVNGS. The highest density areas occur in Arlington, six miles to the southeast of PVNGS, in Wintersberg, three miles to the north; in Tonopah, eight miles

to the northwest; and in Palo Verde and relocated Allenville, twelve miles east of the station. Much of the western portion of the EPZ is unihabited. There is only one residence, one travel trailer and two mobile homes within two miles of the plant, all of which are located north of PVNGS.

Land Use: Much of the land within the EPZ is uninhabited and unused. The only significant type of land use throughout the area is agricultural. There are fields to the south, the southeast and to the northwest of PVNGS (see map 2). Agriculture appears to be the major industry as well. The extent of the farmland suggests that an outdoor warning system might be more appropriate than an indoor notification system.

Meterological Conditions: As will be explained in Section IV, climatic conditions such as temperature, relative humidity and wind speed effect the sound level of any distance from the sound source. The climatic conditions surrounding PVNGS are characterized as desert-like; low relative humidities, infrequent rain, hot summers and mild winters, moderate winds, and large differences between day and night temperatures

The warment weather in Arizona is generally in the beginning of July, the coolest is in January. For PVNGS, the normal minimum and maximum temperatures for January are 37.6°F and 64.8°F respectively. The minimum and maximum are 77.5°F and 104.8°F in July. The annual mean temperature is 70.3°F.

In general, the highest relative humidity occurs in the winter and the lowest in the summer. The highest relative humidity each day occurs just before sunrise. The lowest occurs in mid-afternoon, corresponding to the highest daily temperature. The mean annual average humidity is 36%.

The prevailing winds at PVNGS are from the southwest in the spring and summer, and from the east and the northeast in the fall and winter. The average windspeed was found to be 6.4 mph at the 35 foot level.

Power Lines: Map 3 shows the existing power lines throughout the EPZ. With exception of one single-phase line 10 miles to the east of PVNGS adjacent to Luke's Auxiliary Field, all lines are three-phase lines. They would be suitable for operating any commercially available high power siren. It is cost effective to locate the sirens along existing power lines rather than extend the lines.

Existing Warning Systems: There are no warning systems within the EPZ which would comply with NUREG-0654 requirements. Presently, there are no public address systems installed in the area which could be integrated with a prompt notification system.

The National Oceanic and Atmospheric Adminsitration (NOAA) has a transmitter on South Mountain which regularly broadcasts weather information. This system is employed in severe weather and during emergencies by emitting a 1050 Hz tone which activates radios, then proceeds with a warning message. The NOAA broadcast presently covers all populated areas surrounding PVNGS with the exception of the area to the southeast of Arlington (see map 4). Construction of an additional transmitter in Estrella Mountain Park would provide complete NOAA coverage throughout the EPZ.

The Emergency Broadcast System (EBS) currently broadcasts through the entire EPZ on several commercial radio stations. It is used to alert the public to any real or potential emergencies. It can be used both to instruct the public in the case of an emergency, and as the actual alerting device. This EBS would activate special receivers using a two tone signal, then broadcast the emergency message and instructions.

III. ACOUSTIC CRITERIA OF SIREN SYSTEM

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) also 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, a sound level of 50 dBA can be assumed and the siren system can be designed to produce a minimum of 60 dBC.

While the population density throughout the EPZ of Palo Verde is less than 2000 people per square mile, Arizona Public Service Company, in its efforts to provide the optimum warning system for PVNGS, chose to conduct an ambient noise survey. Acoustic Technology performed the sound survey from May 6 - May 8, 1981. Fifty-two locations were monitored, and the ambient sound level recorded for each. The sites were chosen as representative of the acoustic environment within the EPZ.

The result of the field survey indicate that ambient sound levels are generally below 50 dBA throughout the EPZ. In addition, measurements taken at the 500 Hz band for the 52 locations show ambient noise levels ranging from 24 dB to 50 dB and measurements taken at the 1000 Hz band show levels from 17 dB to 44 dB. Since all commercially available sirens produce tones between 500 and 1000 octave bands, designing 60 dBC sound coverage throughout the EPZ is in compliance with NUREG-0654 guidelines. The results of the sound survey are reported fully in Appendix 1 of this report.

IV. SIREN ACOUSTIC COMPUTER MODEL

The siren sound levels within the Palo Verde Nuclear Generating Station plume exposure EPZ were calculated by use of a computer model developed by Acoustic Technology, Inc. This model takes into consideration meterological 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. 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 can be summarized as follows:

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, average atmospheric conditions are used as an input for the computer model.

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 absorbative 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. However, as a conservative measure, the shadow zone is assumed to be consistent in all directions from the sound source. This is to compensate for fluctuations in the direction of the wind.

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 feet 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 in each alternative 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 2 and in graphical form in Appendix 3.

IV. 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

VI. SELECTION OF SIREN LOCATIONS

In Alternatives 1 and 1B, siren locations were selected to cover all populated areas within the EPZ, regardless of population density or concentration. Arizona Public Service Company provided ATI with maps which showed the power distribution throughout the area. In order to avoid the extra cost of extending power lines to installed sirens, sirens were located close to the existing lines wherever possible. Tentative locations for sirens were chosen and analyzed with ATI's computer model. Several computer iterations were made before achieving the required 60 dBC acoustic coverage throughout the populated areas of the EPZ. In areas where no power is available, low power battery operated sirens could be employed. There is one such case in Alternative 1. The siren is used to cover an area in the northeast corner of the EPZ that is without power lines (see map 1).

In Alternative 2 and 2B, siren locations were selected primarily on the basis of high population density. These locations were then analyzed with the computer model to determine the extent of the 60 dBC acoustic coverage. Sirens were again located along existing power lines to avoid additional costs. In addition, some effort was made to place all sirens at higher elevations than the areas surrounding them. Initial computer iterations of the model indicated that placing sirens at higher elevation points will gain larger siren coverage. This is because the effects of vegetation, trees and barriers are minimized.

Table 2 provides a description of the siren locations for each alternative. The location of the 36 sirens, and the extent of the 60 dBC acoustic coverage for Alternative 1 is presented on Map 5. The same information for Alternative 1B is presented in Map 6. Map 7 shows the location and the 60 dBC siren acoustic coverage of the sirens for both Alternative 2 and 2B.

TABLE 2

ARIZONA PUBLIC SERVICE COMPANY
PALO VERDE NUCLEAR GENERATING STATION

ALTERNATIVE 1

Siren Number	Location	USGS Map	Siren Rating (dBC)
1	Indian School Road	Buckeye	122
2	Johnson Road	Buckeye	122
3	Luke Auxiliary Field #5	Buckeye	122
4	Johnson Road at Roosevelt Canal	Buckeye	122
5	Palo Verde Road	Buckeye	122
6	Base Line Road	Buckeye	122
7	Buckeye Canal	Buckeye	122
8	Hassayampa	Buckeye	122
9	Narramore Road	Buckeye	122
10	Wickenberg Hassayampa Road	Arlington	122
11	Hassayampa Cotton Gin	Arlington	122
12	Arlington Road	Arlington	122
13	Desert Rose Road	Arlington	122
14	Gila Compressor Station	Arlington	122
15	Broadway Road	Arlington	122
16	Wickenberg Hassayampa Road	Arlington	122
17	Hassayampa Road	Arlington	122
18	Buckeye Salome Road	Arlington	122
19	Phillips Wash	Arlington	122
20	Indian School Road	Arlington	122
21	Indian School Road	Arlington	122
22	Hassayampa Road	Arlington	122
23	Wintersberg Road	Arlington	122

ACOUSTIC TECHNOLOGY INC.

ALTERNATIVE 1 (cont'd)

Siren Number	Location	USGS Map	Siren Rating (dBC)
24	Wintersberg Road	Arlington	122
25	Buckeye Salome Road	Arlington	122
26	Indian School Road	Arlington	122
27	Winters Wash	Arlington	122
28	Two miles north of Indian School Road	Belmont Mountains	122
29	Tonopah	Arlington	122
30	Delaney Wash	Arlington	122
31	Joleena Farms	Belmont Mountains	122
32	Ward Road	Arlington	122
33	Desert Farms	Arlington	122
34	1½ miles south of Ward Road	Arlington	122
35	Arlington Station	Arlington	122
36	Luke Wash	Arlington	122

A low power battery operated siren is located North of Indian School Road, on the Buckeye USGS Map.

TABLE 2

ARIZONA PUBLIC SERVICE COMPANY
PALO VERDE NUCLEAR GENERATING STATION

ALTERNATIVE 1B

Siren Number	Location	USGS Maps	Siren Rating (dBC)
1	Luke Wash	Arlington	122
2	Johnson Road	Buckeye	122
3	Arlington Station	Arlington	122
4B	Johnson Road at Southern Avenue	Buckeye	122
5	1½ Mile south of Ward Road	Arlington	122
6B	Lower River Road	Buckeye	122
7	Desert Farms	Arlington	122
8B	Narramore Road	Buckeye	122
9	Ward Road	Arlington	122
10	Hassayampa Wickenberg Rd.	Arlington	122
11	Hassayampa Cotton Gin	Arlington	122
12B	Arlington Road	Arlington	122
13	Desert Rose Road	Arlington	122
14	Gila Compressor Station	Arlington	122
15	Broadway Road	Arlington	122
16	Wickenberg Hassaympa Road	Arlington	122
17	Hassayampa Road	Arlington	122
18	Buckeye Salome Road	Arlington	122
19	Phillips Wash	Arlington	122
20	Indian School Road	Arlington	122
21	Indian School Road	Arlington	122
22	Hassayampa Road	Arlington	122
23	Wintersberg Road	Arlington	122

ACOUSTIC TECHNOLOGY INC.

ALTERNATIVE 1B (cont'd)

Siren Number	Location	USGS Map	Siren Rating (dBC)
24	Wintersberg Road	Arlington	122
25	Buckeye Salome Road	Arlington	122
26	Indian School Road	Arlington	122
27	Winters Wash	Arlington	122
28	Two miles north of Indian School Road	Belmont Mountains	122
29 B	Delaney Wash	Arlington	122
30B	Tonopah	Arlington	122

TABLE 2

ARIZONA PUBLIC SERVICE COMPANY
PALO VERDE NUCLEAR GENERATING STATION

ALTERNATIVE 2

Siren Number	Location	USGS Map	Siren Rating (dBC)
51	Tonopah	Arlington	130
52	Indian School Road	Arlington	130
53	Wintersberg	Arlington	130
54	Wickenberg Hassayampa Road	Arlington	130
55	Phillips Wash	Arlington	130
56	Gila Compressor Station	Arlington	130
57	Arlington	Arlington	130
58	Palo Verde	Buckeye	130
59	Brunner Road	Buckeye	130
60	Palo Verde Road	Buckeye	130

TABLE 2

ARIZONA PUBLIC SERVICE COMPANY
PALO VERDE NUCLEAR GENERATING STATION

ALTERNATIVE 2B

Siren Number	Location	USGS Map	Siren Rating (dBC)
51	Tonopah	Arlington	122
52	Indian School Road	Arlington	122
53	Wintersberg Road	Arlington	122
54	Wickenberg Hassayampa Road	Arlington	122
55	Phillips Wash	Arlington	122
56	Gila Compressor Station	Arlington	122
57	Arlington	Arlington	122
58	Palo Verde	Buckeye	122
59	Brunner Road	Buckeye	122
60B	Brunner Road	Buckeye	122
61B	Palo Verde Road	Buckeye	122

VII. TONE ALERT RADIOS AS A NOTIFICATION SYSTEM

Tone Alert Radios

Because of the ability of a tone alert radio to turn on upon receiving an activation signal, they meet the requirements FEMA outlines for the main emergency notification system. The main advantage a tone alert radio has over a siren system is the ability to broadcast the emergency message iteself. Because of the low cost per unit, they may be desirable for use in low density areas within the EPZ.

There appears to be two major disadvantages in using tone alert radios as the only notification system. The first disadvantage would be control of the system. There would be no guarantee that the radios would be properly maintained, or that they would even stay in the individual residences. The second disadvantage is that the people would have to be in their homes to hear the warning signal. Because of the climate, and because much of the industry within the EPZ relates to agriculture, the people living in the area spend much of their time outdoors. It is possible that the warning message would not be heard by many of the residents.

Through investigating radio warning systems, two systems appear to be feasible for use as a warning system. The National Oceanic and Atmospheric Administration (NOAA) and the Emergency Broadcast System (EBS). It is expected that one of these two systems will be used to provide instructions to the public regardless of the system used to notify them of an emergency.

In comparing the two systems, the EBS system appears the most desirable for a number of reasons. As mentioned previously, there is presently EBS coverage over the entire EPZ. There would be no need to construct additional transmission equipment, as there would if complete NOAA coverage was needed. The price of a receiver is comparable to the price of a NOAA receiver. Another advantage of the EBS system is the fact that it broadcasts on commercial radio stations. The receiver could be used to listen daily to the station which has been selected to broadcast the warning signal. A third advantage of the EBS system is that it is activated by a dual

tone signal. The two tone signal allows for less accidental activation of the system than the single tone signal which NOAA uses.

VIII. ADDITIONAL WARNING SYSTEMS

Additional warning systems were considered as alternative notification systems. These will be discussed below.

MOBILE ALERTING

The use of vehicles equipped with mobile sirens and public address systems was considered as an alternative to notify the public of an emergency, especially in lower density areas. The advantage of such a system is that the driver of the vehicle can adjust the notification route as necessary and can provide individualized instructions to areas which might be faced with a specific problem not encountered in other areas. The driver can also report observations and potential problems to the proper authorities so that they can make appropriate decisions. The disadvantages of such a system lie in the distances between the residences within the EPZ and the normal location of the vehicles outside of the EPZ and their response time. To ensure complete notification of the area, vehicles would have to be stationed in several locations throughout the EPZ. In addition, the condition of many of the roads within the EPZ is poor. It is likely that complete notification could not take place soon enough if heavy vehicles had to manuever through these roads. Adverse weather conditions, lack of sufficient personnel, and appropriate vehicles are additional factors which would affect complete notification in the allowable time. Because of the disadvantages listed above, mobile alerting is not recommended.

TELEPHONE NOTIFICATION

Using the telephone system for alerting the public has been considered. The notification procedure would be to automatically dial a computerized list of phone numbers and transmit the emergency message along with instructions. Any unanswered or busy phone numbers would be shifted automatically to the bottom of the list to be dialed again. The expense of initiating and maintaining this program, along with the fact that not all residences have phone lines make this alternative unfeasible.

IX. COST ANALYSIS OF ALTERNATIVE WARNING SYSTEMS OVER THE PROJECTED LIFESPAN OF PALO VERDE NUCLEAR GENERATING STATION

The following Table 3 presents a cost analysis/comparison of the three alternative designs for PVNGS. The analysis is over the lifespan of the nuclear plant, which is projected to be 43 years from the start of operation of 'Unit 1' to the shutdown of 'Unit 3'. In preparing the cost analysis the following projections were made:

- the cost of a 122 dB siren is projected to be $15,000 in two years time. This figure includes installation costs and the necessary radio control. The price of a 130 dB is approximately 12% higher, or $16,800.
- Maintenance costs for the siren systems are assumed to be 2% of the initial cost of the system per year of operation.
- Testing costs for the system are assumed to be $100 per year per siren.
- Tone alert radios presently range in price from $28.00 to over $100.00.

  A radio with a projected cost of $50.00 would be adequate for a single family residence. The lifespan of the radios is five years, meaning the radios would need to be replaced eight times over the lifespan of Palo Verde. We have assumed a $25.00 increase in price of each radio over every replacement period.
- The average annual cost of electricity to operate each tone alert radio is projected to be:

  10 watts x 8760 hr/yr = 88 kw /yr x $.045/kwh = $4.00/ yr.
- Maintenance costs of the tone alert radios are assumed to be 2% of the purchase price of the radio system per year for the first five years,

then 2% per year of the replacement price of the system for each five year period thereafter.

At the present time, there are several siren manufacturers producing and selling high power sirens. Each of these manufacturers produce more than one model of siren. Because of the great differences in each of these models and because a vendor has not yet been chosen, it is very difficult to predict either the lifespan of the sirens, or to project the cost of rebuilding and overhauling the siren.

Because of the difficulty of projecting these costs, they have not been given a monetary figure in the cost analysis. For many of the same reasons, the costs of monitoring and controlling the systems involving tone alert radios have not been given a monetary figure, either. Instead, a contingency should be added to all of the alternatives which would cover these additional costs.

	ALTERNATIVE 1 36 HIGH POWER SIRENS COVERING ALL POPULATED AREAS IN EXTENDED EPZ	ALTERNATIVE 1B 30 HIGH POWER SIRENS COVERING ALL POPULATED AREAS IN 10 MILE EPZ	ALTERNATIVE 2 10 130 dB SIRENS COVERING MORE DENSELY POPULATED AREAS 150 TONE ALERT RADIOS	ALTERNATIVE 2B 11 122 dB SIRENS COVERING MORE DENSELY POPULATED AREAS 200 TONE ALERT RADIOS	ALTERNATIVE 3 1250 TONE ALERT RADIOS
INITIAL COSTS					
Purchase Price of Sirens Including Installation and Radio Control (price of siren x number of sirens)	$540,000	$450,000	$168,000	$165,000	--------
Purchase Price of Tone Alert Radios	--------	--------	$8,000	$10,000	$63,000
TOTAL INITIAL COSTS	$540,000	$450,000	$176,000	$175,000	$63,000
ADDITIONAL COSTS					
Maintenance of Siren System (.02 x purchase price of system x number of years of operation)	$464,000	$387,000	$144,000	$142,000	--------
Testing of Siren System ($100.00 x number of sirens x number of years of operation	$155,000	$129,000	$43,000	$47,000	--------
Replacing Tone Alert Radios (summation of number of radios x price of radio for each replacement period)	--------	--------	$195,000	$260,000	$1,625,000
Radio Operating Costs ($4.00 x number of radios x number of years of operation)	--------	--------	$26,000	$34,000	$215,000
Maintenance of radios (.02 x purchase price of radios for each replacement period x number of years of operation	--------	--------	$19,000	$25,000	$156,000
TOTAL ADDITIONAL COSTS	$619,000[a]	$516,000[a]	$427,000[ab]	$508,000[ab]	$1,996,000[b]
TOTAL COST OF SYSTEM	$1,159,000[a]	$966,000[a]	$603,000[ab]	$683,000[ab]	$2,059,000[b]

a: A contingency for rebuilding and over-hauling the sirens should be added to these costs.
b: A contingency for monitering and controlling the tone alert radio system should be added to those costs.

ACOUSTIC TECHNOLOGY INC.

TABLE 3

X. DESCRIPTION OF THE RECOMMENDED ALTERNATIVES

As previously stated, ATI has prepared 3 Alternative proposals which will fulfill the requirements outlined by NUREG-0654. These alternatives will now be discussed in greater detail:

Alternative 1: Virtually 100% of the populated areas surrounding Palo Verde Nuclear Generating Station will be notified of an emergency by a system of high power sirens. Alternative 1 defines the plume exposure EPZ as the area within a 10 mile radius of the plant, plus a 1½ mile extension to the east, to Palo Verde Road. Alternative 1B defines the EPZ boundary as the standard 10 mile radius surrounding PVNGS. These systems provide the quickest, most reliable means of notifying the public within the EPZ.

For areas inside the five mile radius, nine sirens have been positioned to cover the populated areas to the north of PVNGS and the less densely populated farmlands to the south. 100% of the population will receive acoustic coverage of a minimum sound level of 60 dBC. For areas beyond the 5-mile radius, twenty-seven high power sirens are positioned to the north, east and southeast of PVNGS to cover the remaining population with a minimum sound level of 60 dBC. One area to the northeast which is outside the 10 mile radius, but within the extension to the EPZ is not covered by a high power siren because power lines are unavailable. A battery operated, low power siren is suggested for use in this area.

For Alternative 1B, it is recommended that 21 sirens cover the populated areas between the five and ten mile radius. Again, virtually 100% of the population would be covered by sound level of a minimum of 60 dBC.

The siren systems of Alternative 1 are designed for sirens capable of producing a sound level of 122 dBC 100 feet away from the siren. Most sirens rated at 125 dBC by their manufacturers are capable of producing this sound level.

A disadvantage of a siren system is that the momentary starting current required to activate the system is high. It is recommended that the electrical power distribution throughout PVNGS be analyzed to determine whether the existing lines are capable of operating the sirens. If not, an alternative power system can be utilized.

The specifics on when and who activates the siren system will be determined by the appropriate state and locals government officials. The sirens could be activated by a radio that could activate all of the sirens, or sirens in any given sector. The responsibility of activating the sirens would likely belong to Maricopa County.

Alternative 2

Alternative 2 considers placing high power sirens in areas of relatively high population density, and notifying the remaining population of an emergency by the use of tone alert radios. Alternative 2 is designed for sirens capable of producing a sound level of 130 dB at 100 feet. Alternative 2B is designed for sirens which produce a sound level of 122 dB. In both Alternative 2 and 2B, the area defined as the EPZ is the same as that of Alternative 1. These alternatives provide the most cost effective means of providing a warning system for PVNGS over the lifespan of the plant.

For areas inside the 5 mile radius surrounding PVNGS, two high power sirens have been located to the north. In Alternative 2, 31 residences/mobile homes/travel trailers do not receive 60 dBC coverage. For Alternative 2B, an additional 14 residences do not receive coverage. It is recommended that tone alert radios employing EBS or NOAA broadcasts be used to notify these residences of an emergency.

For areas outside the five mile radius Alternative 2 recommends the placement of eight sirens to the north and east of PVNGS. These sirens will provide a minimum of 60 dBC acoustic coverage to 88% of the population within the EPZ. It is recommended that tone alert radios be used to achieve complete notification of the remaining population. In Alternative 2B it is recommended that nine sirens be located to the north and east of PVNGS.

The sirens would cover 83% of the population within the EPZ. Tone Alert Radios are again the recommended method of notifying the population not covered by a minimum sound level of 60 dBC.

The activation of the siren system is the same as is outlined for Alternative 1. All tone alert radios would be activated at the same time by the EBS or NOAA system. It is expected that the radios would be activated at the request of the Civil Defense Department of Maricopa County, or by other appropriate state and local officials.

ALTERNATIVE 3

Alternative 3 recommends using tone alert radios throughout the EPZ as the primary warning system. The EBS or NOAA system is the recommened radio warning system. Alternative 3 has the lowest implementation cost of the alternatives. A tone alert radio would be distributed to each residence/mobile home. At the present time, this figure would not exceed 1250 radios. Included in the 1250 figure is a 125 unit development which is to be constructed in the northeast corner of the plume exposure EPZ.

The tone alert radios would be activated in a manner similar to that described in Alternative 2. The specifics of maintaining the system will be determined by the appropriate state and local officials.

APPENDIX 1

TASK 1 and 2
SITE EVALUATION AND
AMBIENT NOISE SURVEY

ACOUSTIC TECHNOLOGY INC.

INTRODUCTION

Task 1 and 2 of the work was to perform an ambient sound survey, site evaluation, and preliminary assessment of the site conditions affecting the design of a prompt notification system of Palo Verde Nuclear Generating Station (PVNGS). Our evaluation indicated that more than one method of notification may be required for total coverage of the area. One of the methods will likely be a siren system in populated areas of the site. It is likely that one or more of the following systems: Emergency Boradcast System (EBS) , National Oceanic and Atmospheric Agency (NOAA) weather radio, and mobile sirens will be used in conjunction with the siren system to provide notification throughout the 10-mile EPZ.

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 a 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 PVNGS is far below 2,000 persons/square mile, an ambient sound level of 50 dBA can be assumed to generate the minimum 60 dBC sound coverage for the PVNGS Siren System Design. However, Arizona Public Service Company (APS) has chosen to conduct a sound survey to determine the actual ambient sound levels rather than assuming 50 dBC. The sound survey results will be used to adequately design PVNGS siren sound coverage.

Furthermore, 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.

AMBIENT SOUND SURVEY

Ambient noise levels were monitored at Palo Verde Nuclear Generating Station (PVNGS) from May 6 to May 8, 1981. The purpose of these measurements was to establish typical ambient noise levels within the 10 mile plume exposure Emerergency Planning Zone (EPZ). In addition to the sound surveys, data was collected pertaining to land use, land coverage, available power lines, demography and topography of EPZ.

Fifty-two positions were chosen for sound level measurements within the EPZ. These points were chosen to characterize the acoustic environments throughout the EPZ. Particular attention was placed on areas with some population density and on areas with commercial land use. The measuring locations are shown in figure 1, and described in Table 1. Table 1 describes actual circumstances of the test such as major noise sources at the time of the measurements. In addition, most of these measuring locations were visited at different times, and no noticeable changes were noted.

Sound level measurements were made on a Bruel and Kjaer 2215 sound level meter. Periodic calibrations were made to ensure accuracy in the measurements. While the measurements were being made, all background noises affecting the reading were noted and documented in Table 1. Wind speed, wind direction, temperature, relative humidity and sky conditions were also recorded and listed in Table 2.

At each position, C-weighted, A-weighted, and 250, 500, 1K, 2K Hz octave band measurements were recorded. The data collected from these measurements is shown on Table 1. In some instances, the C-weighted reading suggested that lower frequency measurements should be made. The 31.5 Hz, 63 Hz and 125 Hz octave band readings are noted in Table 1 under the description column.

The area within the EPZ is primarily rural or unihabited. The land is either unused and taken over by brush, rocky, or is used as farmland. The main crop appears to be cotton. The Hassayampa Cotton Gin to the south of Palo Verde and a cotton gin under construction at the intersection of Wilson Avenue and Base Line Road

are two of the few industries within the zone. There are three schools within the area; one in Arlington, one in Palo Verde, and another Northwest of Wintersburg on Indian School Road. The schools correspond to relatively higher population densities, meaning 50-200 people per square mile. There are also increases in population around Wintersberg and in Tonopah, due mainly to the construction of the Palo Verde Nuclear Generating Station. Most of the higher population densities occur outside the 5-mile radius around the plant.

CONCLUSIONS

The dBC noise levels of the majority of the measuring locations within the EPZ is less than 50 dBC. In the remaining locations, the 50 dBC noise level was exceeded due to transient noise sources. The primary transient noise sources are distant traffic, aircraft flyover, irrigation pumps, tractors, and engine noise. Since the design should be based on the steady state or average noise levels, it is reasonable to assume by disregarding transient noise sources, a level of 50 dBC for the entire EPZ. Since sound levels are higher near the siren (122 dBC) and decrease by moving away from the siren, we will attempt to place the siren close to potentially noisy areas in our design. All commercially available sirens produce tones in 500 and 1000 Hz octave bands and the majority of the acoustic energy of the siren is concentrated in these bands. Since the measured levels are 24 to 50 dB for the 500 Hz band, 17 to 44 dB for the 1000 Hz bands, the siren tones will be substantially higher than 10 dB for the 500 and 1000 octave bands. These observations support design criteria of 60 dBC sound coverage for the entire populated area of the EPZ.

AMBIENT SOUND LEVEL SURVEY – RESULTS
PALO VERDE NUCLEAR GENERATING STATION

Date/ Time	Position/Location	Description	C-wt	A-wt	Frequency (Hz) 250	500	1K	2K	Background Noise
5/6/81 4:00 pm	1) No. Wintersberg Rd.	Directly West of Palo Verde the land towest of road is hard ground covered w/brush. There is no vegetation east of the road, Other than the power plant, there are no buildings on the land.	45-50	40-45	42	37-40	33	30	-Distant traffic -Wind blowing through brush -Construction noises
5/7/81 8:50 am	2) Intersection of Old U.S. 80 and Salome Road	There is a gas station/store and a mobile home on the NE corner of the intersection. Land to south of U.S. 80 is open fields. Land to north is hard earth with some brush.	40-43	40	44	40	39	35	-Birds -Distant Traffic -Voices -Distant tractor
5/7/81 9:00 am	3) Intersection of Old U.S. 80 and Road #307	Fields are on both sides of the road. No buildings visible.	45-50	40-45	40	42	39	38	-Bird -Water flowing in irrigation ditch -Distant Traffic
5/7/81 9:15 am	4) Old U.S. 80; 1/4 mile west of Palo Verde Rd.	There are houses on both sides of the street. Trees are in the front yards. Both houses are surrounded by fields.	50	47	38	37	35	33	-Birds -Distant Traffic
5/7/81 9:25 am	5) Intersection of U.S. 80 and Wilson Ave.	No buildings on land. There are fields on both sides of U.S. 80	53	47	39	38	37	35	-Birds -Distant Traffic -Distant Aircraft
5/7/81 9:35 am	6) Wilson Ave	South Pacific Railroad crosses Wilson Ave at this point. Irrigation ditch on the east side of road. Fields are on both sides of road.	53	46	47	41	35	33	-Irrigation pump 25' away (50 Hp Motor; noise level 74 dBA at 1 meter) -Distant Traffic

– Table 1a –

ACOUSTIC TECHNOLOGY INC.

AMBIENT SOUND LEVEL SURVEY – RESULTS
PALO VERDE NUCLEAR GENERATING STATION

Date/ Time	Position/Location	Description	C-wt	A-wt	Frequency (Hz) 250	500	1K	2K	Background Noise
5/7/81 9:50 am	7) Intersection of Baseline Road & Wilson Avenue	A cotton gin is under construction on the northeast corner of the intersection. There are fields to the west of Wilson Ave.	61	52	55	45	43	40	-Distant Traffic -Tractors in Construction area.
5/7/81 10:05 am	8) Intersection of Southern Avenue and Wilson Ave.	There is a single family residence on the southwest corner with a lawn and trees in front. Fields are behind the house and on all the other corners.	58	50	54	50	42	37	-2 Tractors (500' away) -Distant Traffic -Birds -Water flowing
5/7/81 10:20 am	9) End of Wilson Avenue	Roosevelt Canal is to the north of Wilson Avenue. It runs east - west and is fronted by a private road. There are fields north of the Canal and to the south.	60	50	52	46	38	32	-Water flowing in canal -Birds -2 airplanes in distance
5/7/81 10:30 am	10) Southern Ave 100 feet west of Palo Verde Rd	Five mobile homes and three aluminum barns are to the north of Southern Avenue. The mobile homes are permanent residences. They are surrounded by bushes and trees. There are fields to the south.	51	45	41	37	34	32	-Birds -Distant Traffic -People's Voices -Hammering
5/7/81 10:50 am	11) Intersection of Brunner Rd. and Southern Ave	Fields are on all sides of roads. A working irrigation pump is to the southeast.	52	43	42	39	33	35	-Irrigation Pump -Water Flowing -Distant Traffic -Birds

– Table 1b –

ACOUSTIC TECHNOLOGY INC.

AMBIENT SOUND LEVEL SURVEY – RESULTS
PALO VERDE NUCLEAR GENERATING STATION

Date/ Time	Position/Location	Description	C-wt	A-wt	Frequency (Hz) 250	500	1K	2K	Background Noise
5/7/81 11:05 am	12) End of Brunner Road	Roosevelt Canal is to north of Road. There are fields to north and south of the Canal.	46	40	40	37	35	33	-Distant Traffic -Water in canal lapping against dike.
5/7/81 11:20 am	13) Palo Verde Road.	Luke Auxiliary Field is to the South (there are five aluminum bldgs here, commercial use). The ground is hard, covered with some brush.	62	49	51	45	30	27	-Distant trucks -Distant Aircraft -Tractor 1500' away -Crane 500' away -Distant Traffic
5/7/81 11:35 am	14) Intersection of Southern Avenue Johnson Rd.	There are six permanent homes to the northwest, and one on the southeast corner. There are fields to the south of Southern Avenue, to the north, the ground is hard w/ some brush.	59	55	51	45	40	41	-Irrigation pump -Water flowing -Birds -Distant Traffic
5/7/81 11:40 am	15) Johnson Road	Three miles north of Southern avenue. There are abandoned buildings to the east of Johnson Rd, with one new home being constructed to the south. The land is fairly hard and covered with brush.	42	32	35	28	21	18	-Distant traffic from Interstate 10
5/7/81 11:50 am	16) Intersection of Johnson Road and Airline (Indian School) Rd	The land is uninhabited and unused. Hard earth covered with brush.	51	41	45	30	20	15	-Distant traffic -Distant aircraft -Insect noise

– Table 1c –

ACOUSTIC TECHNOLOGY INC.

AMBIENT SOUND LEVEL SURVEY – RESULTS
PALO VERDE NUCLEAR GENERATING STATION

Date/ Time	Position/Location	Description	C-wt	A-wt	Frequency (Hz) 250	500	1K	2K	Background Noise
5/7/81 12:00 noon	17) Intersection of Palo Verde Rd and Airline Rd.	There are 3 permanent homes to the north of Airline Road., and 2 to the south. The ground is again fairly hard and covered with brush	53	40	45	32	21	17	-Distant aircraft -Distant traffic -Birds
5/7/81 12:15 pm	18) Intersection of Wickenberg Rd. and Airline Rd.	There is a single family residence to the west, and uninhabited to the east. The land is hard to east and west with some brush for coverage.	48	35	41	35	25	15	-Distant traffic
5/7/81 12:30 pm	19) Airline Drive, 1/3 mile west of Wickenberg Rd.	There are several mobile and permanent homes to the southeast, and a single mobile home to the northwest. The land is unused, flat and dry with some brush covering the surface.	50	40	37	35	25	22	-Birds -Distant traffic -Insect noises
5/7/81 1:30 pm	20) Intersection of Airline Drive and Wintersberg Rd.	Ruth Fisher School is 1000 ft West of this intersection on Airline Road. Trees have been planted on the corners of the intersection Except for the trees, the land to the north and to the east is still hard earth. The earth is softer towards the school.	48	37-40	22	26	20	18	-Distant traffic -Children's Voices -Birds
5/7/81 1:45 pm	21) Wintersberg Rd. 1/2 South of airstrip	There are six mobile homes and one permanent residence to the east. The land west of Wintersberg Rd. is uninhabited. Hard ground and brush covering the surface.	45	34	41	28	17	15	-Distant aircraft -Distant traffic -Birds

ACOUSTIC TECHNOLOGY INC.

AMBIENT SOUND LEVEL SURVEY – RESULTS
PALO VERDE NUCLEAR GENERATING STATION

Date/ Time	Position/Location	Description	C-wt	A-wt	Frequency (Hz) 250	500	1K	2K	Background Noise
5/7/81 1:55 pm	22) Wintersberg Rd. 200' south of Salome Highway	The Red Quail General Store/ Gas Station, a bar and a trailer park are grouped together to the west of Wintersberg Road. The ground is paved. The store relatively busy, with at least two or three shoppers at any time. Both Wintersberg Rd. and Salome Hwy have some traffic on them. The land to the east of Wintersberg is uninhabited, hard, dry, covered with brush.	55	47	50	50	44	43	-Distant traffic -Birds -People Talking -Car Idleing
5/7/81 2:05 pm	23) Intersection of Wintersberg and Ward (Ellis) Road	The land is uninhabited for more than a mile from this point The ground is fairly hard with some brush covering the surface	47	33	31	25	23	20	-Distant traffic -1 Bird
5/7/81 2:20 pm	24) Ward Road 1/2 mile past Desert Farms	The ground is unused, covered with brush. It is fairly soft, dusty earth.	50	40	40	30	28	25	-Distant traffic -Wind blowing brush
5/7/81 2:30 pm	25) 1 mile south of Ward Rd.	3 long buildings and two other buildings to south of road. There was no sign of people, but there were two operable tractors by buildings so the area is probably used. The ground is dry, dusty and covered with brush.	45	30	31	26	21	17	-Distant traffic -Distant aircraft

AMBIENT SOUND LEVEL SURVEY – RESULTS
PALO VERDE NUCLEAR GENERATING STATION

Date/ Time	Position/Location	Description	C-wt	A-wt	Frequency (Hz) 250	500	1K	2K	Background Noise
5/7/81 2:40 pm	26) Southern Pacific Railroad (Labor Camp)	There are some inhabited buildings to the southeast. On the west side of these buildings there is a row of abandoned buildings with an inhabited mobile home at the very end. The railroad runs to the north 6' above grade. There are fields behind the houses, with horses grazing in the fields	45	35	27	35	33	27	-Distant traffic -Birds -Dogs panting -Insects
5/7/81 2:50 pm	27) Hassayampa Cotton Gin	The cotton gin is on the west side of the road. It wasn't in operation but it did not look abandoned. The ground to the west is fairly hard earth. There are two permanent residences to the east. They are surrounded by trees and by their lawn.	46	32	30	27	23	18	-Sprinkler -People's Voices -Wind blowing trees -Birds -Distant traffic
5/7/81 3:00 pm	28) 1/2 mile north of Arlington St.	Lightly residential. There are 3 mobile homes to north and permanent residences to south. There are lawns and fields around the houses while the ground stays fairly hard to the north. Cows are grazing in the fields	44	34	43	38	35	27	-Birds -Children's voices -Distant traffic

– Table 1f –

ACOUSTIC TECHNOLOGY INC.

AMBIENT SOUND LEVEL SURVEY – RESULTS
PALO VERDE NUCLEAR GENERATING STATION

Date/ Time	Position/Location	Description	C-wt	A-wt	Frequency (Hz) 250	500	1K	2K	Background Noise
5/7/81 3:15 pm	29) Hwy 80 between Hassayampa and Arlington	The land is uninhabited. The surface is rocky with some brush as coverage	48	32	45	33	25	17	-Distant traffic -Insect noise -Distant planes -Wind blowing brush
5/7/81 3:30 pm	30) Highway 80	There is a storage bin/elevator to east of road. The ground is fairly hard earth. The land is softer to the west. Cows were grazing on this land. There are three silos to the northwest	60	49	50	42	42-43	41	-Engine noises from conveyor belt -Birds -Distant traffic -Distant trucks
5/7/81 3:45 pm	31) Desert Rose Rd.	The house to the southwest is surrounded by trees. There are fields in every other direction.	47	37	35	33	33	28	-Distant traffic -Birds -Insects
5/7/81 3:55 pm	32) Desert Rose Rd.	Arlington School is to the east of Desert Rose Road. It is surrounded by its lawn and trees. There are permanent homes to the west and to the southwest. These are again surrounded by their lawn.	48	43	43	43	41	36	-Distant traffic -Distant tractors -Children's voices -Birds -Wind blowing through trees
5/7/81 4:10 pm	33) Intersection of Johnson Rd. & Lower River Rd.	There are fields in all directions Farm buildings are 3/4 of a mile away to the west.	45	38	37	35	33	30	-Distant traffic -Birds -Insects -Tractor (1000 ft)

AMBIENT SOUND LEVEL SURVEY – RESULTS
PALO VERDE NUCLEAR GENERATING STATION

Date/ Time	Position/Location	Description	C-wt	A-wt	Frequency (Hz) 250	500	1K	2K	Background Noise
5/7/81 4:20	34) Intersection of Hassayampa & Wickenberg Rd.	The land is unihabited here. A landfill is to the northeast. Ground is fairly hard with some brush covering the surface.	46	35	33	27	20	17	-Insect -Distant aircraft -Distant traffic
5/7/81 4:35 pm	35) Hassayampa-Wickinberg Rd.	Permanent residences on both sides of road. Land is unused. Ground is fairly hard, covered with brush. *125 Hz freq. 47 dB	*47	30	35	27	20	19	-Birds -Distant traffic
5/8/81 7:45 am	36) Intersection of Wickenberg & Van Buren Rds.	No residences can be seen at this point but there are six mailboxes to the east of Wickenberg Road. The ground is fairly hard, with some brush for coverage. *125 Hz 50 dB 63 Hz 48 dB 31.5 Hz 47 dB	*51	35	43	29	18	17	-Distant traffic -Distant plane -Birds
5/8/81 8:00 am	37) Van Buren Rd. 1 mile east of Wickenberg Rd.	There are permanent residences to the Southwest. The land is unused, soft. Some brush on the surface. *125 Hz 40 dB 63 Hz 45 dB 31.5 Hz 46 dB	*49	37	32	28	22	15	-Birds -Distant aircraft -Distant traffic

– Table 1h –

ACOUSTIC TECHNOLOGY INC.

AMBIENT SOUND LEVEL SURVEY – RESULTS
PALO VERDE NUCLEAR GENERATING STATION

Date/ Time	Position/Location	Description	C-wt	A-wt	Frequency (Hz) 250	500	1K	2K	Background Noise
5/8/81 8:20 am	38) Van Buren Rd. 1 ½ mile west of Wickenberg Rd.	There is a house to the south of Van Buren Rd. surrounded by trees. There is a windmill in the backyard. The land to the north is unused and fairly hard earth. *125 Hz 37 dB 63 Hz 45 dB 31.5 Hz 47 dB	*51	38	30	24	20	17	-Distant traffic -Distant aircraft -Birds -Noise from windmill
5/8/81 8:30 am	39) Van Buren Rd. 1½ miles east of Wintersberg Rd.	The land is uninhabited. Hard ground covered with brush	48	33	43	28	17	15	-Distant traffic -Distant aircraft -Birds
5/8/81 9:10 am	40) Van Buren Rd. 3 miles west of Wintersberg Rd	There are grain bins off to the northeast. Fields are on both sides of the road.	*49	35	36	25	23	20	*Distant aircraft for C-weighted reading -Tractor operating 1800' away -Birds -Distant traffic
5/8/81 9:20 am	41) 1½ miles south of Tonopah	Fields are to the east of the road. There are mobile homes and two permanent homes to the west. The land is unused around the buildings but is still soft.	61	44	45	36	25	23	-Birds -Distant traffic -Distant Aircraft

– Table 1i –

ACOUSTIC TECHNOLOGY INC.

AMBIENT SOUND LEVEL SURVEY – RESULTS
PALO VERDE NUCLEAR GENERATING STATION

Date/ Time	Position/Location	Description	C-wt	A-wt	Frequency (Hz) 250	500	1K	2K	Background Noise
5/8/81 9:35 am	42) Palo Verde Trailer Park	There are 180 spaces in the trailer park, and an estimated three people/trailer. To the east of the park there is a 500 unit motel. The peak period of occupancy is September through April, however they operate at 90% year round. The complex covers seven acres. The ground is paved. *125 Hz 47 dB 63 Hz 52 dB 31.5 Hz 50 dB	*54	35	37	33	25	19	-Distant traffic -Birds -Voices -Distant tractor
5/8/81 10:30 am	43) Airline (Indian School) Rd. 1½ miles west of Tonopah	The ground is hard earth with some brush. The land is a cattle range.	43	30	38	31	23	15	-Distant traffic -Distant plane -Birds
5/8/81 10:45 am	44) Joleena Farms	There are approximately twenty mobile homes at Joleena Farms grouped together along a service road. There are fields to the south of the homes; brush to the north.	48	41	39	35	25	25	-Voices -Birds -Television -Distant traffic

– Table 1j –

ACOUSTIC TECHNOLOGY INC.

AMBIENT SOUND LEVEL SURVEY – RESULTS
PALO VERDE NUCLEAR GENERATING STATION

Date/ Time	Position/Location	Description	C-wt	A-wt	Frequency (Hz) 250	500	1K	2K	Background Noise
5/8/81 11:20 am	45) Airline Rd. 2 miles west of Wintersburg Rd.	Interstate 10 cuts across the EPZ 1500' to the south. There are fields from this point south to the highway and brush to the north.	53	41	45	40	35	20	-Distant traffic from Interstate 10 -Birds
5/8/81 11:30 am	46) 1½ east of the intersection of Salome Hwy and Wintersburg Rd.	There are five mobile homes to the south. The land around the homes is unused, but is fairly soft. There is harder ground and brush to the north.	44	31	31	25	21	17	-Distant traffic -Distant plane -Birds
5/8/81 11:45 am	47) 1 mile west of Hassayampa Road	There is one mobile home to the north of the road, and several permanent mobile homes 3/4 miles to the south. There is brush covering fairly soft ground both to the north and to the south.	51	39	37	33	17	15	-Distant aircraft -Distant traffic -Birds -Wind blowing leaves
5/8/81 12:00 noon	48) 2 miles north of Salome Hwy	Five mobile homes are to the south of the street. The land around the homes is soft, with fields behind the homes, the land to the north is unused; hard earth covered with brush.	49	32	35	30	22	20	-Distant traffic -Distant plane -Birds
5/8/81 12:40 pm	49) Buckeye-Salome Highway	There is a permanent residence 500' away to the northwest. Trees surround this house. Otherwise the land is unused, fairly hard ground with some brush covering surface	48	35	37	35	25	17	-Distant traffic -Wind blowing leaves

– Table 1k –

ACOUSTIC TECHNOLOGY INC.

AMBIENT SOUND LEVEL SURVEY – RESULTS
PALO VERDE NUCLEAR GENERATING STATION

Date/ Time	Position/Location	Description	C-wt	A-wt	Frequency (Hz) 250	500	1K	2K	Background Noise
5/8/81 12:50 pm	50) Salome Hwy	The land is flat and unihabited. Fairly soft ground with some brush.	48	35-37	40	35	25	18	-Distant traffic -Distant trucks
5/8/81 1:05 pm	51) Ward Rd.	There are two permanent homes to the north of Ward Rd. and three to the south. The land is unused, fairly hard with some brush for coverage.	47	33	35	29	22	17	-Distant train -Metal Windchimes -Wind blowing leaves -Distant radio -Distant traffic
5/8/81 2:30 pm	52) 1 mile north of Ward Rd.	This point is inside the property lines of Palo Verde Station. The ground is completely bare, hard earth. *125 Hz 59 dB 63 Hz 53 dB 31.5 Hz 55 dB	*58-60	42	40	37	30	19	-4 trucks operating 1200 ft away

– Table 11 –

ACOUSTIC TECHNOLOGY INC.

TABLE 2

METEOROLOGICAL CONDITIONS

PALO VERDE NUCLEAR GENERATING STATION

Wednesday, May 6, 1981

- Temperature	high 92°F
	low 65°F
- Relative Humidity	24%
- Wind	from the east, 9 mph
- sky	clear

Thursday, May 7, 1981

- Temperature	high 94°F
	low 64°F
- Relative Humidity	28%
- Wind	from the east, 6 mph
- sky	clear

Friday, May 8, 1981

- Temperature	high 94°F
	low 66°F
- Relative Humidity	31%
- Wind	from the east, 3 mph
- sky	clear

APPENDIX 2

COMPUTER PRINT-OUTS
OF SOUND PRESSURE LEVELS

Siren Height 50 feet
Temperature 70°F
Relative Humidity 36%

CONTENTS

ALTERNATIVE 1

AND

ALTERNATIVE 1B

SOUND PRESSURE LEVELS

COMPUTER PRINT-OUT

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ1

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	88.	79.	71.	65.	60.	55.	49.
15	100.	87.	78.	71.	64.	60.	55.	51.
30	100.	87.	78.	70.	65.	61.	57.	53.
45	100.	87.	78.	71.	66.	62.	58.	54.
60	100.	87.	78.	71.	66.	62.	58.	54.
75	100.	87.	78.	70.	65.	61.	57.	53.
90	100.	87.	78.	70.	65.	60.	56.	52.
105	100.	87.	78.	71.	65.	60.	55.	51.
120	100.	88.	79.	72.	65.	60.	55.	49.
135	100.	88.	80.	73.	67.	61.	56.	51.
150	100.	88.	80.	74.	68.	62.	58.	53.
165	100.	89.	80.	74.	68.	63.	58.	54.
180	100.	90.	81.	74.	69.	64.	59.	55.
195	100.	90.	82.	75.	70.	64.	60.	55.
210	100.	90.	82.	75.	70.	65.	60.	56.
225	100.	90.	82.	75.	70.	65.	61.	56.
240	100.	90.	82.	75.	70.	65.	61.	56.
255	100.	90.	82.	75.	70.	65.	61.	57.
270	100.	90.	82.	75.	70.	65.	61.	56.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	81.	75.	69.	64.	60.	55.
315	100.	89.	81.	74.	68.	64.	59.	54.
330	100.	89.	80.	74.	68.	62.	58.	54.
345	100.	88.	80.	73.	67.	61.	56.	51.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ2

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	89.	81.	74.	68.	63.	58.	53.
15	100.	89.	81.	73.	67.	62.	56.	52.
30	100.	89.	80.	73.	67.	61.	56.	50.
45	100.	89.	80.	72.	67.	60.	54.	50.
60	100.	89.	80.	72.	67.	60.	54.	50.
75	100.	89.	80.	72.	66.	60.	54.	50.
90	100.	89.	80.	72.	67.	60.	54.	50.
105	100.	89.	80.	72.	67.	60.	56.	50.
120	100.	89.	80.	73.	67.	61.	56.	51.
135	100.	89.	81.	74.	67.	61.	56.	52.
150	100.	89.	81.	74.	68.	63.	56.	52.
165	100.	89.	81.	74.	68.	63.	58.	53.
180	100.	90.	81.	75.	69.	63.	58.	53.
195	100.	91.	82.	75.	69.	64.	59.	55.
210	100.	91.	82.	75.	69.	65.	60.	55.
225	100.	90.	82.	75.	70.	65.	60.	56.
240	100.	90.	82.	75.	70.	65.	60.	56.
255	100.	91.	82.	75.	70.	65.	60.	56.
270	100.	91.	82.	76.	70.	65.	60.	56.
285	100.	91.	82.	76.	70.	65.	60.	56.
300	100.	91.	82.	76.	70.	65.	60.	56.
315	100.	91.	82.	75.	70.	65.	60.	56.
330	100.	90.	82.	75.	69.	64.	60.	55.
345	100.	90.	81.	75.	69.	63.	59.	54.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ3

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3			ETC		
0	100.	90.	80.	74.	68.	62.	56.	51.
15	100.	89.	80.	73.	67.	61.	55.	50.
30	100.	89.	80.	73.	66.	30.	54.	49.
45	100.	89.	80.	72.	65.	59.	54.	52.
60	100.	88.	79.	72.	65.	59.	55.	51.
75	100.	88.	79.	71.	65.	59.	55.	51.
90	100.	88.	79.	72.	65.	60.	54.	50.
105	100.	89.	80.	72.	66.	60.	54.	50.
120	100.	89.	80.	73.	66.	61.	55.	50.
135	100.	89.	80.	74.	67.	62.	56.	51.
150	100.	90.	81.	74.	68.	62.	58.	53.
165	100.	90.	81.	74.	68.	63.	58.	54.
180	100.	90.	82.	75.	69.	64.	59.	54.
195	100.	90.	82.	75.	70.	64.	59.	55.
210	100.	90.	82.	75.	70.	65.	60.	55.
225	100.	90.	82.	76.	70.	65.	60.	56.
240	100.	91.	82.	76.	71.	65.	61.	56.
255	100.	91.	82.	76.	71.	65.	61.	56.
270	100.	91.	82.	76.	71.	65.	61.	57.
285	100.	90.	82.	76.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	55.	60.	56.
315	100.	90.	82.	75.	70.	64.	59.	55.
330	100.	90.	81.	75.	69.	64.	59.	54.
345	100.	90.	81.	74.	68.	62.	58.	53.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ4

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3			ETC		
0	100.	90.	81.	75.	69.	63.	59.	54.
15	100.	89.	81.	74.	68.	63.	58.	53.
30	100.	89.	81.	74.	67.	62.	57.	53.
45	100.	89.	80.	73.	67.	62.	56.	52.
60	100.	89.	80.	73.	66.	61.	56.	51.
75	100.	89.	80.	72.	66.	60.	55.	51.
90	100.	89.	80.	72.	66.	60.	55.	50.
105	100.	89.	80.	72.	66.	60.	55.	50.
120	100.	89.	80.	73.	66.	61.	56.	51.
135	100.	89.	81.	73.	67.	61.	56.	52.
150	100.	89.	81.	74.	67.	61.	56.	52.
165	100.	90.	81.	74.	68.	63.	58.	53.
180	100.	91.	81.	74.	68.	63.	59.	55.
195	100.	91.	81.	75.	69.	63.	59.	56.
210	100.	91.	81.	75.	69.	64.	59.	56.
225	100.	91.	82.	75.	69.	65.	60.	56.
240	100.	91.	82.	75.	70.	65.	60.	56.
255	100.	91.	83.	76.	70.	65.	61.	57.
270	100.	91.	83.	76.	70.	65.	61.	57.
285	100.	91.	83.	76.	70.	65.	61.	56.
300	100.	91.	83.	76.	70.	65.	60.	56.
315	100.	91.	82.	76.	70.	65.	60.	56.
330	100.	91.	82.	75.	69.	65.	60.	55.
345	100.	90.	82.	75.	69.	64.	59.	55.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN 4B

Angle θ From East (degrees)	1000	2000	3000	4000	5000	6000	7000	8000
0	100.	90.	81.	74.	68.	63.	58.	54.
15	100.	90.	81.	74.	68.	62.	58.	53.
30	100.	90.	80.	74.	67.	62.	57.	52.
45	100.	90.	80.	74.	67.	62.	57.	51.
60	100.	90.	80.	73.	67.	61.	55.	50.
75	100.	89.	80.	73.	66.	60.	55.	49.
90	100.	89.	80.	72.	66.	60.	55.	49.
105	100.	90.	80.	73.	66.	60.	55.	49.
120	100.	89.	80.	73.	66.	61.	55.	49.
135	100.	89.	80.	73.	66.	61.	55.	50.
150	100.	89.	80.	73.	67.	62.	56.	52.
165	100.	88.	80.	74.	67.	62.	57.	54.
180	100.	89.	80.	74.	68.	63.	59.	55.
195	100.	90.	80.	74.	69.	64.	59.	55.
210	100.	90.	81.	74.	69.	64.	60.	56.
225	100.	90.	81.	75.	69.	64.	60.	56.
240	100.	91.	82.	75.	70.	65.	60.	53.
255	100.	90.	82.	75.	70.	64.	60.	56.
270	100.	90.	82.	75.	69.	64.	59.	55.
285	100.	90.	82.	75.	69.	64.	59.	55.
300	100.	90.	82.	75.	70.	64.	60.	56.
315	100.	90.	82.	75.	69.	64.	59.	55.
330	100.	90.	82.	75.	69.	64.	59.	55.
345	100.	90.	82.	75.	69.	64.	59.	54.

Distance From Siren (feet)

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ5

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	90.	81.	74.	68.	63.	58.	54.
15	100.	90.	80.	74.	68.	62.	57.	52.
30	100.	89.	80.	73.	67.	61.	55.	50.
45	100.	89.	80.	73.	66.	60.	55.	49.
60	100.	89.	80.	72.	66.	60.	54.	50.
75	100.	89.	80.	72.	66.	60.	54.	50.
90	100.	89.	80.	72.	66.	60.	54.	50.
105	100.	89.	80.	73.	68.	60.	55.	49.
120	100.	89.	80.	73.	66.	61.	55.	50.
135	100.	89.	80.	73.	67.	61.	56.	50.
150	100.	89.	80.	74.	67.	62.	57.	52.
165	100.	90.	81.	74.	68.	62.	58.	53.
180	100.	90.	81.	74.	68.	63.	58.	54.
195	100.	90.	82.	75.	69.	64.	59.	54.
210	100.	90.	82.	75.	70.	64.	59.	55.
225	100.	90.	82.	75.	70.	65.	60.	55.
240	100.	90.	82.	75.	70.	65.	60.	56.
255	100.	91.	82.	76.	70.	65.	60.	56.
270	100.	90.	82.	76.	70.	65.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	65.	60.	56.
315	100.	90.	82.	75.	70.	65.	60.	56.
330	100.	90.	82.	75.	70.	64.	59.	55.
345	100.	90.	81.	74.	69.	64.	59.	54.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ6

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	89.	80.	73.	68.	62.	58.	53.
15	100.	88.	80.	73.	67.	62.	57.	52.
30	100.	88.	80.	73.	67.	61.	56.	51.
45	100.	88.	80.	73.	67.	61.	55.	50.
60	100.	89.	80.	73.	66.	60.	54.	49.
75	100.	88.	79.	71.	65.	60.	55.	49.
90	100.	88.	79.	71.	65.	59.	55.	50.
105	100.	88.	79.	72.	65.	60.	55.	50.
120	100.	88.	80.	73.	66.	60.	55.	50.
135	100.	89.	80.	74.	68.	62.	58.	53.
150	100.	90.	81.	74.	68.	63.	58.	53.
165	100.	90.	81.	74.	68.	63.	58.	54.
180	100.	90.	82.	75.	69.	64.	58.	54.
195	100.	90.	82.	75.	70.	64.	58.	54.
210	100.	90.	82.	75.	70.	64.	59.	54.
225	100.	90.	82.	75.	70.	65.	59.	55.
240	100.	90.	82.	75.	70.	65.	60.	56.
255	100.	90.	82.	75.	70.	65.	60.	56.
270	100.	90.	82.	75.	70.	65.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	64.	60.	55.
315	100.	90.	81.	74.	69.	64.	59.	55.
330	100.	90.	81.	74.	68.	63.	58.	54.
345	100.	89.	80.	74.	68.	63.	58.	54.

Distance From Siren (feet): 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN 6B

Angle θ From East (degrees)	1000	2000	3000	4000	5000	6000	7000	8000
0	100.	90.	81.	74.	69.	64.	59.	54.
15	100.	90.	81.	74.	68.	63.	58.	54.
30	100.	89.	81.	74.	67.	62.	57.	52.
45	100.	88.	80.	73.	66.	60.	55.	50.
60	100.	88.	80.	73.	67.	62.	56.	51.
75	100.	89.	80.	73.	67.	61.	56.	50.
90	100.	88.	80.	73.	66.	60.	55.	50.
105	100.	89.	80.	72.	66.	60.	55.	50.
120	100.	89.	80.	73.	66.	61.	55.	50.
135	100.	89.	80.	73.	67.	62.	57.	52.
150	100.	89.	81.	74.	68.	63.	58	53.
165	100.	90.	81.	74.	68.	63.	59.	54.
180	100.	90.	82.	75.	70.	64.	59.	55.
195	100.	90.	82.	75.	70.	64.	59.	55.
210	100.	91.	82.	76.	70.	65.	60.	56.
225	100.	91.	82.	76.	70.	65.	60.	56.
240	100.	90.	82.	76.	71.	65.	60.	56.
255	100.	90.	82.	76.	71.	65.	61.	56.
270	100.	90.	82.	75.	70.	65.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	65.	60.	56.
315	100.	90.	82.	75.	70.	65.	60.	56.
330	100.	90.	82.	75.	70.	64.	59.	55.
345	100.	90.	82.	75.	69.	64.	59.	55.

Distance From Siren (feet)

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ7

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	90.	82.	75.	69.	64.	59.	55.
15	100.	90.	81.	74.	68.	63.	58.	54.
30	100.	90.	81.	74.	68.	62.	58.	53.
45	100.	90.	80.	74.	68.	62.	57.	51.
60	100.	89.	80.	73.	67.	61.	56.	50.
75	100.	89.	80.	73.	67.	61.	56.	50.
90	100.	89.	80.	73.	67.	61.	56.	50.
105	100.	89.	80.	73.	67.	61.	56.	50.
120	100.	89.	80.	73.	67.	61.	56.	50.
135	100.	90.	80.	74.	67.	62.	56.	51.
150	100.	90.	81.	74.	68.	62.	56.	51.
165	100.	90.	81.	74.	68.	62.	58.	52.
180	100.	90.	81.	74.	68.	63.	58.	53.
195	100.	90.	82.	75.	69.	64.	59.	54.
210	100.	90.	82.	75.	69.	64.	59.	55.
225	100.	90.	82.	75.	70.	65.	60.	55.
240	100.	90.	82.	75.	70.	65.	60.	56.
255	100.	90.	82.	75.	70.	65.	60.	56.
270	100.	90.	82.	76.	70.	65.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	65.	60.	56.
315	100.	90.	82.	75.	70.	65.	60.	56.
330	100.	90.	82.	75.	70.	65.	60.	56.
345	100.	90.	82.	75.	70.	64.	59.	55.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ8

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	90.	81.	74.	68.	62.	58.	53.
15	100.	90.	81.	74.	68.	62.	57.	52.
30	100.	90.	80.	74.	67.	61.	56.	51.
45	100.	90.	80.	74.	67.	61.	55.	50.
60	100.	89.	80.	74.	67.	61.	55.	49.
75	100.	89.	80.	73.	67.	61.	55.	50.
90	100.	89.	80.	73.	66.	60.	55.	50.
105	100.	89.	80.	73.	67.	61.	55.	50.
120	100.	89.	80.	74.	67.	62.	56.	50.
135	100.	89.	80.	73.	66.	60.	55.	49.
150	100.	88.	80.	72.	65.	59.	55.	50.
165	100.	87.	78.	71.	67.	62.	58.	53.
180	100.	86.	78.	74.	71.	68.	65.	40.
195	100.	87.	77.	74.	70.	67.	62.	42.
210	100.	88.	78.	71.	68.	63.	58.	44.
225	100.	89.	79.	70.	65.	55.	55.	46.
240	100.	90.	80.	74.	66.	62.	57.	52.
255	100.	90.	81.	75.	65.	63.	58.	54.
270	100.	90.	82.	75.	70.	64.	60.	55.
285	100.	90.	82.	75.	70.	64.	60.	55.
300	100.	90.	82.	75.	70.	64.	60.	55.
315	100.	90.	82.	75.	70.	64.	59.	55.
330	100.	90.	82.	75.	69.	64.	59.	55.
345	100.	90.	82.	75.	68.	63.	58.	54.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN 8B

Angle θ From East (degrees)	1000	2000	3000	4000	5000	6000	7000	8000
0	100.	90.	81.	74.	69.	64.	59.	54.
15	100.	90.	81.	74.	68.	63.	58.	54.
30	100.	90.	81.	74.	68.	62.	57.	52.
45	100.	90.	80.	74.	67.	62.	57.	51.
60	100.	89.	80.	74.	68.	62.	57.	50.
75	100.	90.	80.	74.	67.	62.	57.	51.
90	100.	89.	80.	74.	67.	62.	56.	51.
105	100.	90.	80.	73.	67.	62.	57.	51.
120	100.	89.	80.	73.	65.	60.	55.	49.
135	100.	89.	80.	71.	65.	62.	59.	55.
150	100.	89.	80.	71.	67.	63.	60.	59.
165	100.	89.	78.	71.	66.	62.	59.	55.
180	100.	90.	79.	71.	65.	60.	55.	50.
195	100.	90.	80.	71.	65.	60.	55.	50.
210	100.	90.	81.	71.	65.	60.	55.	44.
225	100.	90.	82.	75.	70.	62.	57.	52.
240	100.	90.	82.	75.	70.	65.	60.	56.
255	100.	90.	82.	75.	70.	65.	60.	58.
270	100.	90.	82.	75.	70.	65.	60.	58.
285	100.	90.	82.	75.	70.	64.	60.	56.
300	100.	90.	82.	75.	70.	64.	60.	56.
315	100.	90.	82.	75.	70.	64.	60.	55.
330	100.	90.	82.	75.	70.	64.	59.	55.
345	100.	90.	82.	75.	69.	64.	59.	55.

Distance From Siren (feet)

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ9

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	90.	81.	74.	69.	63.	58.	54.
15	100.	90.	80.	74.	68.	62.	58.	53.
30	100.	89.	80.	73.	67.	62.	56.	51.
45	100.	89.	80.	73.	67.	61.	56.	50.
60	100.	89.	80.	73.	66.	60.	55.	49.
75	100.	89.	80.	72.	66.	60.	54.	49.
90	100.	89.	80.	72.	65.	60.	54.	49.
105	100.	89.	80.	72.	66.	60.	54.	49.
120	100.	89.	80.	72.	66.	60.	55.	49.
135	100.	89.	80.	73.	66.	61.	56.	51.
150	100.	90.	80.	73.	67.	62.	57.	52.
165	100.	90.	81.	74.	68.	62.	58.	52.
180	100.	90.	81.	74.	68.	62.	58.	53.
195	100.	90.	81.	74.	68.	63.	58.	54.
210	100.	90.	82.	75.	69.	64.	59.	54.
225	100.	90.	82.	75.	69.	64.	59.	55.
240	100.	90.	82.	75.	70.	64.	60.	55.
255	100.	90.	82.	75.	70.	64.	59.	55.
270	100.	90.	82.	75.	70.	64.	59.	54.
285	100.	90.	82.	75.	69.	64.	59.	54.
300	100.	90.	82.	75.	69.	64.	59.	54.
315	100.	90.	82.	75.	69.	64.	59.	54.
330	100.	90.	82.	75.	69.	64.	59.	54.
345	100.	90.	82.	75.	69.	64.	59.	54.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ10'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3			ETC		
0	100.	90.	83.	76.	71.	65.	60.	55.
15	100.	90.	83.	75.	70.	65.	59.	55.
30	100.	90.	82.	75.	70.	64.	59.	54.
45	100.	90.	81.	75.	70.	64.	59.	54.
60	100.	90.	81.	75.	70.	64.	59.	54.
75	100.	90.	81.	74.	68.	63.	58.	54.
90	100.	90.	80.	73.	67.	62.	57.	52.
105	100.	89.	80.	73.	67.	61.	55.	50.
120	100.	89.	80.	73.	67.	62.	57.	52.
135	100.	89.	80.	74.	68.	62.	58.	53.
150	100.	89.	80.	74.	68.	63.	58.	53.
165	100.	90.	81.	74.	69.	64.	59.	54.
180	100.	90.	81.	75.	70.	64.	59.	54.
195	100.	90.	82.	75.	70.	64.	59.	55.
210	100.	90.	82.	75.	70.	65.	60.	55.
225	100.	90.	82.	75.	70.	64.	60.	56.
240	100.	90.	82.	75.	70.	65.	60.	56.
255	100.	90.	82.	75.	70.	64.	59.	55.
270	100.	90.	81.	74.	70.	64.	58.	51.
285	100.	90.	82.	75.	70.	64.	59.	52.
300	100.	90.	82.	75.	70.	65.	59.	55.
315	100.	90.	82.	75.	70.	65.	60.	56.
330	100.	90.	82.	76.	71.	66.	61.	57.
345	100.	91.	83.	76.	71.	65.	60.	56.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ11

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	90.	82.	75.	65.	59.	54.	49.
15	100.	90.	82.	75.	66.	59.	56.	53.
30	100.	90.	82.	75.	67.	59.	56.	53.
45	100.	90.	81.	74.	68.	62.	54.	50.
60	100.	89.	80.	74.	68.	62.	56.	49.
75	100.	88.	80.	74.	68.	61.	55.	50.
90	100.	89.	79.	72.	66.	60.	54.	50.
105	100.	89.	80.	73.	66.	61.	55.	49.
120	100.	89.	80.	73.	66.	61.	56.	50.
135	100.	89.	80.	73.	66.	61.	56.	50.
150	100.	91.	85.	61.	61.	52.	30.	26.
165	100.	86.	77.	66.	61.	56.	56.	51.
180	100.	89.	80.	74.	68.	62.	58.	52.
195	100.	89.	80.	74.	68.	62.	58.	53.
210	100.	89.	80.	74.	68.	63.	58.	54.
225	100.	89.	80.	74.	69.	64.	59.	54.
240	100.	89.	81.	75.	69.	64.	60.	55.
255	100.	89.	81.	75.	70.	64.	59.	55.
270	100.	90.	81.	75.	70.	65.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	65.	60.	56.
315	100.	90.	82.	75.	70.	65.	60.	56.
330	100.	90.	82.	75.	70.	65.	58.	53.
345	100.	90.	82.	75.	69.	62.	57.	52.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ12'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1		2		3		ETC	
0	100.	90.	83.	76.	71.	65.	60.	56.
15	100.	89.	80.	69.	71.	65.	60.	55.
30	100.	88.	80.	74.	68.	64.	59.	55.
45	100.	88.	80.	73.	68.	63.	59.	54.
60	100.	88.	79.	73.	67.	61.	56.	52.
75	100.	89.	79.	72.	65.	59.	56.	52.
90	100.	89.	80.	72.	65.	61.	58.	56.
105	100.	90.	79.	71.	64.	61.	58.	54.
120	100.	90.	80.	72.	65.	59.	55.	51.
135	100.	89.	80.	73.	67.	61.	55.	50.
150	100.	89.	80.	74.	68.	64.	59.	55.
165	100.	90.	81.	74.	68.	59.	60.	55.
180	100.	91.	81.	71.	71.	65.	60.	56.
195	100.	91.	84.	77.	71.	66.	61.	57.
210	100.	91.	84.	77.	71.	66.	61.	57.
225	100.	91.	84.	77.	71.	66.	62.	57.
240	100.	91.	84.	77.	71.	66.	61.	57.
255	100.	91.	84.	77.	71.	66.	61.	57.
270	100.	91.	84.	77.	66.	46.	45.	43.
285	100.	91.	84.	77.	71.	41.	38.	35.
300	100.	91.	84.	77.	65.	71.	36.	30.
315	100.	91.	84.	77.	71.	66.	61.	57.
330	100.	91.	84.	77.	71.	66.	61.	57.
345	100.	91.	84.	77.	71.	66.	61.	56.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN 12B

Angle θ From East (degrees)	1000	2000	3000	4000	5000	6000	7000	8000
0	100.	90.	81.	74.	68.	63.	58.	54.
15	100.	90.	81.	74.	68.	63.	58.	53.
30	100.	90.	81.	74.	68.	62.	58.	52.
45	100.	90.	80.	74.	67.	62.	57.	52.
60	100.	90.	80.	71.	66.	62.	57.	52.
75	100.	90.	80.	71.	59.	61.	57.	53.
90	100.	90.	81.	73.	65.	61.	58.	54.
105	100.	90.	80.	73.	66.	61.	57.	54.
120	100.	90.	80.	74.	65.	60.	55.	50.
135	100.	90.	81.	74.	67.	62.	57.	52.
150	100.	90.	81.	74.	68.	63.	58.	52.
165	100.	90.	81.	74.	68.	63.	58.	53.
180	100.	90.	81.	74.	68.	63.	58.	54.
195	100.	90.	81.	74.	68.	63.	58.	54.
210	100.	90.	81.	74.	68.	63.	58.	54.
225	100.	90.	81.	74.	68.	63.	58.	54.
240	100.	90.	81.	74.	68.	63.	58.	54.
255	100.	90.	81.	74.	68.	63.	58.	54.
270	100.	90.	80.	74.	69.	63.	58.	54.
285	100.	89.	80.	73.	67.	62.	57.	50.
300	100.	88.	78.	71.	65.	60.	55.	52.
315	100.	86.	72.	71.	65.	60.	57.	54.
330	100.	91.	61.	60.	48.	43.	39.	45.
345	100.	90.	85.	80.	44.	39.	34.	28.

Distance From Siren (feet)

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ13

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3			ETC		
0	100.	90.	82.	75.	69.	63.	58.	53.
15	100.	90.	81.	74.	68.	63.	58.	54.
30	100.	90.	81.	74.	68.	63.	58.	53.
45	100.	90.	81.	74.	68.	62.	58.	53.
60	100.	90.	81.	74.	68.	62.	58.	52.
75	100.	90.	81.	74.	68.	62.	57.	51.
90	100.	90.	81.	74.	68.	62.	56.	50.
105	100.	90.	80.	74.	67.	60.	54.	49.
120	100.	90.	80.	74.	66.	61.	55.	50.
135	100.	89.	80.	74.	66.	61.	54.	49.
150	100.	89.	80.	72.	66.	60.	54.	49.
165	100.	89.	80.	73.	66.	61.	55.	49.
180	100.	89.	80.	74.	66.	61.	55.	49.
195	100.	90.	80.	74.	67.	61.	56.	50.
210	100.	90.	80.	74.	68.	62.	56.	51.
225	100.	90.	81.	74.	68.	62.	58.	51.
240	100.	90.	81.	74.	68.	62.	58.	53.
255	100.	90.	81.	74.	68.	63.	58.	53.
270	100.	90.	81.	74.	68.	63.	58.	54.
285	100.	90.	81.	74.	69.	64.	59.	54.
300	100.	90.	81.	75.	69.	64.	59.	54.
315	100.	90.	82.	75.	69.	64.	59.	54.
330	100.	90.	82.	75.	69.	64.	59.	54.
345	100.	90.	82.	75.	69.	64.	58.	54.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ14'

SOUND PRESSURE LEVELS

Angle θ From East (degrees)	RADIUS 1	2	3	ETC				
0	100.	90.	82.	75.	69.	64.	59.	55.
15	100.	90.	81.	75.	69.	64.	59.	55.
30	100.	90.	81.	74.	69.	64.	59.	55.
45	100.	90.	81.	74.	69.	64.	59.	55.
60	100.	90.	81.	74.	68.	63.	59.	54.
75	100.	90.	81.	74.	68.	63.	58.	54.
90	100.	90.	80.	74.	68.	63.	58.	52.
105	100.	90.	80.	74.	67.	62.	57.	51.
120	100.	90.	81.	74.	68.	62.	57.	52.
135	100.	90.	81.	74.	68.	62.	57.	52.
150	100.	90.	80.	74.	67.	62.	57.	52.
165	100.	90.	80.	74.	67.	62.	57.	50.
180	100.	90.	80.	73.	67.	61.	55.	50.
195	100.	90.	80.	73.	67.	62.	57.	51.
210	100.	89.	80.	73.	67.	62.	56.	51.
225	100.	89.	80.	73.	67.	61.	56.	50.
240	100.	90.	80.	74.	67.	62.	56.	50.
255	100.	90.	81.	74.	68.	62.	57.	51.
270	100.	90.	81.	74.	68.	63.	58.	52.
285	100.	90.	81.	74.	68.	63.	58.	52.
300	100.	90.	82.	75.	69.	64.	59.	55.
315	100.	90.	82.	75.	69.	64.	59.	55.
330	100.	90.	82.	75.	70.	64.	59.	55.
345	100.	90.	82.	75.	70.	64.	59.	55.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ15

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	89.	80.	75.	70.	65.	60.	55.
15	100.	89.	80.	75.	70.	64.	59.	55.
30	100.	89.	80.	74.	69.	64.	59.	54.
45	100.	89.	80.	74.	68.	64.	59.	54.
60	100.	89.	80.	72.	67.	62.	58.	54.
75	100.	88.	80.	72.	66.	61.	57.	52.
90	100.	89.	80.	72.	66.	60.	54.	49.
105	100.	89.	80.	72.	66.	60.	54.	49.
120	100.	89.	80.	72.	66.	61.	55.	49.
135	100.	89.	80.	73.	66.	61.	55.	51.
150	100.	89.	80.	73.	66.	61.	56.	51.
165	100.	89.	80.	73.	67.	61.	57.	53.
180	100.	89.	80.	74.	67.	62.	58.	53.
195	100.	90.	81.	74.	68.	62.	58.	54.
210	100.	90.	82.	74.	68.	63.	59.	54.
225	100.	90.	82.	75.	69.	64.	59.	54.
240	100.	90.	82.	75.	70.	64.	60.	55.
255	100.	90.	82.	75.	70.	65.	60.	56.
270	100.	90.	82.	75.	70.	65.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	82.	75.	69.	64.	59.	55.
315	100.	90.	82.	75.	69.	64.	60.	56.
330	100.	90.	81.	75.	69.	65.	60.	56.
345	100.	89.	81.	75.	70.	65.	60.	56.
	1000	2000	3000	4000	5000	6000	7000	8000

Distance From Siren (feet)

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ16'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3			ETC		
0	100.	90.	81.	73.	67.	62.	55.	50.
15	100.	90.	81.	71.	65.	60.	55.	50.
30	100.	90.	81.	71.	65.	60.	55.	50.
45	100.	90.	81.	73.	65.	60.	54.	50.
60	100.	90.	81.	74.	67.	60.	54.	52.
75	100.	90.	81.	74.	68.	62.	57.	51.
90	100.	89.	80.	73.	67.	61.	55.	50.
105	100.	89.	80.	72.	66.	61.	55.	49.
120	100.	88.	79.	71.	65.	59.	55.	50.
135	100.	88.	78.	71.	64.	60.	55.	51.
150	100.	88.	78.	71.	64.	60.	55.	50.
165	100.	87.	78.	71.	65.	59.	54.	50.
180	100.	88.	79.	71.	65.	60.	55.	51.
195	100.	88.	80.	72.	65.	60.	56.	51.
210	100.	88.	80.	73.	66.	61.	56.	52.
225	100.	89.	80.	73.	67.	62.	57.	53.
240	100.	90.	81.	74.	67.	62.	58.	54.
255	100.	90.	81.	74.	68.	63.	58.	54.
270	100.	90.	82.	75.	70.	64.	59.	54.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	65.	60.	56.
315	100.	90.	82.	75.	70.	63.	59.	54.
330	100.	90.	82.	75.	68.	63.	58.	54.
345	100.	90.	82.	74.	68.	63.	57.	51.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ17'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3			ETC		
0	100.	89.	81.	74.	68.	62.	57.	54.
15	100.	89.	80.	73.	67.	62.	57.	52.
30	100.	88.	80.	73.	67.	61.	56.	51.
45	100.	88.	80.	73.	67.	61.	55.	50.
60	100.	88.	80.	73.	66.	60.	55.	49.
75	100.	88.	80.	73.	67.	61.	55.	50.
90	100.	89.	80.	73.	67.	60.	55.	50.
105	100.	89.	80.	73.	65.	60.	55.	49.
120	100.	89.	80.	72.	66.	60.	55.	50.
135	100.	88.	80.	72.	66.	61.	56.	51.
150	100.	88.	80.	73.	67.	62.	57.	51.
165	100.	88.	80.	73.	68.	62.	57.	53.
180	100.	89.	80.	74.	68.	62.	58.	54.
195	100.	90.	80.	74.	68.	63.	58.	54.
210	100.	90.	81.	74.	69.	64.	58.	55.
225	100.	90.	82.	74.	70.	64.	59.	55.
240	100.	90.	82.	75.	70.	64.	60.	55.
255	100.	90.	82.	75.	70.	65.	60.	56.
270	100.	90.	82.	75.	70.	65.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	55.
300	100.	90.	81.	75.	70.	64.	59.	55.
315	100.	90.	81.	75.	69.	63.	58.	54.
330	100.	90.	81.	75.	68.	63.	58.	54.
345	100.	90.	81.	74.	68.	62.	58.	54.
	1000	2000	3000	4000	5000	6000	7000	8000

Distance From Siren (feet)

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ18'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	88.	80.	73.	67.	62.	58.	52.
15	100.	88.	80.	73.	67.	62.	57.	52.
30	100.	88.	80.	73.	67.	62.	57.	52.
45	100.	88.	80.	72.	66.	61.	56.	50.
60	100.	89.	80.	71.	65.	60.	55.	50.
75	100.	89.	80.	73.	65.	60.	55.	50.
90	100.	89.	80.	73.	66.	60.	55.	50.
105	100.	88.	80.	73.	65.	60.	55.	50.
120	100.	88.	80.	71.	65.	60.	55.	49.
135	100.	86.	79.	71.	65.	60.	55.	50.
150	100.	88.	79.	71.	65.	60.	55.	50.
165	100.	88.	80.	72.	66.	62.	58.	51.
180	100.	88.	79.	73.	67.	62.	57.	52.
195	100.	88.	80.	73.	67.	62.	57.	52.
210	100.	88.	80.	73.	67.	62.	58.	54.
225	100.	89.	80.	73.	67.	62.	58.	54.
240	100.	90.	81.	73.	67.	62.	58.	54.
255	100.	90.	81.	74.	68.	62.	57.	59.
270	100.	90.	81.	74.	68.	63.	58.	54.
285	100.	90.	82.	75.	70.	64.	58.	55.
300	100.	90.	82.	75.	70.	64.	58.	55.
315	100.	90.	81.	74.	68.	63.	58.	54.
330	100.	90.	81.	74.	68.	63.	58.	54.
345	100.	88.	80.	73.	68.	62.	58.	54.

Distance From Siren (feet)

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ19'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	90.	81.	74.	69.	63.	58.	53.
15	100.	89.	80.	73.	68.	63.	57.	52.
30	100.	89.	80.	73.	67.	62.	57.	52.
45	100.	89.	80.	73.	67.	61.	57.	50.
60	100.	90.	80.	73.	67.	60.	56.	50.
75	100.	89.	79.	73.	67.	60.	55.	50.
90	100.	89.	79.	73.	67.	60.	55.	50.
105	100.	89.	80.	73.	67.	60.	55.	50.
120	100.	89.	80.	73.	67.	60.	56.	50.
135	100.	90.	80.	73.	67.	61.	57.	52.
150	100.	90.	80.	73.	67.	62.	57.	52.
165	100.	90.	81.	74.	68.	63.	58.	53.
180	100.	90.	81.	74.	68.	63.	58.	53.
195	100.	90.	81.	75.	69.	63.	59.	55.
210	100.	90.	81.	75.	69.	64.	60.	55.
225	100.	90.	82.	75.	69.	65.	60.	56.
240	100.	90.	82.	75.	69.	64.	60.	56.
255	100.	90.	82.	75.	70.	65.	60.	56.
270	100.	91.	82.	75.	70.	65.	60.	56.
285	100.	90.	82.	75.	69.	64.	60.	56.
300	100.	90.	81.	75.	69.	64.	60.	56.
315	100.	90.	81.	75.	69.	64.	60.	56.
330	100.	90.	81.	74.	69.	64.	59.	55.
345	100.	90.	81.	74.	69.	64.	59.	53.

Distance From Siren (feet): 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ20

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1		2		3		ETC	
0	100.	89.	80.	74.	68.	62.	58.	54.
15	100.	89.	80.	74.	68.	62.	58.	53.
30	100.	89.	80.	73.	67.	62.	56.	51.
45	100.	89.	80.	72.	66.	61.	56.	50.
60	100.	89.	80.	72.	66.	60.	55.	49.
75	100.	89.	80.	72.	66.	60.	55.	49.
90	100.	89.	80.	72.	66.	60.	55.	49.
105	100.	89.	80.	73.	66.	61.	56.	50.
120	100.	89.	80.	73.	67.	61.	56.	51.
135	100.	89.	80.	74.	67.	62.	57.	52.
150	100.	89.	80.	74.	68.	62.	58.	53.
165	100.	89.	81.	74.	68.	63.	58.	54.
180	100.	90.	81.	74.	69.	64.	59.	54.
195	100.	90.	81.	75.	69.	64.	59.	55.
210	100.	90.	82.	75.	69.	64.	59.	55.
225	100.	90.	82.	75.	70.	65.	60.	55.
240	100.	90.	82.	75.	70.	65.	60.	56.
255	100.	90.	82.	75.	70.	65.	60.	56.
270	100.	90.	82.	75.	70.	65.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	55.
300	100.	90.	82.	75.	70.	65.	60.	56.
315	100.	90.	82.	75.	69.	64.	59.	55.
330	100.	90.	81.	75.	69.	64.	59.	55.
345	100.	90.	81.	74.	69.	64.	58.	54.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ21

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3			ETC		
0	100.	91.	83.	76.	71.	66.	60.	55.
15	100.	91.	83.	74.	64.	65.	60.	55.
30	100.	91.	82.	74.	69.	64.	59.	55.
45	100.	90.	82.	74.	68.	63.	58.	54.
60	100.	90.	82.	75.	68.	63.	58.	52.
75	100.	90.	81.	74.	68.	60.	57.	52.
90	100.	90.	81.	74.	66.	61.	56.	50.
105	100.	90.	80.	73.	66.	61.	55.	50.
120	100.	90.	80.	73.	67.	60.	55.	50.
135	100.	90.	81.	73.	67.	61.	55.	50.
150	100.	90.	81.	73.	67.	60.	55.	50.
165	100.	90.	81.	73.	67.	62.	57.	52.
180	100.	90.	81.	74.	68.	62.	57.	54.
195	100.	90.	81.	74.	68.	62.	58.	54.
210	100.	91.	81.	74.	68.	63.	59.	55.
225	100.	91.	82.	75.	69.	64.	59.	54.
240	100.	91.	82.	75.	70.	64.	59.	55.
255	100.	91.	82.	76.	70.	64.	60.	56.
270	100.	90.	82.	75.	70.	65.	60.	56.
285	100.	90.	82.	76.	71.	65.	61.	57.
300	100.	91.	83.	76.	71.	66.	62.	58.
315	100.	91.	83.	76.	71.	66.	61.	56.
330	100.	91.	83.	77.	71.	66.	60.	55.
345	100.	91.	83.	76.	71.	66.	60.	54.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ22'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	90.	82.	75.	69.	64.	58.	54.
15	100.	90.	82.	75.	69.	63.	58.	53.
30	100.	90.	81.	75.	68.	62.	58.	52.
45	100.	89.	81.	74.	68.	62.	58.	52.
60	100.	89.	80.	74.	68.	62.	58.	52.
75	100.	89.	80.	74.	67.	62.	56.	51.
90	100.	90.	80.	74.	67.	62.	56.	51.
105	100.	90.	81.	74.	68.	62.	56.	51.
120	100.	90.	81.	74.	68.	62.	57.	51.
135	100.	90.	81.	74.	68.	62.	57.	51.
150	100.	90.	81.	74.	68.	62.	58.	53.
165	100.	90.	81.	74.	68.	63.	58.	54.
180	100.	90.	82.	75.	68.	64.	59.	55.
195	100.	90.	82.	75.	69.	64.	59.	55.
210	100.	90.	82.	75.	69.	64.	59.	55.
225	100.	90.	82.	75.	70.	64.	59.	55.
240	100.	90.	82.	75.	70.	65.	60.	56.
255	100.	90.	82.	75.	70.	65.	60.	56.
270	100.	90.	82.	75.	70.	65.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	55.
300	100.	90.	82.	75.	70.	65.	60.	56.
315	100.	90.	82.	75.	70.	65.	60.	56.
330	100.	90.	82.	75.	70.	65.	60.	55.
345	100.	90.	82.	75.	70.	64.	59.	54.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # 'AZ23'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1		2		3		ETC	
0	100.	91.	83.	76.	71.	65.	60.	56.
15	100.	91.	83.	76.	71.	65.	60.	55.
30	100.	91.	83.	76.	70.	65.	59.	55.
45	100.	91.	83.	76.	70.	64.	59.	54.
60	100.	91.	83.	76.	70.	64.	59.	54.
75	100.	91.	82.	75.	70.	64.	59.	54.
90	100.	91.	82.	75.	70.	64.	59.	54.
105	100.	91.	83.	76.	70.	64.	59.	55.
120	100.	91.	83.	75.	68.	63.	59.	52.
135	100.	91.	83.	76.	71.	65.	60.	50.
150	100.	91.	84.	77.	71.	66.	60.	56.
165	100.	91.	84.	77.	71.	66.	61.	56.
180	100.	91.	84.	77.	71.	66.	61.	57.
195	100.	91.	84.	77.	71.	67.	62.	57.
210	100.	91.	84.	77.	71.	67.	62.	57.
225	100.	91.	84.	77.	72.	67.	62.	58.
240	100.	91.	84.	77.	72.	67.	62.	58.
255	100.	91.	84.	77.	72.	67.	62.	58.
270	100.	91.	84.	77.	71.	66.	62.	57.
285	100.	91.	84.	77.	71.	66.	62.	57.
300	100.	91.	84.	77.	71.	66.	62.	57.
315	100.	91.	83.	77.	71.	66.	61.	57.
330	100.	88.	75.	71.	71.	66.	61.	57.
345	100.	91.	83.	76.	71.	65.	61.	56.

1000 2000 3000 4000 5000 6000 7000 8000

Distance From Siren (feet)

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ24

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3			ETC		
0	100.	90.	82.	75.	68.	63.	58.	54.
15	100.	90.	81.	74.	68.	63.	58.	53.
30	100.	90.	81.	74.	68.	62.	58.	52.
45	100.	90.	80.	74.	68.	62.	57.	52.
60	100.	90.	80.	74.	67.	62.	57.	52.
75	100.	90.	80.	74.	68.	62.	57.	51.
90	100.	90.	81.	74.	68.	62.	57.	52.
105	100.	90.	81.	74.	68.	62.	57.	52.
120	100.	90.	81.	74.	68.	62.	58.	52.
135	100.	90.	82.	74.	68.	63.	58.	54.
150	100.	90.	82.	75.	69.	64.	59.	54.
165	100.	90.	82.	75.	70.	64.	59.	55.
180	100.	91.	82.	75.	70.	65.	60.	55.
195	100.	91.	82.	76.	70.	65.	60.	56.
210	100.	91.	83.	76.	71.	65.	60.	56.
225	100.	91.	83.	76.	71.	65.	61.	56.
240	100.	91.	83.	76.	71.	66.	61.	56.
255	100.	91.	83.	76.	71.	65.	60.	56.
270	100.	91.	83.	76.	70.	65.	60.	56.
285	100.	91.	82.	76.	70.	65.	60.	56.
300	100.	91.	82.	75.	70.	65.	60.	56.
315	100.	90.	82.	75.	70.	65.	60.	56.
330	100.	90.	82.	75.	70.	64.	59.	55.
345	100.	90.	82.	75.	69.	64.	59.	54.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ25

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	90.	80.	74.	68.	62.	57.	52.
15	100.	89.	80.	74.	68.	62.	57.	51.
30	100.	90.	80.	74.	67.	61.	56.	51.
45	100.	89.	80.	73.	67.	61.	56.	50.
60	100.	90.	80.	74.	67.	62.	56.	51.
75	100.	89.	80.	73.	67.	61.	56.	50.
90	100.	89.	80.	74.	67.	62.	56.	51.
105	100.	89.	80.	74.	67.	62.	56.	51.
120	100.	89.	80.	74.	68.	62.	57.	51.
135	100.	90.	80.	74.	68.	62.	57.	52.
150	100.	90.	81.	74.	68.	62.	58.	53.
165	100.	90.	81.	74.	68.	63.	58.	53.
180	100.	90.	82.	75.	69.	63.	58.	54.
195	100.	90.	82.	75.	69.	64.	59.	54.
210	100.	90.	82.	75.	70.	64.	58.	61.
225	100.	90.	82.	75.	70.	65.	59.	55.
240	100.	90.	82.	75.	70.	65.	60.	56.
255	100.	87.	67.	64.	59.	55.	51.	47.
270	100.	89.	79.	75.	48.	45.	42.	39.
285	100.	89.	84.	68.	47.	44.	41.	38.
300	100.	89.	79.	76.	46.	43.	40.	36.
315	100.	89.	80.	72.	53.	51.	49.	45.
330	100.	89.	81.	75.	69.	64.	58.	54.
345	100.	90.	81.	74.	68.	63.	58.	53.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ26

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	90.	81.	74.	68.	62.	58.	53.
15	100.	90.	80.	74.	68.	62.	58.	52.
30	100.	89.	80.	74.	67.	62.	57.	51.
45	100.	89.	80.	73.	67.	61.	56.	50.
60	100.	90.	80.	73.	67.	61.	56.	50.
75	100.	90.	80.	73.	67.	61.	55.	50.
90	100.	90.	80.	74.	67.	61.	56.	50.
105	100.	90.	80.	74.	68.	62.	56.	51.
120	100.	90.	80.	74.	68.	62.	57.	51.
135	100.	90.	81.	74.	68.	62.	58.	53.
150	100.	90.	81.	74.	68.	62.	58.	53.
165	100.	90.	81.	75.	68.	63.	58.	54.
180	100.	90.	82.	75.	69.	64.	59.	54.
195	100.	90.	82.	75.	69.	64.	59.	55.
210	100.	90.	82.	75.	70.	64.	60.	55.
225	100.	90.	82.	76.	70.	65.	60.	55.
240	100.	90.	82.	76.	70.	65.	60.	56.
255	100.	90.	82.	75.	70.	65.	60.	56.
270	100.	90.	82.	75.	70.	65.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	64.	59.	55.
315	100.	90.	82.	75.	69.	64.	59.	55.
330	100.	90.	81.	75.	69.	64.	59.	54.
345	100.	90.	81.	74.	68.	63.	58.	54.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ27'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3			ETC		
0	100.	90.	81.	74.	68.	63.	58.	53.
15	100.	90.	80.	74.	68.	62.	58.	53.
30	100.	90.	80.	74.	68.	62.	57.	52.
45	100.	89.	80.	73.	67.	62.	56.	51.
60	100.	89.	80.	74.	67.	61.	56.	51.
75	100.	89.	80.	73.	67.	61.	56.	51.
90	100.	89.	80.	73.	66.	61.	56.	50.
105	100.	89.	80.	73.	67.	61.	56.	51.
120	100.	89.	80.	73.	67.	61.	56.	50.
135	100.	89.	80.	73.	67.	61.	56.	50.
150	100.	89.	80.	74.	67.	61.	56.	51.
165	100.	90.	80.	74.	67.	62.	56.	51.
180	100.	90.	80.	74.	68.	62.	57.	51.
195	100.	90.	81.	74.	68.	62.	58.	52.
210	100.	90.	81.	74.	68.	62.	58.	61.
225	100.	90.	82.	74.	68.	63.	58.	50.
240	100.	90.	82.	75.	69.	63.	66.	37.
255	100.	90.	82.	75.	69.	64.	59.	55.
270	100.	90.	82.	75.	70.	64.	60.	55.
285	100.	90.	82.	75.	70.	65.	60.	55.
300	100.	90.	82.	75.	70.	64.	60.	55.
315	100.	90.	82.	75.	69.	64.	59.	55.
330	100.	90.	82.	75.	69.	64.	59.	54.
345	100.	90.	81.	74.	69.	63.	59.	54.

Distance From Siren (feet): 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ28

SOUND PRESSURE LEVELS

Angle θ From East (degrees)	RADIUS 1	2	3	ETC				
0	100.	90.	80.	74.	68.	62.	58.	53.
15	100.	89.	80.	74.	67.	62.	57.	51.
30	100.	89.	80.	73.	67.	61.	56.	51.
45	100.	89.	80.	73.	66.	61.	55.	50.
60	100.	89.	80.	73.	66.	60.	55.	49.
75	100.	89.	80.	73.	66.	61.	55.	49.
90	100.	89.	80.	73.	66.	61.	55.	50.
105	100.	89.	80.	73.	67.	61.	55.	50.
120	100.	89.	80.	73.	67.	62.	56.	51.
135	100.	90.	80.	74.	68.	62.	57.	51.
150	100.	90.	81.	74.	68.	62.	58.	52.
165	100.	90.	81.	74.	68.	63.	58.	53.
180	100.	90.	81.	74.	69.	63.	58.	54.
195	100.	90.	82.	75.	69.	64.	59.	55.
210	100.	90.	82.	75.	70.	64.	60.	55.
225	100.	90.	82.	75.	70.	65.	60.	56.
240	100.	90.	82.	75.	70.	65.	60.	56.
255	100.	90.	82.	75.	70.	65.	60.	56.
270	100.	90.	82.	75.	70.	65.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	64.	59.	55.
315	100.	90.	81.	74.	69.	64.	59.	55.
330	100.	90.	81.	74.	69.	64.	59.	54.
345	100.	90.	80.	74.	68.	63.	58.	54.
	1000	2000	3000	4000	5000	6000	7000	8000

Distance From Siren (feet)

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ29'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3			ETC		
0	100.	90.	82.	75.	70.	64.	59.	55.
15	100.	90.	81.	75.	69.	63.	59.	54.
30	100.	90.	81.	75.	69.	63.	59.	54.
45	100.	90.	81.	74.	68.	63.	57.	53.
60	100.	89.	81.	74.	67.	62.	57.	52.
75	100.	89.	80.	73.	67.	61.	55.	51.
90	100.	89.	80.	73.	66.	60.	55.	50.
105	100.	89.	80.	72.	66.	60.	54.	50.
120	100.	89.	80.	72.	66.	60.	54.	50.
135	100.	89.	80.	72.	66.	60.	54.	50.
150	100.	89.	80.	72.	66.	60.	55.	50.
165	100.	89.	80.	73.	66.	61.	55.	50.
180	100.	89.	81.	73.	67.	61.	56.	52.
195	100.	89.	81.	74.	67.	62.	57.	53.
210	100.	90.	81.	74.	68.	63.	58.	53.
225	100.	90.	81.	75.	69.	63.	59.	54.
240	100.	90.	81.	75.	69.	63.	59.	55.
255	100.	90.	82.	75.	69.	65.	60.	55.
270	100.	91.	82.	76.	70.	65.	60.	56.
285	100.	91.	82.	76.	70.	65.	60.	56.
300	100.	91.	82.	76.	70.	65.	61.	56.
315	100.	91.	82.	76.	70.	65.	60.	56.
330	100.	91.	82.	76.	70.	65.	60.	56.
345	100.	91.	82.	76.	70.	65.	60.	55.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN 29B

Angle θ From East (degrees)	1000	2000	3000	4000	5000	6000	7000	8000
0	100.	90.	81.	75.	69.	64.	59.	55.
15	100.	90.	81.	74.	69.	64.	59.	54.
30	100.	90.	81.	74.	68.	63.	59.	54.
45	100.	90.	81.	74.	68.	63.	58.	54.
60	100.	90.	80.	74.	66.	62.	58.	53.
75	100.	90.	80.	74.	67.	62.	56.	51.
90	100.	89.	80.	73.	66.	61.	55.	50.
105	100.	89.	80.	73.	66.	61.	55.	49.
120	100.	89.	80.	73.	66.	61.	55.	49.
135	100.	89.	80.	73.	66.	61.	55.	50.
150	100.	89.	80.	73.	66.	61.	55.	50.
165	100.	89.	80.	73.	67.	61.	56.	50.
180	100.	89.	80.	73.	67.	62.	56.	51.
195	100.	89.	80.	74.	67.	62.	56.	50.
210	100.	90.	80.	74.	67.	62.	56.	50.
225	100.	89.	81.	74.	67.	62.	55.	49.
240	100.	90.	81.	74.	66.	59.	56.	51.
255	100.	90.	81.	74.	67.	61.	56.	53.
270	100.	90.	81.	74.	68.	62.	56.	42.
285	100.	90.	81.	74.	66.	57.	58.	54.
300	100.	90.	82.	75.	69.	64.	59.	54.
315	100.	90.	81.	75.	69.	64.	59.	55.
330	100.	90.	82.	75.	69.	64.	60.	55.
345	100.	90.	82.	75.	69.	64.	60.	55.

Distance From Siren (feet)

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ30

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1		2		3		ETC	
0	100.	90.	82.	75.	70.	64.	59.	55.
15	100.	90.	82.	75.	69.	64.	59.	55.
30	100.	90.	81.	74.	68.	63.	59.	54.
45	100.	90.	81.	74.	68.	62.	58.	53.
60	100.	90.	80.	74.	67.	62.	57.	52.
75	100.	89.	80.	73.	67.	61.	56.	50.
90	100.	89.	80.	73.	66.	61.	55.	49.
105	100.	89.	80.	73.	66.	60.	54.	49.
120	100.	89.	80.	73.	66.	60.	54.	49.
135	100.	89.	80.	73.	66.	60.	55.	49.
150	100.	89.	80.	73.	66.	61.	55.	50.
165	100.	89.	80.	73.	66.	61.	56.	50.
180	100.	89.	80.	73.	67.	61.	56.	51.
195	100.	89.	80.	74.	68.	62.	57.	51.
210	100.	90.	80.	74.	68.	62.	56.	51.
225	100.	90.	81.	74.	68.	62.	57.	51.
240	100.	90.	81.	74.	68.	62.	57.	51.
255	100.	90.	82.	75.	68.	63.	57.	50.
270	100.	90.	82.	75.	69.	63.	57.	51.
285	100.	90.	82.	75.	70.	64.	58.	52.
300	100.	90.	82.	75.	70.	65.	59.	51.
315	100.	90.	82.	75.	70.	65.	60.	56.
330	100.	90.	82.	75.	70.	65.	60.	56.
345	100.	90.	82.	75.	70.	65.	60.	55.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN 30B

Angle θ From East (degrees)	1000	2000	3000	4000	5000	6000	7000	8000
0	100.	90.	81.	74.	69.	63.	58.	54.
15	100.	90.	81.	74.	68.	63.	58.	54.
30	100.	90.	81.	74.	68.	62.	58.	53.
45	100.	89.	80.	74.	68.	62.	58.	52.
60	100.	89.	80.	74.	68.	62.	56.	51.
75	100.	89.	80.	73.	67.	61.	58.	50.
90	100.	89.	80.	72.	66.	60.	55.	49.
105	100.	89.	80.	72.	66.	60.	54.	49.
120	100.	89.	80.	72.	65.	59.	54.	50.
135	100.	89.	80.	72.	65.	59.	54.	50.
150	100.	89.	80.	72.	65.	60.	54.	49.
165	100.	89.	80.	72.	66.	60.	55.	49.
180	100.	89.	80.	73.	67.	62.	56.	51.
195	100.	89.	80.	74.	67.	62.	57.	52.
210	100.	89.	80.	74.	68.	62.	58.	53.
225	100.	90.	81.	74.	68.	63.	58.	54.
240	100.	90.	81.	74.	68.	63.	59.	54.
255	100.	90.	81.	74.	69.	64.	59.	55.
270	100.	90.	81.	75.	69.	64.	59.	55.
285	100.	90.	82.	75.	69.	64.	59.	55.
300	100.	90.	82.	75.	70.	64.	60.	55.
315	100.	90.	82.	75.	70.	65.	60.	55.
330	100.	90.	82.	75.	70.	64.	59.	55.
345	100.	90.	82.	75.	70.	64.	59.	55.

Distance From Siren (feet)

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ31

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1		2		3		ETC	
0	100.	90.	82.	75.	70.	65.	60.	56.
15	100.	90.	81.	75.	69.	64.	60.	55.
30	100.	90.	81.	75.	69.	63.	59.	54.
45	100.	89.	81.	74.	68.	63.	58.	53.
60	100.	89.	80.	73.	67.	62.	56.	52.
75	100.	89.	80.	72.	66.	60.	55.	50.
90	100.	89.	80.	72.	66.	60.	54.	50.
105	100.	89.	79.	72.	66.	59.	54.	50.
120	100.	89.	79.	71.	66.	59.	54.	51.
135	100.	89.	79.	71.	66.	59.	54.	51.
150	100.	89.	80.	72.	66.	59.	54.	50.
165	100.	89.	80.	72.	66.	60.	54.	50.
180	100.	89.	80.	73.	66.	61.	55.	51.
195	100.	89.	81.	73.	67.	62.	57.	53.
210	100.	89.	81.	74.	68.	63.	58.	53.
225	100.	90.	81.	75.	69.	63.	59.	55.
240	100.	90.	82.	75.	69.	64.	60.	55.
255	100.	90.	82.	76.	70.	65.	60.	56.
270	100.	90.	82.	76.	70.	65.	61.	56.
285	100.	91.	82.	76.	70.	65.	61.	57.
300	100.	91.	83.	76.	70.	65.	61.	57.
315	100.	91.	82.	76.	70.	65.	61.	57.
330	100.	91.	82.	76.	70.	65.	61.	57.
345	100.	91.	82.	76.	70.	65.	60.	56.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ32'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	90.	82.	74.	69.	64.	59.	55.
15	100.	90.	81.	74.	68.	63.	59.	54.
30	100.	90.	81.	74.	68.	62.	58.	54.
45	100.	90.	80.	74.	67.	62.	57.	52.
60	100.	89.	80.	73.	66.	61.	56.	51.
75	100.	89.	80.	73.	65.	60.	55.	50.
90	100.	89.	80.	72.	66.	60.	55.	49.
105	100.	89.	80.	72.	65.	60.	54.	50.
120	100.	88.	80.	72.	65.	60.	55.	50.
135	100.	89.	80.	72.	65.	60.	55.	49.
150	100.	89.	80.	72.	67.	61.	55.	50.
165	100.	89.	80.	73.	67.	62.	56.	51.
180	100.	89.	80.	74.	68.	62.	57.	52.
195	100.	90.	81.	74.	68.	63.	58.	53.
210	100.	90.	81.	75.	69.	63.	59.	54.
225	100.	90.	82.	75.	69.	64.	59.	55.
240	100.	90.	82.	75.	70.	64.	59.	55.
255	100.	90.	82.	74.	69.	64.	60.	56.
270	100.	90.	82.	75.	70.	64.	60.	56.
285	100.	90.	82.	75.	70.	64.	60.	56.
300	100.	90.	82.	75.	70.	64.	60.	56.
315	100.	90.	82.	75.	70.	64.	60.	56.
330	100.	90.	82.	75.	70.	64.	59.	55.
345	100.	90.	82.	75.	69.	64.	59.	55.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ33'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3			ETC		
0	100.	90.	81.	75.	70.	64.	59.	55.
15	100.	90.	81.	75.	69.	64.	59.	54.
30	100.	90.	81.	74.	68.	63.	58.	54.
45	100.	90.	81.	74.	68.	63.	58.	53.
60	100.	90.	80.	74.	68.	62.	58.	53.
75	100.	89.	80.	74.	67.	62.	57.	52.
90	100.	89.	80.	73.	67.	61.	56.	51.
105	100.	89.	80.	73.	67.	61.	56.	50.
120	100.	89.	80.	73.	67.	61.	56.	50.
135	100.	89.	80.	73.	67.	61.	56.	50.
150	100.	89.	80.	73.	67.	61.	56.	50.
165	100.	89.	80.	73.	67.	62.	56.	51.
180	100.	89.	80.	74.	68.	62.	57.	52.
195	100.	89.	80.	74.	68.	62.	57.	52.
210	100.	89.	80.	74.	68.	63.	58.	54.
225	100.	89.	81.	74.	68.	64.	59.	54.
240	100.	90.	81.	74.	69.	64.	59.	55.
255	100.	90.	81.	75.	70.	64.	59.	55.
270	100.	90.	82.	75.	70.	64.	60.	55.
285	100.	90.	82.	75.	70.	64.	60.	55.
300	100.	90.	82.	75.	70.	64.	59.	55.
315	100.	90.	82.	74.	69.	64.	59.	55.
330	100.	90.	81.	75.	70.	64.	59.	55.
345	100.	90.	81.	75.	70.	64.	59.	55.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ34'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	90.	81.	74.	68.	62.	58.	53.
15	100.	89.	80.	74.	68.	62.	57.	52.
30	100.	89.	80.	74.	68.	62.	57.	51.
45	100.	89.	80.	73.	67.	62.	57.	51.
60	100.	89.	80.	73.	67.	61.	56.	51.
75	100.	89.	80.	73.	67.	62.	56.	51.
90	100.	89.	80.	73.	67.	62.	57.	51.
105	100.	89.	80.	73.	67.	61.	56.	50.
120	100.	89.	80.	73.	67.	61.	58.	51.
135	100.	89.	80.	73.	67.	62.	57.	52.
150	100.	89.	80.	73.	67.	62.	58.	52.
165	100.	89.	80.	74.	68.	62.	58.	52.
180	100.	90.	80.	74.	68.	62.	58.	52.
195	100.	90.	81.	74.	68.	63.	58.	52.
210	100.	90.	81.	74.	68.	63.	58.	54.
225	100.	90.	81.	75.	69.	64.	58.	54.
240	100.	90.	82.	75.	69.	64.	59.	54.
255	100.	90.	82.	75.	69.	64.	59.	55.
270	100.	90.	82.	75.	70.	64.	59.	55.
285	100.	90.	82.	75.	70.	64.	59.	55.
300	100.	90.	82.	75.	70.	64.	60.	55.
315	100.	90.	81.	75.	70.	64.	59.	55.
330	100.	90.	81.	74.	69.	64.	59.	54.
345	100.	90.	81.	74.	68.	63.	58.	53.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ35

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East [degrees]	1	2	3			ETC		
0	100.	88.	80.	74.	68.	63.	59.	54.
15	100.	88.	80.	74.	68.	63.	58.	53.
30	100.	87.	80.	73.	68.	62.	57.	51.
45	100.	87.	79.	73.	67.	62.	57.	52.
60	100.	87.	79.	72.	66.	61.	56.	51.
75	100.	87.	78.	71.	65.	60.	55.	49.
90	100.	87.	78.	71.	64.	59.	55.	50.
105	100.	87.	79.	71.	65.	59.	54.	49.
120	100.	87.	79.	71.	65.	60.	54.	49.
135	100.	87.	79.	72.	66.	60.	54.	49.
150	100.	87.	79.	72.	66.	60.	56.	43.
165	100.	88.	79.	73.	67.	62.	57.	52.
180	100.	88.	80.	73.	68.	62.	58.	52.
195	100.	88.	80.	73.	68.	62.	58.	53.
210	100.	89.	80.	74.	69.	62.	58.	54.
225	100.	89.	80.	74.	68.	62.	58.	54.
240	100.	89.	80.	74.	68.	63.	58.	54.
255	100.	89.	81.	74.	69.	64.	59.	54.
270	100.	89.	81.	74.	69.	64.	59.	55.
285	100.	89.	81.	74.	69.	64.	59.	55.
300	100.	89.	81.	74.	68.	64.	59.	54.
315	100.	89.	80.	74.	68.	63.	59.	54.
330	100.	89.	80.	74.	68.	63.	59.	54.
345	100.	88.	80.	74.	68.	63.	59.	55.
Distance From Siren [feet]	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ36

SOUND PRESSURE LEVELS

Angle θ From East (degrees)	RADIUS 1	2	3	ETC				
0	100.	90.	81.	74.	68.	62.	58.	53.
15	100.	90.	80.	74.	67.	61.	56.	52.
30	100.	89.	80.	73.	66.	61.	56.	51.
45	100.	89.	80.	73.	66.	61.	55.	49.
60	100.	89.	80.	73.	67.	61.	55.	49.
75	100.	89.	80.	73.	66.	61.	56.	50.
90	100.	89.	80.	73.	66.	61.	55.	49.
105	100.	89.	80.	74.	67.	61.	56.	50.
120	100.	90.	80.	73.	66.	61.	55.	50.
135	100.	89.	80.	72.	66.	60.	55.	49.
150	100.	89.	80.	72.	65.	59.	54.	49.
165	100.	89.	80.	72.	66.	60.	54.	49.
180	100.	89.	80.	72.	66.	61.	56.	50.
195	100.	89.	80.	73.	67.	62.	56.	51.
210	100.	89.	80.	74.	68.	62.	57.	52.
225	100.	90.	80.	74.	68.	62.	58.	53.
240	100.	90.	81.	74.	68.	64.	59.	54.
255	100.	90.	81.	74.	68.	64.	59.	55.
270	100.	90.	82.	75.	69.	64.	59.	55.
285	100.	90.	82.	75.	69.	64.	59.	55.
300	100.	90.	82.	75.	70.	64.	60.	55.
315	100.	90.	82.	75.	69.	64.	60.	55.
330	100.	90.	82.	75.	69.	64.	59.	54.
345	100.	90.	82.	75.	68.	62.	58.	53.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

ALTERNATIVE 2

SOUND PRESSURE LEVELS

COMPUTER PRINT-OUT

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ5[illegible]

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1		2		3		ETC		
0	108.	98.	90.	83.	78.	72.	67.	63.	59.
15	108.	98.	89.	82.	76.	71.	66.	62.	57.
30	108.	98.	89.	82.	76.	71.	66.	62.	57.
45	108.	98.	89.	82.	76.	70.	65.	60.	56.
60	108.	97.	88.	81.	75.	70.	64.	59.	55.
75	108.	97.	88.	81.	74.	69.	64.	58.	54.
90	108.	97.	88.	81.	74.	68.	63.	57.	53.
105	108.	96.	88.	80.	73.	68.	62.	58.	54.
120	108.	96.	87.	80.	73.	67.	63.	58.	55.
135	108.	96.	88.	80.	73.	68.	62.	58.	55.
150	108.	96.	88.	80.	73.	68.	62.	58.	54.
165	108.	97.	89.	81.	74.	69.	63.	58.	53.
180	108.	97.	88.	81.	75.	70.	64.	58.	54.
195	108.	97.	88.	82.	76.	70.	65.	60.	56.
210	108.	98.	89.	82.	76.	71.	66.	61.	57.
225	108.	98.	89.	82.	76.	71.	66.	62.	57.
240	108.	98.	90.	83.	77.	72.	67.	62.	44.
255	108.	98.	90.	83.	78.	72.	67.	63.	59.
270	108.	98.	90.	83.	78.	72.	68.	64.	60.
285	108.	98.	90.	83.	78.	73.	68.	64.	60.
300	108.	98.	90.	83.	78.	73.	68.	64.	60.
315	108.	98.	90.	83.	78.	73.	68.	64.	60.
330	108.	98.	90.	83.	78.	72.	68.	63.	60.
345	108.	98.	90.	83.	78.	72.	67.	63.	59.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000	

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ52

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1		2		3		ETC		
0	108.	98.	89.	82.	77.	70.	66.	61.	57.
15	108.	98.	89.	82.	76.	70.	66.	60.	55.
30	108.	97.	88.	82.	76.	70.	65.	59.	55.
45	108.	97.	88.	82.	74.	69.	64.	59.	54.
60	108.	97.	88.	81.	74.	69.	64.	59.	54.
75	108.	97.	88.	81.	74.	69.	63.	58.	53.
90	108.	97.	88.	81.	74.	69.	63.	57.	53.
105	108.	97.	88.	81.	74.	69.	63.	58.	53.
120	108.	97.	88.	81.	74.	69.	63.	58.	53.
135	108.	97.	88.	81.	75.	69.	64.	59.	55.
150	108.	97.	88.	82.	76.	70.	66.	60.	56.
165	108.	98.	89.	82.	76.	71.	66.	61.	57.
180	108.	98.	89.	83.	77.	72.	67.	62.	58.
195	108.	98.	90.	83.	77.	72.	67.	62.	58.
210	108.	98.	90.	83.	77.	72.	68.	63.	59.
225	108.	98.	90.	83.	78.	72.	68.	63.	60.
240	108.	98.	90.	83.	78.	73.	68.	64.	60.
255	108.	98.	90.	83.	78.	73.	68.	64.	60.
270	108.	98.	90.	83.	78.	73.	68.	64.	60.
285	108.	98.	90.	83.	78.	73.	68.	64.	60.
300	108.	98.	90.	64.	78.	73.	68.	63.	60.
315	108.	98.	90.	83.	78.	73.	68.	63.	59.
330	108.	98.	90.	83.	77.	72.	67.	63.	59.
345	108.	98.	90.	83.	77.	72.	66.	62.	58.

Distance From Siren (feet): 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ53

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1		2		3		ETC		
0	108.	97.	88.	82.	77.	72.	67.	61.	57.
15	108.	97.	88.	82.	76.	71.	66.	61.	57.
30	108.	97.	88.	82.	76.	70.	66.	60.	55.
45	108.	97.	88.	81.	75.	70.	66.	60.	55.
60	108.	97.	88.	81.	74.	65.	64.	59.	55.
75	108.	97.	88.	81.	74.	65.	64.	58.	54.
90	108.	97.	88.	81.	75.	70.	64.	58.	54.
105	108.	97.	88.	81.	75.	70.	64.	59.	54.
120	108.	98.	88.	81.	75.	65.	64.	59.	55.
135	108.	98.	88.	82.	75.	70.	64.	58.	55.
150	108.	98.	88.	82.	76.	70.	66.	61.	57.
165	108.	98.	88.	82.	76.	71.	66.	62.	57.
180	108.	98.	88.	82.	76.	72.	67.	62.	59.
195	108.	98.	89.	82.	76.	72.	67.	62.	58.
210	108.	98.	90.	83.	77.	72.	67.	57.	44.
225	108.	98.	90.	83.	77.	72.	67.	62.	58.
240	108.	98.	90.	83.	78.	72.	68.	62.	59.
255	108.	98.	90.	83.	78.	72.	68.	63.	59.
270	108.	98.	90.	83.	78.	72.	68.	63.	58.
285	108.	98.	90.	83.	77.	72.	68.	63.	58.
300	108.	98.	90.	83.	77.	72.	67.	63.	59.
315	108.	98.	90.	83.	77.	72.	67.	63.	59.
330	108.	98.	89.	83.	77.	72.	67.	63.	59.
345	108.	98.	89.	83.	77.	72.	67.	62.	58.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000	

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ54

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1		2		3		ETC		
0	108.	97.	89.	83.	78.	73.	68.	63.	57.
15	108.	97.	89.	83.	78.	72.	67.	62.	57.
30	108.	97.	88.	83.	77.	72.	67.	62.	57.
45	108.	97.	88.	82.	77.	72.	67.	62.	57.
60	108.	97.	88.	81.	76.	70.	67.	62.	57.
75	109.	96.	88.	80.	74.	70.	68.	61.	57.
90	108.	98.	88.	81.	74.	69.	62.	59.	55.
105	108.	97.	88.	81.	74.	68.	62.	57.	53.
120	108.	97.	88.	80.	74.	69.	63.	57.	53.
135	108.	97.	88.	81.	74.	69.	64.	59.	55.
150	108.	97.	89.	81.	74.	69.	64.	59.	56.
165	108.	97.	88.	82.	75.	69.	64.	60.	57.
180	108.	97.	88.	82.	76.	70.	66.	61.	57.
195	109.	98.	89.	82.	76.	70.	66.	62.	58.
210	108.	98.	90.	83.	77.	72.	66.	62.	58.
225	108.	98.	90.	83.	77.	72.	67.	62.	59.
240	108.	98.	90.	83.	79.	73.	68.	63.	59.
255	109.	98.	90.	83.	79.	73.	69.	64.	60.
270	109.	96.	90.	84.	78.	73.	66.	64.	60.
285	108.	98.	90.	83.	78.	73.	68.	63.	59.
300	108.	98.	90.	83.	77.	72.	67.	63.	59.
315	108.	98.	90.	83.	77.	73.	68.	64.	60.
330	108.	98.	90.	83.	78.	73.	69.	64.	60.
345	108.	97.	90.	83.	78.	73.	68.	64.	59.

1000	2000	3000	4000	5000	6000	7000	8000

Distance From Siren (feet)

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ55'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC					
0	108.	97.	86.	81.	75.	70.	65.	62.	57.
15	108.	97.	88.	81.	75.	70.	65.	60.	59.
30	108.	96.	88.	81.	75.	69.	63.	58.	55.
45	108.	96.	88.	81.	74.	68.	63.	58.	54.
60	108.	96.	89.	81.	74.	68.	63.	57.	53.
75	108.	96.	88.	81.	75.	69.	63.	58.	53.
90	108.	97.	88.	81.	75.	68.	63.	58.	54.
105	108.	96.	88.	80.	73.	68.	63.	58.	54.
120	108.	96.	88.	80.	73.	68.	63.	58.	53.
135	108.	96.	88.	81.	75.	70.	64.	59.	54.
150	108.	95.	88.	81.	75.	70.	65.	60.	56.
165	108.	96.	88.	81.	76.	70.	65.	60.	56.
180	108.	97.	88.	82.	76.	70.	66.	62.	58.
195	108.	97.	88.	82.	76.	71.	66.	62.	59.
210	108.	98.	89.	82.	77.	71.	66.	63.	59.
225	108.	98.	89.	82.	77.	72.	67.	63.	59.
240	109.	98.	90.	83.	78.	72.	67.	63.	59.
255	108.	98.	90.	83.	78.	73.	68.	63.	59.
270	108.	98.	89.	83.	77.	72.	68.	64.	60.
285	108.	99.	89.	83.	78.	72.	68.	63.	59.
300	108.	98.	89.	83.	78.	72.	67.	63.	59.
315	108.	98.	89.	83.	77.	72.	66.	62.	59.
330	108.	98.	89.	83.	76.	71.	66.	62.	57.
345	108.	98.	89.	82.	76.	70.	66.	61.	57.

Distance From Siren (feet)

1000 2000 3000 4000 5000 6000 7000 8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ56

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC					
0	108.	98.	90.	83.	77.	72.	68.	63.	59.
15	108.	98.	90.	83.	77.	72.	68.	63.	59.
30	108.	98.	90.	83.	77.	72.	67.	63.	59.
45	108.	98.	90.	83.	77.	72.	67.	62.	58.
60	108.	98.	90.	83.	77.	72.	67.	62.	58.
75	108.	98.	90.	83.	77.	72.	67.	62.	58.
90	108.	98.	90.	83.	77.	72.	66.	61.	57.
105	108.	98.	89.	82.	76.	70.	66.	61.	57.
120	108.	98.	88.	82.	76.	70.	65.	59.	55.
135	108.	98.	89.	82.	76.	70.	66.	61.	57.
150	108.	98.	89.	82.	76.	71.	66.	62.	57.
165	108.	98.	89.	82.	76.	71.	66.	61.	56.
180	108.	98.	89.	82.	76.	70.	66.	59.	55.
195	108.	98.	89.	82.	76.	71.	63.	59.	55.
210	108.	98.	89.	82.	76.	70.	66.	61.	56.
225	108.	98.	90.	82.	76.	71.	66.	61.	57.
240	108.	98.	90.	83.	77.	71.	66.	61.	57.
255	108.	98.	90.	83.	77.	72.	67.	62.	57.
270	108.	98.	90.	83.	77.	72.	67.	62.	58.
285	108.	98.	90.	83.	77.	72.	67.	62.	59.
300	108.	98.	90.	83.	77.	72.	67.	63.	59.
315	108.	98.	90.	83.	78.	72.	68.	63.	59.
330	108.	98.	90.	83.	78.	72.	68.	63.	59.
345	108.	98.	90.	83.	78.	72.	67.	63.	59.

Distance From Siren (feet): 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # A257

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1		2		3		ETC		
0	108.	98.	89.	82.	77.	72.	66.	58.	53.
15	108.	98.	88.	79.	72.	67.	57.	59.	55.
30	108.	98.	88.	78.	72.	68.	64.	59.	55.
45	108.	97.	89.	82.	72.	69.	66.	61.	58.
60	108.	97.	88.	82.	72.	69.	65.	61.	58.
75	108.	97.	88.	82.	72.	67.	64.	61.	57.
90	108.	96.	87.	82.	76.	70.	64.	58.	55.
105	108.	95.	87.	81.	74.	69.	63.	57.	53.
120	108.	95.	87.	79.	74.	68.	63.	58.	53.
135	108.	95.	87.	80.	73.	67.	62.	57.	55.
150	108.	97.	87.	80.	74.	68.	63.	58.	54.
165	108.	97.	87.	82.	74.	69.	64.	55.	54.
180	108.	97.	88.	81.	74.	69.	65.	60.	56.
195	108.	97.	89.	82.	75.	69.	66.	61.	56.
210	108.	98.	89.	82.	76.	70.	66.	61.	57.
225	108.	98.	90.	83.	77.	72.	67.	62.	58.
240	108.	98.	90.	83.	77.	72.	67.	62.	58.
255	108.	98.	90.	83.	77.	72.	67.	62.	58.
270	108.	98.	90.	83.	77.	72.	67.	62.	58.
285	108.	98.	90.	83.	77.	72.	67.	63.	58.
300	108.	98.	90.	83.	78.	72.	67.	63.	58.
315	108.	98.	90.	83.	78.	72.	67.	62.	58.
330	108.	98.	90.	83.	78.	72.	67.	62.	58.
345	108.	98.	90.	83.	77.	72.	67.	63.	58.

Distance From Siren (feet): 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station.

SIREN # AZ58'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC					
0	108.	98.	88.	82.	77.	72.	67.	62.	58.
15	108.	98.	89.	82.	76.	71.	66.	62.	57.
30	108.	98.	88.	82.	76.	70.	66.	61.	57.
45	108.	98.	88.	82.	76.	70.	65.	59.	55.
60	108.	99.	88.	82.	75.	70.	64.	59.	54.
75	108.	98.	88.	81.	75.	69.	64.	59.	54.
90	108.	97.	88.	81.	75.	69.	64.	58.	53.
105	108.	97.	88.	81.	74.	68.	63.	57.	53.
120	108.	98.	88.	82.	75.	69.	64.	58.	54.
135	108.	97.	88.	81.	74.	69.	64.	58.	54.
150	108.	97.	88.	82.	75.	70.	64.	59.	55.
165	108.	98.	88.	82.	76.	70.	66.	62.	57.
180	108.	98.	89.	82.	76.	71.	67.	62.	58.
195	108.	98.	89.	82.	76.	72.	67.	63.	59.
210	108.	98.	90.	83.	77.	72.	68.	63.	60.
225	108.	98.	90.	83.	78.	73.	68.	63.	60.
240	108.	98.	90.	83.	78.	73.	68.	64.	60.
255	108.	98.	90.	83.	78.	73.	68.	64.	60.
270	108.	99.	90.	83.	78.	73.	68.	64.	60.
285	108.	98.	90.	84.	73.	73.	68.	64.	60.
300	108.	98.	90.	83.	78.	73.	68.	64.	60.
315	108.	98.	90.	83.	78.	73.	68.	64.	60.
330	108.	98.	90.	83.	78.	72.	68.	63.	60.
345	108.	98.	90.	83.	77.	72.	67.	63.	59.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000	

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ59'

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1		2		3		ETC		
0	108.	98.	89.	82.	75.	71.	66.	62.	57.
15	108.	98.	89.	82.	76.	70.	66.	61.	56.
30	108.	98.	89.	82.	76.	70.	65.	59.	55.
45	108.	98.	88.	82.	75.	70.	64.	59.	54.
60	108.	97.	89.	81.	75.	69.	64.	58.	53.
75	108.	97.	88.	81.	74.	69.	63.	58.	53.
90	108.	97.	88.	81.	74.	69.	63.	58.	53.
105	108.	97.	88.	81.	75.	69.	63.	58.	53.
120	108.	97.	88.	82.	75.	69.	64.	58.	53.
135	108.	98.	88.	82.	75.	70.	64.	58.	55.
150	108.	98.	88.	82.	76.	70.	65.	60.	55.
165	108.	98.	89.	82.	76.	70.	66.	60.	56.
180	108.	98.	89.	82.	76.	71.	66.	61.	57.
195	108.	98.	89.	83.	77.	72.	67.	62.	58.
210	108.	98.	89.	83.	77.	72.	67.	63.	59.
225	108.	98.	90.	83.	77.	72.	67.	63.	59.
240	108.	98.	90.	83.	78.	72.	67.	63.	59.
255	108.	98.	90.	83.	78.	73.	68.	64.	60.
270	108.	98.	90.	83.	78.	73.	68.	64.	60.
285	108.	98.	90.	83.	78.	73.	68.	64.	60.
300	108.	98.	90.	83.	78.	73.	68.	64.	60.
315	108.	98.	90.	83.	78.	73.	68.	63.	60.
330	108.	98.	90.	83.	78.	72.	67.	63.	59.
345	108.	98.	89.	82.	77.	72.	67.	62.	58.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000	

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ50

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1000	2000	3000	4000	5000	6000	7000	8000	ETC
0	108.	97.	88.	81.	75.	70.	65.	59.	55.
15	108.	97.	88.	81.	74.	69.	63.	57.	53.
30	108.	97.	88.	80.	73.	67.	62.	58.	55.
45	108.	96.	87.	80.	73.	67.	63.	59.	56.
60	108.	96.	87.	79.	72.	68.	64.	60.	57.
75	108.	96.	87.	79.	72.	68.	64.	60.	57.
90	108.	96.	87.	79.	73.	67.	63.	59.	56.
105	108.	96.	87.	80.	73.	68.	62.	58.	55.
120	108.	97.	88.	80.	74.	68.	63.	58.	53.
135	108.	97.	88.	81.	75.	69.	64.	59.	55.
150	108.	98.	88.	82.	76.	70.	66.	60.	56.
165	108.	98.	89.	82.	76.	71.	66.	62.	57.
180	108.	98.	89.	82.	77.	72.	67.	62.	58.
195	108.	98.	90.	83.	77.	72.	67.	63.	59.
210	108.	98.	90.	83.	78.	72.	68.	63.	59.
225	108.	98.	90.	83.	78.	73.	68.	64.	60.
240	108.	98.	90.	84.	78.	73.	68.	64.	60.
255	108.	98.	90.	84.	78.	73.	68.	64.	60.
270	108.	98.	90.	84.	78.	73.	68.	64.	60.
285	108.	98.	90.	83.	78.	73.	68.	64.	60.
300	108.	98.	90.	83.	78.	73.	68.	63.	60.
315	108.	98.	90.	83.	77.	72.	67.	63.	59.
330	108.	98.	89.	82.	76.	71.	67.	62.	58.
345	108.	98.	88.	82.	76.	70.	66.	61.	57.

Distance From Siren (feet)

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

ALTERNATIVE 2B

SOUND PRESSURE LEVELS

COMPUTER PRINT-OUT

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ5!b

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3			ETC		
0	100.	90.	82.	75.	70.	64.	59.	55.
15	100.	90.	81.	74.	68.	63.	58.	54.
30	100.	90.	81.	74.	68.	63.	58.	54.
45	100.	90.	81.	74.	68.	62.	57.	52.
60	100.	89.	80.	73.	67.	62.	56.	51.
75	100.	89.	80.	73.	66.	61.	55.	50.
90	100.	88.	80.	73.	66.	60.	55.	49.
105	100.	88.	80.	72.	65.	60.	54.	50.
120	100.	88.	79.	72.	65.	59.	55.	50.
135	100.	88.	80.	72.	65.	60.	54.	50.
150	100.	88.	80.	72.	65.	60.	54.	50.
165	100.	89.	80.	73.	66.	61.	55.	50.
180	100.	89.	80.	73.	67.	62.	56.	50.
195	100.	89.	80.	74.	68.	62.	57.	52.
210	100.	90.	81.	74.	68.	63.	58.	53.
225	100.	90.	81.	74.	68.	63.	58.	54.
240	100.	90.	82.	75.	69.	64.	59.	54.
255	100.	90.	82.	75.	70.	64.	59.	55.
270	100.	90.	82.	75.	70.	64.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	65.	60.	56.
315	100.	90.	82.	75.	70.	65.	60.	56.
330	100.	90.	82.	75.	70.	64.	60.	55.
345	100.	90.	82.	75.	70.	64.	59.	55.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ52b

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	90.	81.	74.	69.	62.	58.	53.
15	100.	90.	80.	74.	68.	62.	58.	52.
30	100.	89.	80.	74.	68.	62.	57.	51.
45	100.	88.	80.	74.	66.	61.	56.	51.
60	100.	85.	80.	73.	66.	61.	56.	51.
75	100.	85.	80.	73.	66.	61.	55.	50.
90	100.	88.	80.	73.	68.	61.	55.	49.
105	100.	89.	80.	73.	66.	61.	55.	50.
120	100.	88.	80.	73.	66.	61.	55.	50.
135	100.	89.	80.	73.	67.	61.	56.	51.
150	100.	89.	80.	74.	68.	62.	58.	52.
165	100.	90.	81.	74.	68.	63.	58.	53.
180	100.	90.	81.	75.	69.	64.	59.	54.
195	100.	90.	82.	75.	69.	64.	59.	54.
210	100.	90.	82.	75.	69.	64.	60.	55.
225	100.	90.	82.	75.	70.	64.	60.	55.
240	100.	90.	82.	75.	70.	65.	60.	56.
255	100.	90.	82.	75.	70.	65.	60.	56.
270	100.	90.	82.	75.	70.	65.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	82.	76.	70.	65.	60.	55.
315	100.	90.	82.	75.	70.	65.	60.	55.
330	100.	90.	82.	75.	69.	64.	59.	55.
345	100.	90.	82.	75.	69.	64.	58.	54.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ53b

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	89.	80.	74.	68.	64.	59.	53.
15	100.	89.	80.	74.	68.	63.	58.	53.
30	100.	89.	80.	74.	68.	62.	58.	52.
45	100.	89.	80.	73.	67.	62.	58.	52.
60	100.	89.	80.	73.	66.	61.	58.	51.
75	100.	89.	80.	73.	66.	61.	58.	50.
90	100.	89.	80.	73.	67.	62.	58.	50.
105	100.	89.	80.	73.	67.	62.	58.	51.
120	100.	90.	80.	73.	67.	61.	58.	51.
135	100.	90.	80.	74.	67.	62.	58.	51.
150	100.	90.	80.	74.	68.	62.	58.	53.
165	100.	90.	80.	74.	68.	63.	58.	54.
180	100.	90.	80.	74.	68.	64.	59.	54.
195	100.	90.	81.	74.	68.	64.	59.	54.
210	100.	90.	82.	75.	69.	64.	59.	49.
225	100.	90.	82.	75.	69.	64.	59.	54.
240	100.	90.	82.	75.	70.	64.	60.	54.
255	100.	90.	82.	75.	70.	64.	60.	55.
270	100.	90.	82.	75.	70.	64.	60.	55.
285	100.	90.	82.	75.	68.	64.	60.	55.
300	100.	90.	82.	75.	69.	64.	59.	55.
315	100.	90.	82.	75.	69.	64.	59.	55.
330	100.	90.	81.	75.	69.	64.	59.	55.
345	100.	90.	81.	75.	69.	64.	59.	54.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ54b

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	89.	81.	75.	70.	65.	60.	55.
15	100.	89.	80.	75.	70.	64.	59.	54.
30	100.	89.	80.	75.	69.	64.	59.	54.
45	100.	89.	80.	74.	69.	64.	59.	54.
60	100.	89.	80.	73.	68.	62.	59.	54.
75	100.	88.	80.	72.	65.	62.	58.	53.
90	100.	88.	80.	73.	66.	61.	54.	51.
105	100.	89.	80.	73.	66.	60.	54.	49.
120	100.	89.	80.	72.	66.	61.	55.	48.
135	100.	89.	80.	73.	66.	61.	56.	51.
150	100.	89.	80.	73.	66.	61.	55.	51.
165	100.	89.	80.	74.	67.	61.	56.	52.
180	100.	89.	80.	74.	68.	62.	58.	53.
195	100.	90.	81.	74.	68.	62.	58.	54.
210	100.	90.	82.	75.	69.	64.	58.	54.
225	100.	90.	82.	75.	69.	64.	59.	54.
240	100.	90.	82.	75.	70.	65.	60.	55.
255	100.	90.	82.	75.	70.	35.	60.	56.
270	100.	90.	82.	76.	70.	65.	60.	55.
285	100.	90.	82.	75.	70.	65.	60.	55.
300	100.	90.	82.	75.	69.	64.	59.	55.
315	100.	90.	82.	75.	69.	65.	60.	56.
330	100.	90.	82.	75.	70.	65.	61.	56.
345	100.	89.	82.	75.	70.	65.	60.	56.

Distance From Siren (feet): 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ55b

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	89.	80.	73.	67.	62.	57.	54.
15	100.	89.	80.	73.	67.	62.	57.	52.
30	100.	88.	80.	73.	67.	61.	55.	50.
45	100.	88.	80.	73.	66.	61.	55.	50.
60	100.	88.	80.	73.	68.	60.	55.	48.
75	100.	88.	80.	73.	67.	61.	55.	50.
90	100.	89.	80.	73.	67.	60.	55.	50.
105	100.	88.	80.	72.	65.	60.	55.	50.
120	100.	88.	80.	72.	65.	60.	55.	50.
135	100.	88.	80.	73.	67.	62.	56.	51.
150	100.	88.	80.	73.	67.	62.	57.	52.
165	100.	88.	80.	73.	67.	62.	57.	52.
180	100.	89.	80.	74.	68.	62.	58.	54.
195	100.	89.	80.	74.	68.	63.	58.	54.
210	100.	90.	81.	74.	69.	63.	58.	55.
225	100.	90.	81.	74.	69.	64.	59.	55.
240	100.	90.	82.	75.	70.	64.	59.	55.
255	100.	90.	82.	75.	70.	65.	60.	55.
270	100.	90.	81.	75.	69.	64.	60.	56.
285	100.	90.	81.	75.	70.	64.	60.	55.
300	100.	90.	81.	75.	70.	64.	59.	54.
315	100.	90.	81.	75.	69.	64.	58.	54.
330	100.	90.	81.	75.	68.	63.	58.	54.
345	100.	90.	81.	74.	68.	62.	58.	53.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ56b

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	90.	82.	75.	69.	64.	60.	55.
15	100.	90.	82.	75.	69.	64.	60.	55.
30	100.	90.	82.	75.	69.	64.	59.	55.
45	100.	90.	82.	75.	69.	64.	59.	54.
60	100.	90.	82.	75.	69.	64.	59.	54.
75	100.	90.	82.	75.	69.	64.	59.	54.
90	100.	90.	82.	75.	69.	64.	58.	53.
105	100.	90.	81.	74.	68.	62.	56.	53.
120	100.	90.	80.	74.	68.	62.	57.	51.
135	100.	90.	81.	74.	68.	62.	58.	53.
150	100.	90.	81.	74.	68.	63.	58.	54.
165	100.	90.	81.	74.	68.	63.	58.	53.
180	100.	90.	81.	74.	68.	62.	58.	51.
195	100.	90.	81.	74.	68.	63.	58.	51.
210	100.	90.	81.	74.	68.	62.	58.	53.
225	100.	90.	82.	74.	68.	63.	58.	53.
240	100.	90.	82.	75.	69.	63.	58.	53.
255	100.	90.	82.	75.	69.	64.	59.	54.
270	100.	90.	82.	75.	69.	64.	59.	54.
285	100.	90.	82.	75.	69.	64.	59.	54.
300	100.	90.	82.	75.	69.	64.	59.	55.
315	100.	90.	82.	75.	70.	64.	60.	55.
330	100.	90.	82.	75.	70.	64.	60.	55.
345	100.	90.	82.	75.	70.	64.	59.	55.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ57b

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3			ETC		
0	100.	90.	81.	74.	69.	64.	58.	50.
15	100.	90.	80.	70.	64.	59.	49.	51.
30	100.	90.	90.	70.	64.	60.	56.	51.
45	100.	89.	81.	74.	64.	61.	58.	53.
60	100.	89.	80.	74.	64.	61.	56.	53.
75	100.	89.	80.	74.	64.	59.	56.	53.
90	100.	88.	79.	74.	68.	62.	56.	51.
105	100.	87.	79.	73.	66.	61.	55.	49.
120	100.	87.	79.	71.	66.	60.	55.	50.
135	100.	87.	79.	72.	65.	59.	54.	49.
150	100.	89.	79.	72.	66.	60.	55.	50.
165	100.	89.	79.	74.	66.	61.	56.	51.
180	100.	89.	80.	73.	66.	61.	57.	52.
195	100.	89.	80.	74.	67.	61.	58.	53.
210	100.	90.	81.	74.	68.	62.	58.	53.
225	100.	90.	82.	75.	69.	64.	59.	54.
240	100.	90.	82.	75.	69.	64.	59.	54.
255	100.	90.	82.	75.	69.	64.	59.	54.
270	100.	90.	82.	75.	69.	64.	59.	54.
285	100.	90.	82.	75.	69.	64.	59.	55.
300	100.	90.	82.	75.	70.	64.	59.	55.
315	100.	90.	82.	75.	70.	64.	59.	54.
330	100.	90.	82.	75.	70.	64.	59.	54.
345	100.	90.	82.	75.	69.	64.	59.	55.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ58b

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1		2		3		ETC	
0	100.	90.	81.	74.	68.	64.	59.	54.
15	100.	90.	81.	74.	68.	63.	58.	54.
30	100.	90.	81.	74.	68.	62.	58.	53.
45	100.	90.	80.	74.	68.	62.	57.	51.
60	100.	90.	80.	74.	67.	62.	56.	51.
75	100.	90.	80.	73.	67.	61.	56.	51.
90	100.	89.	80.	73.	67.	61.	56.	50.
105	100.	89.	80.	73.	66.	60.	55.	49.
120	100.	90.	80.	74.	67.	61.	56.	50.
135	100.	89.	80.	73.	66.	61.	56.	50.
150	100.	89.	80.	74.	67.	62.	56.	51.
165	100.	90.	80.	74.	68.	62.	58.	54.
180	100.	90.	81.	74.	68.	63.	59.	54.
195	100.	90.	81.	74.	68.	64.	59.	55.
210	100.	90.	82.	75.	69.	64.	60.	55.
225	100.	90.	82.	75.	70.	65.	60.	55.
240	100.	90.	82.	75.	70.	65.	60.	56.
255	100.	90.	82.	75.	70.	65.	60.	56.
270	100.	91.	82.	75.	70.	65.	60.	56.
285	100.	90.	82.	76.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	65.	60.	56.
315	100.	90.	82.	75.	70.	65.	60.	56.
330	100.	90.	82.	75.	70.	64.	60.	55.
345	100.	90.	82.	75.	69.	64.	59.	55.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ59b

SOUND PRESSURE LEVELS

Angle θ From East (degrees)	RADIUS 1	2	3	ETC				
0	100.	90.	81.	74.	68.	63.	58.	54.
15	100.	90.	81.	74.	69.	62.	58.	53.
30	100.	90.	80.	74.	69.	62.	57.	51.
45	100.	90.	80.	74.	67.	62.	56.	51.
60	100.	89.	80.	73.	67.	61.	56.	50.
75	100.	89.	80.	73.	66.	61.	55.	50.
90	100.	89.	80.	73.	66.	61.	55.	50.
105	100.	89.	80.	73.	67.	61.	55.	50.
120	100.	89.	80.	74.	67.	61.	56.	50.
135	100.	90.	80.	74.	67.	62.	56.	50.
150	100.	90.	80.	74.	68.	62.	57.	52.
165	100.	90.	81.	74.	68.	62.	58.	52.
180	100.	90.	81.	74.	68.	63.	58.	53.
195	100.	90.	81.	75.	69.	64.	59.	54.
210	100.	90.	81.	75.	69.	64.	59.	55.
225	100.	90.	82.	75.	69.	64.	59.	55.
240	100.	90.	82.	75.	70.	64.	59.	55.
255	100.	90.	82.	75.	70.	65.	60.	56.
270	100.	90.	82.	75.	70.	65.	60.	56.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	65.	60.	56.
315	100.	90.	82.	75.	70.	65.	60.	55.
330	100.	90.	82.	75.	70.	64.	59.	55.
345	100.	90.	81.	74.	69.	64.	59.	54.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ50b

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1	2	3	ETC				
0	100.	89.	80.	73.	67.	62.	57.	51.
15	100.	89.	80.	73.	66.	61.	55.	49.
30	100.	89.	80.	72.	65.	59.	54.	50.
45	100.	88.	79.	72.	65.	59.	55.	51.
60	100.	88.	79.	71.	64.	60.	56.	52.
75	100.	88.	79.	71.	64.	60.	56.	52.
90	100.	88.	79.	71.	65.	59.	55.	51.
105	100.	88.	79.	72.	65.	60.	54.	50.
120	100.	89.	80.	72.	66.	60.	55.	50.
135	100.	89.	80.	73.	67.	61.	56.	51.
150	100.	90.	80.	74.	68.	62.	58.	52.
165	100.	90.	81.	74.	68.	63.	58.	54.
180	100.	90.	81.	74.	69.	64.	59.	54.
195	100.	90.	82.	75.	69.	64.	59.	55.
210	100.	90.	82.	75.	70.	64.	60.	55.
225	100.	90.	82.	75.	70.	65.	60.	56.
240	100.	90.	82.	76.	70.	65.	60.	56.
255	100.	90.	82.	76.	70.	65.	60.	56.
270	100.	90.	82.	76.	70.	65.	61.	56.
285	100.	90.	82.	75.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	65.	60.	55.
315	100.	90.	82.	75.	69.	64.	59.	55.
330	100.	90.	81.	74.	68.	63.	59.	54.
345	100.	90.	80.	74.	68.	62.	58.	53.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

SOUND PRESSURE LEVELS (dB)

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

SIREN # AZ61b

SOUND PRESSURE LEVELS

RADIUS

Angle θ From East (degrees)	1		2		3		ETC	
0	100.	90.	80.	74.	68.	62.	56.	51.
15	100.	89.	80.	73.	67.	61.	55.	50.
30	100.	89.	80.	73.	66.	60.	54.	49.
45	100.	89.	80.	72.	65.	59.	54.	52.
60	100.	88.	79.	72.	65.	59.	55.	51.
75	100.	88.	79.	71.	65.	59.	55.	51.
90	100.	88.	79.	72.	65.	60.	54.	50.
105	100.	89.	80.	72.	66.	60.	54.	50.
120	100.	89.	80.	73.	66.	61.	55.	50.
135	100.	89.	80.	74.	67.	62.	56.	51.
150	100.	90.	81.	74.	68.	62.	58.	53.
165	100.	90.	81.	74.	68.	63.	58.	54.
180	100.	90.	82.	75.	69.	64.	59.	54.
195	100.	90.	82.	75.	70.	64.	59.	55.
210	100.	90.	82.	75.	70.	65.	60.	55.
225	100.	90.	82.	76.	70.	65.	60.	56.
240	100.	91.	82.	76.	71.	65.	61.	56.
255	100.	91.	82.	76.	71.	65.	61.	56.
270	100.	91.	82.	76.	71.	65.	61.	57.
285	100.	90.	82.	76.	70.	65.	60.	56.
300	100.	90.	82.	75.	70.	65.	60.	56.
315	100.	90.	82.	75.	70.	64.	59.	55.
330	100.	90.	81.	75.	69.	64.	59.	54.
345	100.	90.	81.	74.	68.	62.	58.	53.
Distance From Siren (feet)	1000	2000	3000	4000	5000	6000	7000	8000

Computer Analysis by:

ACOUSTIC TECHNOLOGY INC.

APPENDIX 3

60 dBC SOUND CONTOURS

CONTENTS

ALTERNATIVE 1

AND

ALTERNATIVE 1B

SOUND LEVEL CONTOURS --

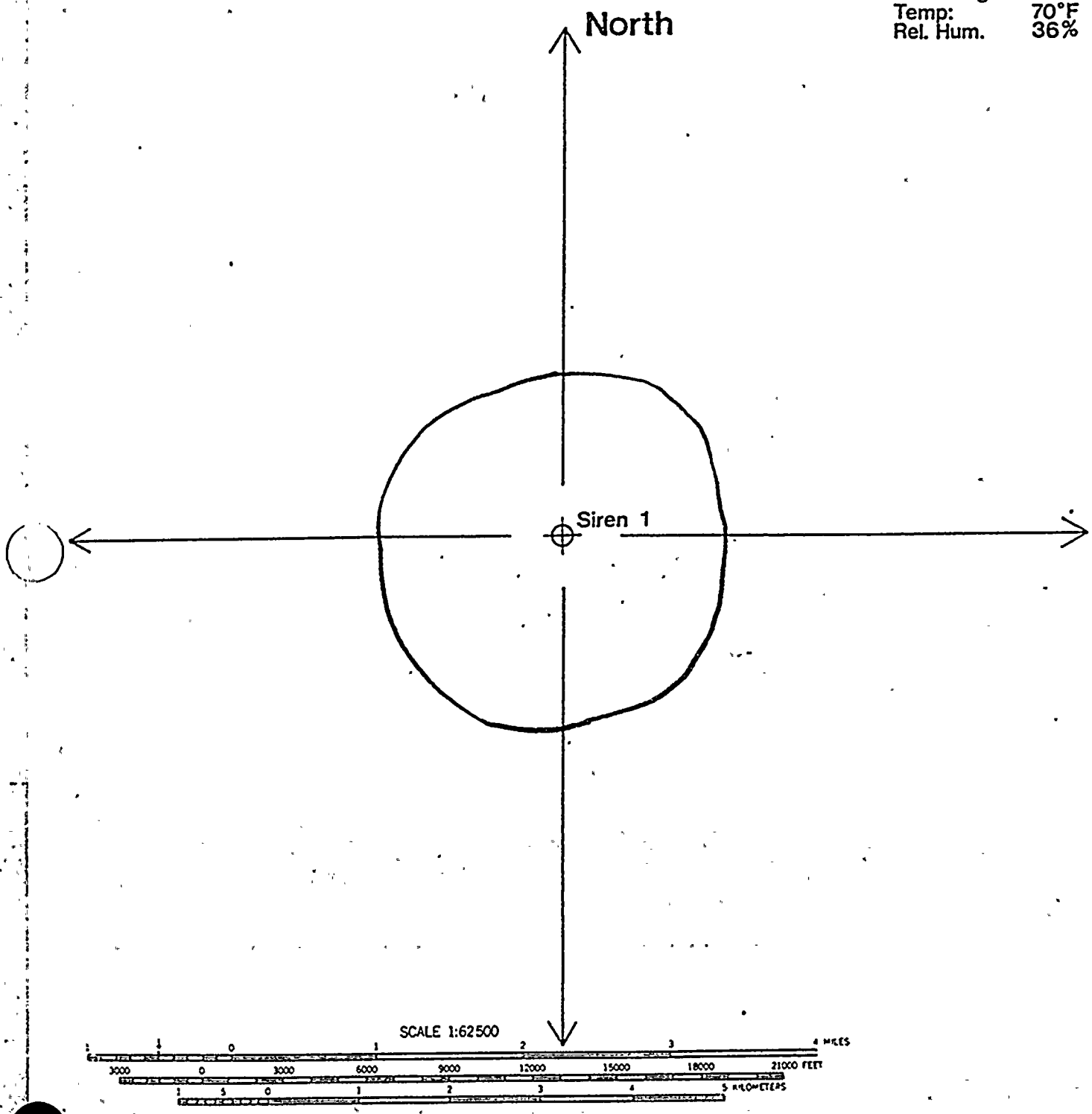
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



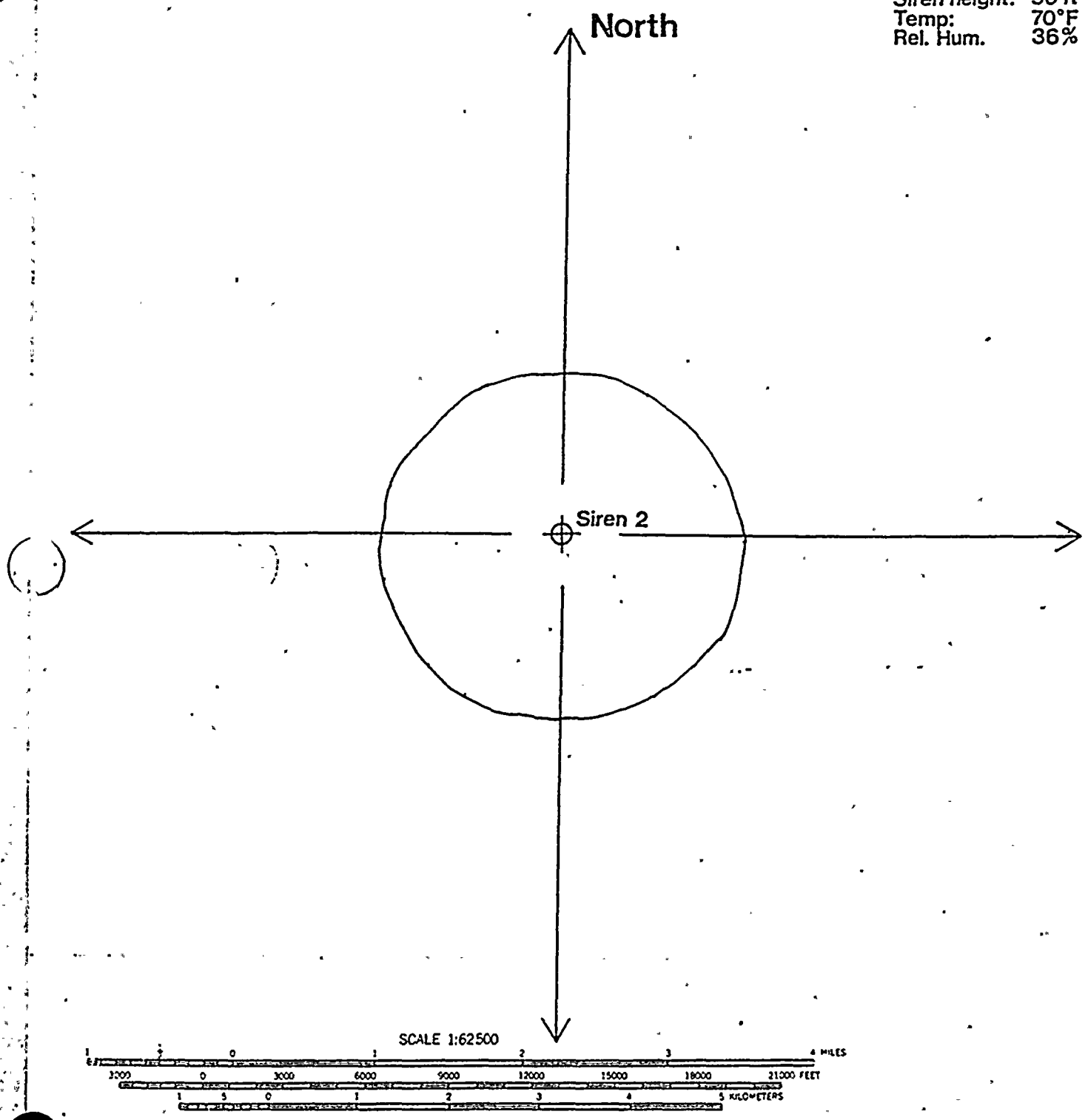
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

-- Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



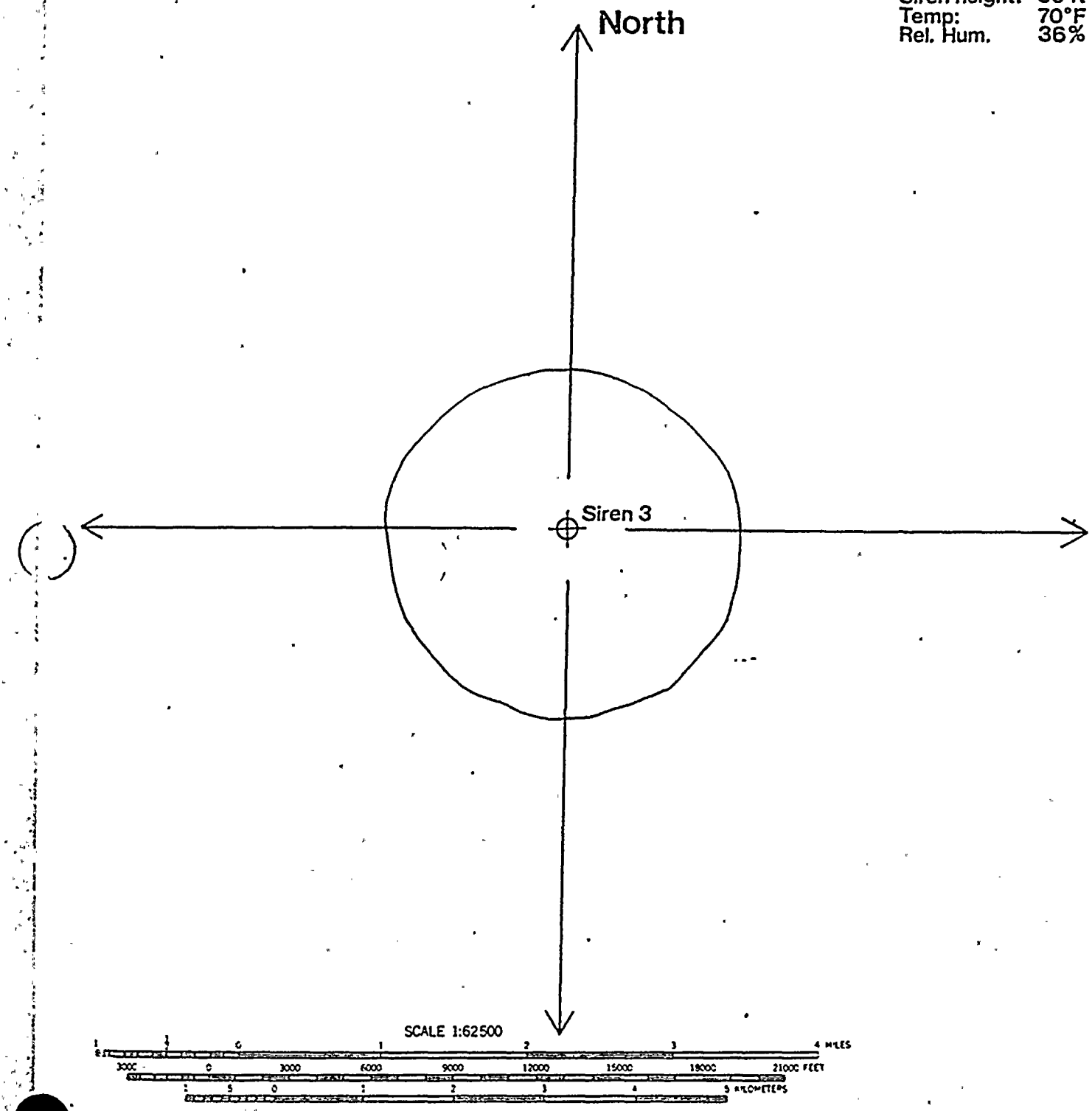
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



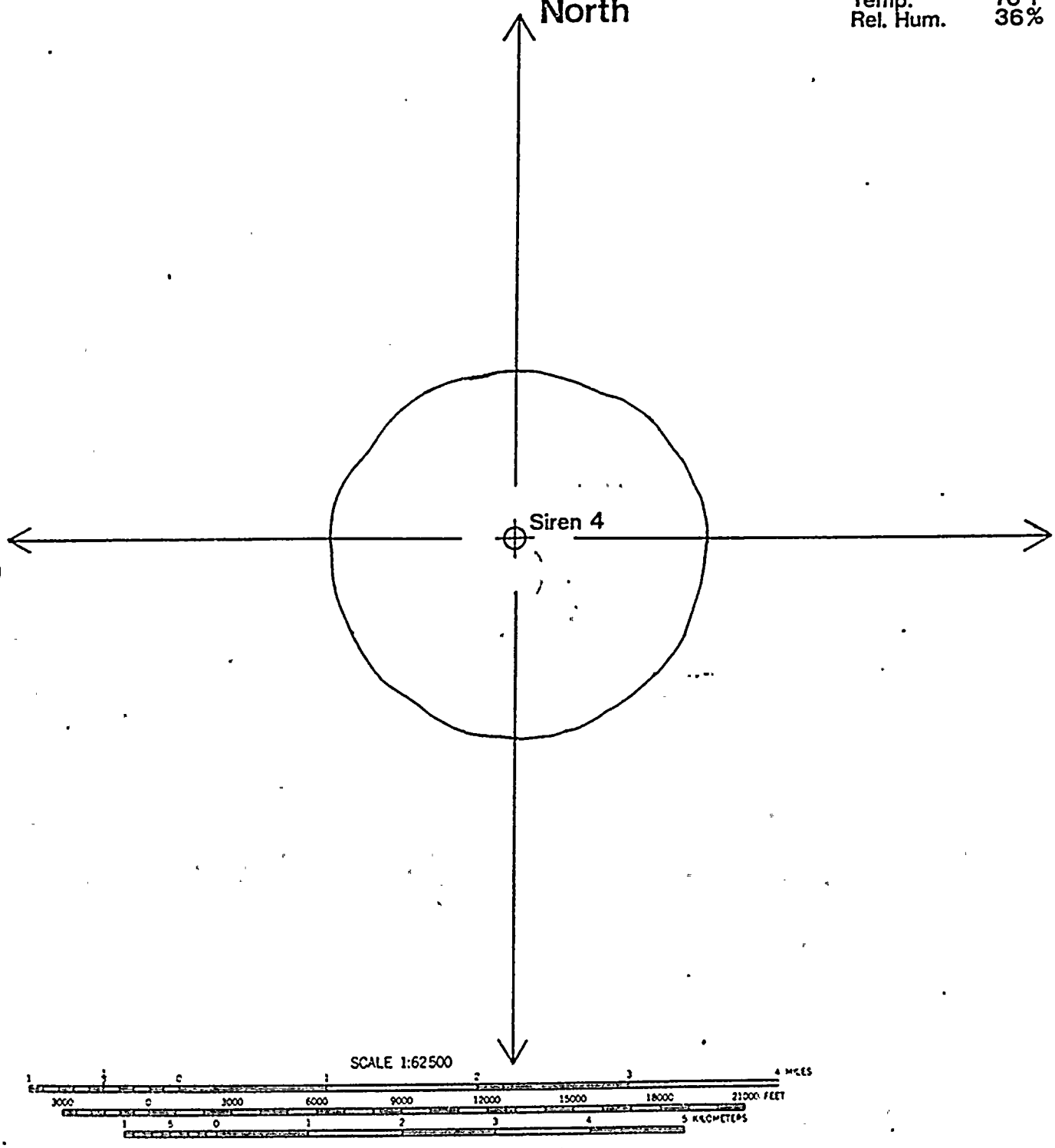
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



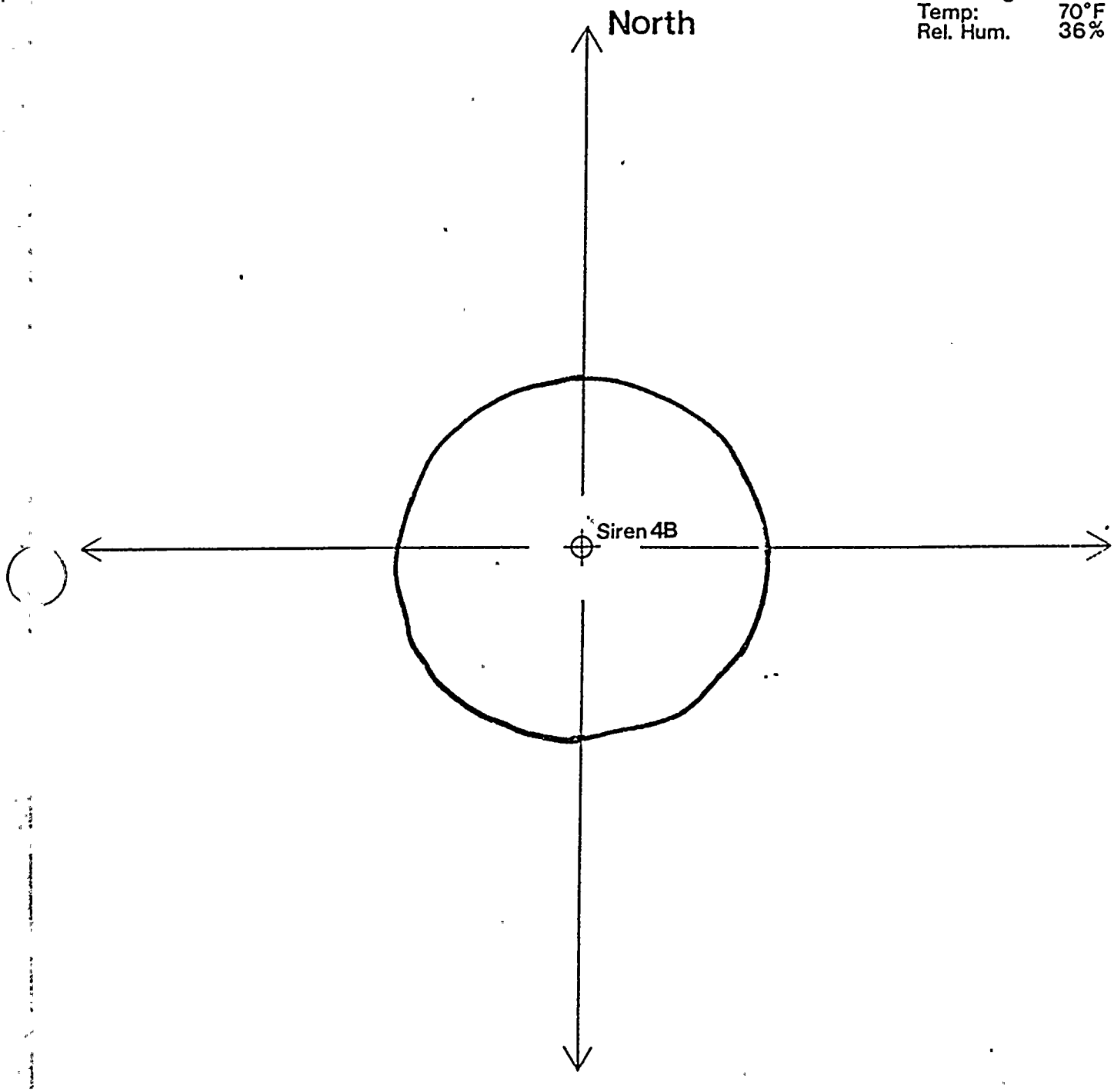
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



SCALE 1:62500

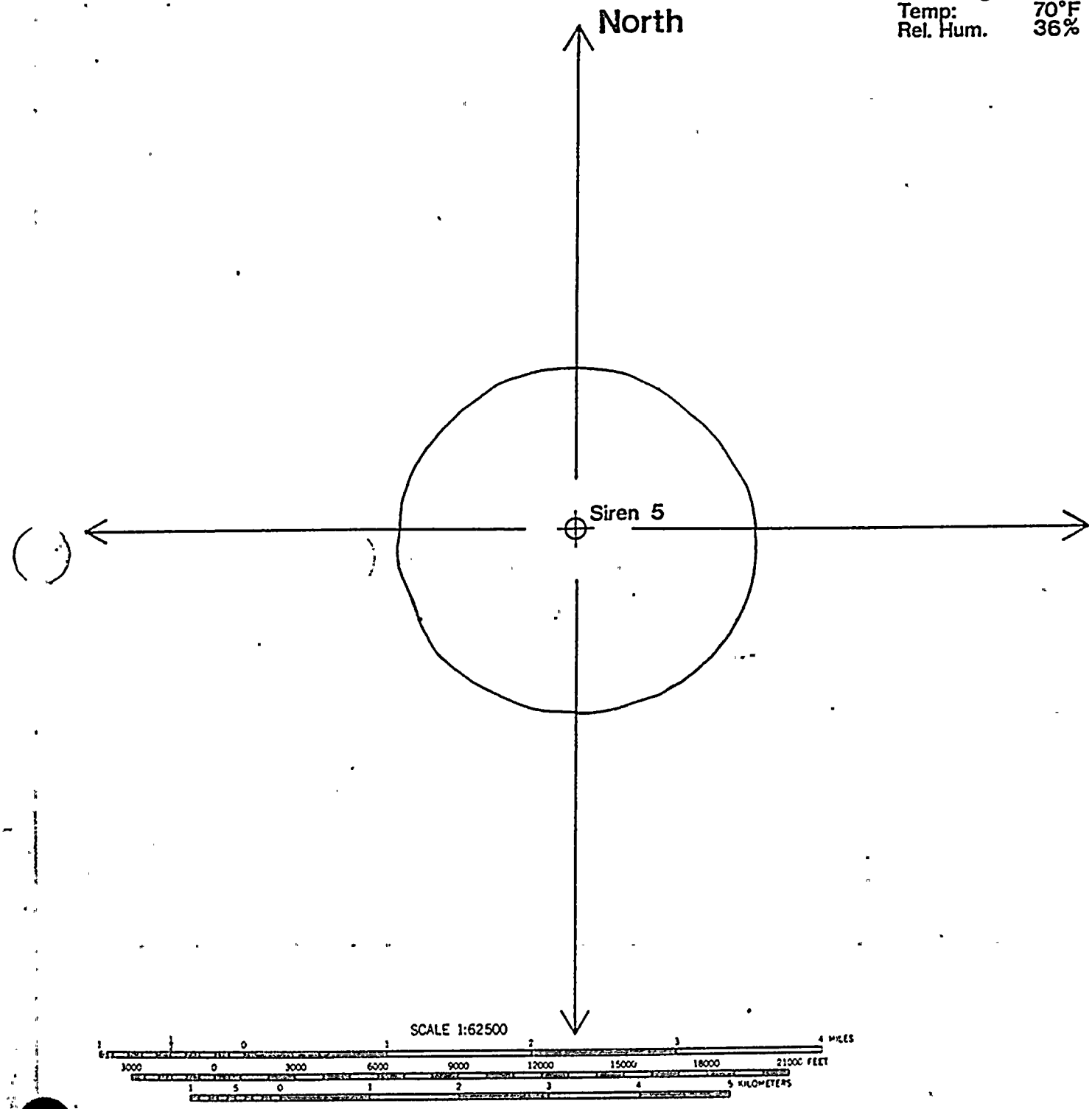
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



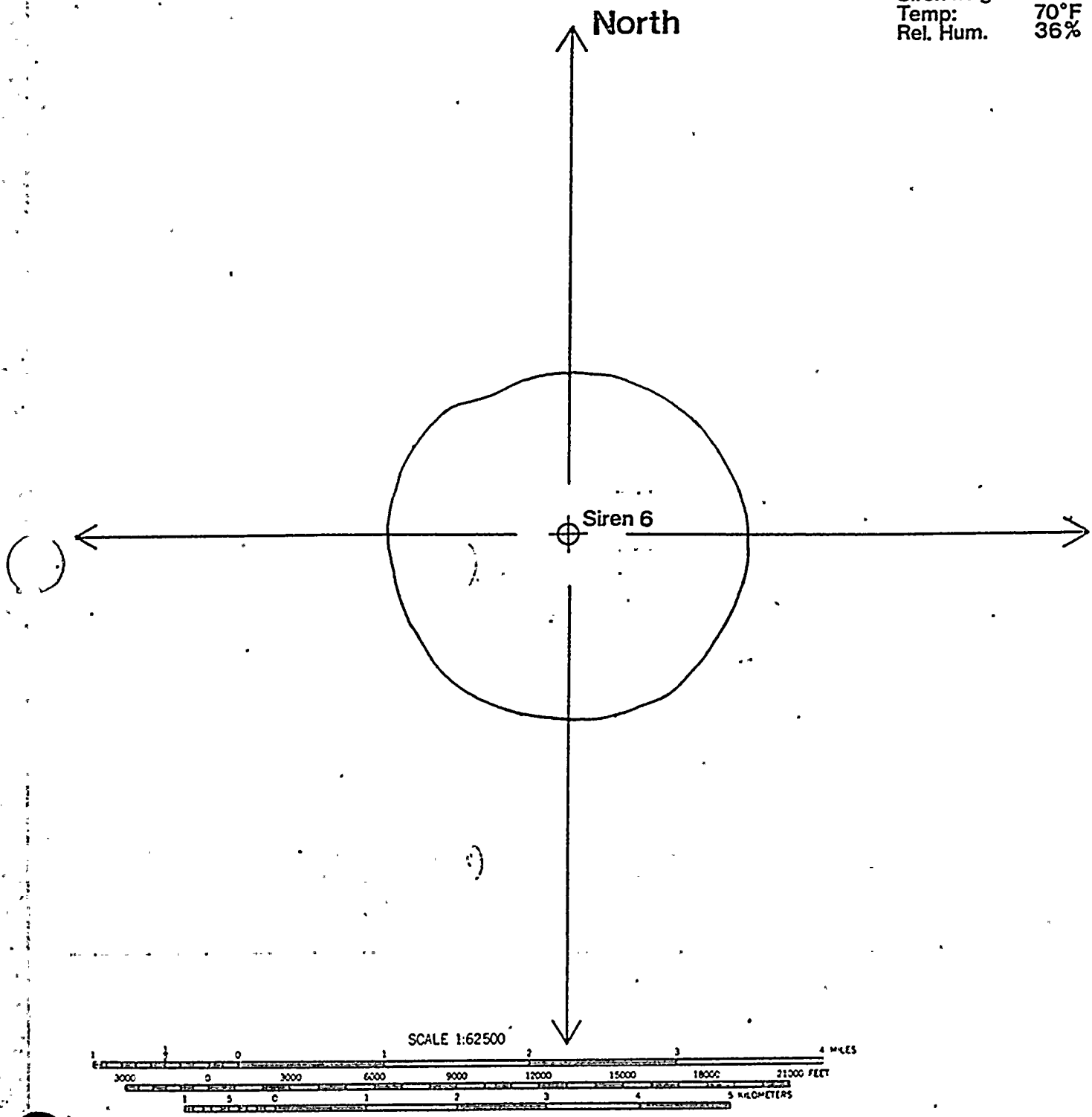
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



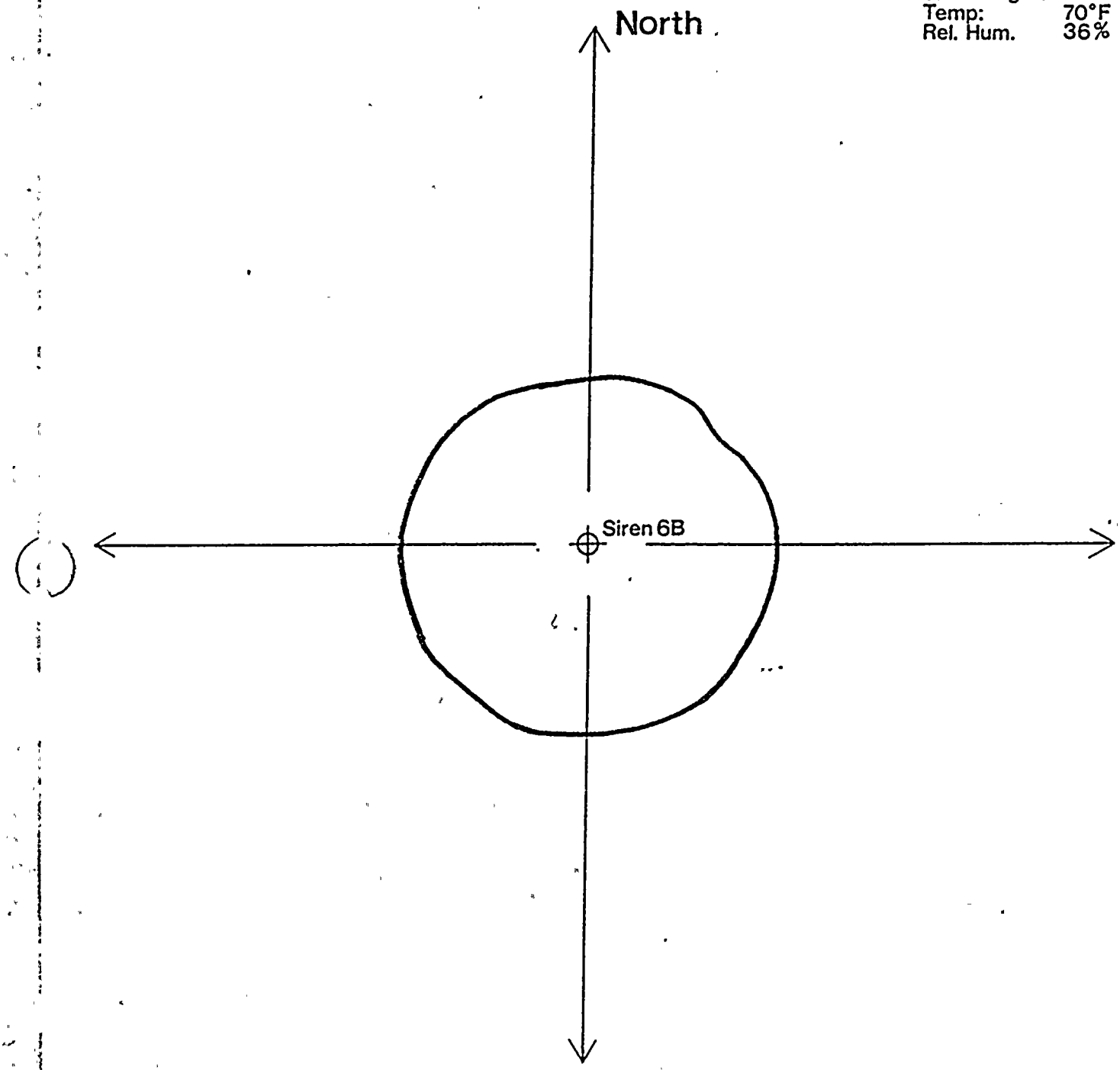
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

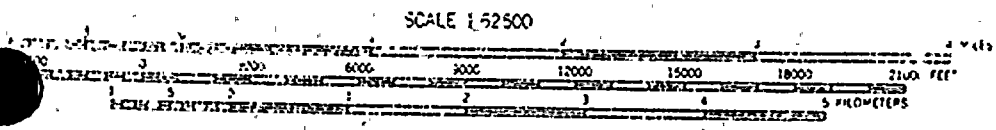
ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



SCALE 1:52500



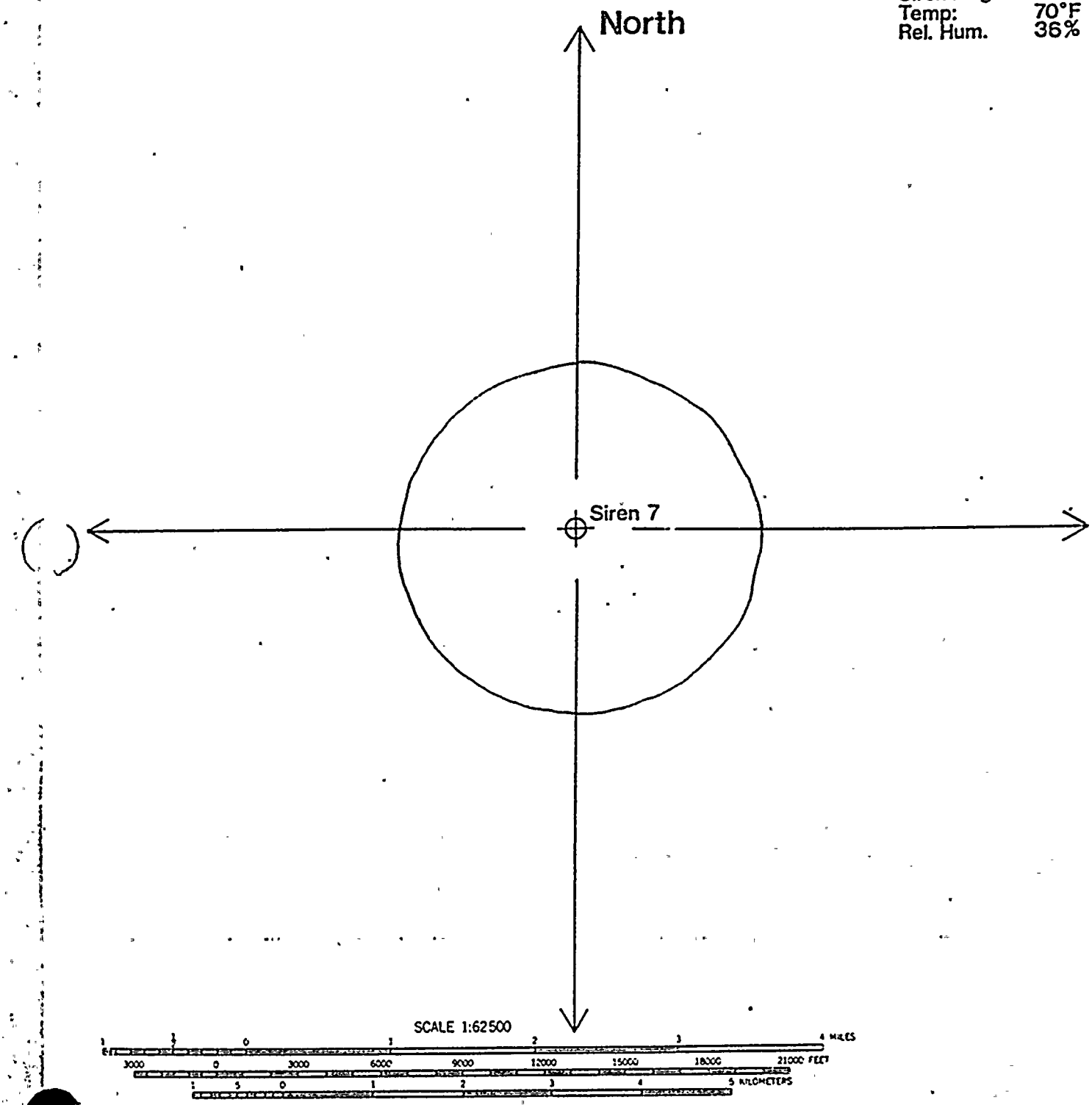
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



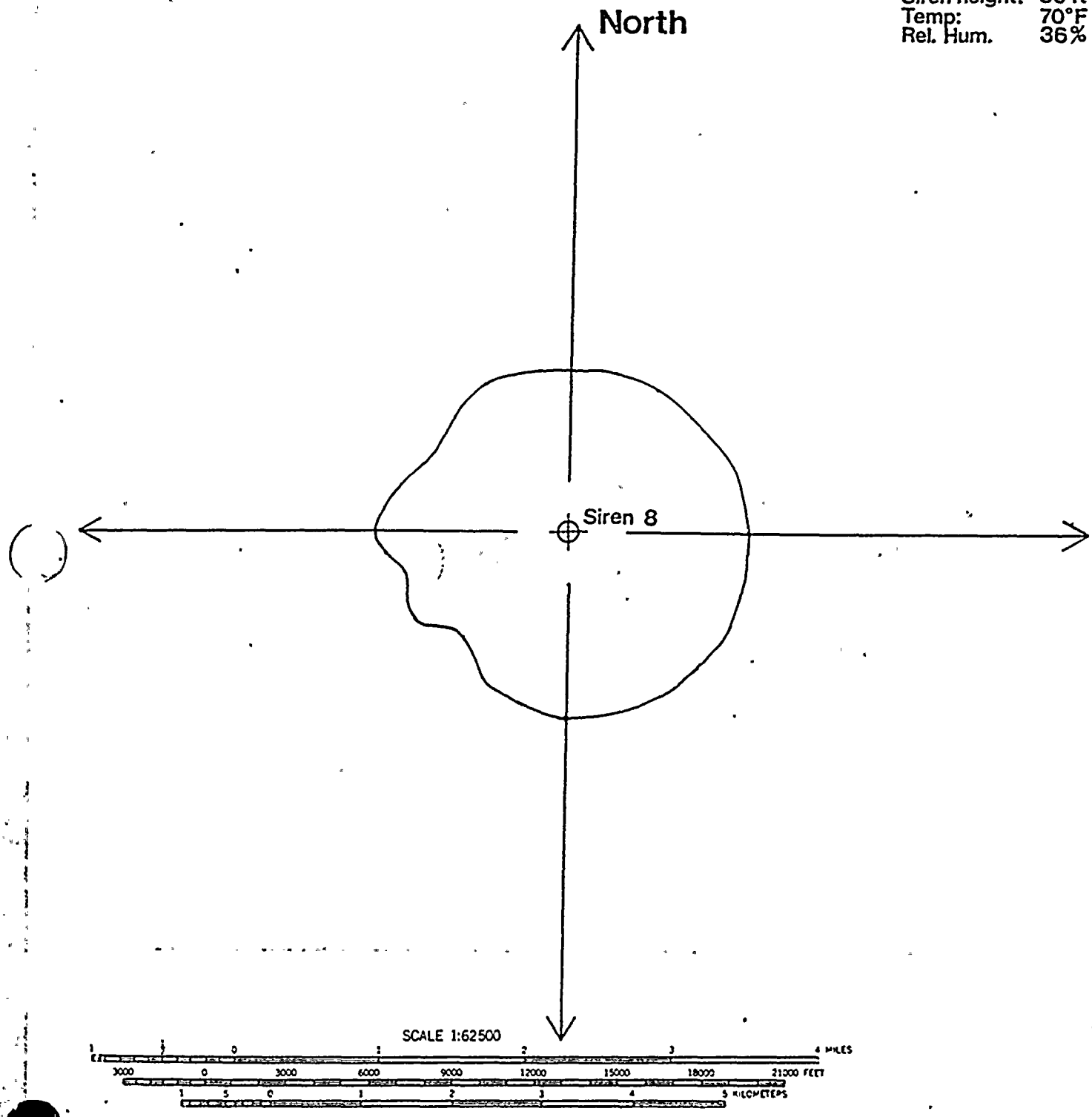
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



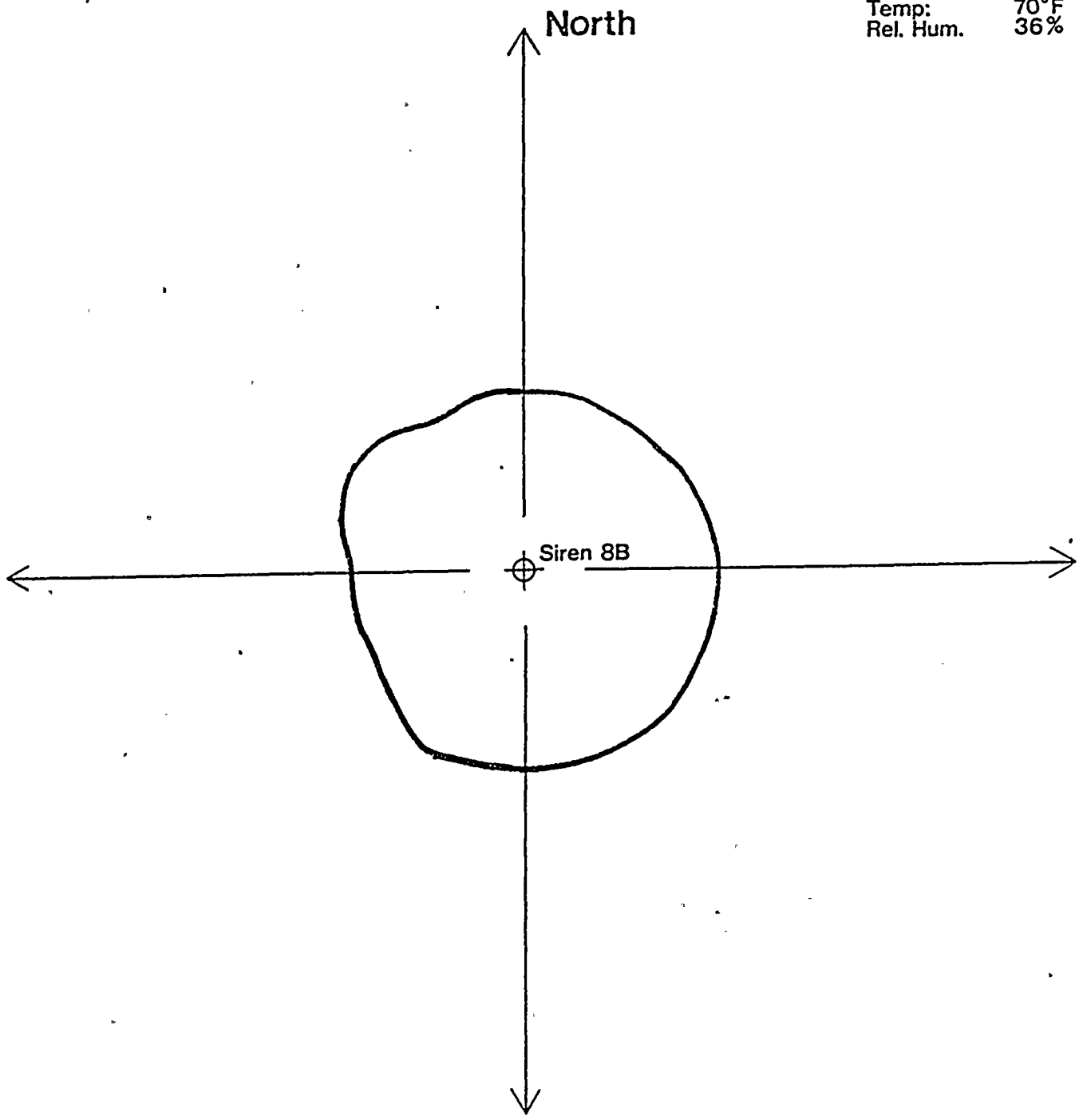
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

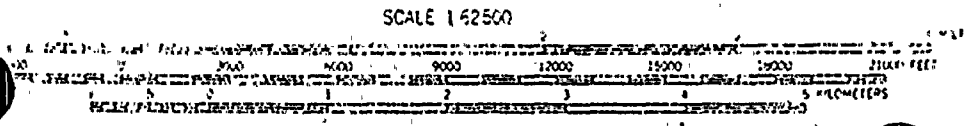
ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



SCALE 1:62500



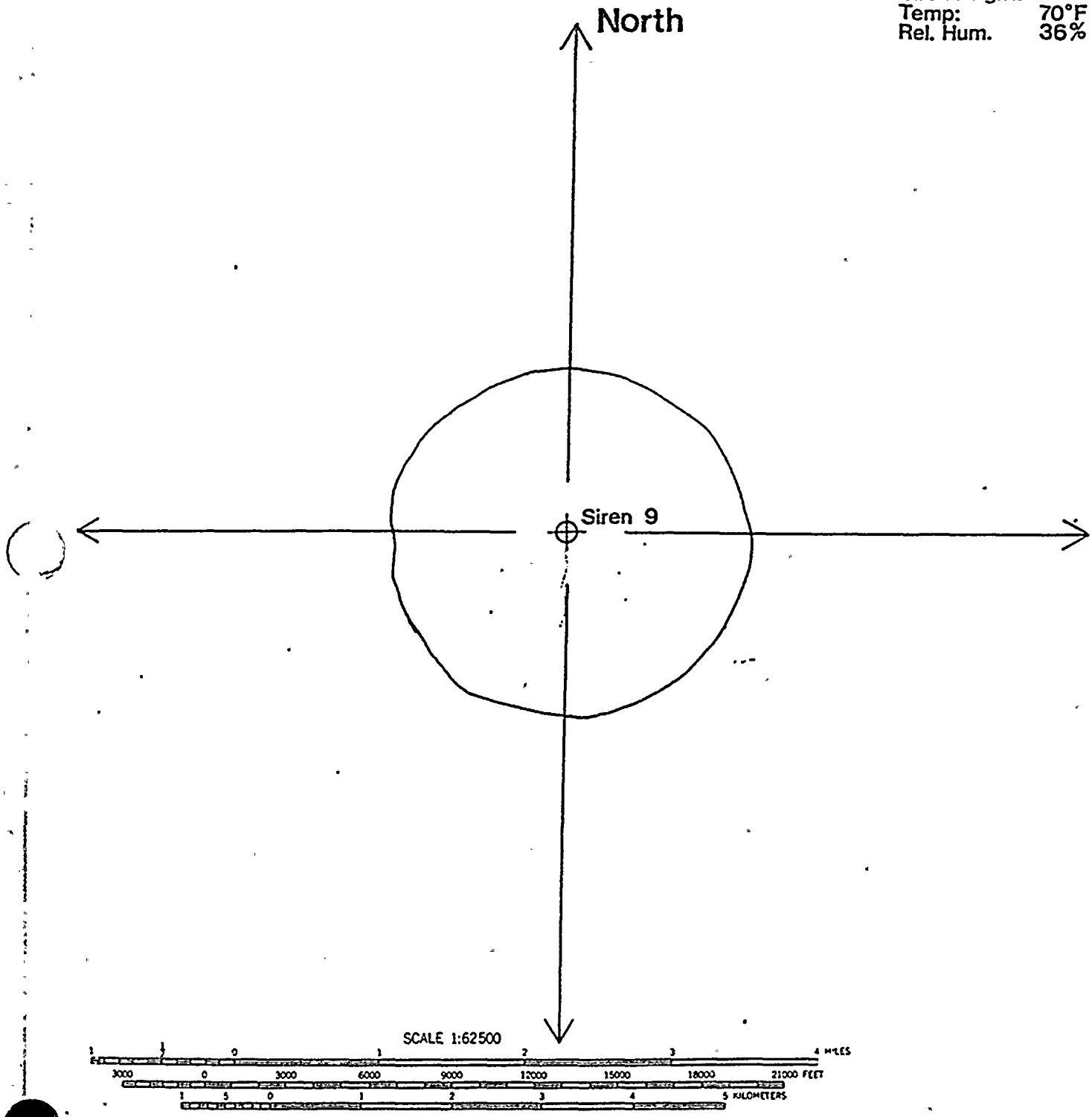
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



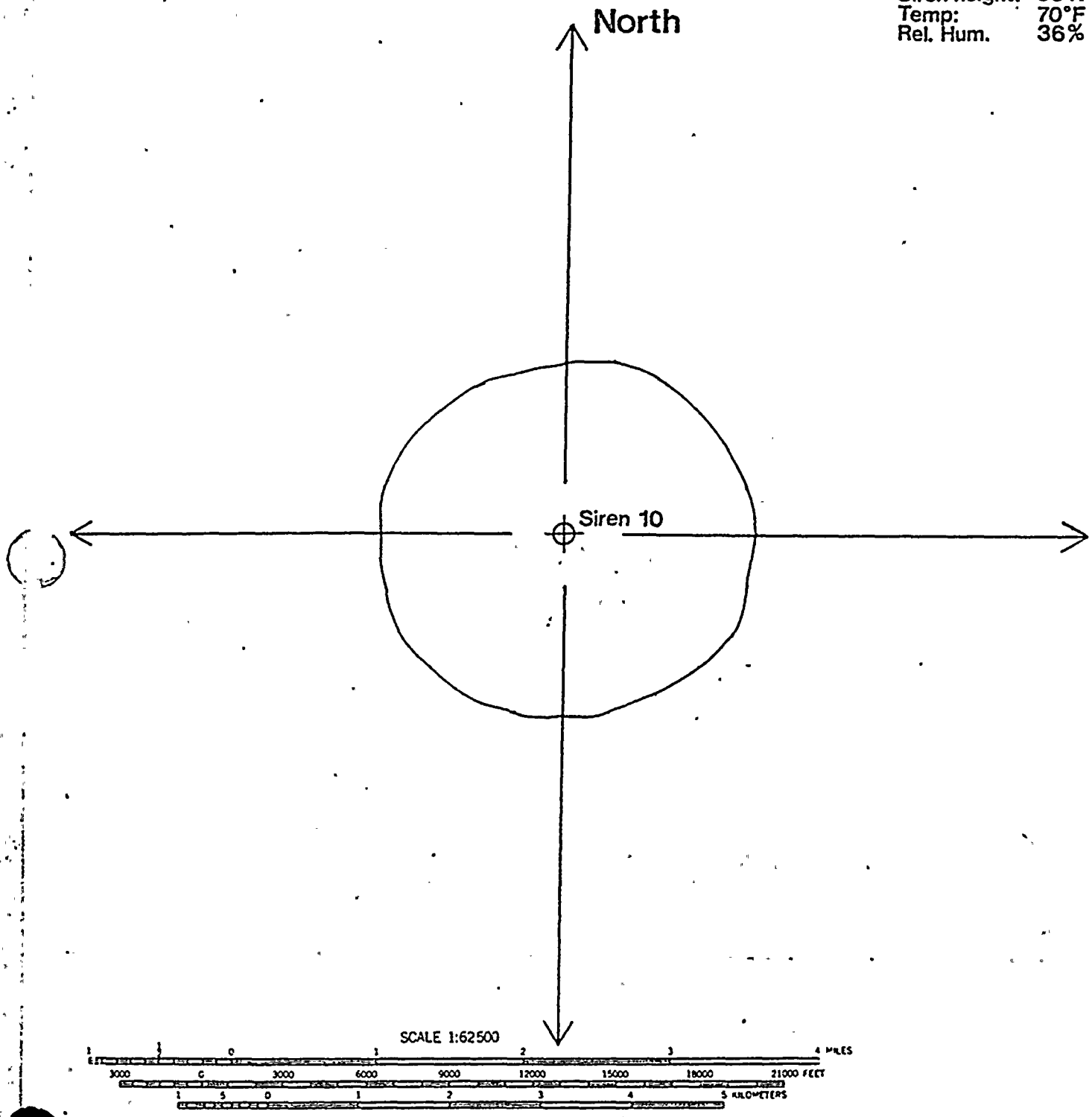
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



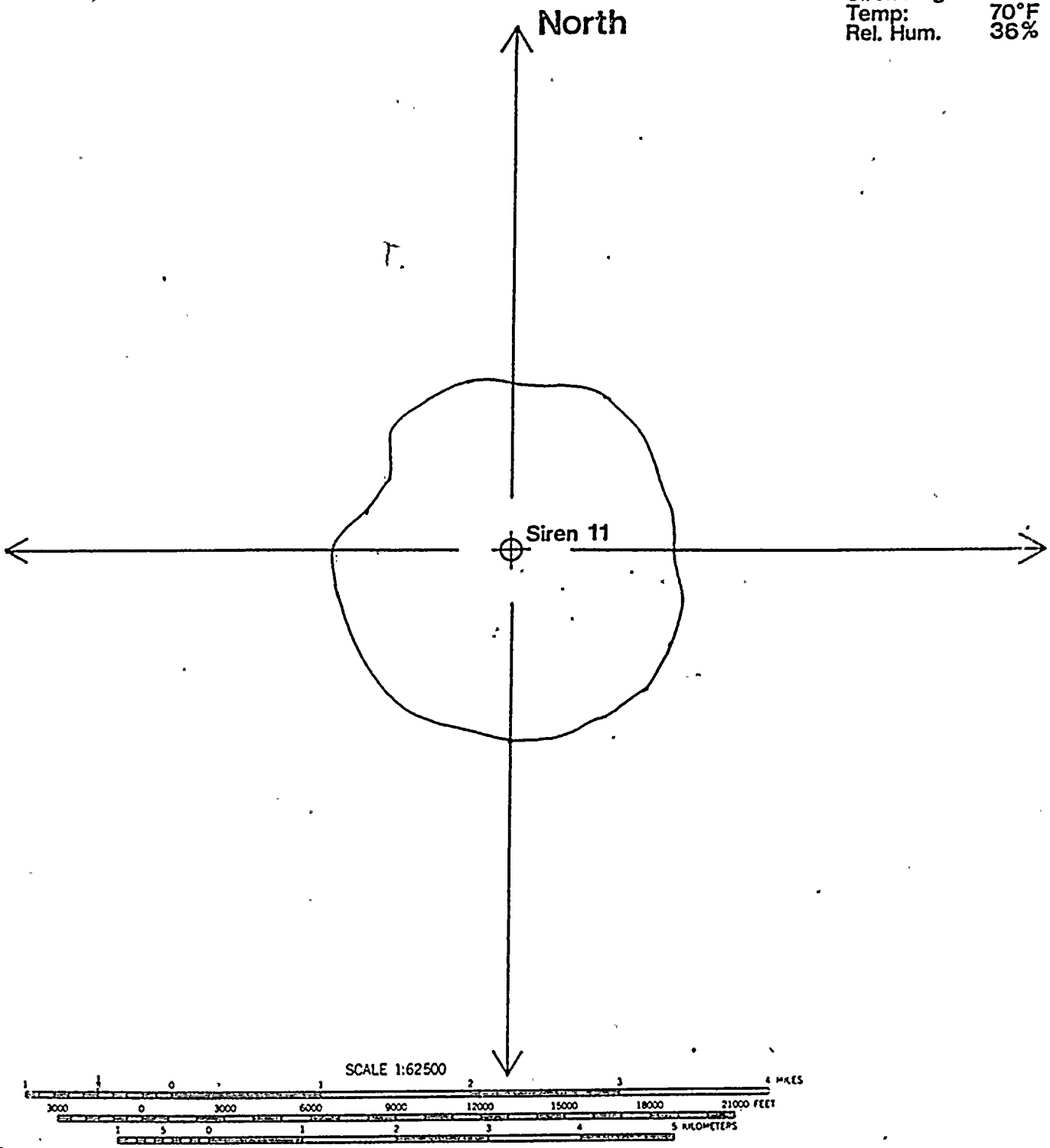
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

-- Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



ACOUSTIC TECHNOLOGY INC.

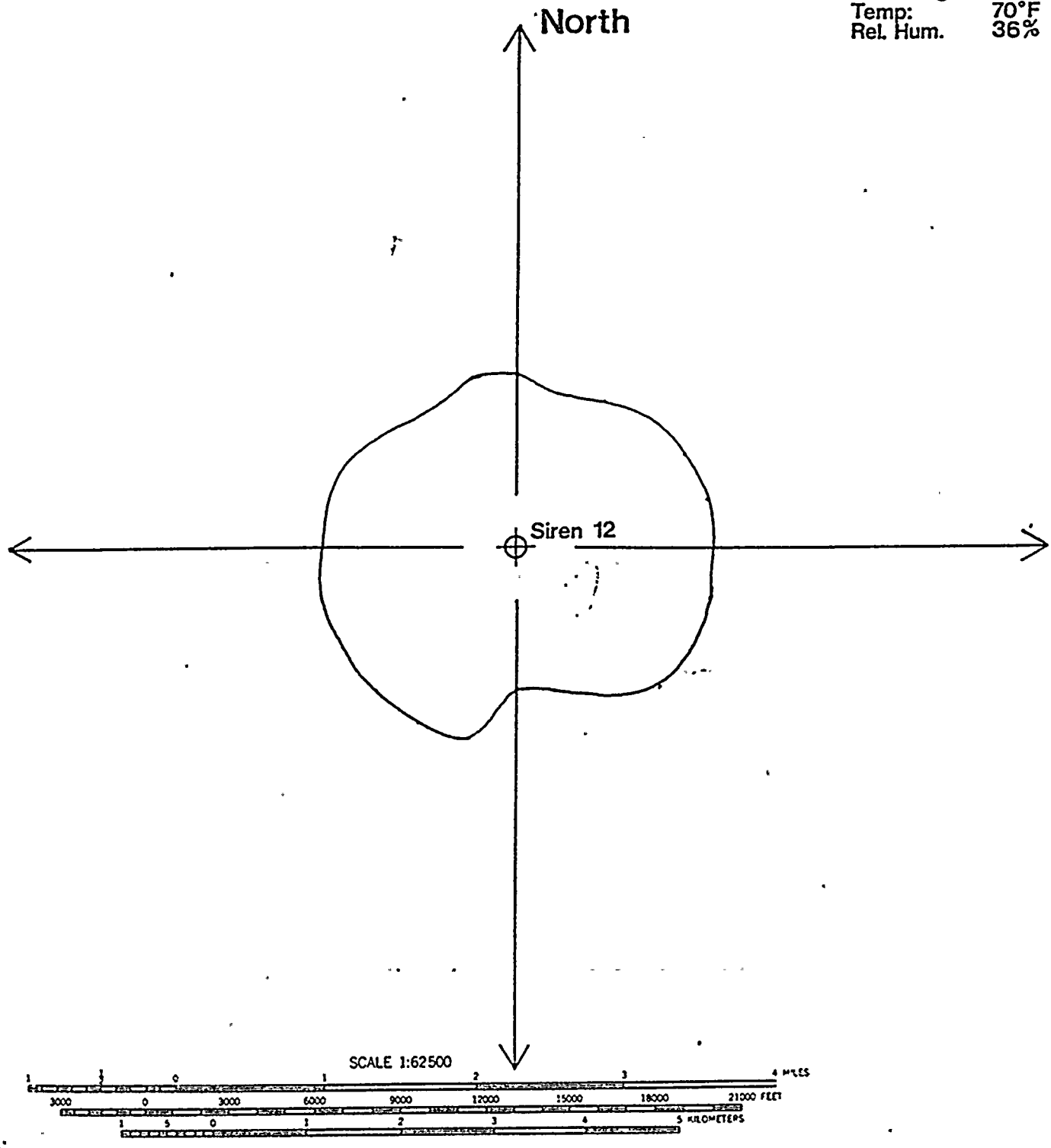
7

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



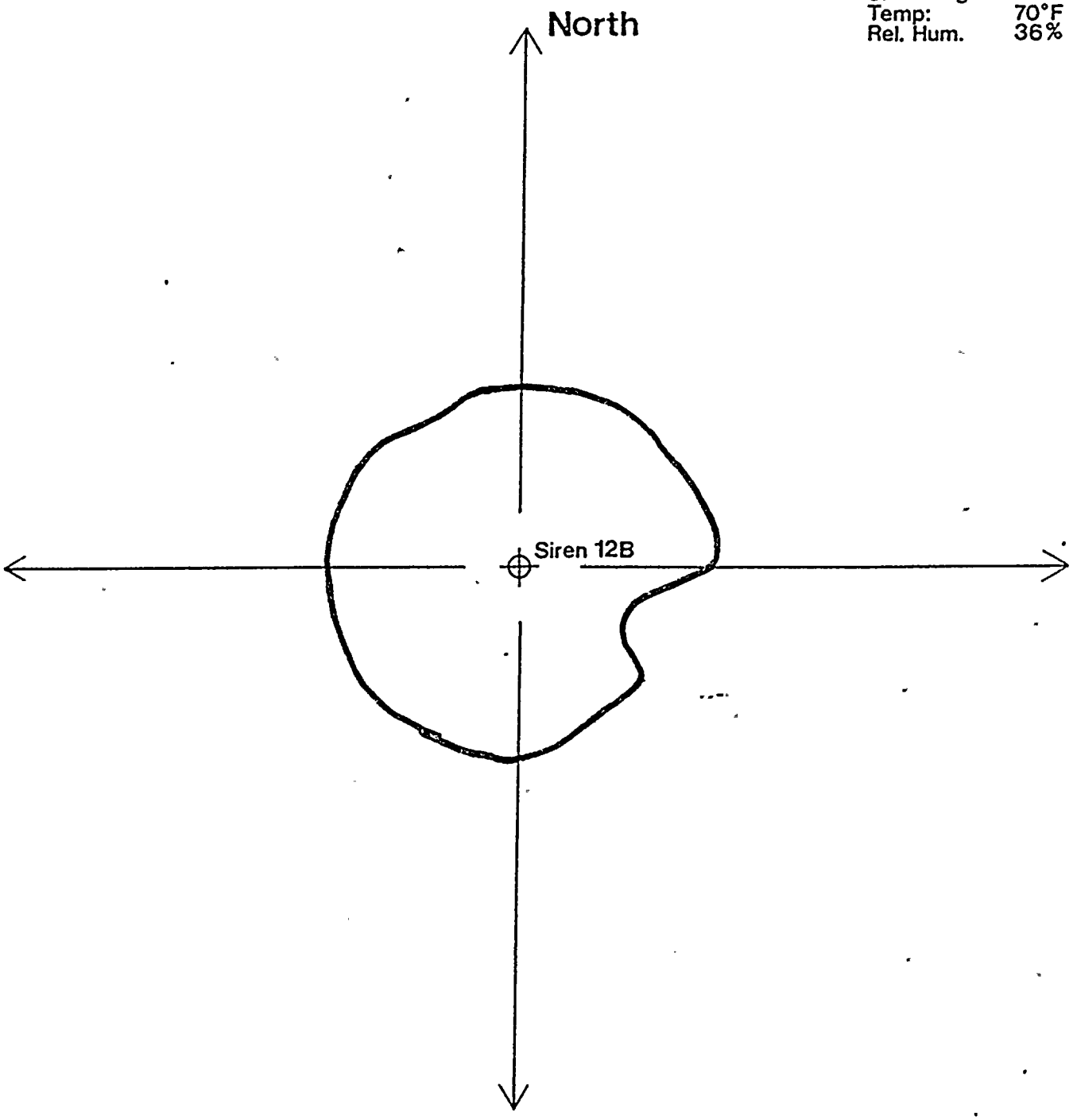
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

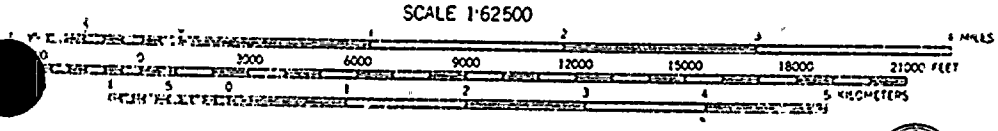
ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



SCALE 1:62500



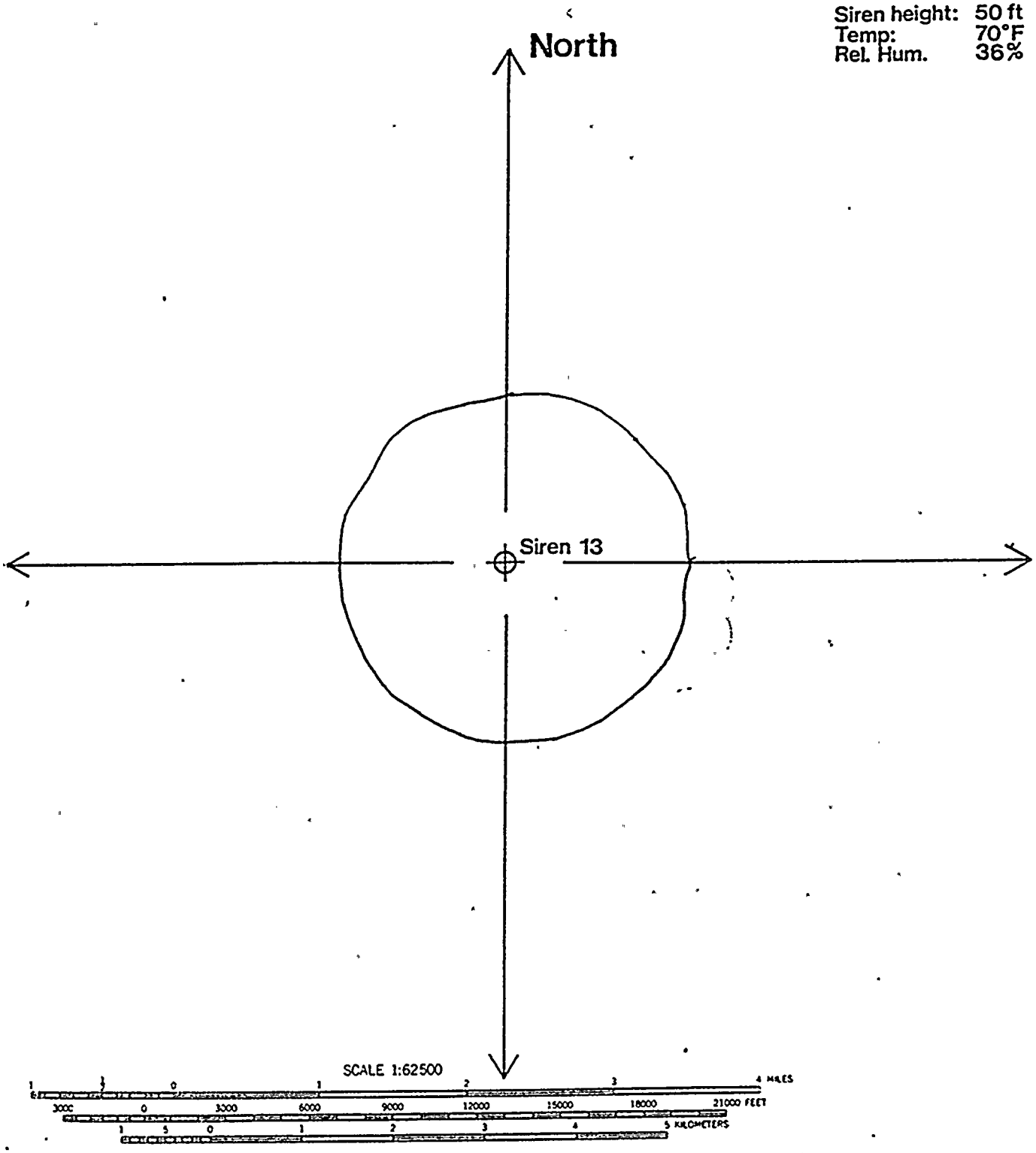
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



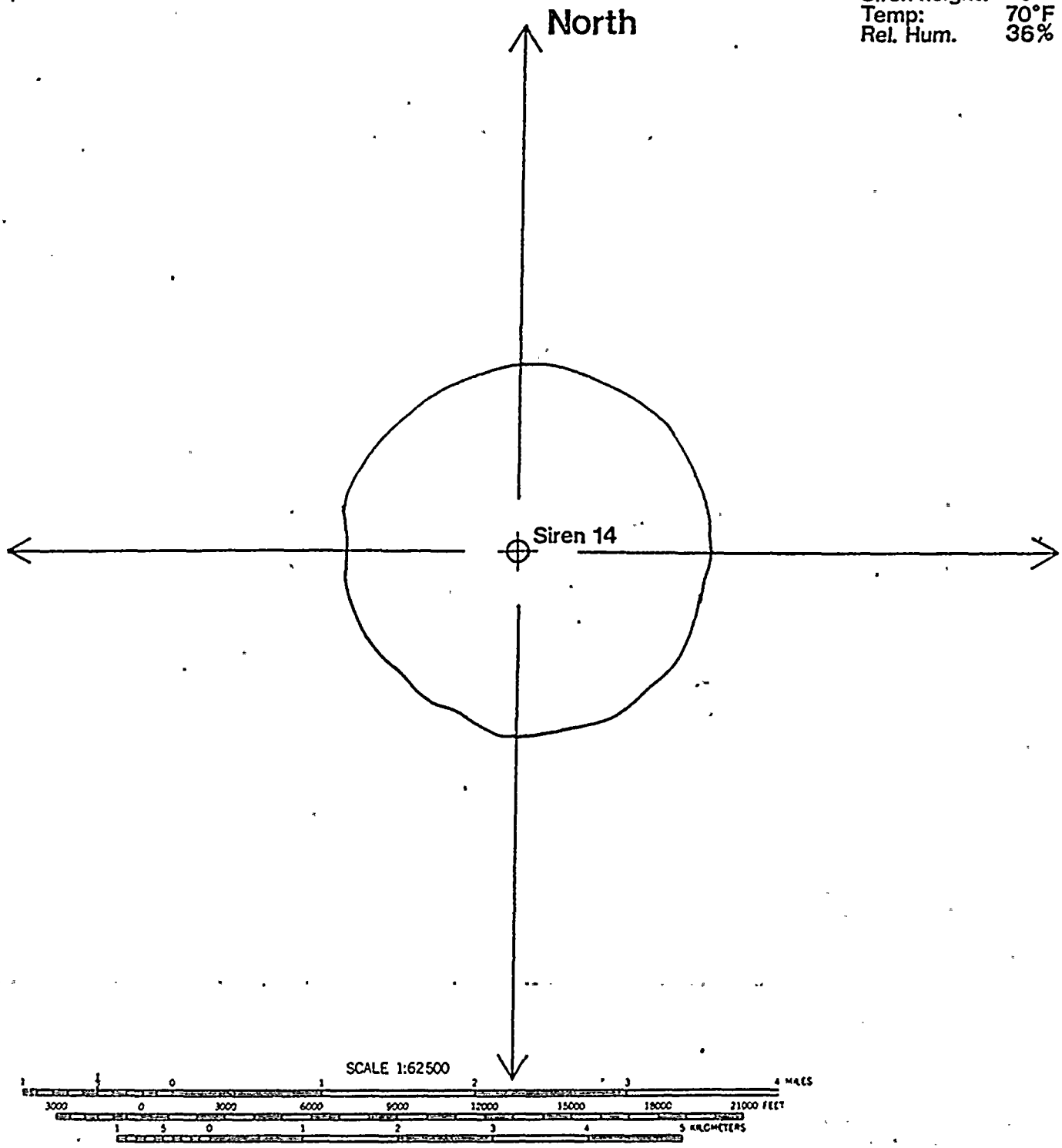
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



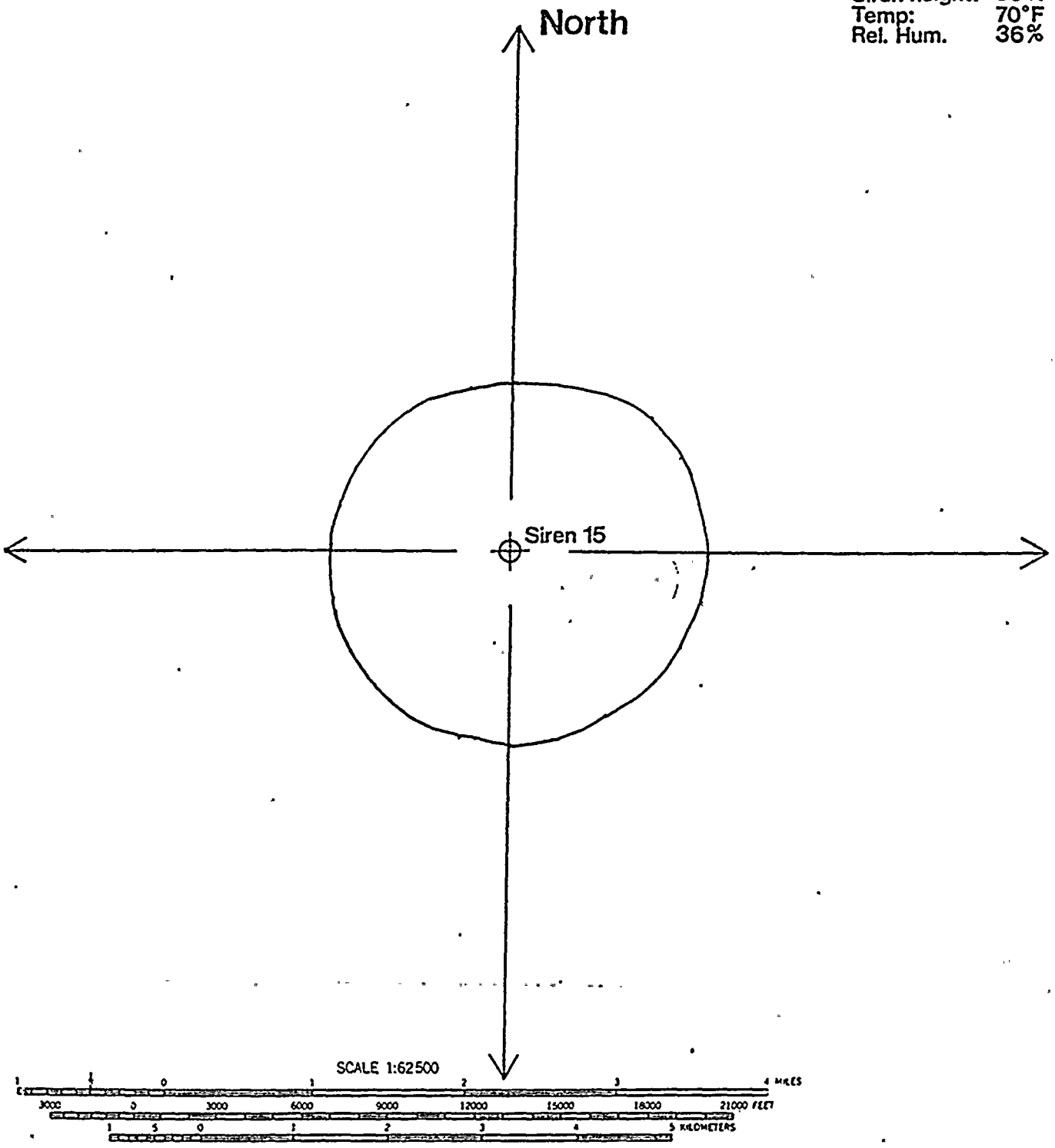
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



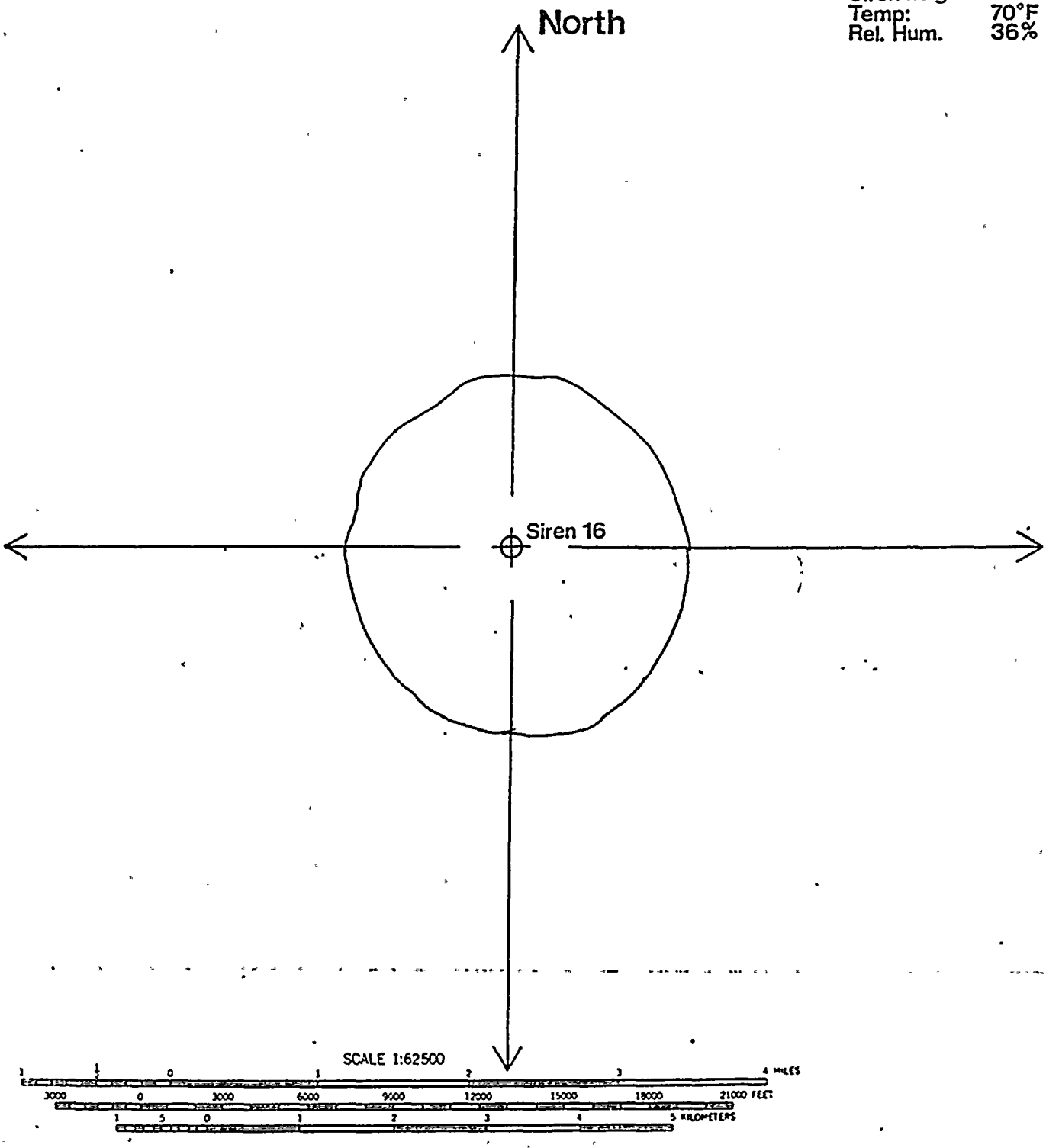
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



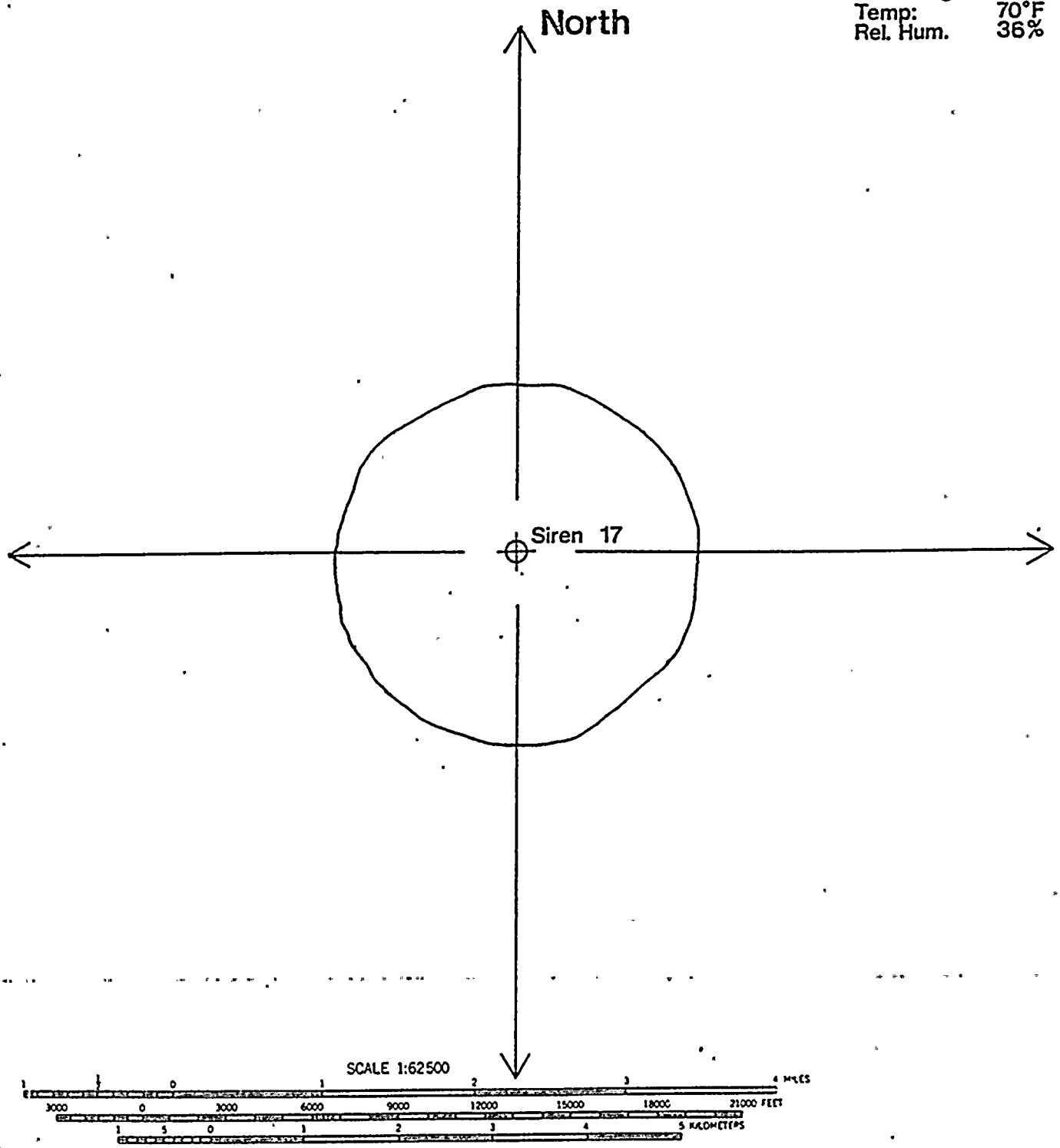
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



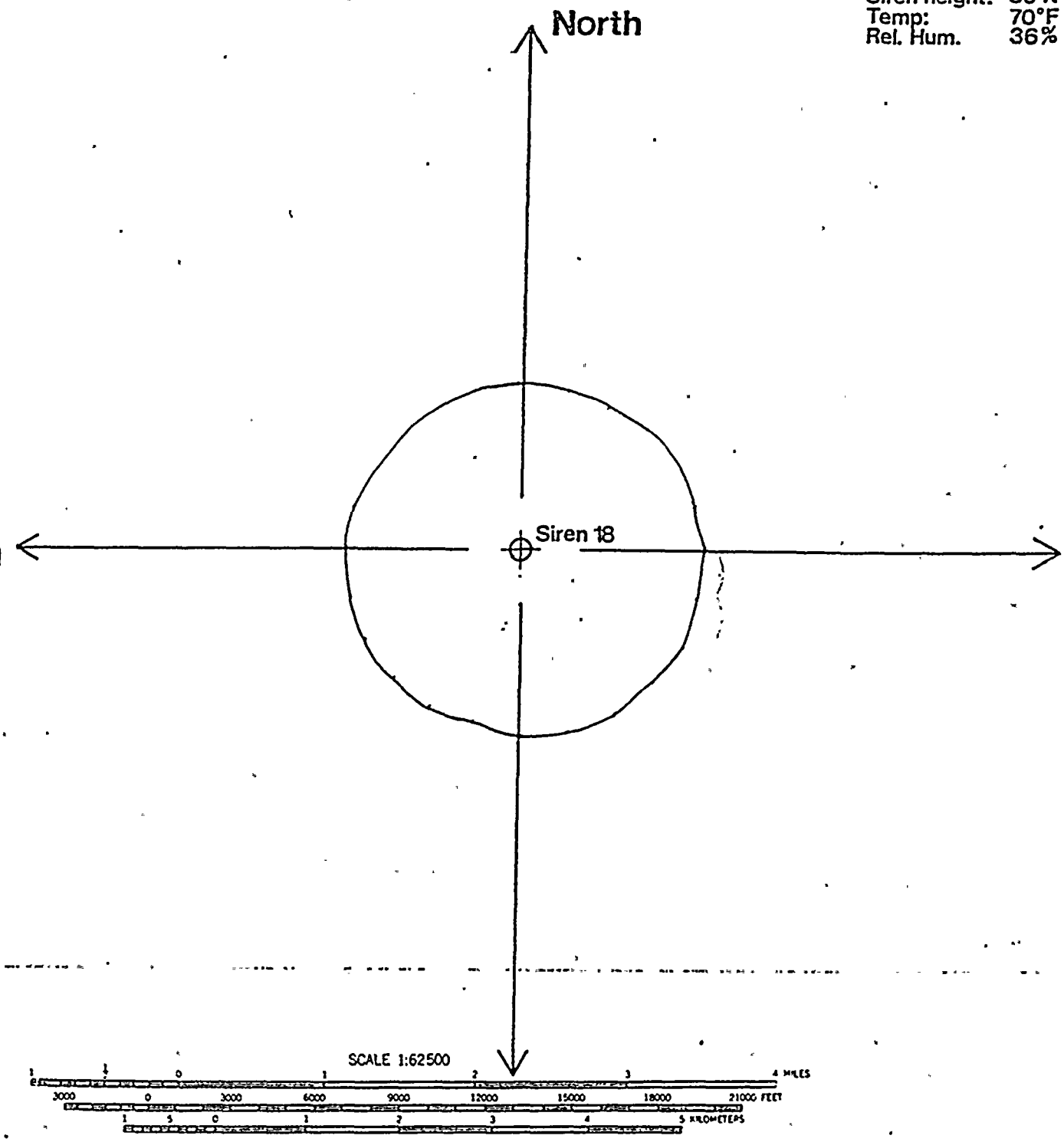
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



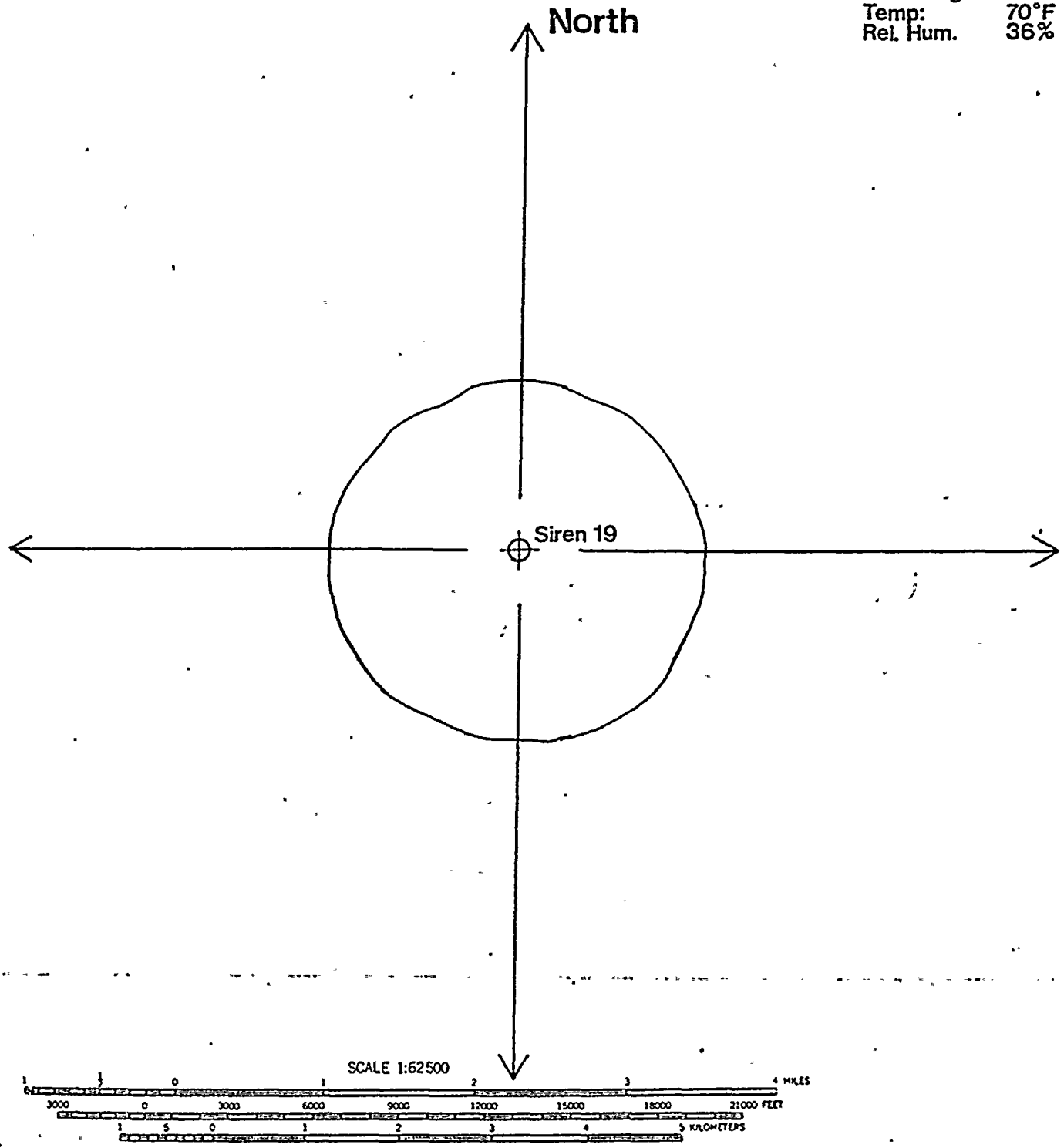
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



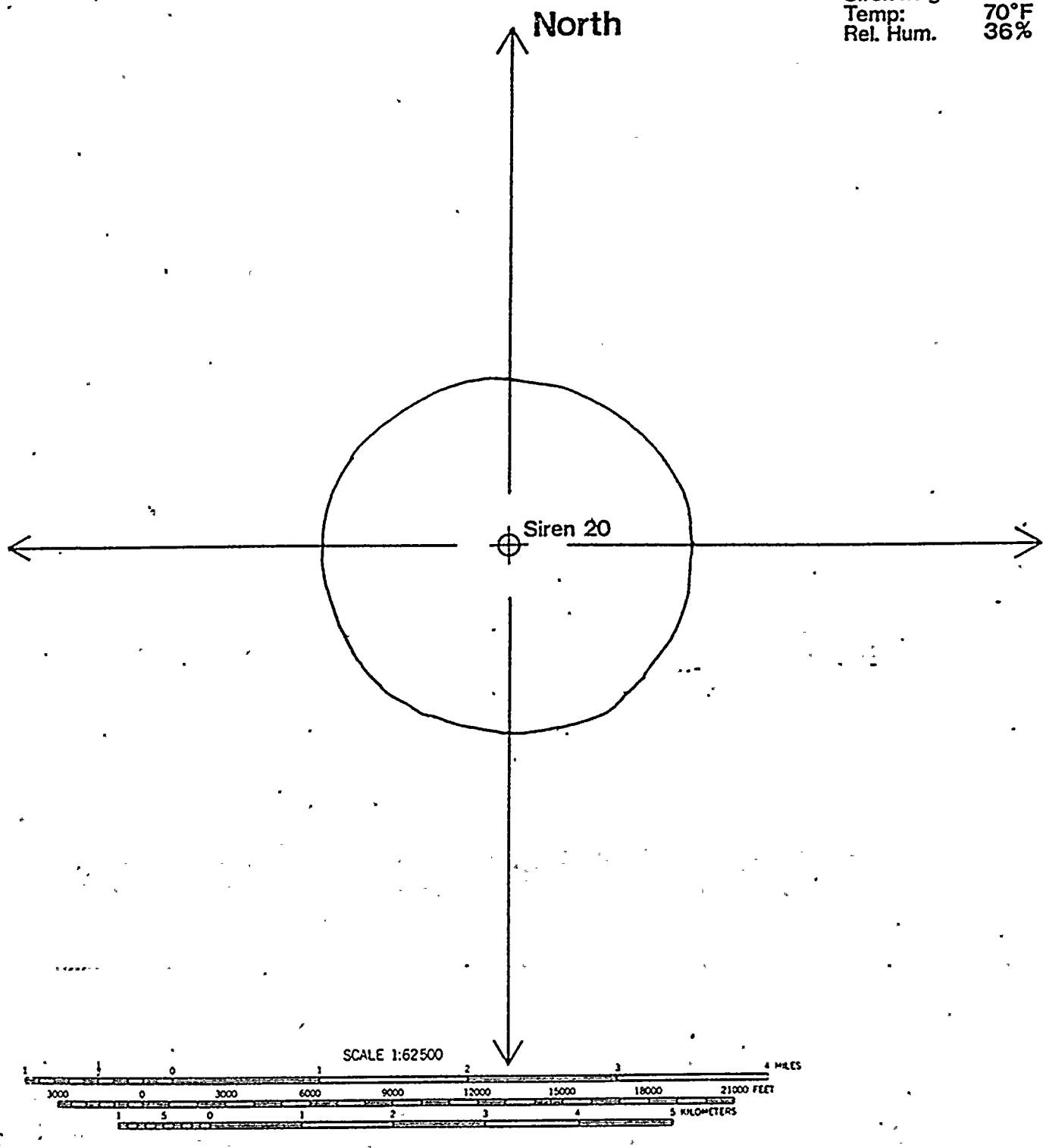
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



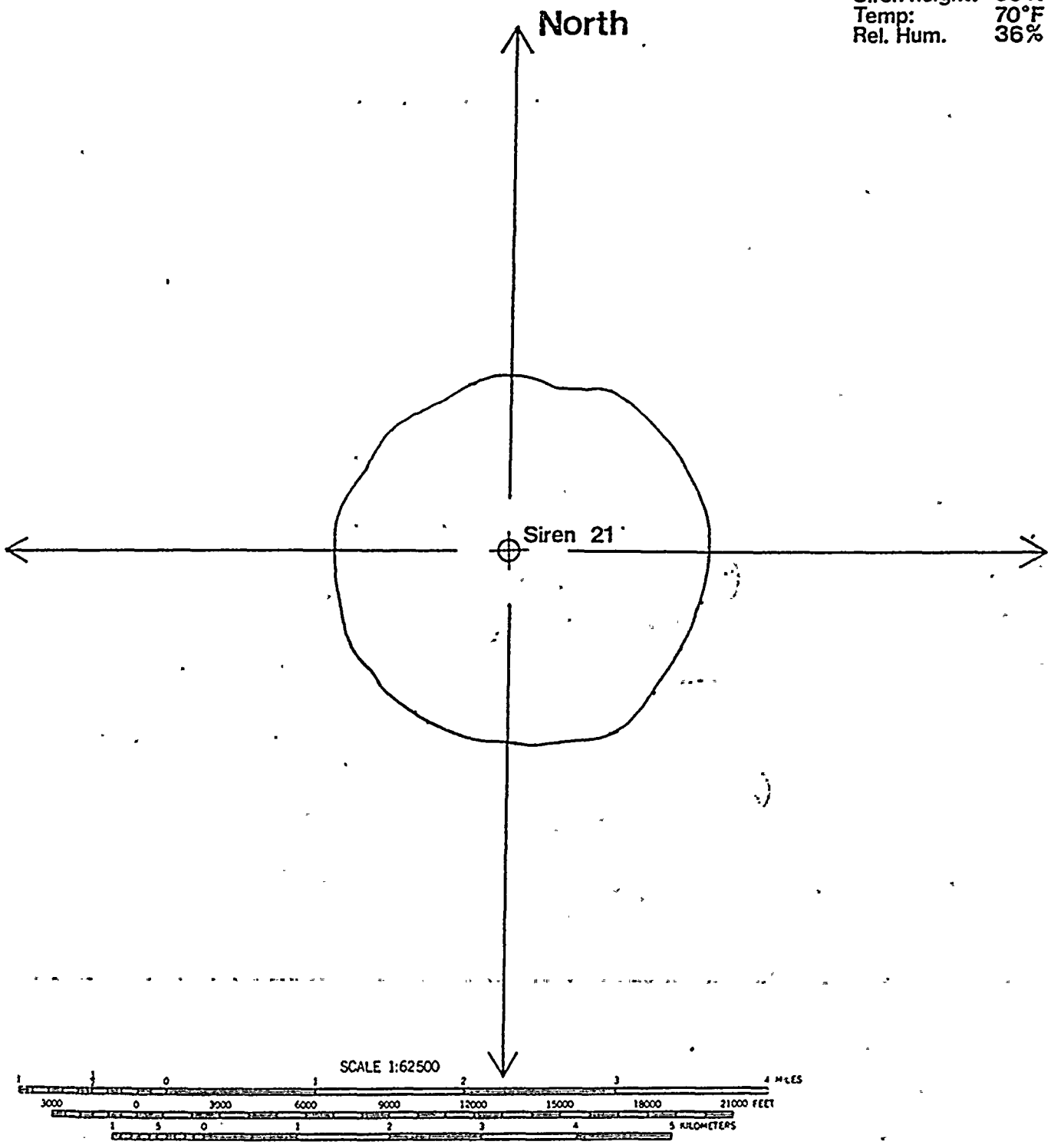
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



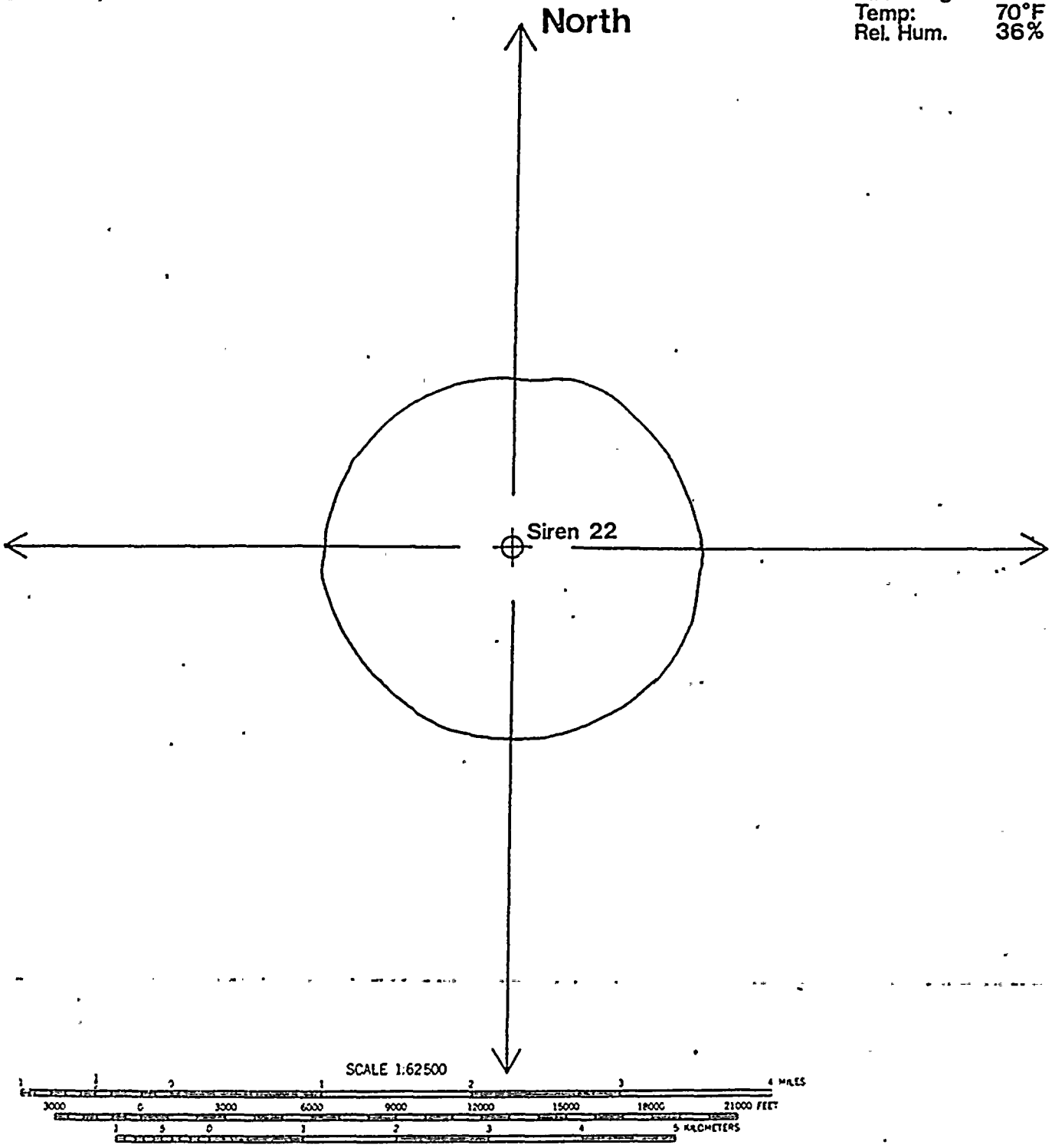
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



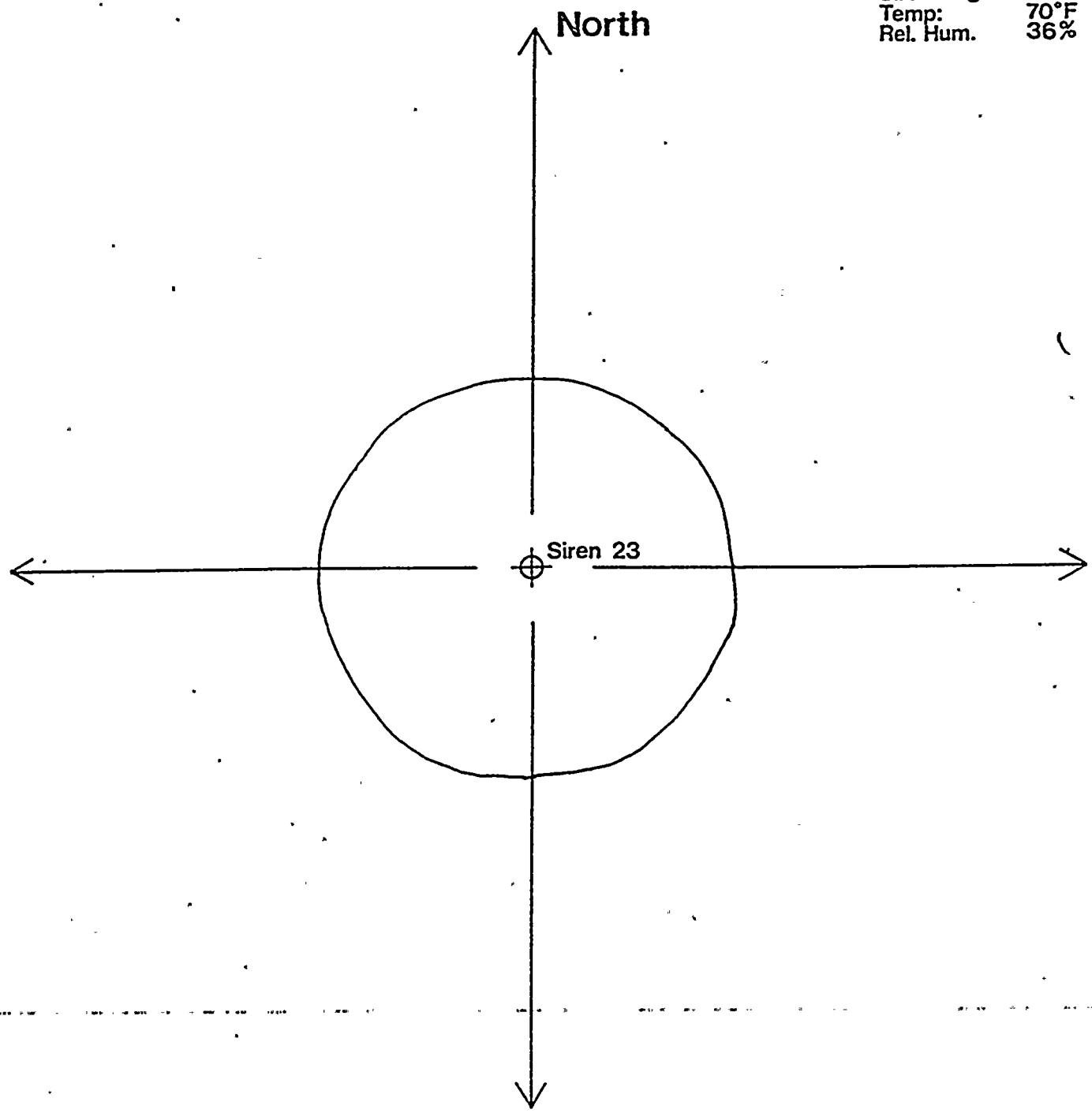
ACOUSTIC TECHNOLOGY INC.

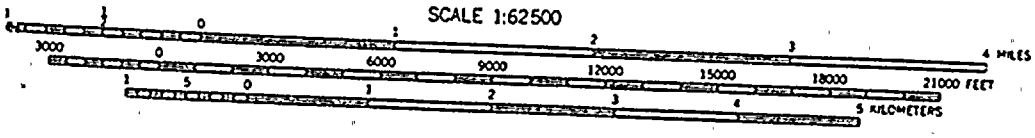
SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%





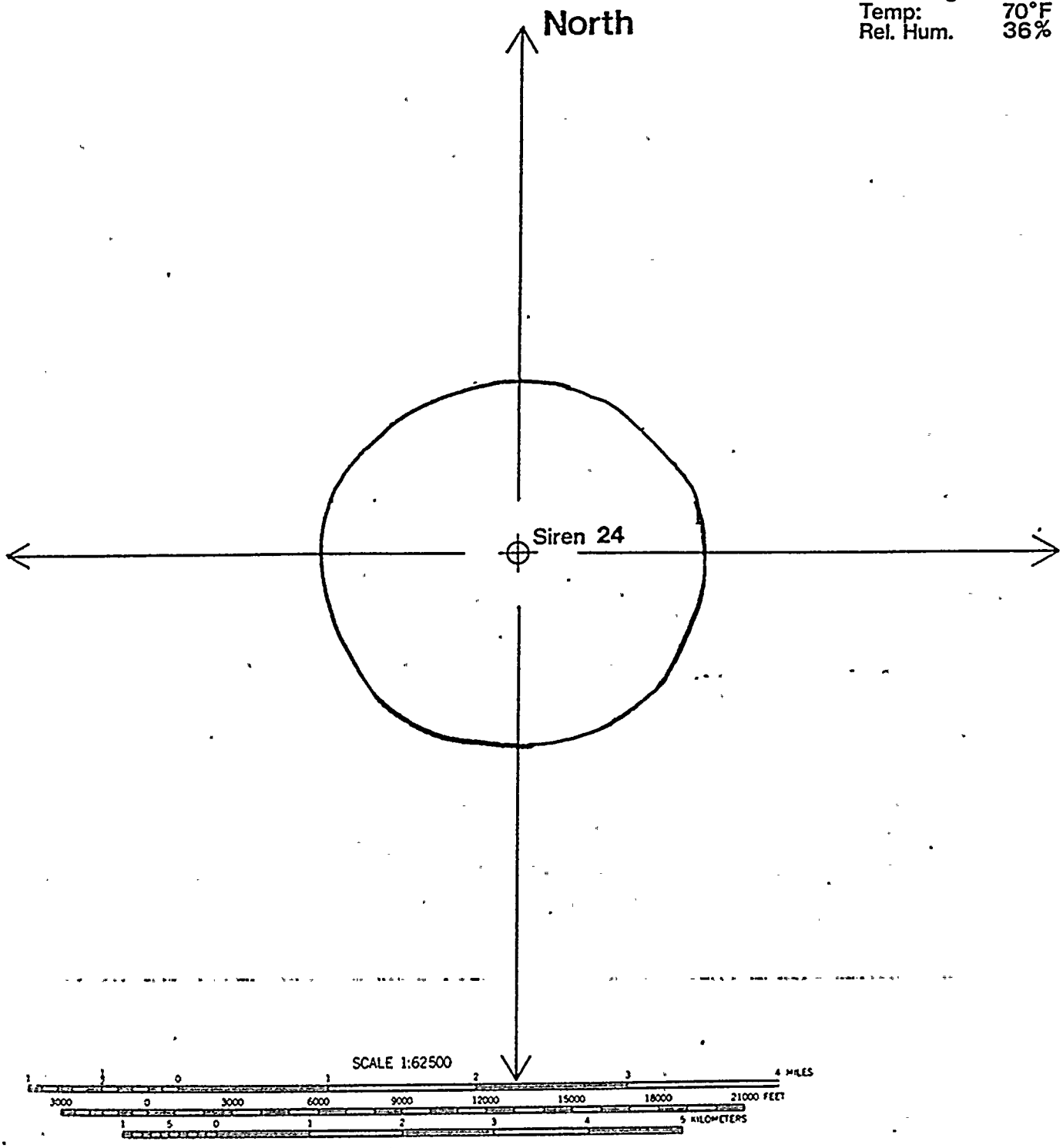
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



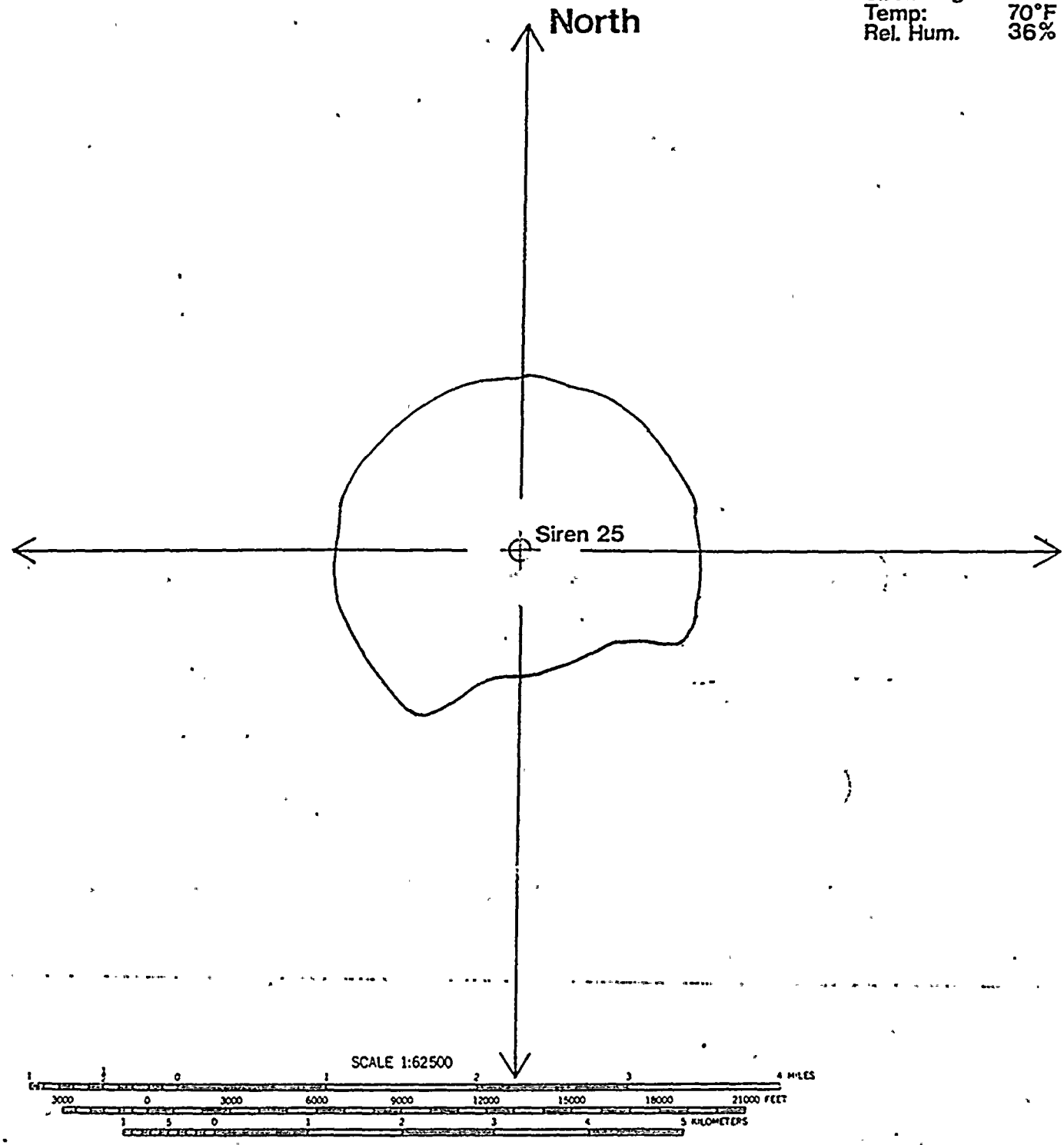
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



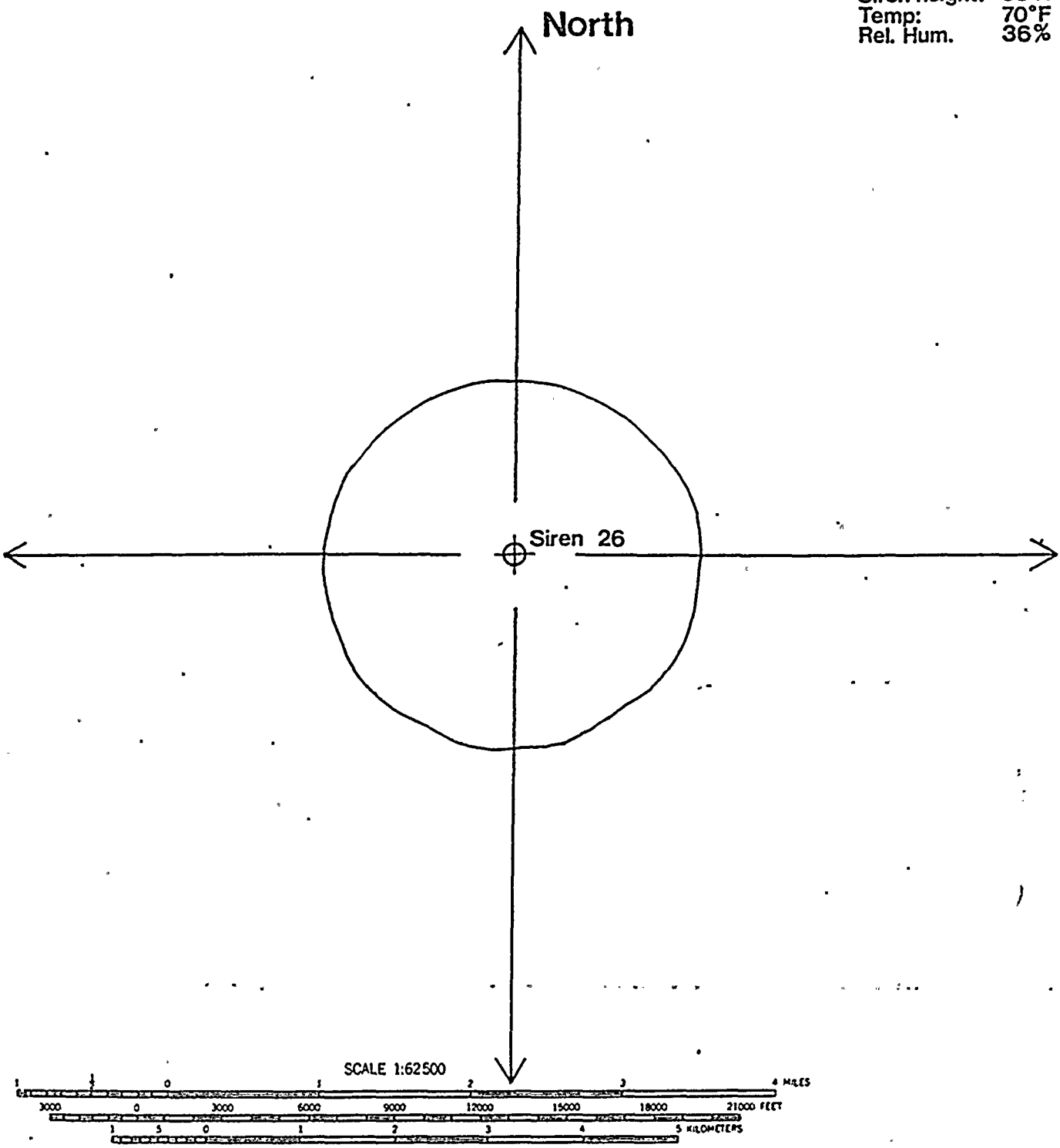
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



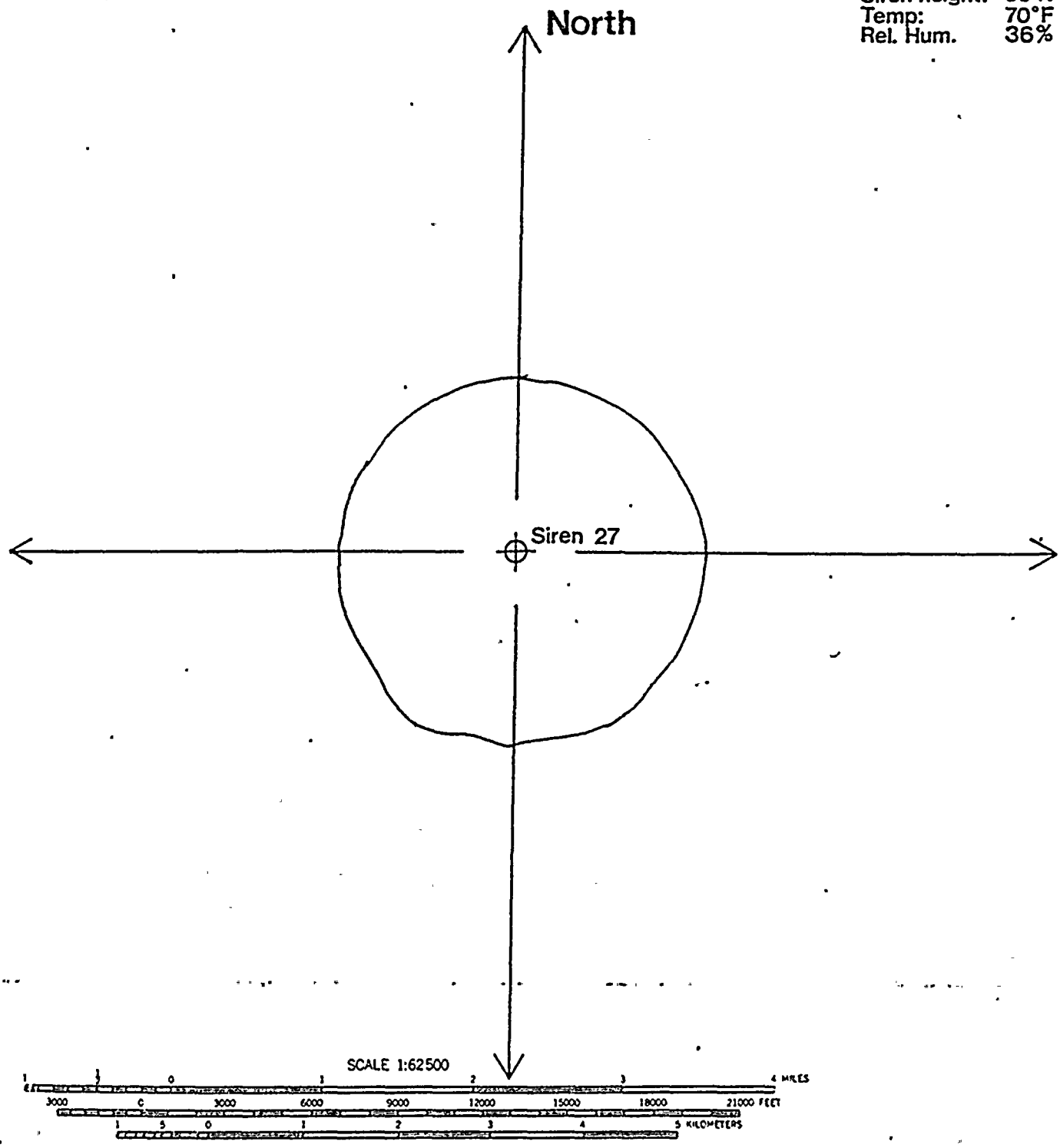
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



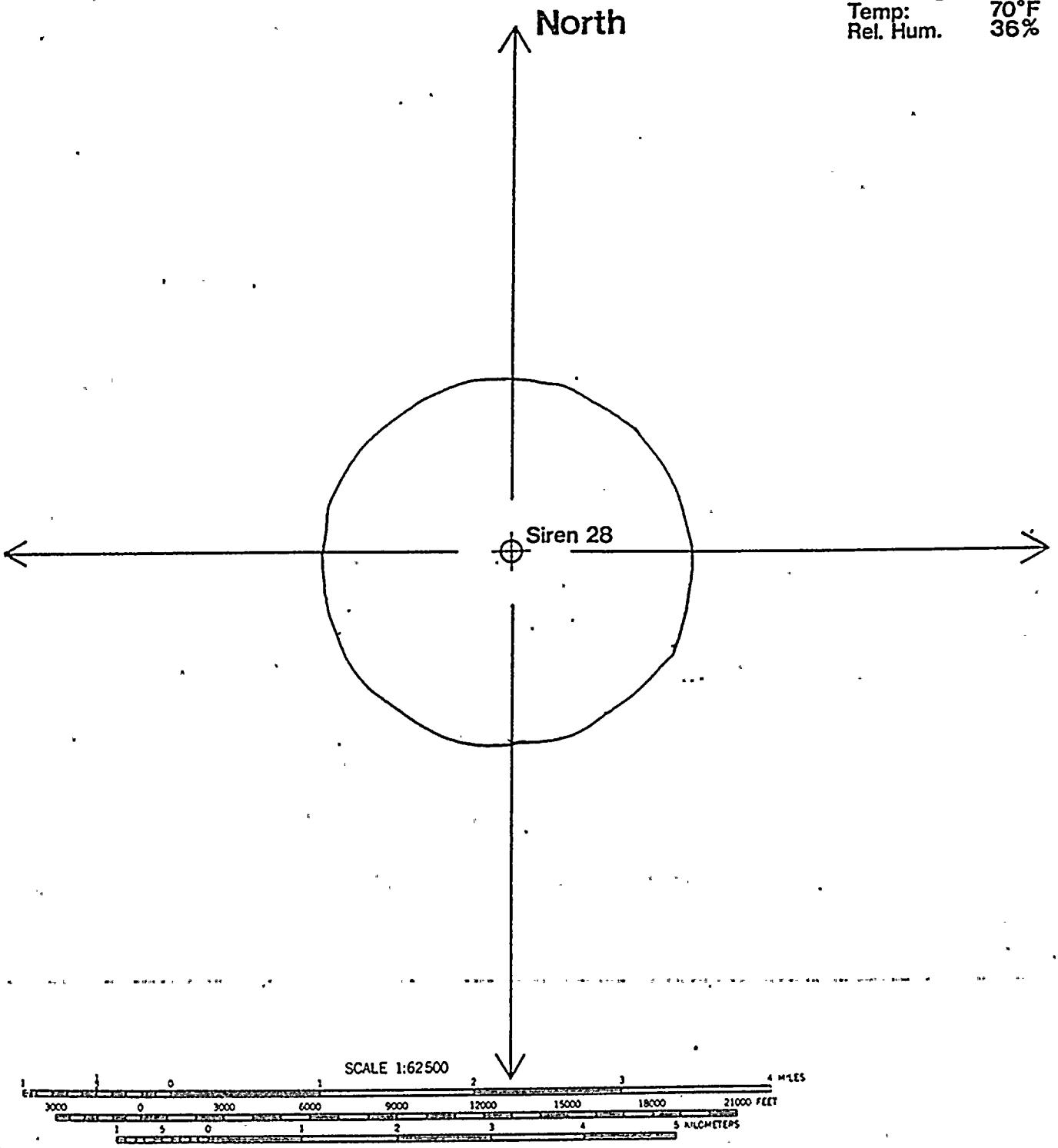
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



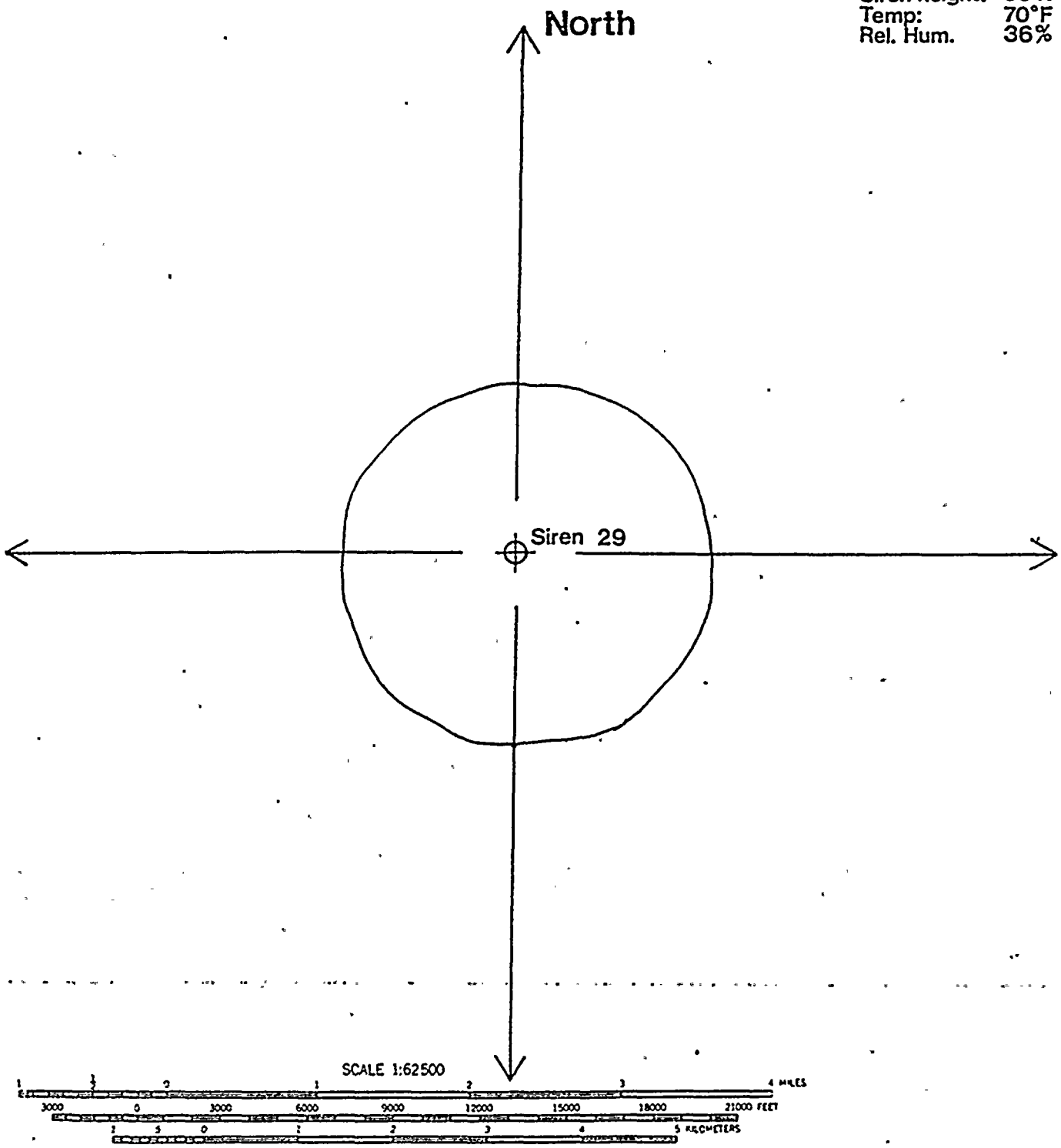
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



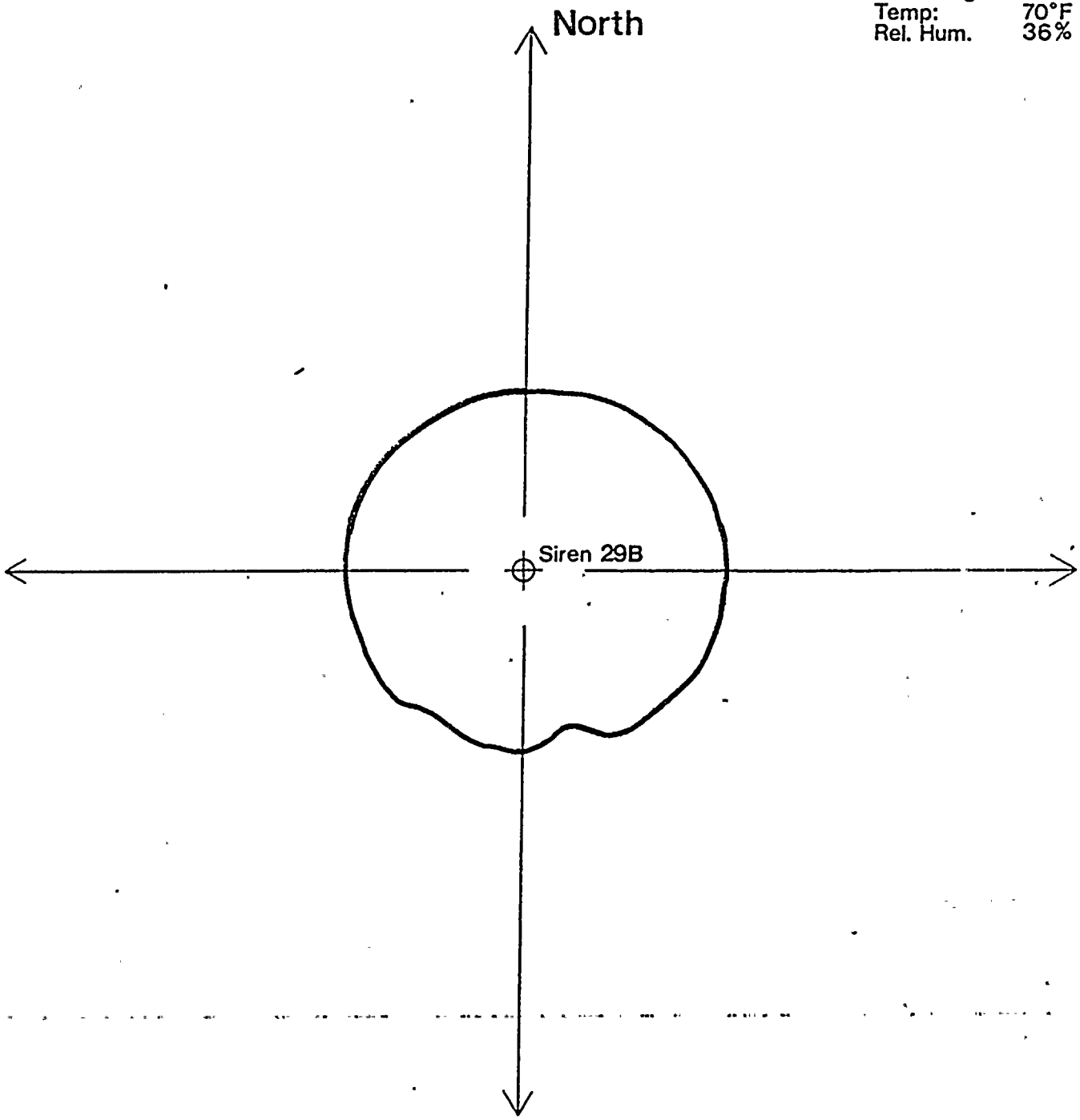
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

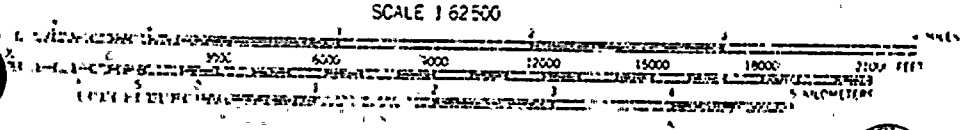
ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



SCALE 1:62500



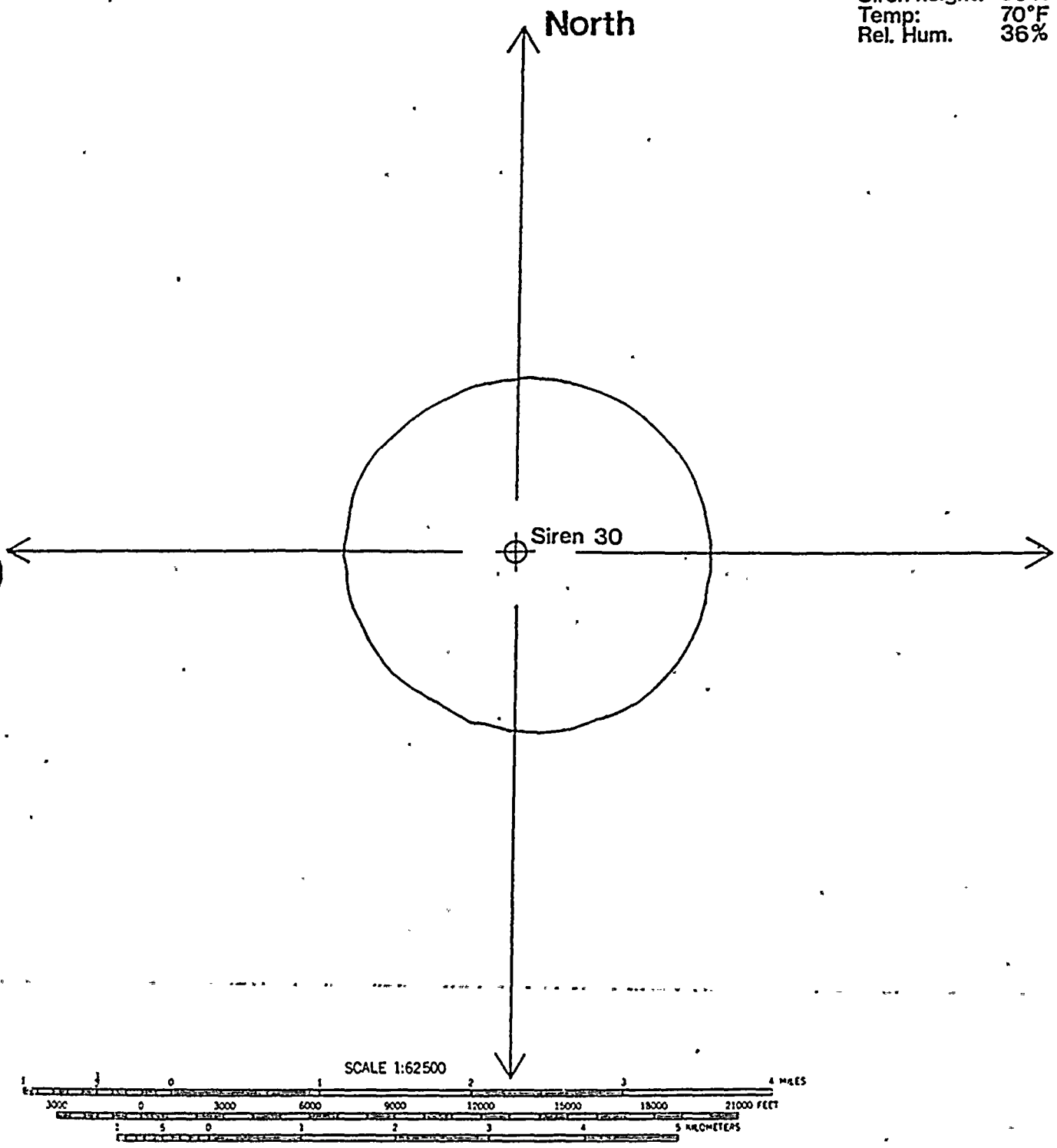
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



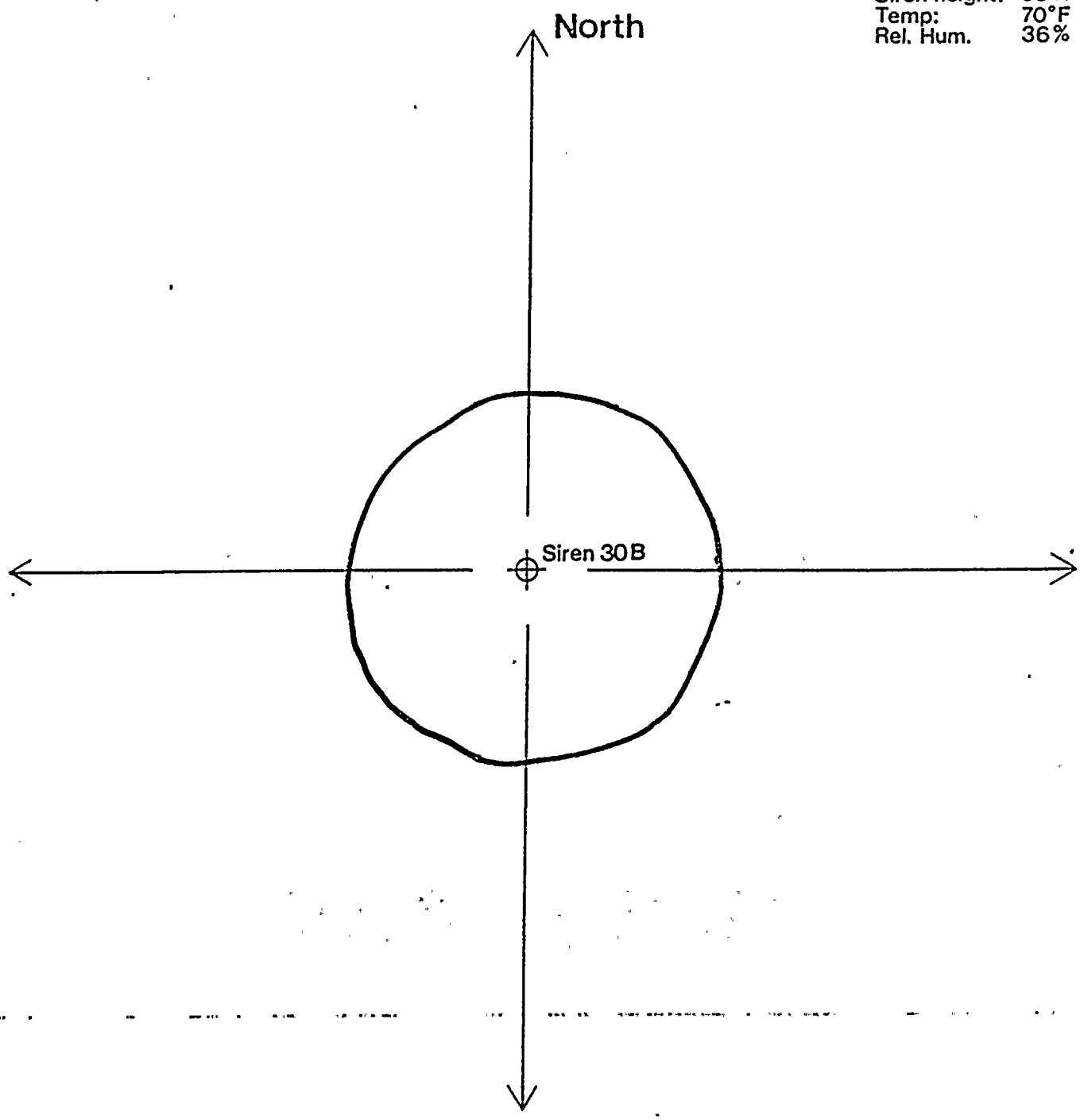
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

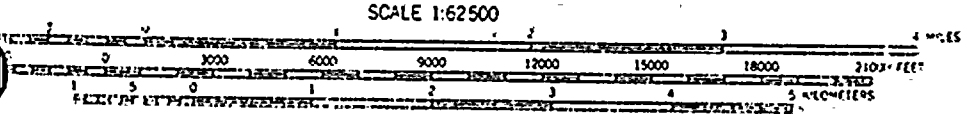
ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



SCALE 1:62500



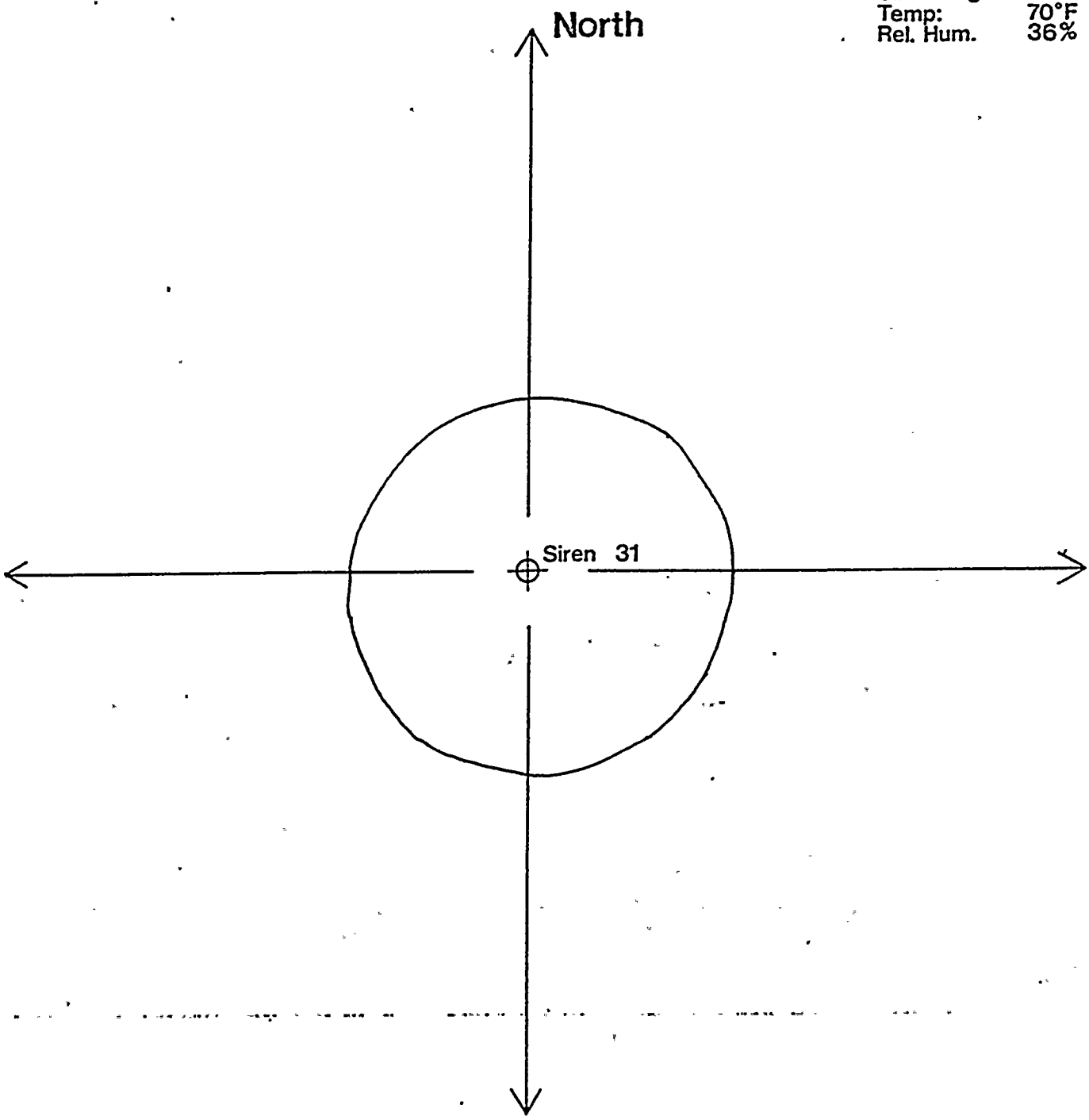
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

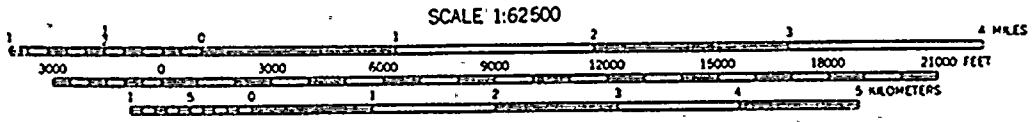
ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



SCALE 1:62500



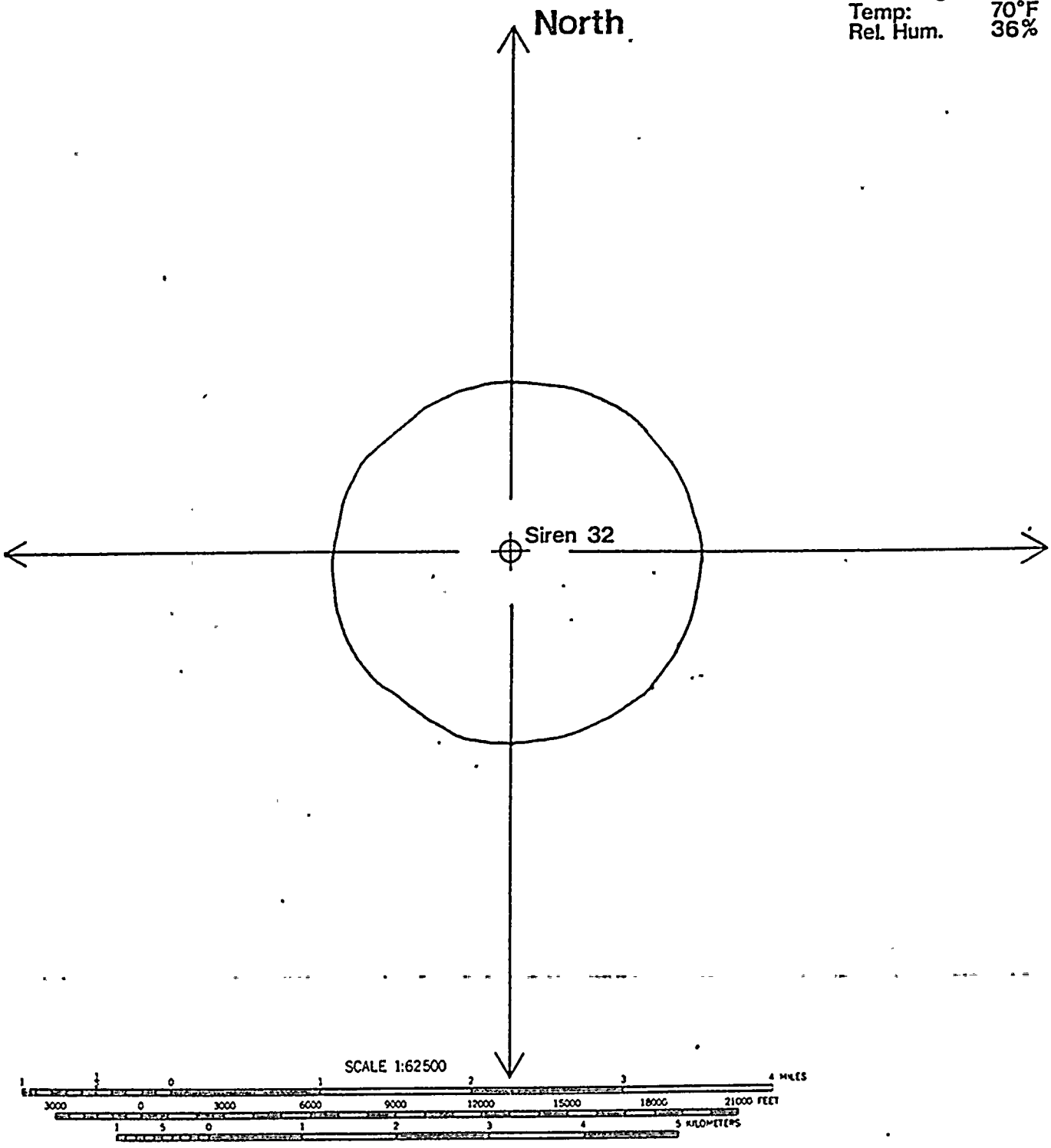
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



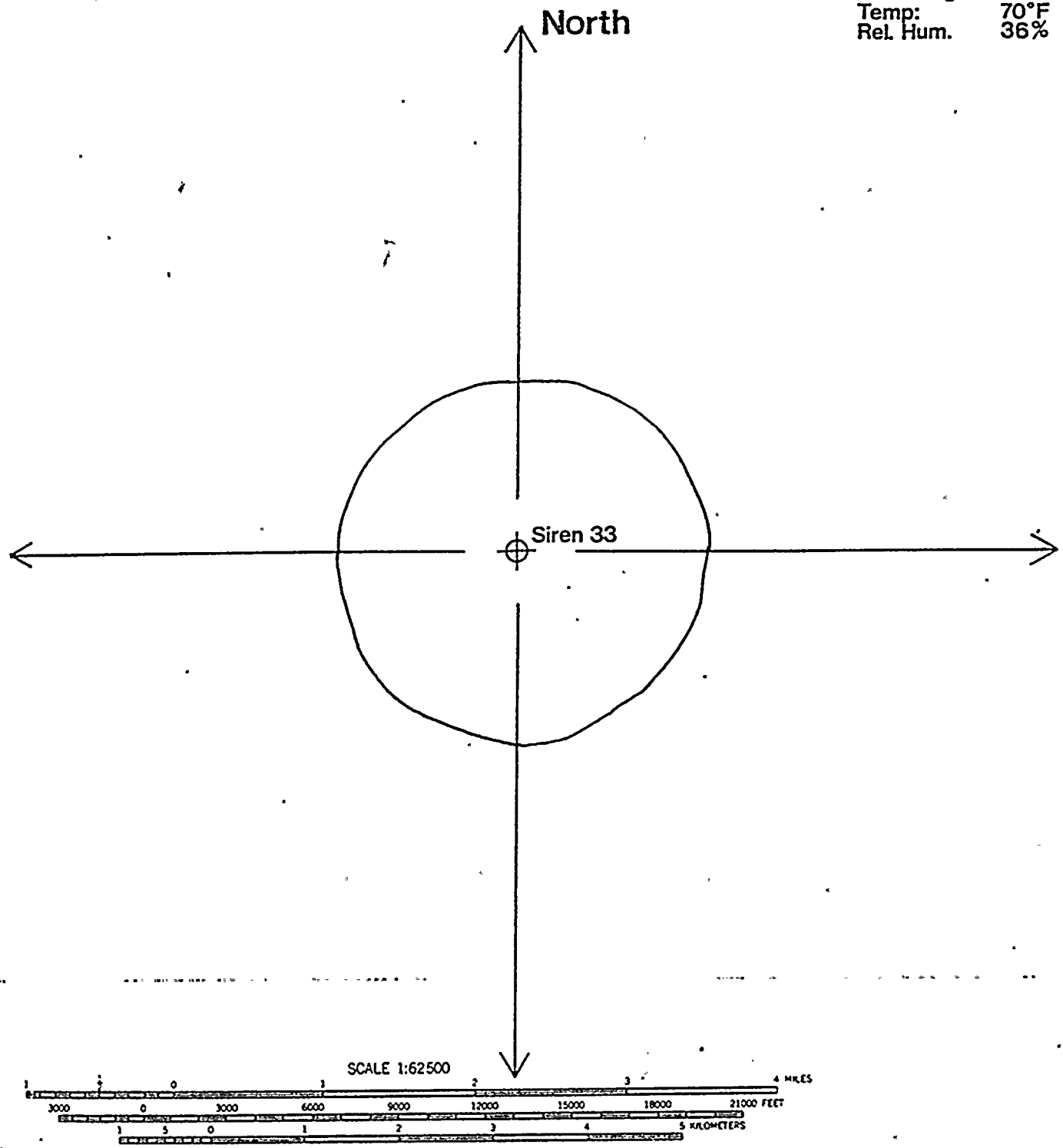
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



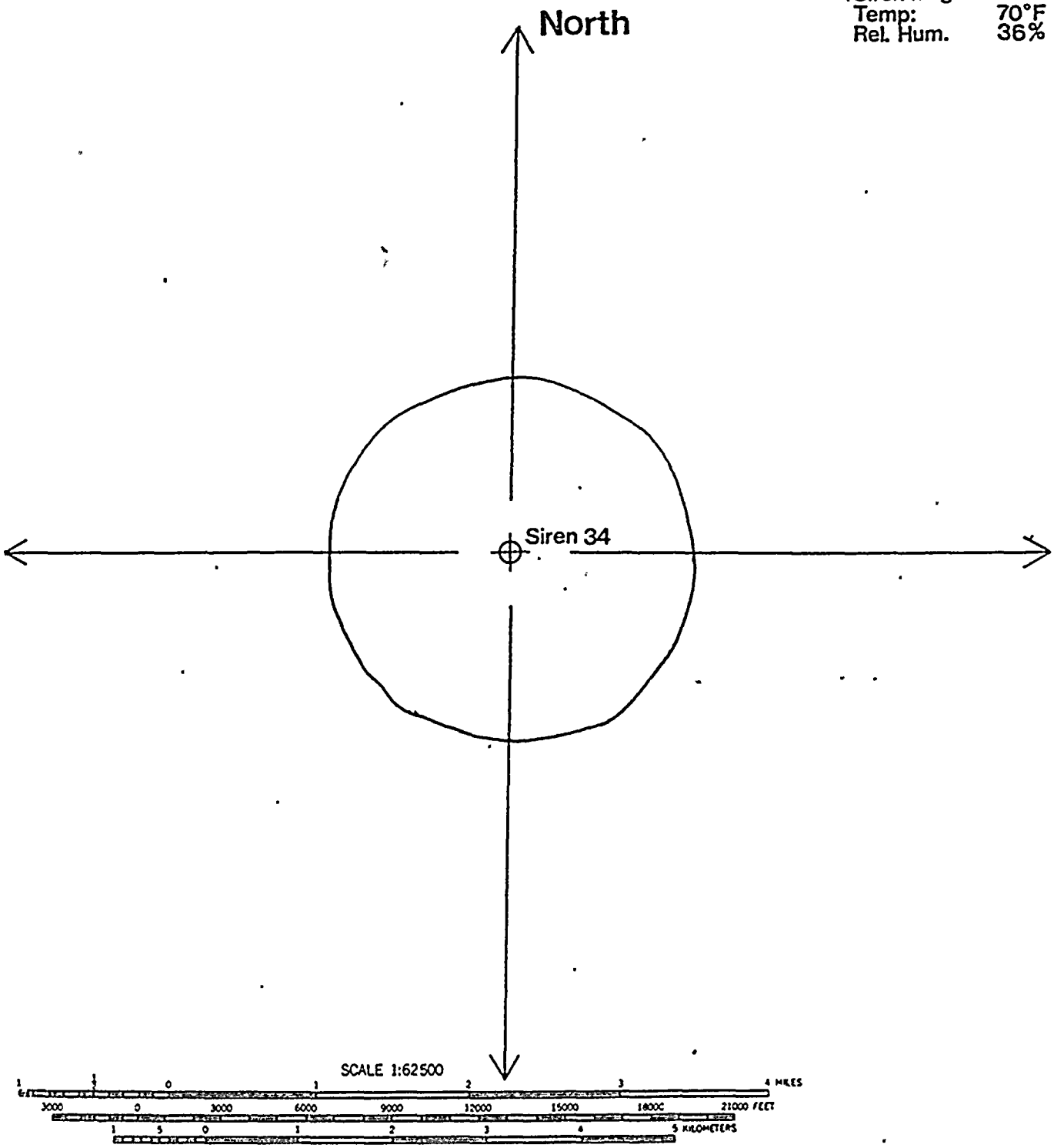
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



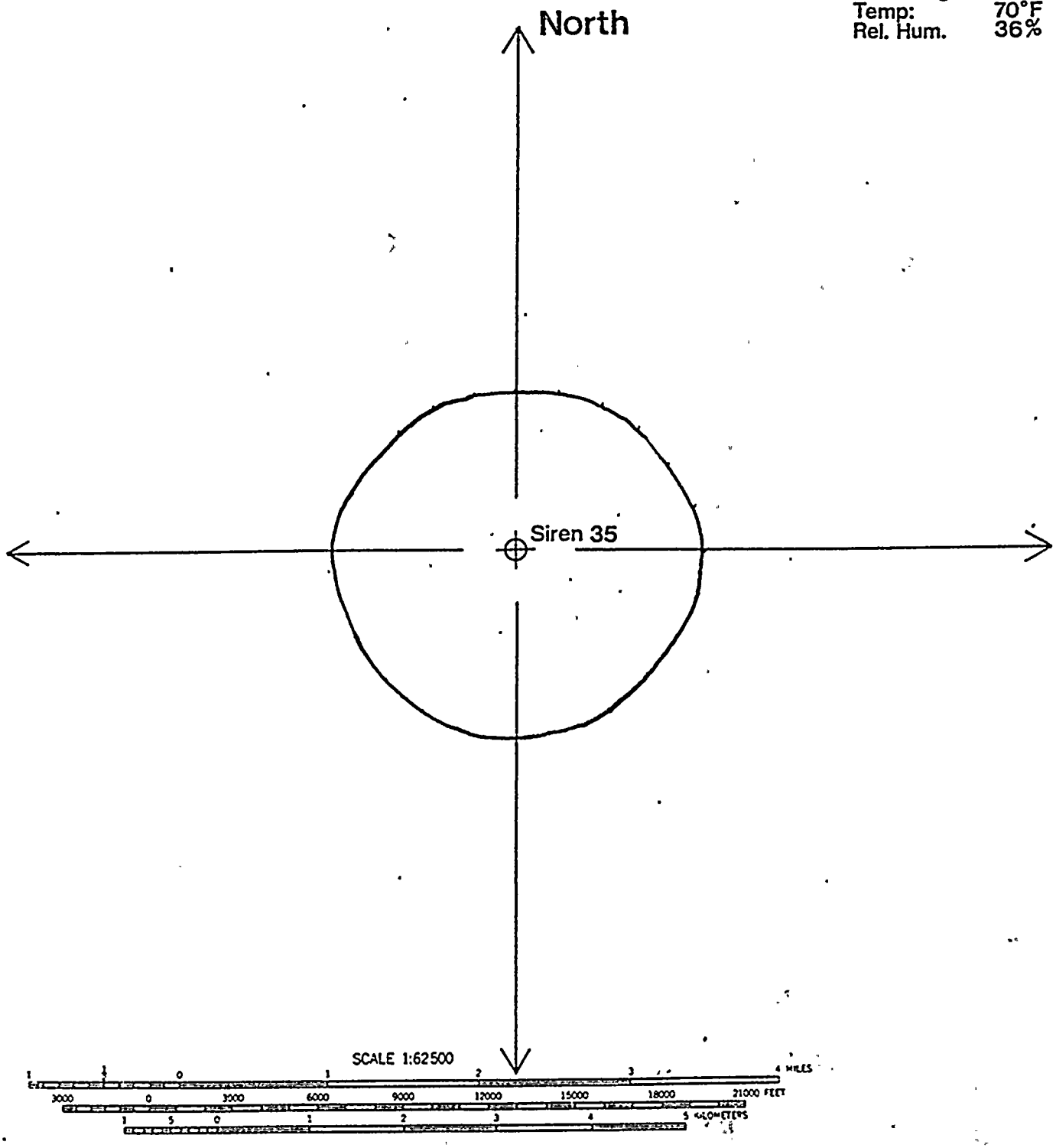
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



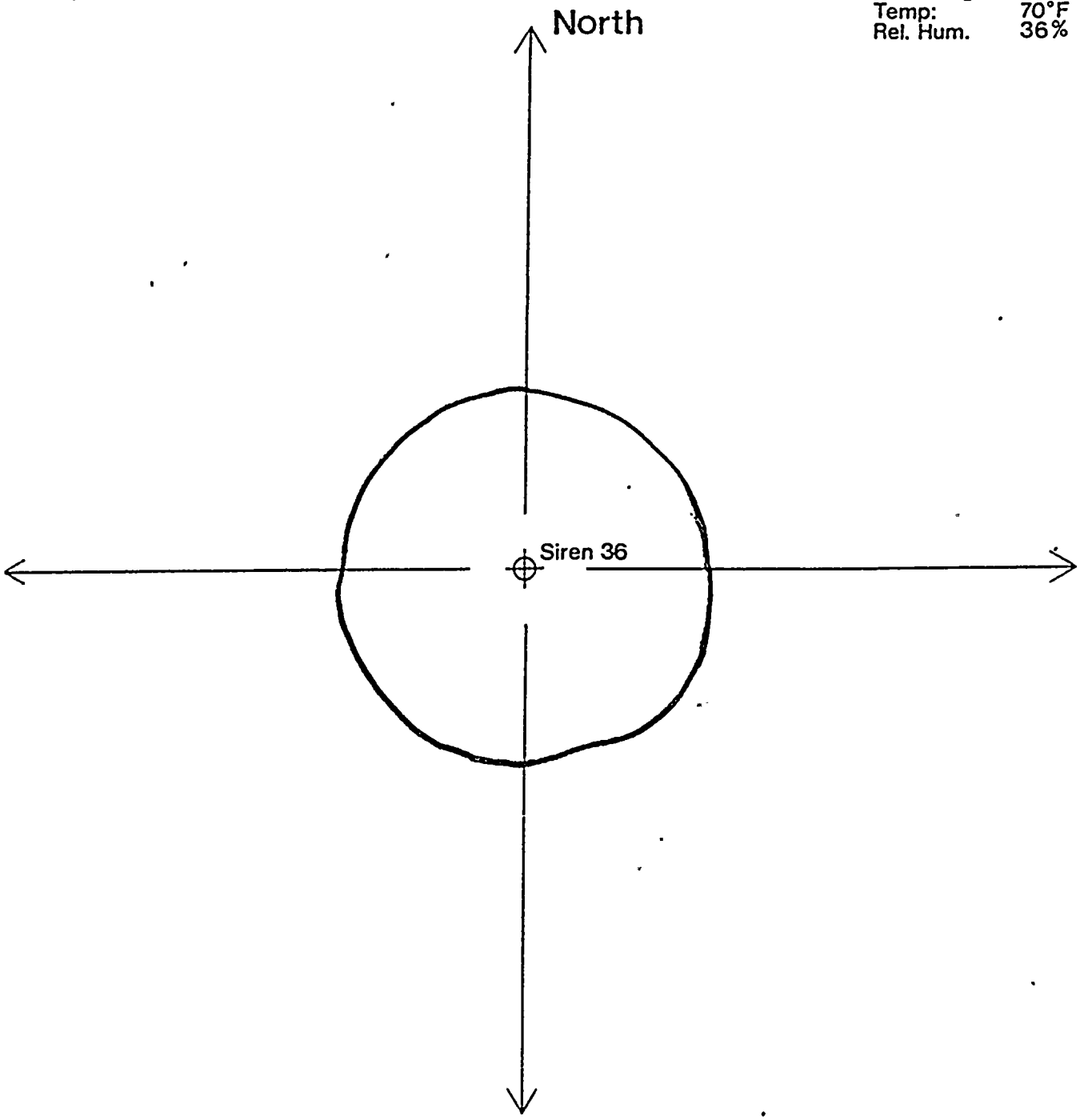
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



SCALE 1 62500

ACOUSTIC TECHNOLOGY INC.

ALTERNATIVE 2

SOUND LEVEL CONTOURS

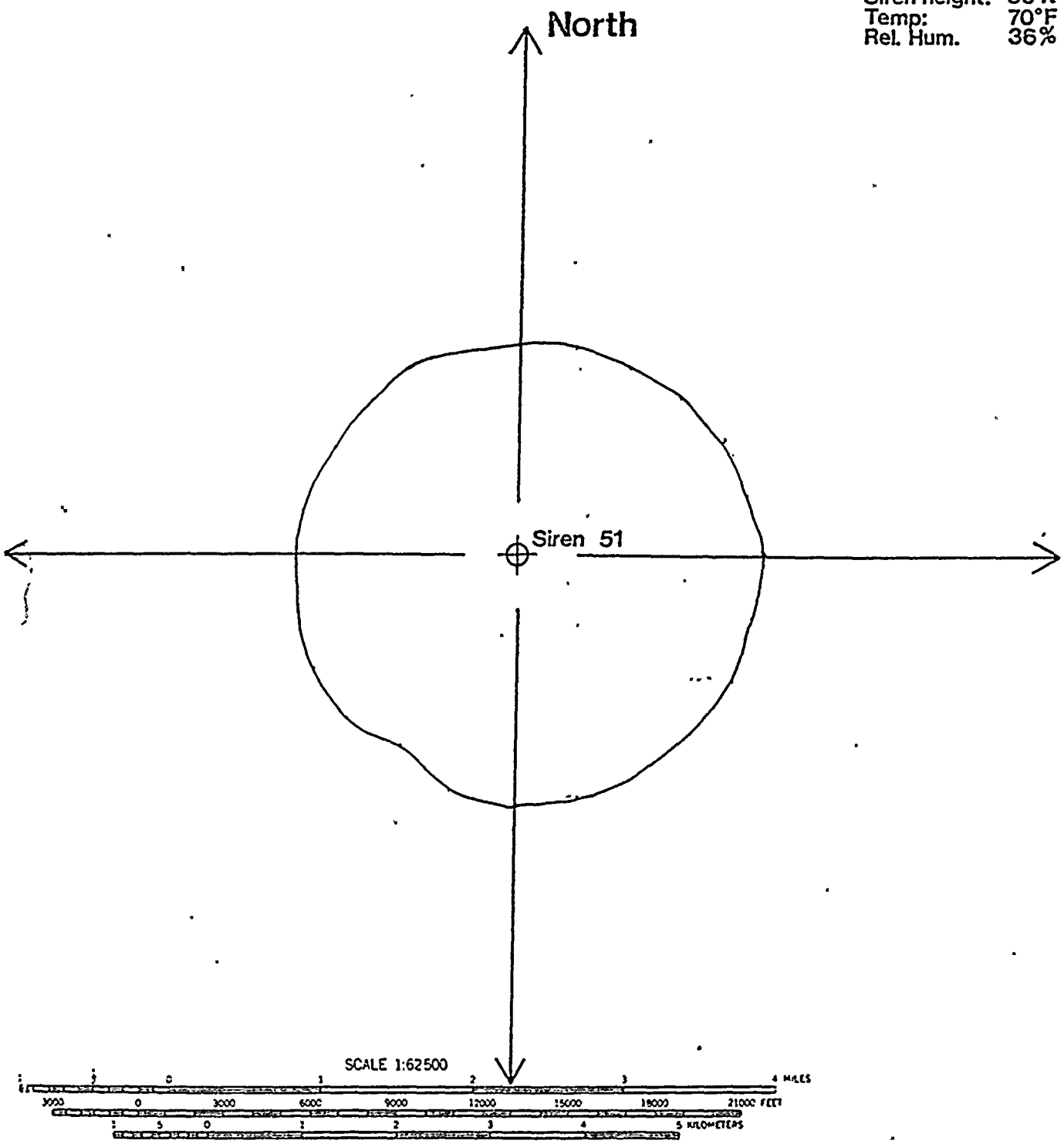
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



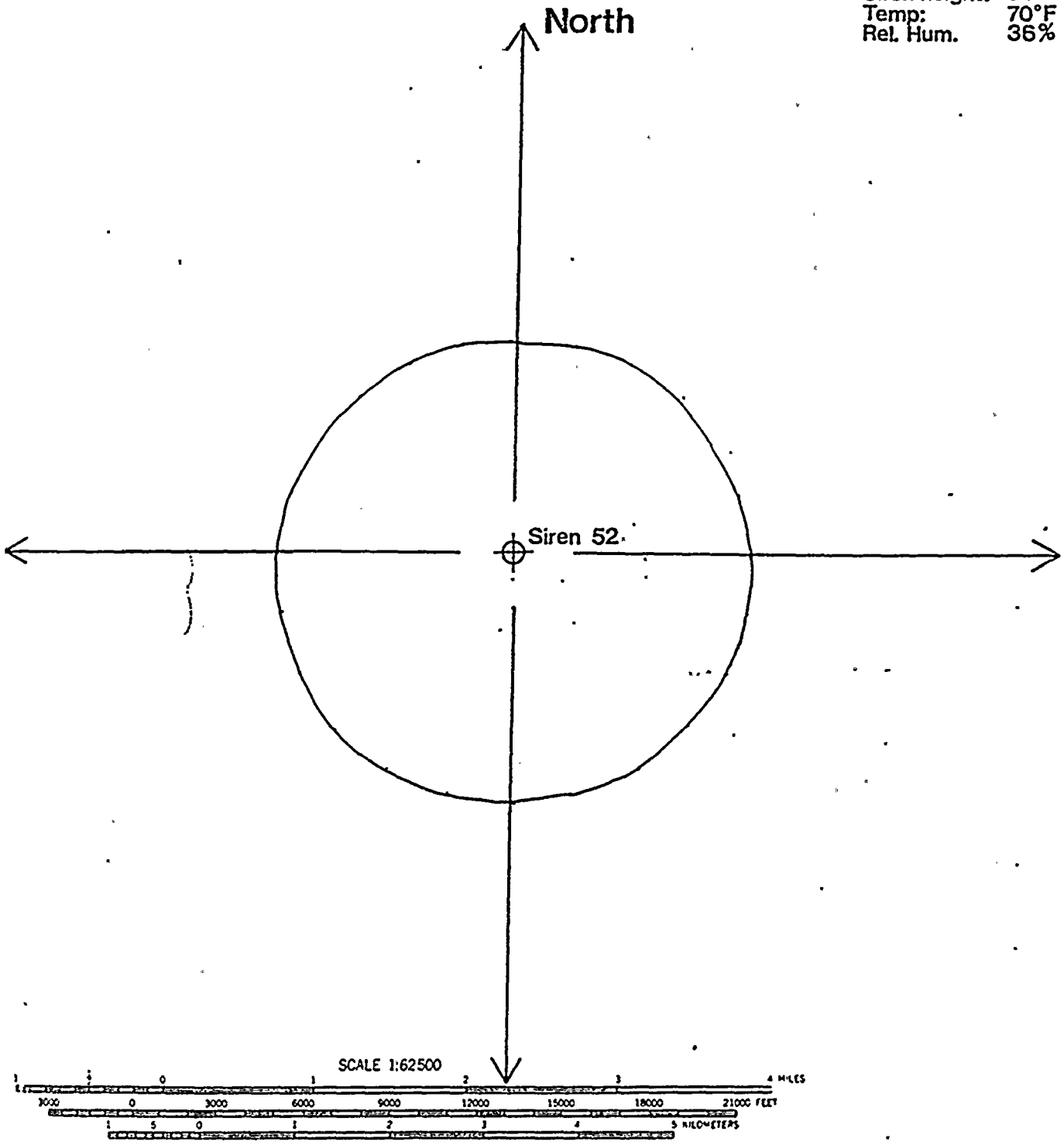
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



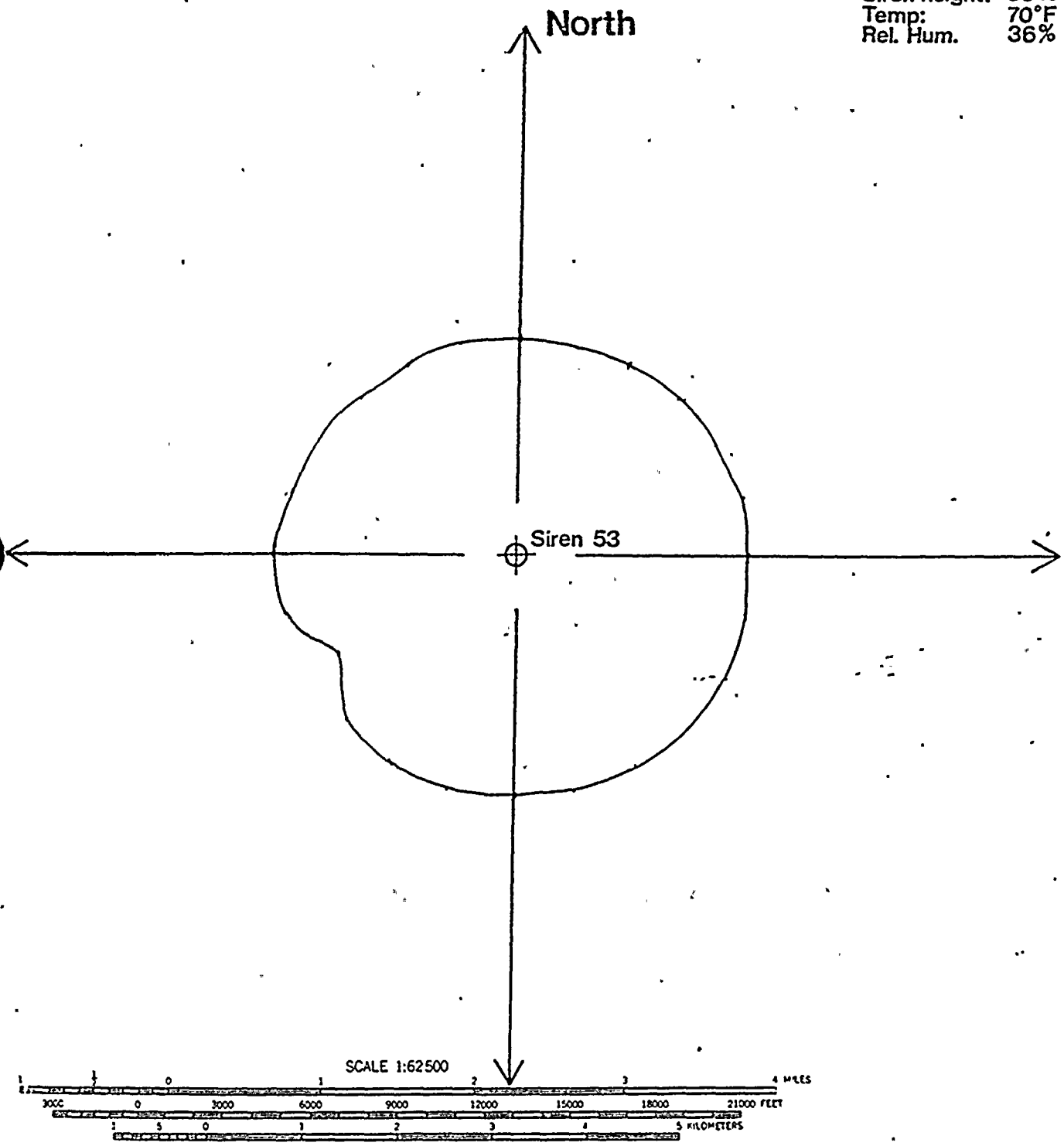
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



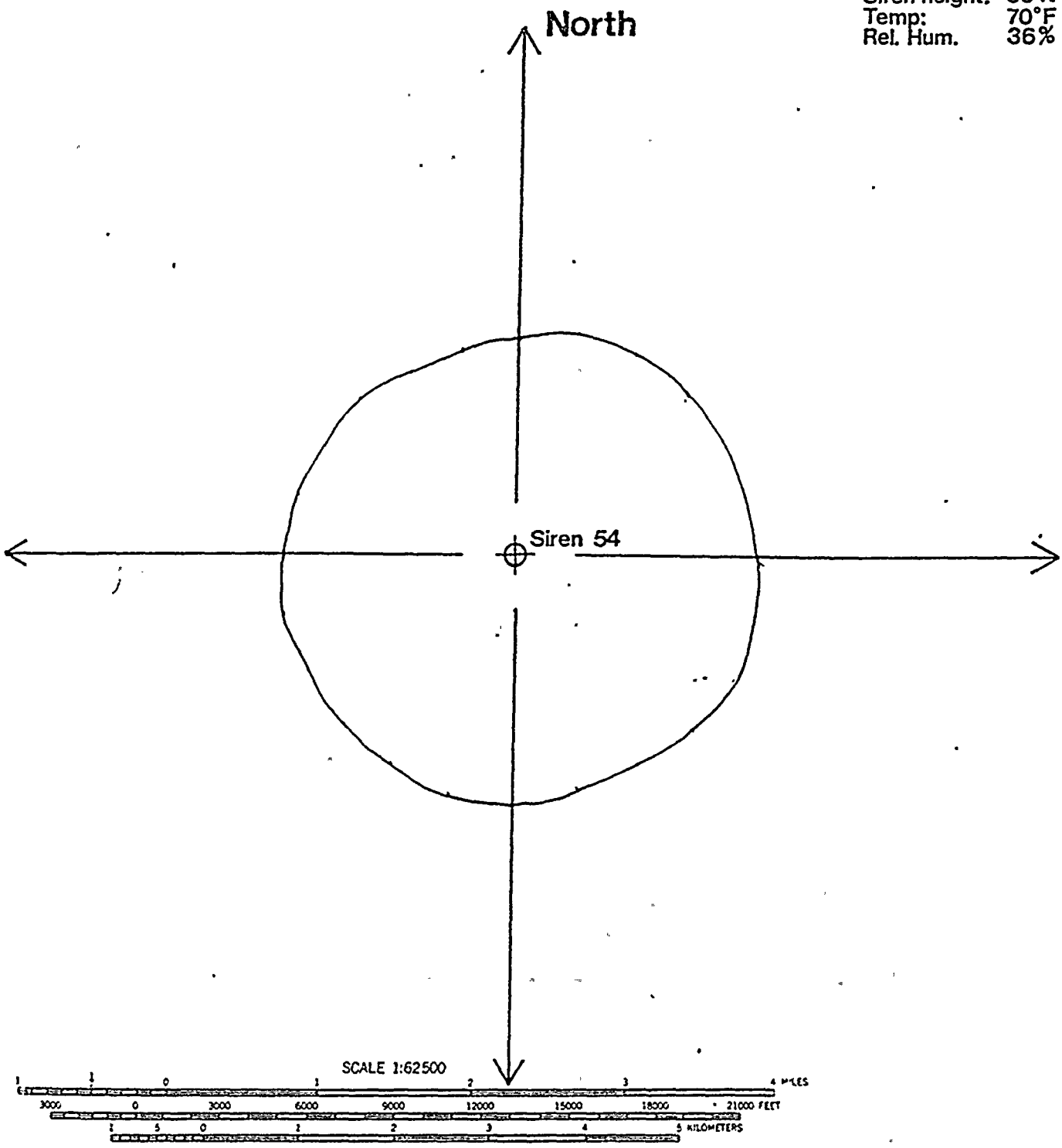
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



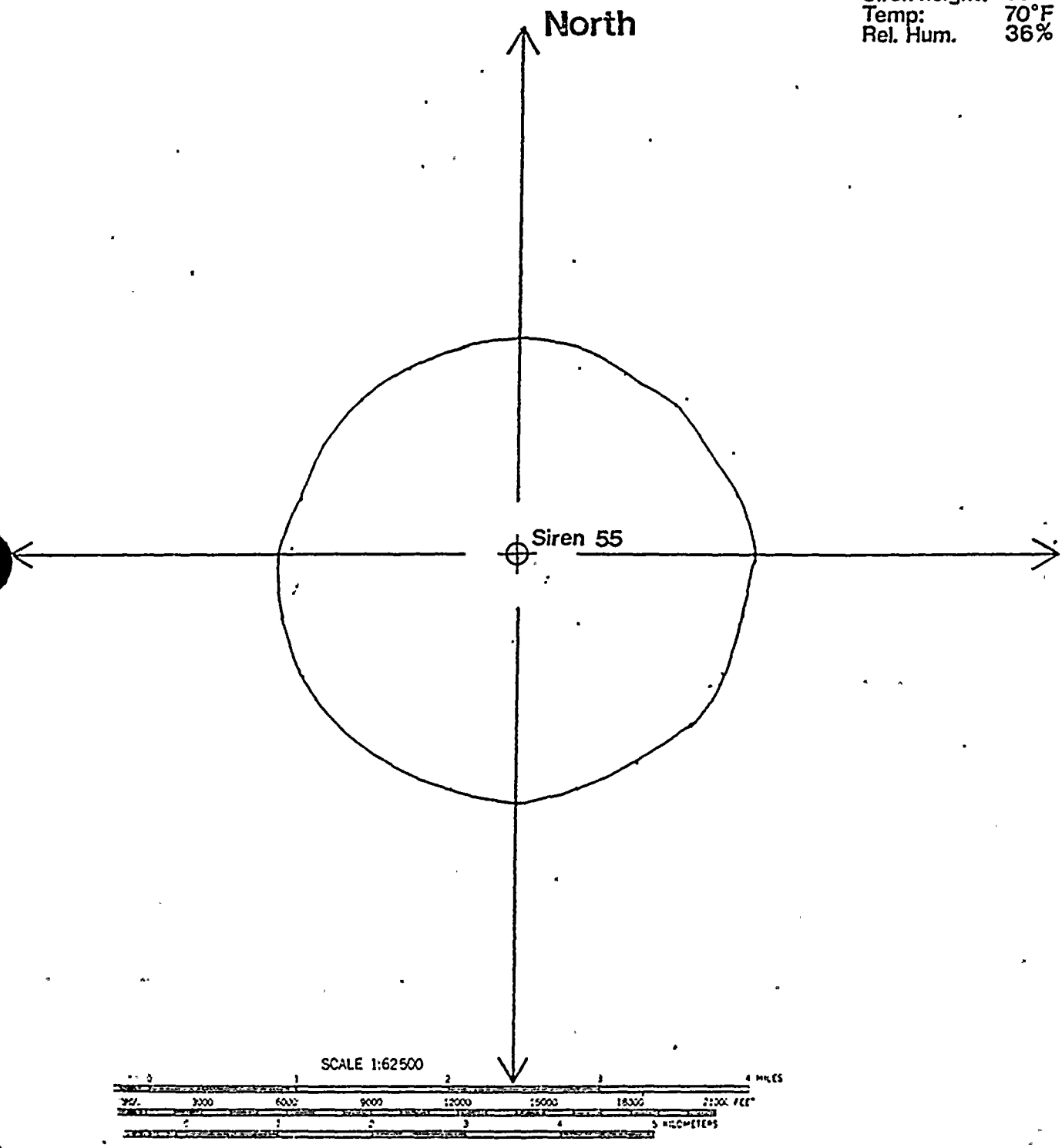
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



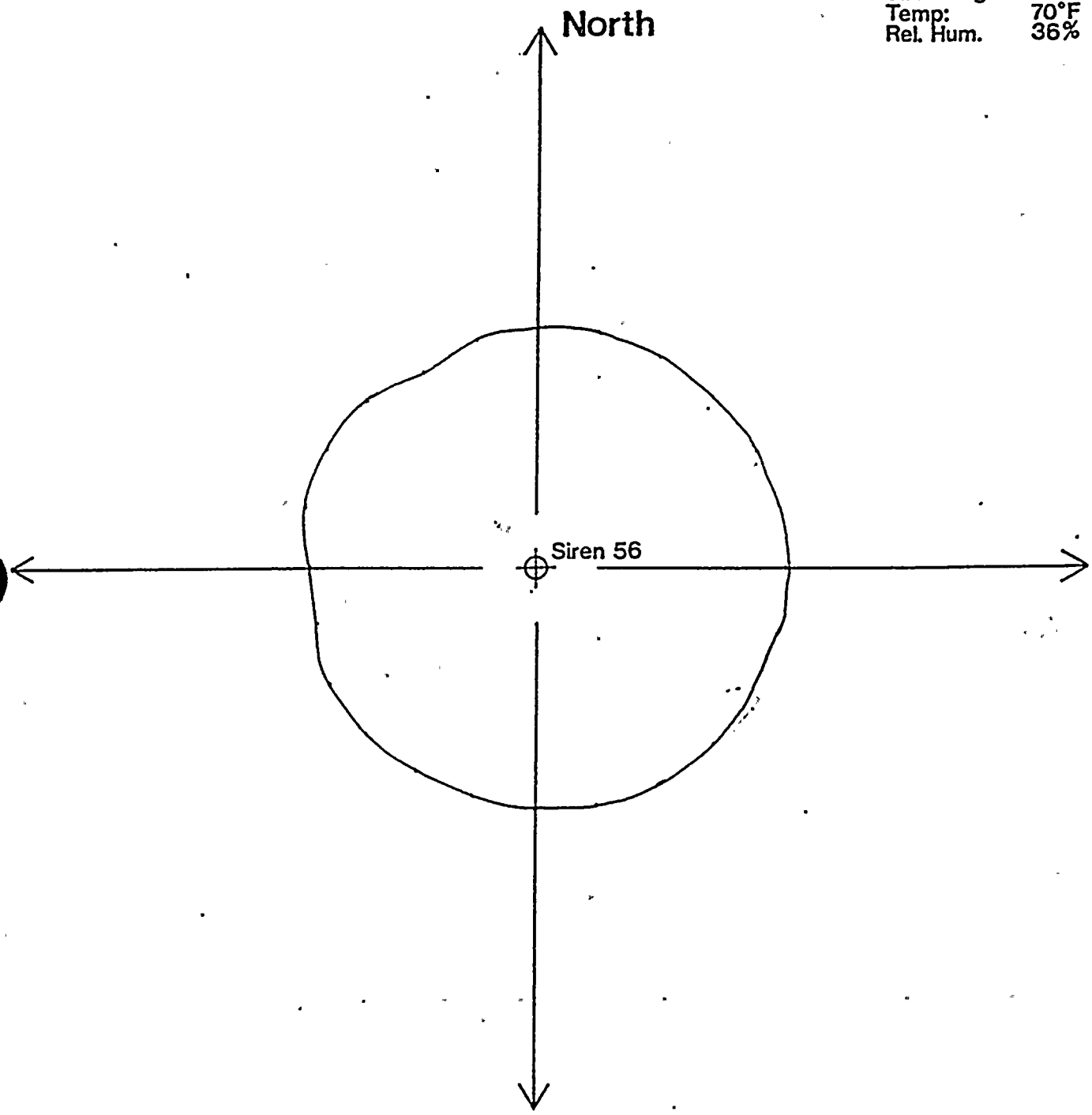
ACOUSTIC TECHNOLOGY INC.

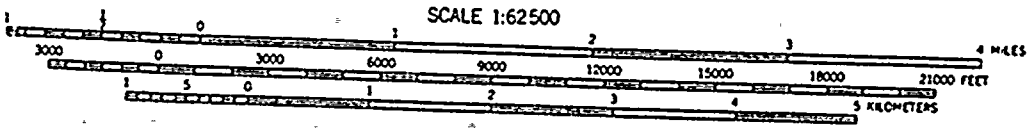
SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%





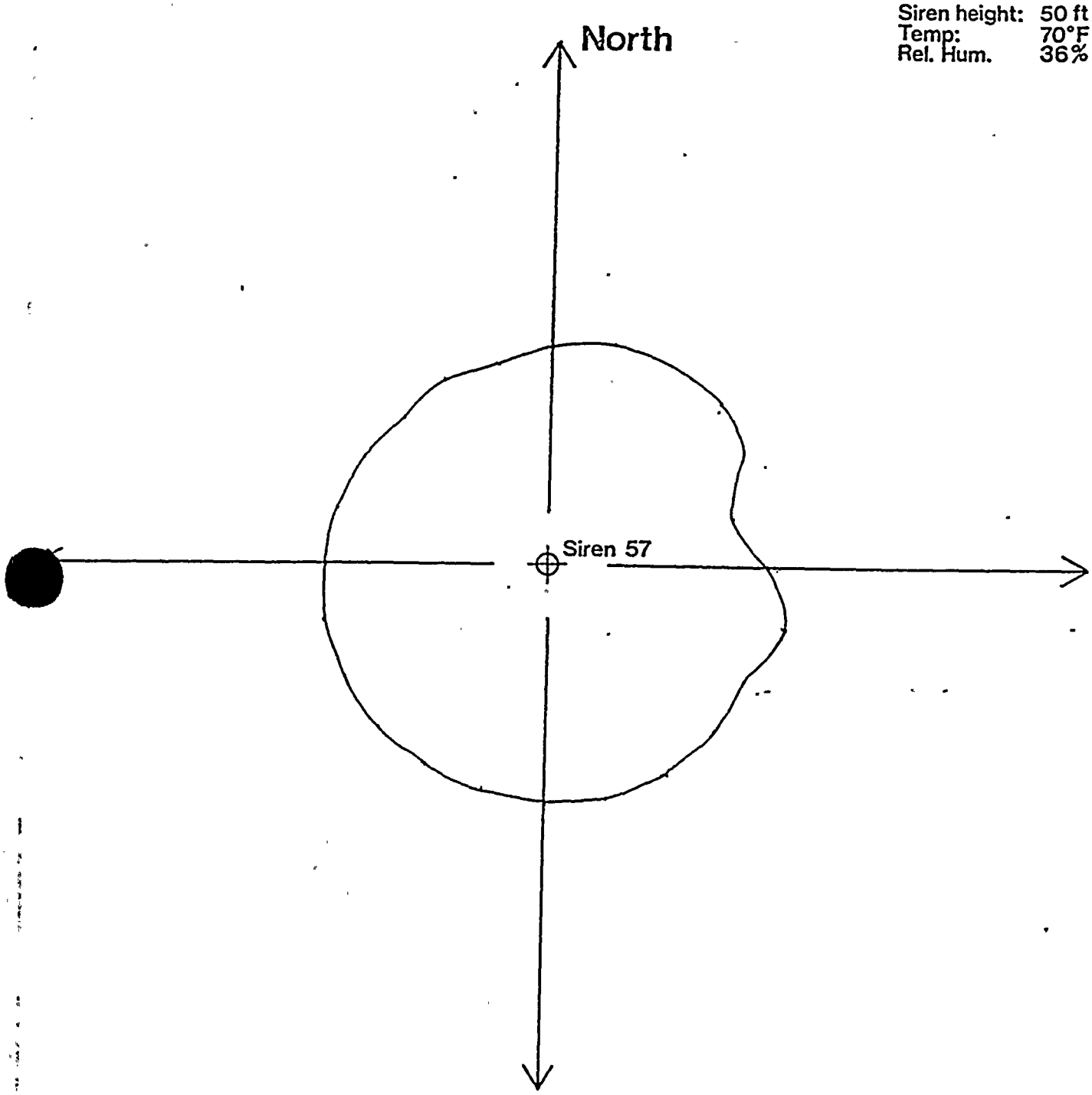
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

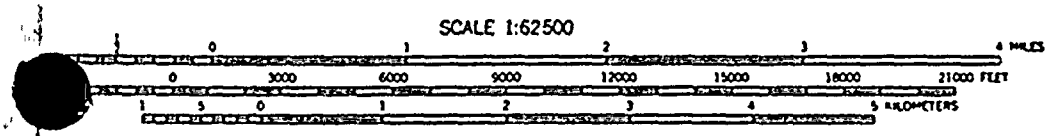
ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



SCALE 1:62500



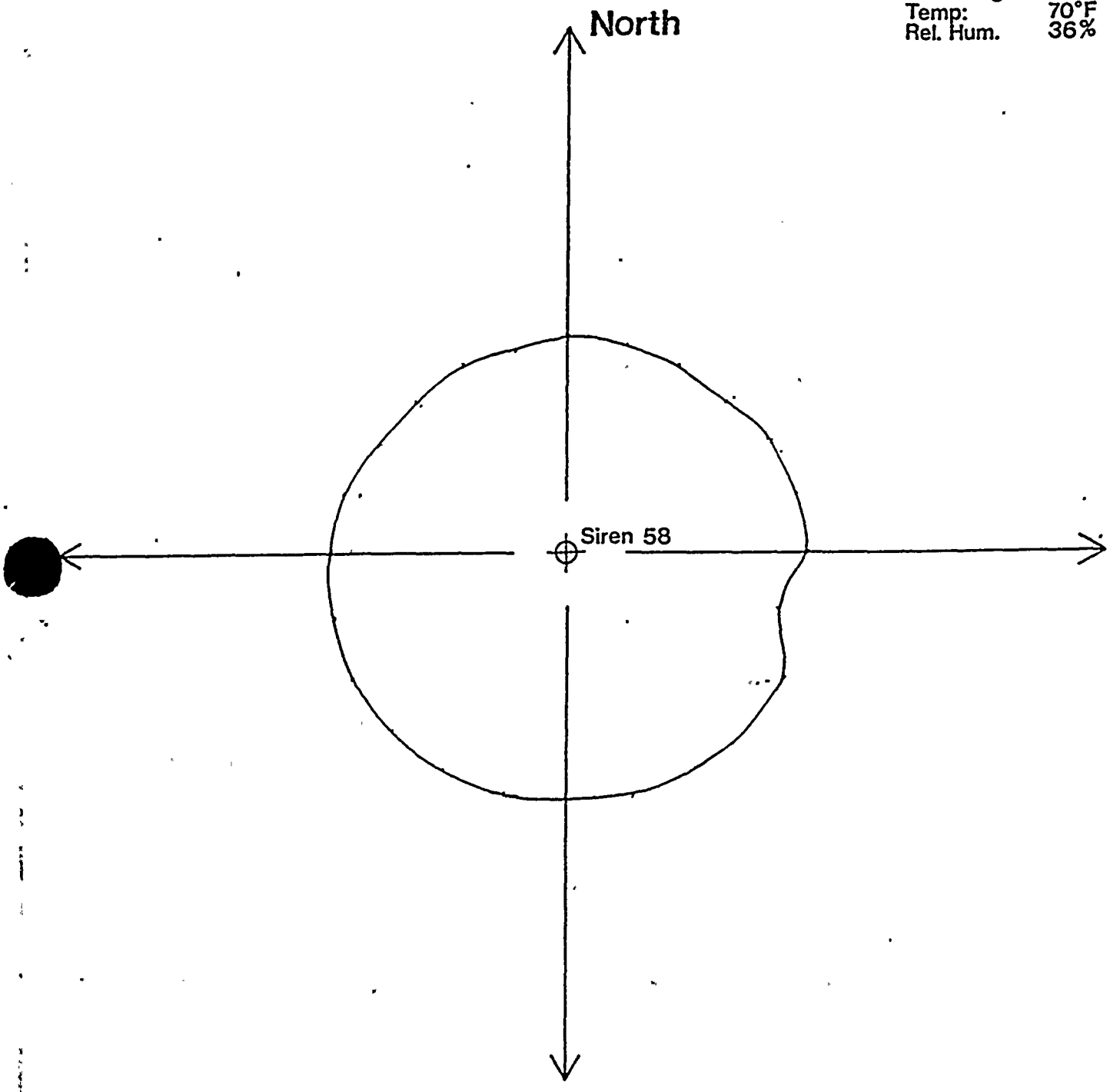
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

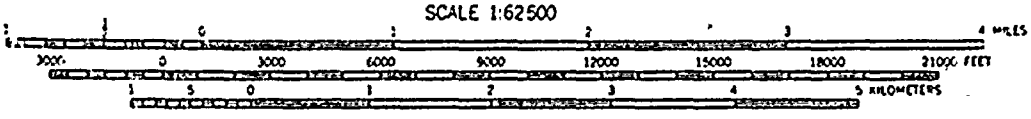
ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



SCALE 1:62500



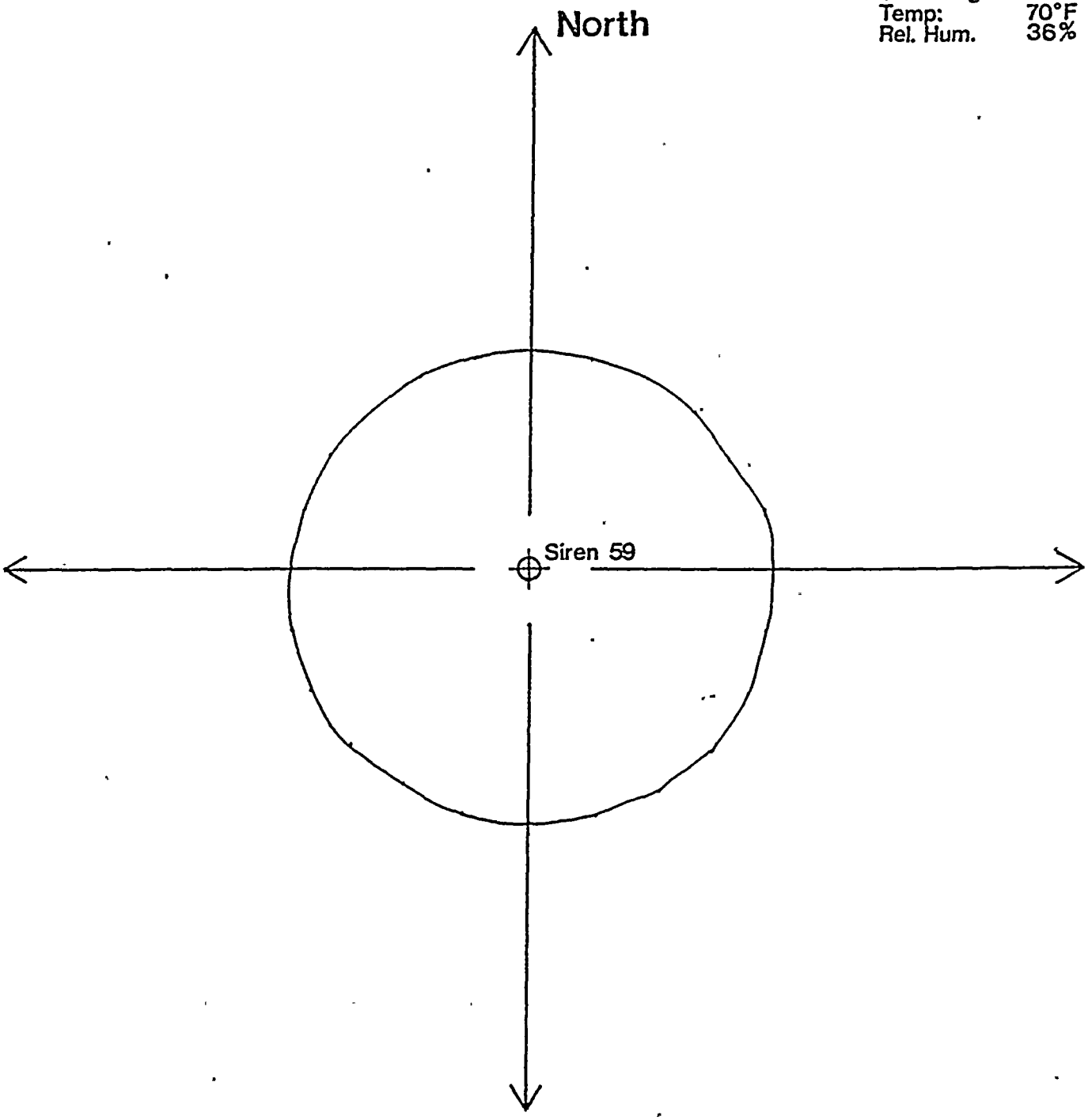
ACOUSTIC TECHNOLOGY INC.

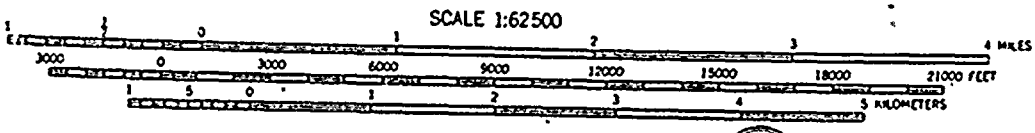
SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%





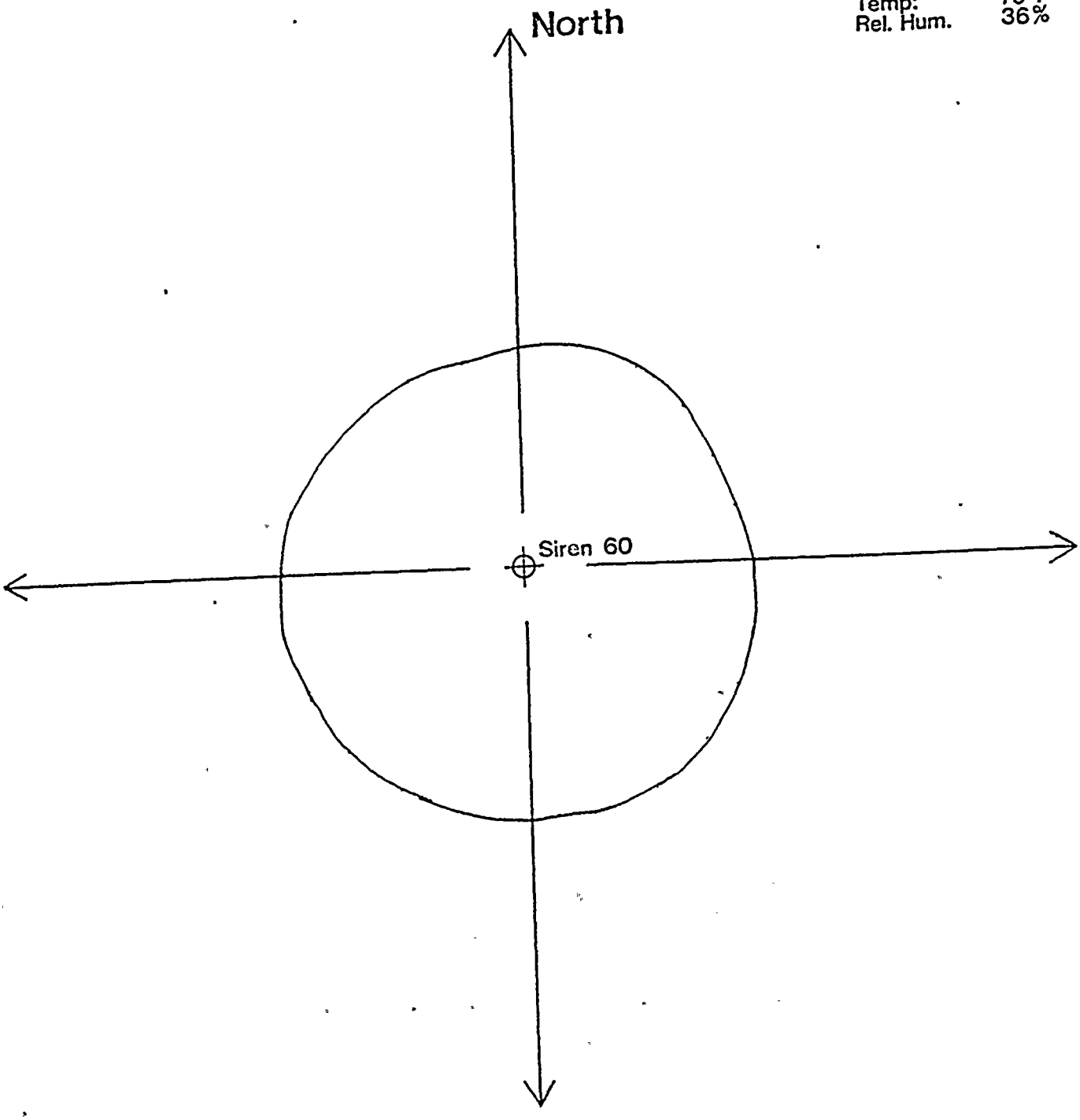
ACOUSTIC TECHNOLOGY INC.

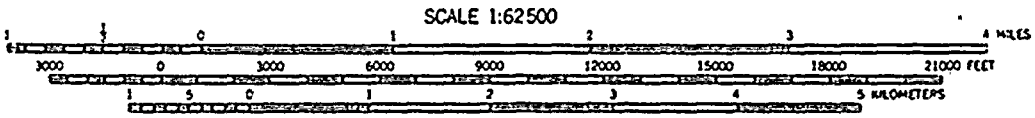
SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%





ACOUSTIC TECHNOLOGY INC.

ALTERNATIVE 2B

SOUND LEVEL CONTOURS

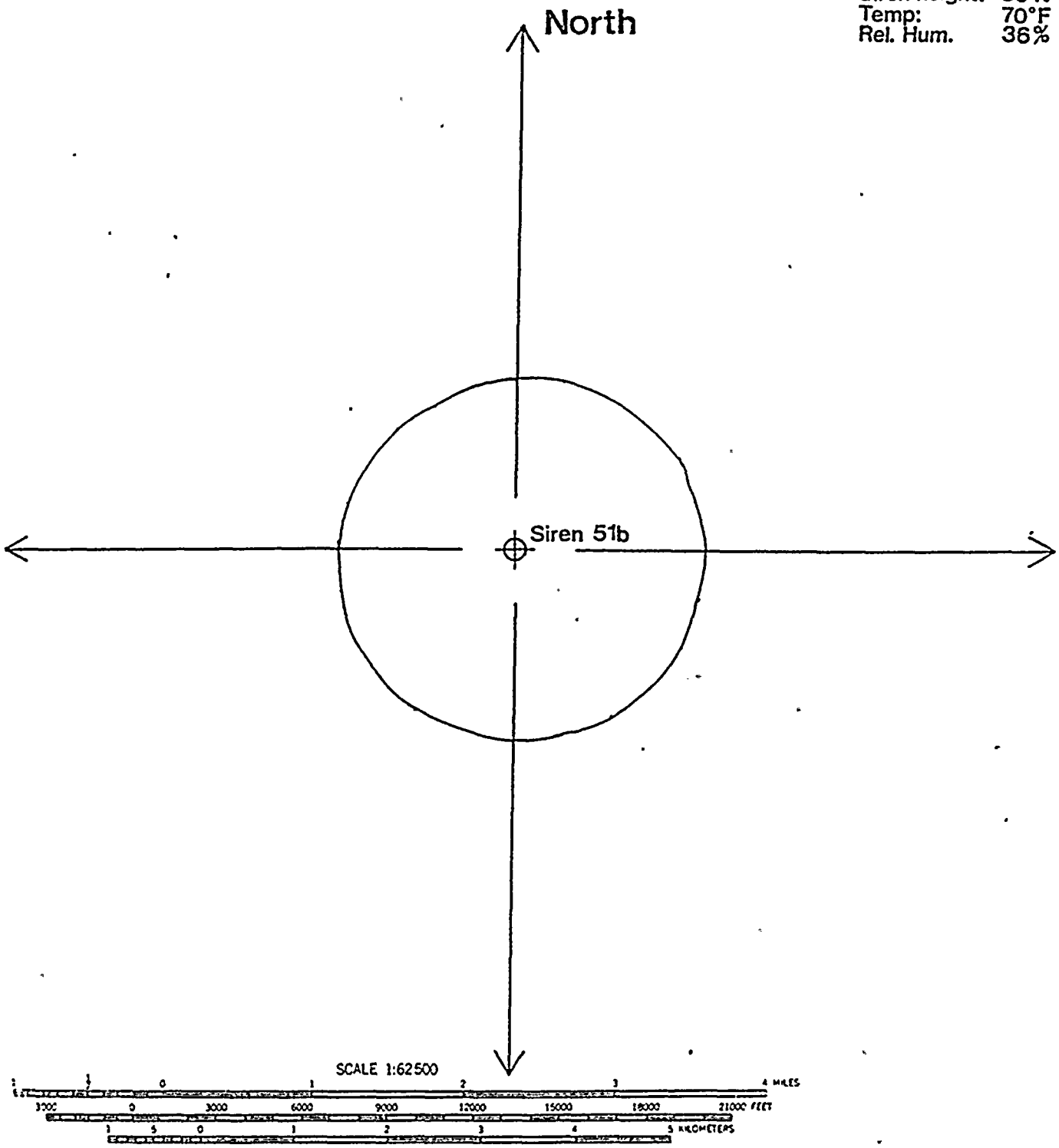
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



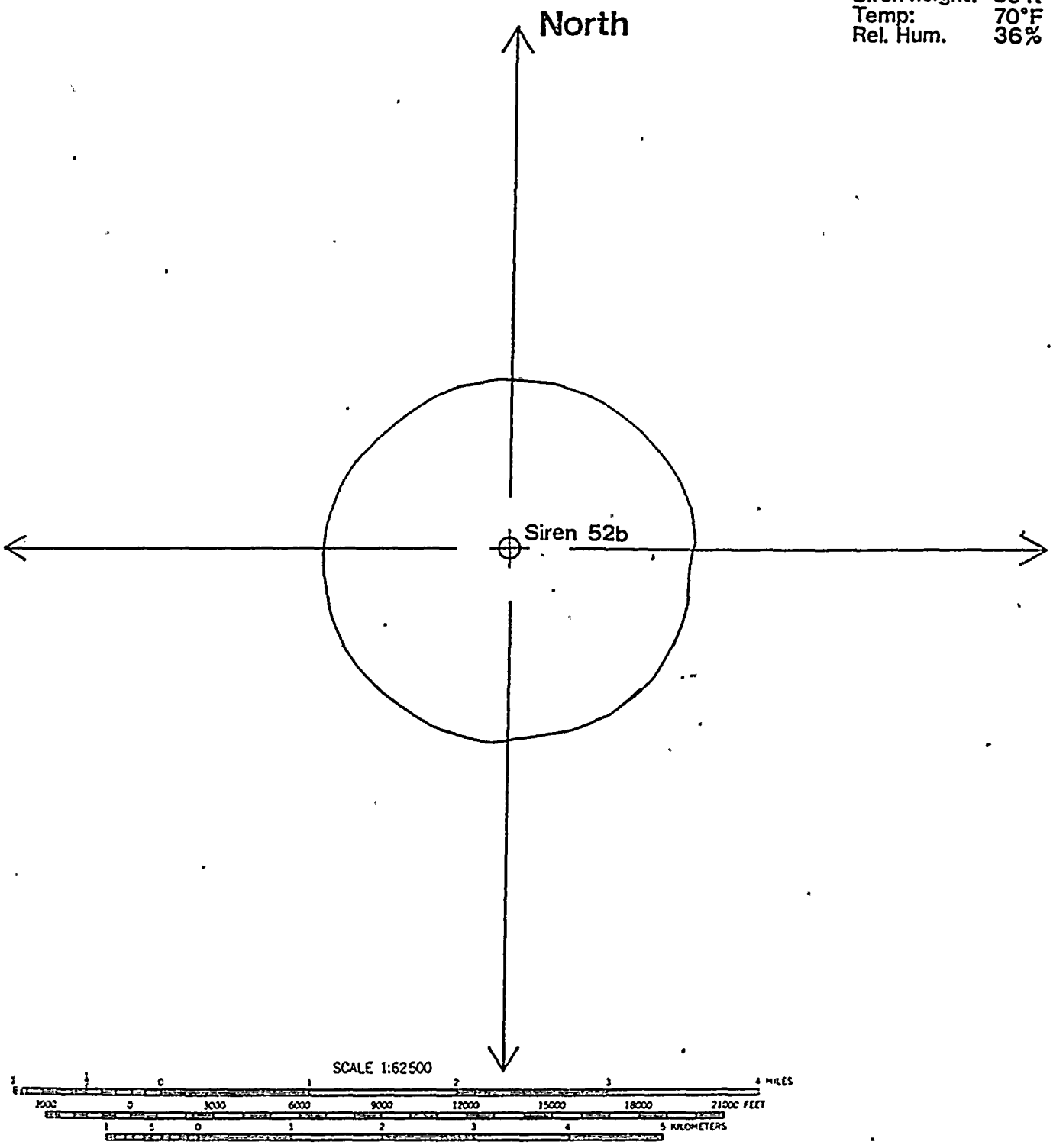
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



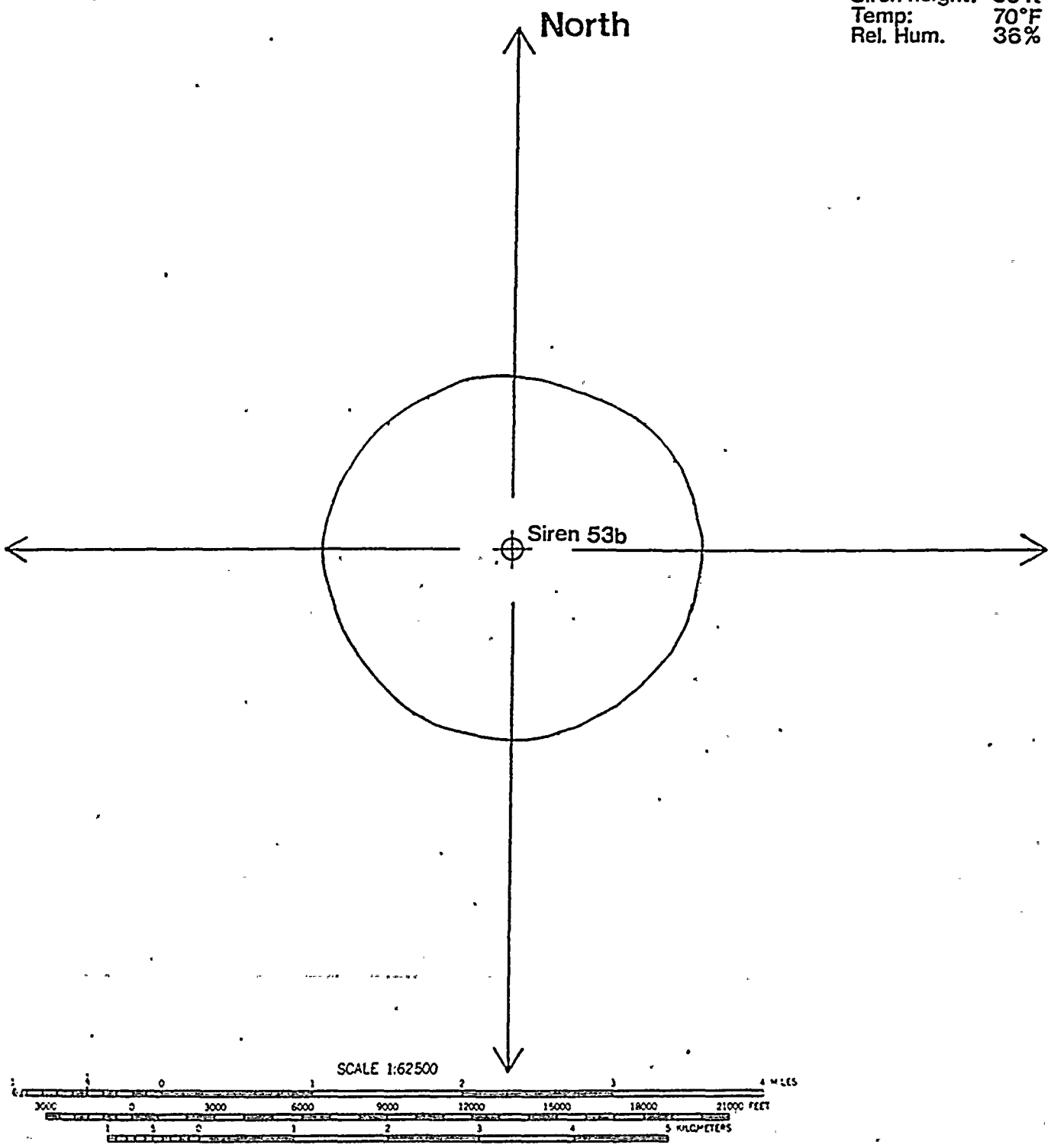
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



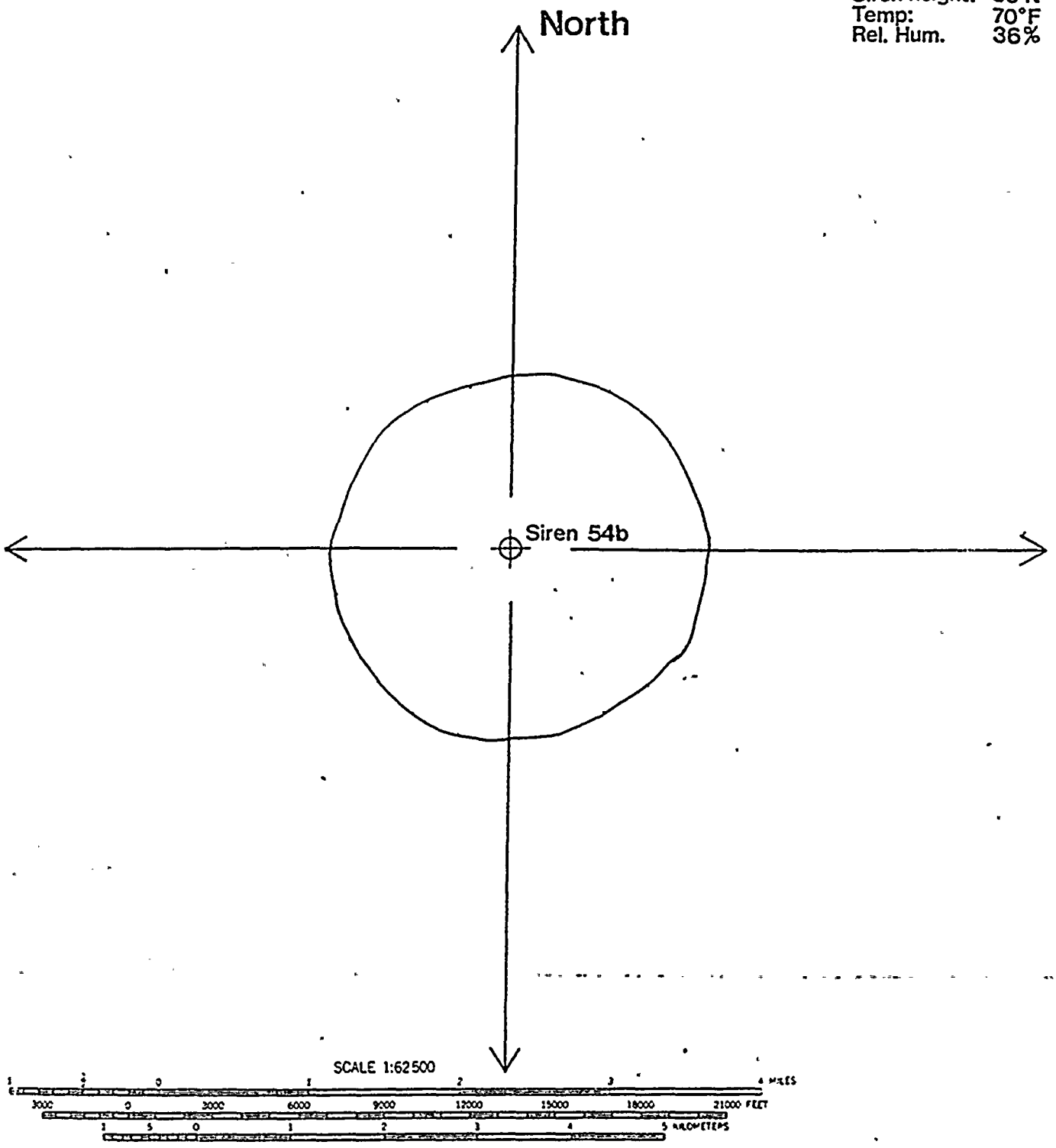
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



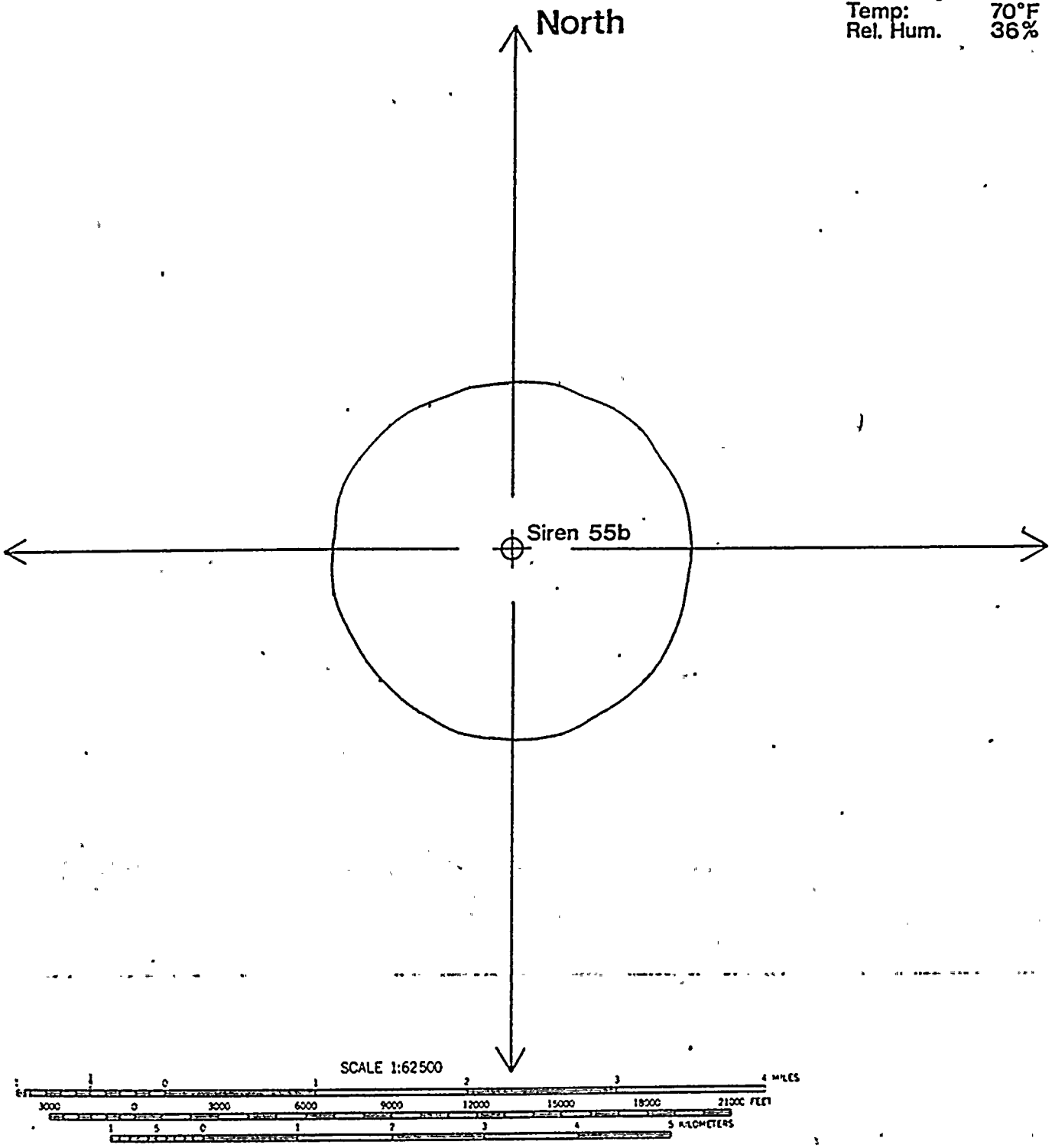
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



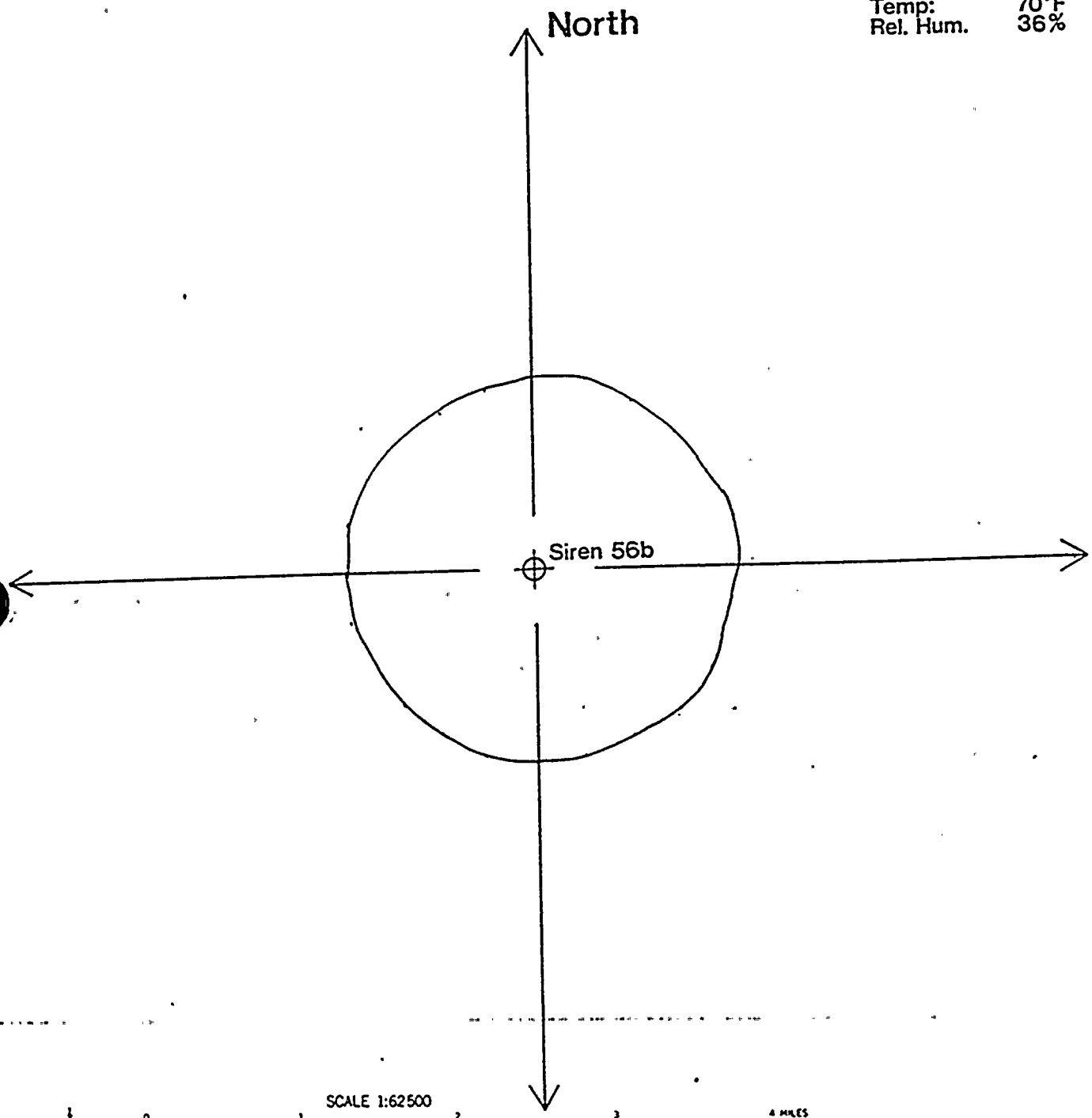
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

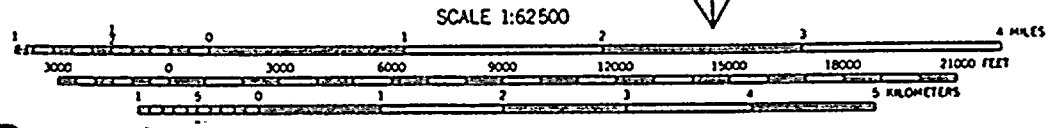
ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



SCALE 1:62500



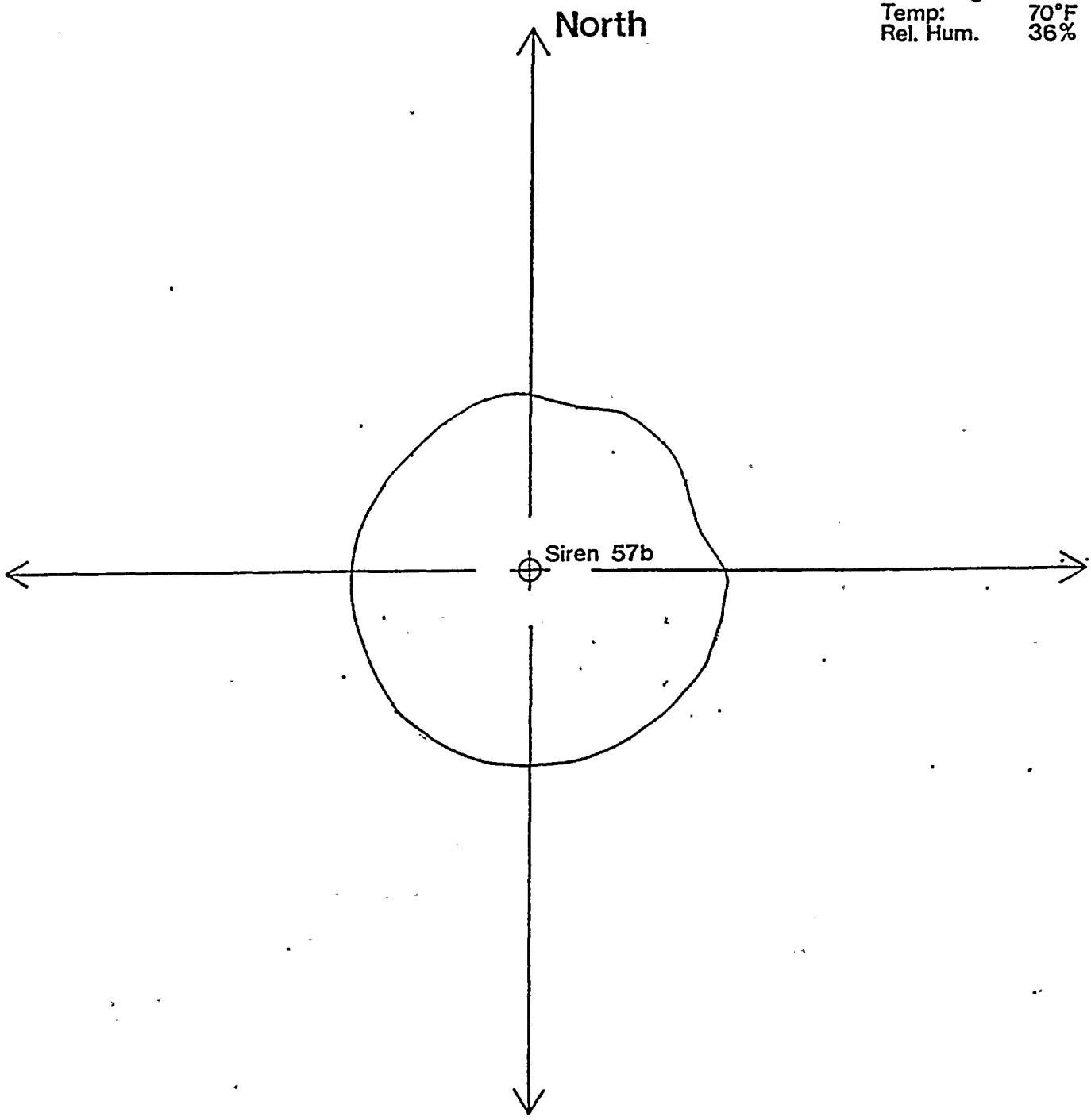
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

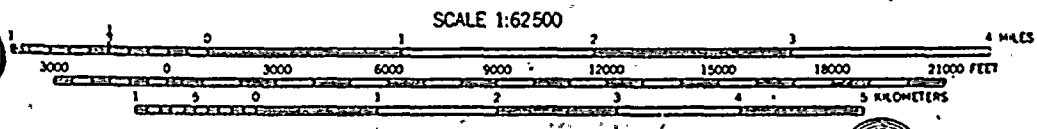
ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



SCALE 1:62500



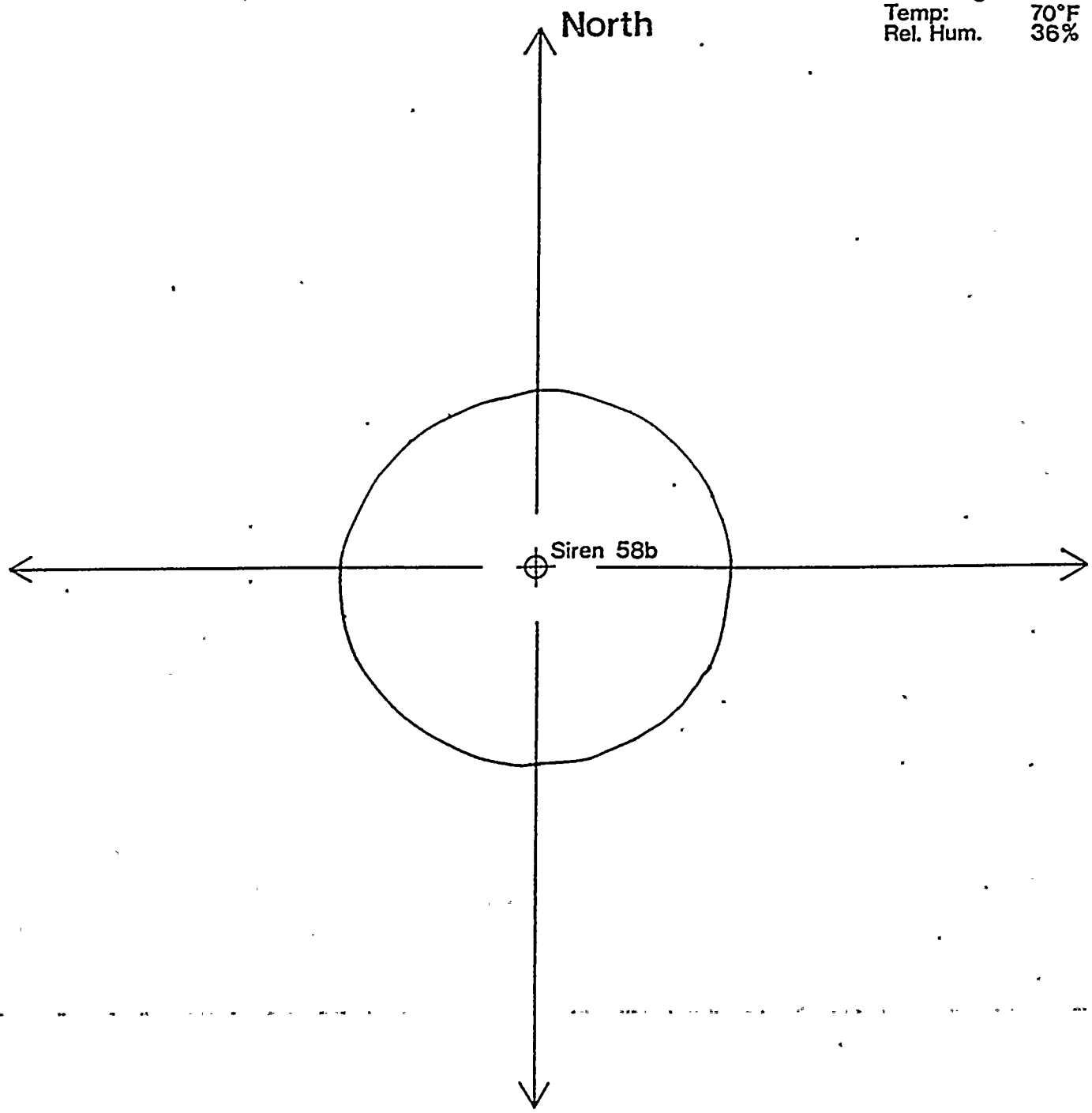
ACOUSTIC TECHNOLOGY INC.

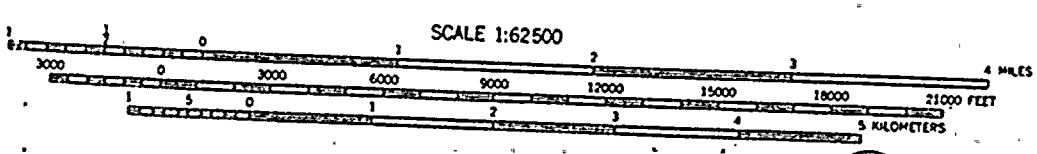
SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%





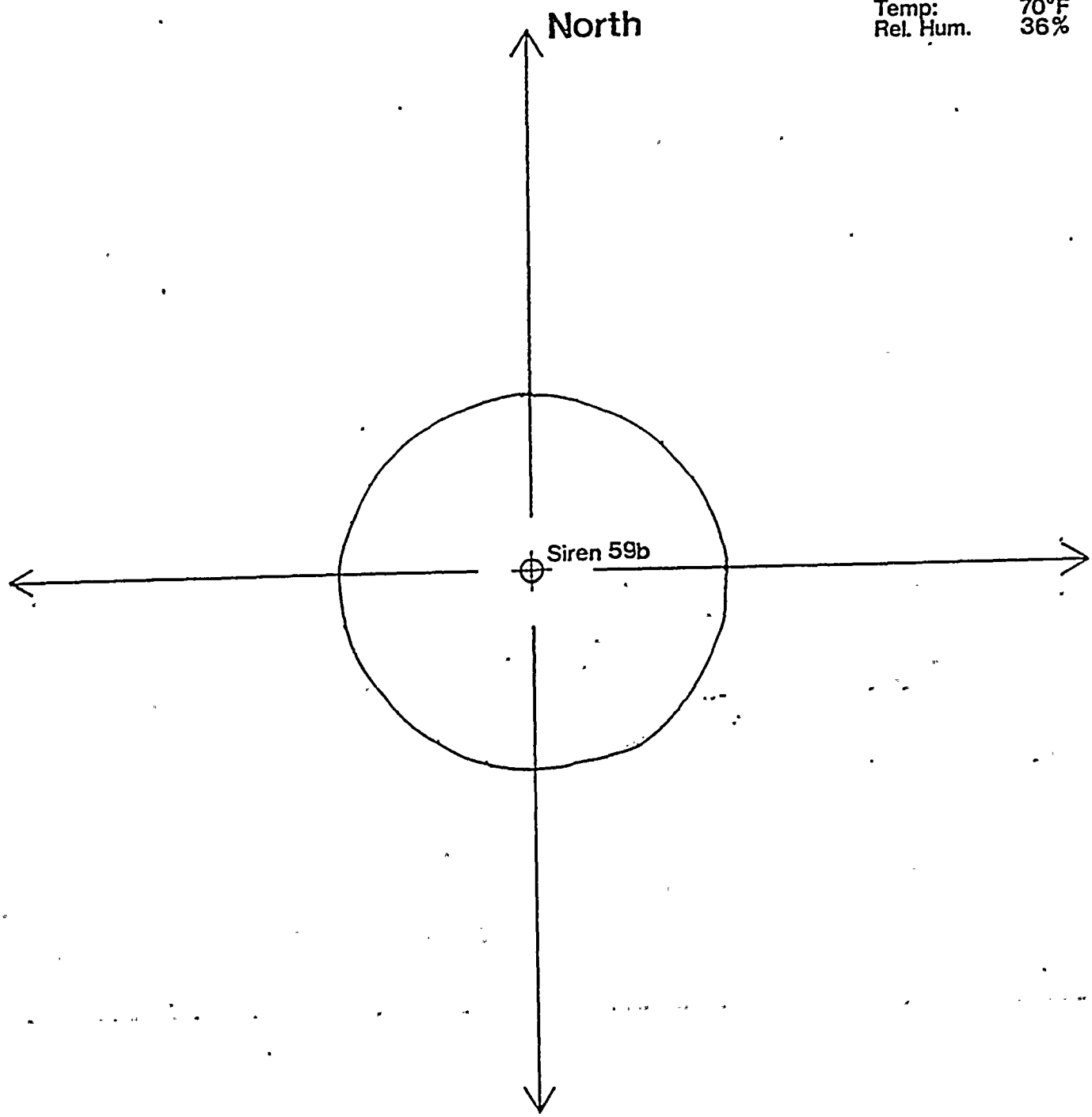
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

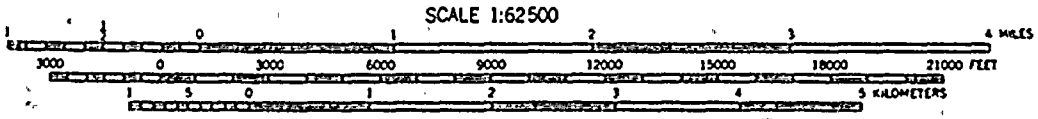
ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



SCALE 1:62500



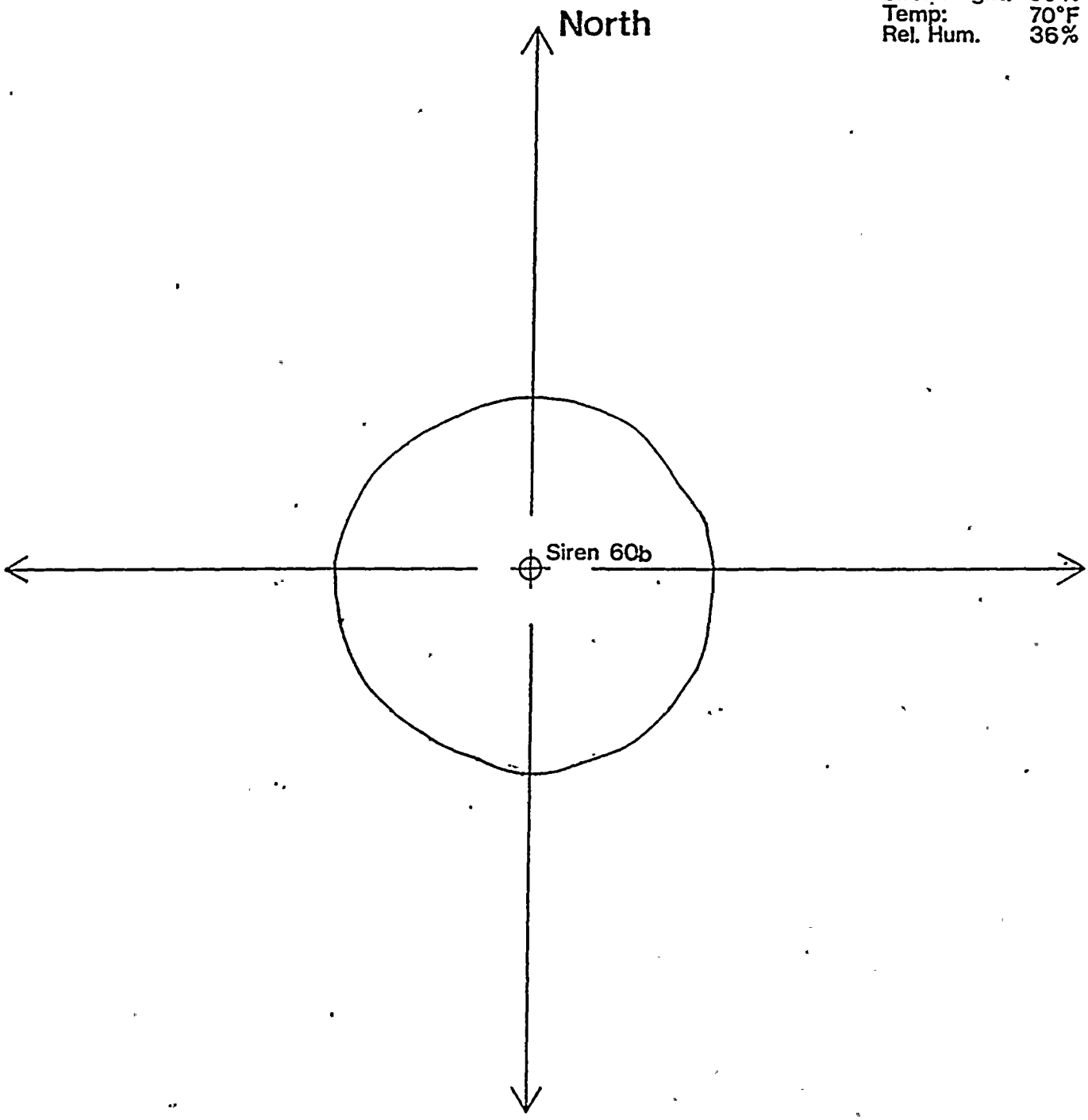
ACOUSTIC TECHNOLOGY INC.

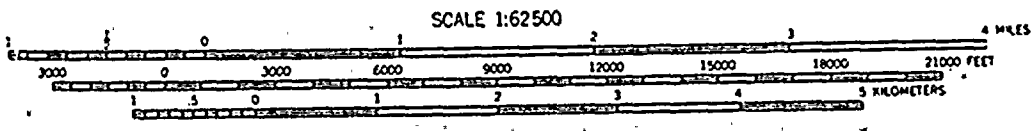
SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%





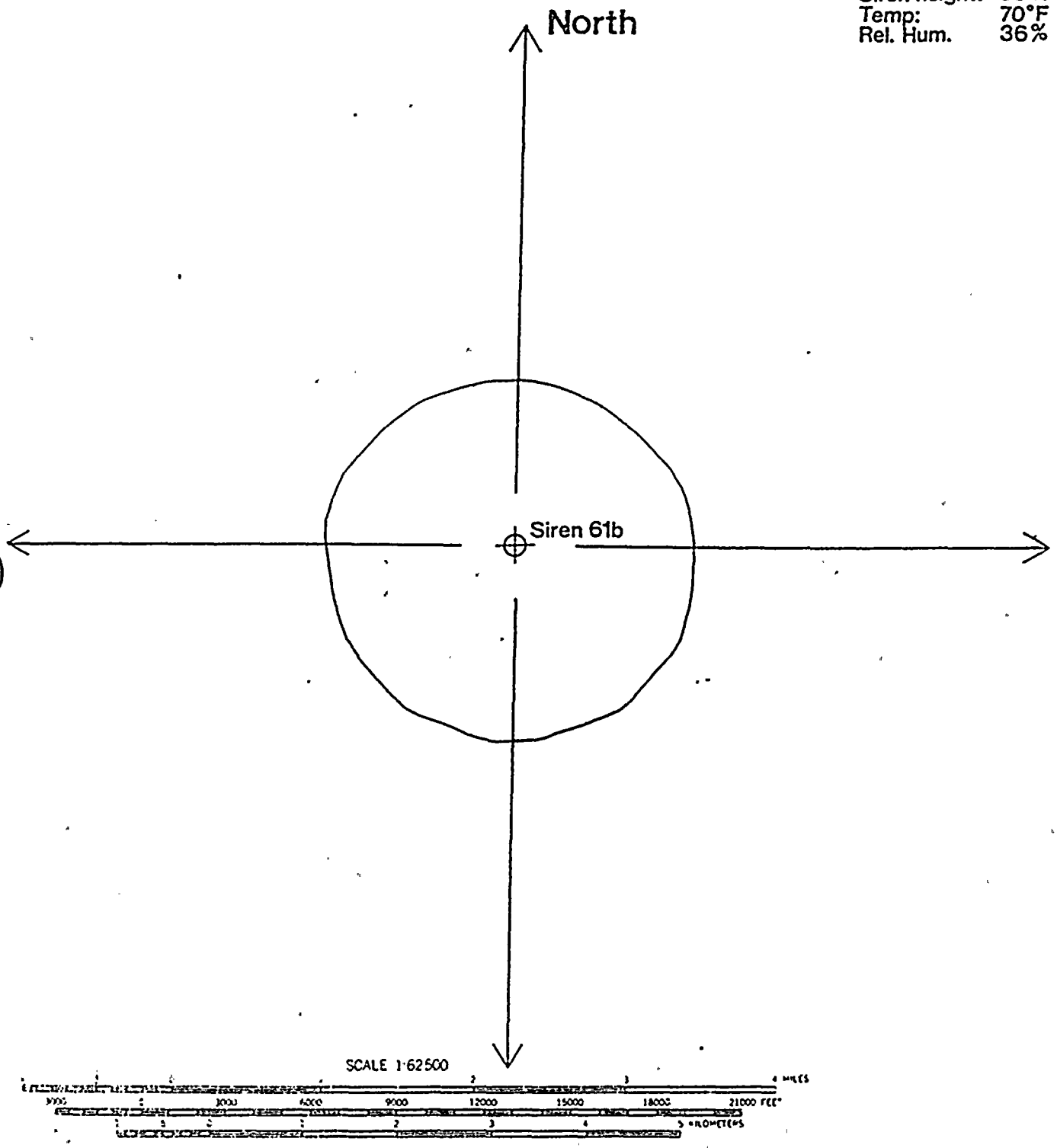
ACOUSTIC TECHNOLOGY INC.

SIREN SOUND COVERAGE

ARIZONA PUBLIC SERVICE COMPANY

Palo Verde Nuclear Generating Station

Siren height: 50 ft
Temp: 70°F
Rel. Hum. 36%



ACOUSTIC TECHNOLOGY INC.