

# NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY  
THE HARTFORD ELECTRIC LIGHT COMPANY  
WESTERN MASSACHUSETTS ELECTRIC COMPANY  
NEW YORK WATER POWER COMPANY  
NORTHEAST UTILITIES SERVICE COMPANY  
NORTHEAST UTILITIES HOLDING COMPANY

P.O. BOX 270  
HARTFORD, CONNECTICUT 06101  
(203) 666-6911

May 19, 1981

Docket No. 50-245  
A01452



Director of Nuclear Reactor Regulation  
Attn: Mr. Dennis M. Crutchfield, Chief  
Operating Reactors Branch #5  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

- References: (1) D. G. Eisenhut letter to SEP Plant Licensees, dated January 14, 1981.  
(2) W. G. Council letter to D. G. Eisenhut, dated February 27, 1981.

Gentlemen:

Millstone Nuclear Power Station, Unit No. 1  
SEP Topic II-1.B, Population Distribution

As part of the redirection of the Systematic Evaluation Program, Reference (1), Northeast Nuclear Energy Company (NNECO) committed to develop Safety Assessment Reports (SAR's) for certain SEP topics which would be submitted for Staff review. NNECO detailed this commitment and provided a schedule for submittal of SAR's in Reference (2). In accordance with this commitment, NNECO hereby provides the Safety Assessment Report for SEP Topic II-1.B, Population Distribution, which is included as Attachment 1.

We trust the Staff will appropriately use this information to develop a Safety Evaluation Report for this SEP topic.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

A handwritten signature in cursive script that reads 'W. G. Council'.

W. G. Council  
Senior Vice President

Attachment 1

Safety Assessment Report

SEP Topic II-1.B; Population Distribution

May, 1981

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 1

SEP SAFETY ASSESSMENT REPORT

Topic 11-1, B - Population Distribution

1.0 Introduction

The objective of this topic is to assure that the Low Population Zone and population center distances specified for the plant site are compatible with the current population distribution and are in conformance with the definitions and distance criteria of 10CFR Part 100. The capability of the plant to meet the dose criteria of 10CFR Part 100 at the boundary of the low population zone will be evaluated in the Section XV design basis event phase of the SEP review. The adequacy of emergency preparedness planning for the area surrounding the plant including the low population zone is being assessed by the Commission in a separate review effort.

2.0 Criteria

Standard Review Plan Section 2.1.3 states:

The specified low population zone is acceptable if (a) it is determined that appropriate protective measures could be taken in behalf of the enclosed populace in the event of a serious accident; and (b) the nearest boundary of the closest population center (as defined in Part 100) is at least one and one third times the distance from the reactor to the outer boundary of the low population zone.

The population center distance is acceptable if there are no likely concentrations of greater than 25,000 people over the plant lifetime closer than the distance designated by the applicant as the population center distance.

3.0 Discussion

As shown on the attached Figure 1, the 50-mile radius from the Millstone site encompasses parts of three states - Connecticut, Rhode Island, and New York. The total resident population within this area was 2.5 million in 1970. The Low Population Zone (LPZ) has been defined as being outside of the exclusion area but anywhere else within a 2.4 mile radius. The attached Figure 2 depicts the area included in the LPZ. The maximum dose received by any individual in this zone, following the hypothetical Design Basis Incident, would be less than the guidelines presented in 10CFR Part 100. There are no residents within the Exclusion Area.

The nearest population center, as defined in 10CFR Part 100 is New London, Connecticut. The Millstone site is located 3.2 miles west - southwest of the New London town limits.

Population distributions have recently been developed using the most recent available data as part of the Emergency Planning requirements of Appendix E to 10CFR Part 50. Figure 3 is the 1980 projected resident population rose for the Millstone site out to a 50 mile radius, depicted in 22½° zones each, represented by a compass direction and an identifying alpha-numeric character. Figure 4 is the 1980 projected total population distribution for a 50 mile radius around the Millstone site which includes both residential and transient population. The estimates of seasonal population in the vicinity of the Millstone site (0-20 mile radius) are based on increased use of summer dwellings. These estimates include the following assumptions:

1. The capacity of public lodgings is 7,045 persons
2. The capacity of the Rocky Neck camping facilities is 1,425
3. Average day users at State parks is 8,100

The coastal land beyond the 20-mile radius attracts many visitors over the summer months; however, the majority of shore visitors in the Connecticut - Rhode Island area are local residents. Their presence at the shore is more representative of a shift in location within the area covered than it is of a net increase in population. No significant variations in population occur in periods shorter than by season since the residents typically live around their place of employment. Data on such daily population shifts is unavailable.

Significant governmental, public, and private institutions within 10 miles of the Millstone site are as follows:

| <u>Name</u>                            | <u>Location</u> | <u>Sector</u> | <u>Nearest Distance (Miles)</u> | <u>Staff/ Employees</u> |
|--|-----------------|---------------|---------------------------------|-------------------------|
| U. S. Navy<br>Submarine Base           | Groton          | NNE           | 8.0                             | 16,250                  |
| General Dynamics,<br>Electric Boat Co. | Groton          | ENE           | 5.5                             | 20,000                  |
| Pfizer (Chemicals)                     | Groton          | ENE           | 5.5                             | 2,700                   |
| Connecticut College                    | New London      | NE            | 5.5                             | 2,070                   |
| Mitchel College                        | New London      | ENE           | 3.5                             | 1,185                   |
| U. S. Coast<br>Guard Academy           | New London      | NE            | 5.5                             | 1,630                   |

As stated earlier, there are no residents within the Exclusion Area of the Millstone Station. Although the total population has increased within the 2.4 mile LPZ, the population distribution has not changed significantly. The nearest population center is still the city of New London, Connecticut. The New London town line is 3.2 miles east-northeast of the Millstone site.

#### 4.0 Conclusions

The LPZ and population center distance specified for the site are in conformance with the criteria of 10CFR Part 100 and Standard Review Plan Section 2.1.3. Therefore, Millstone Unit No. 1 meets current licensing criteria and no further review for this topic is required.

#### 5.0 References

1. Standard Review Plan, Section 2.1.3.
2. Millstone Nuclear Power Station, Unit No. 2 Final Safety Analysis Report.
3. D. L. Ziemann letter to D. Bixel, dated November 27, 1979.

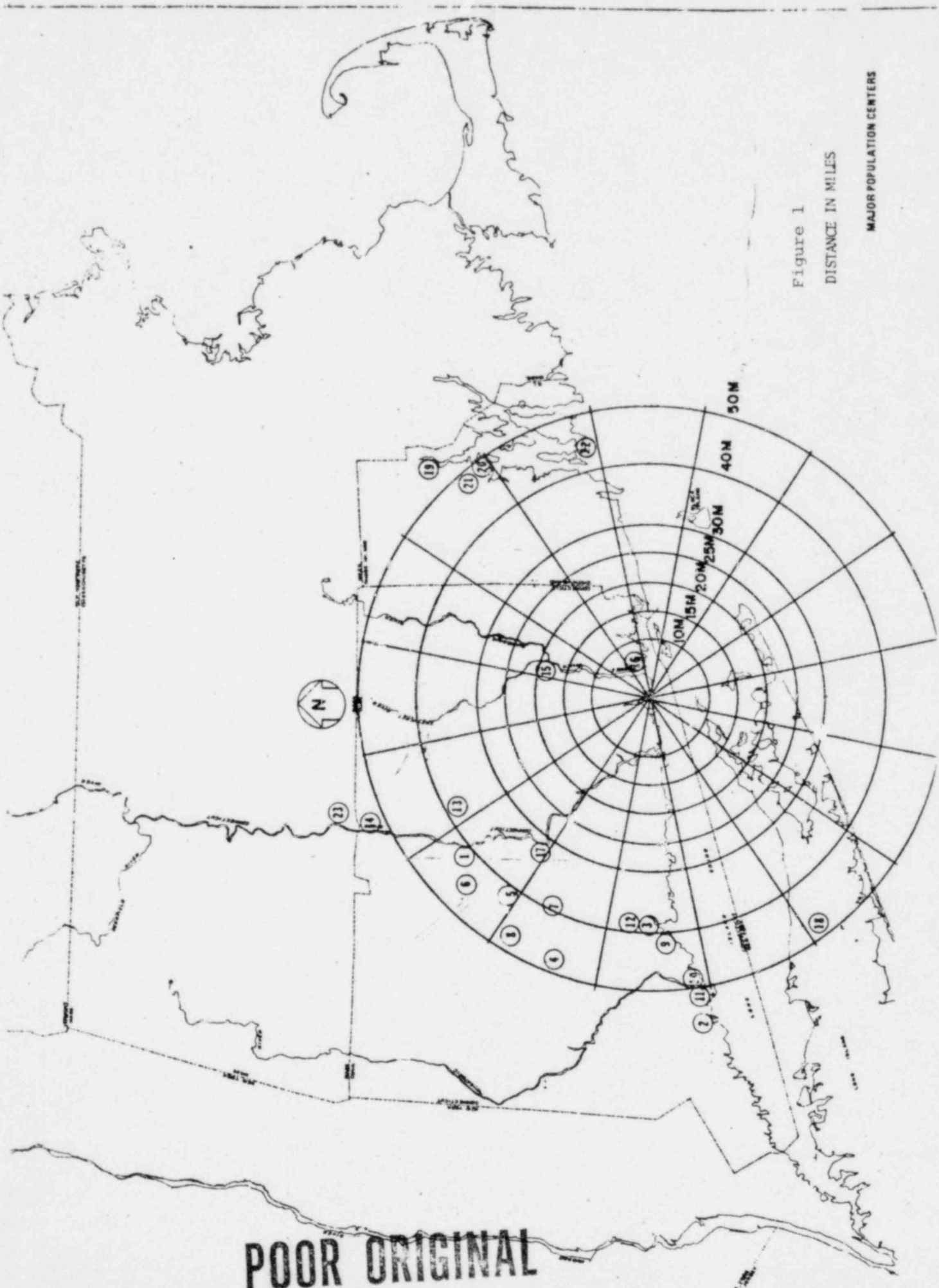


Figure 1  
DISTANCE IN MILES

MAJOR POPULATION CENTERS

POOR ORIGINAL

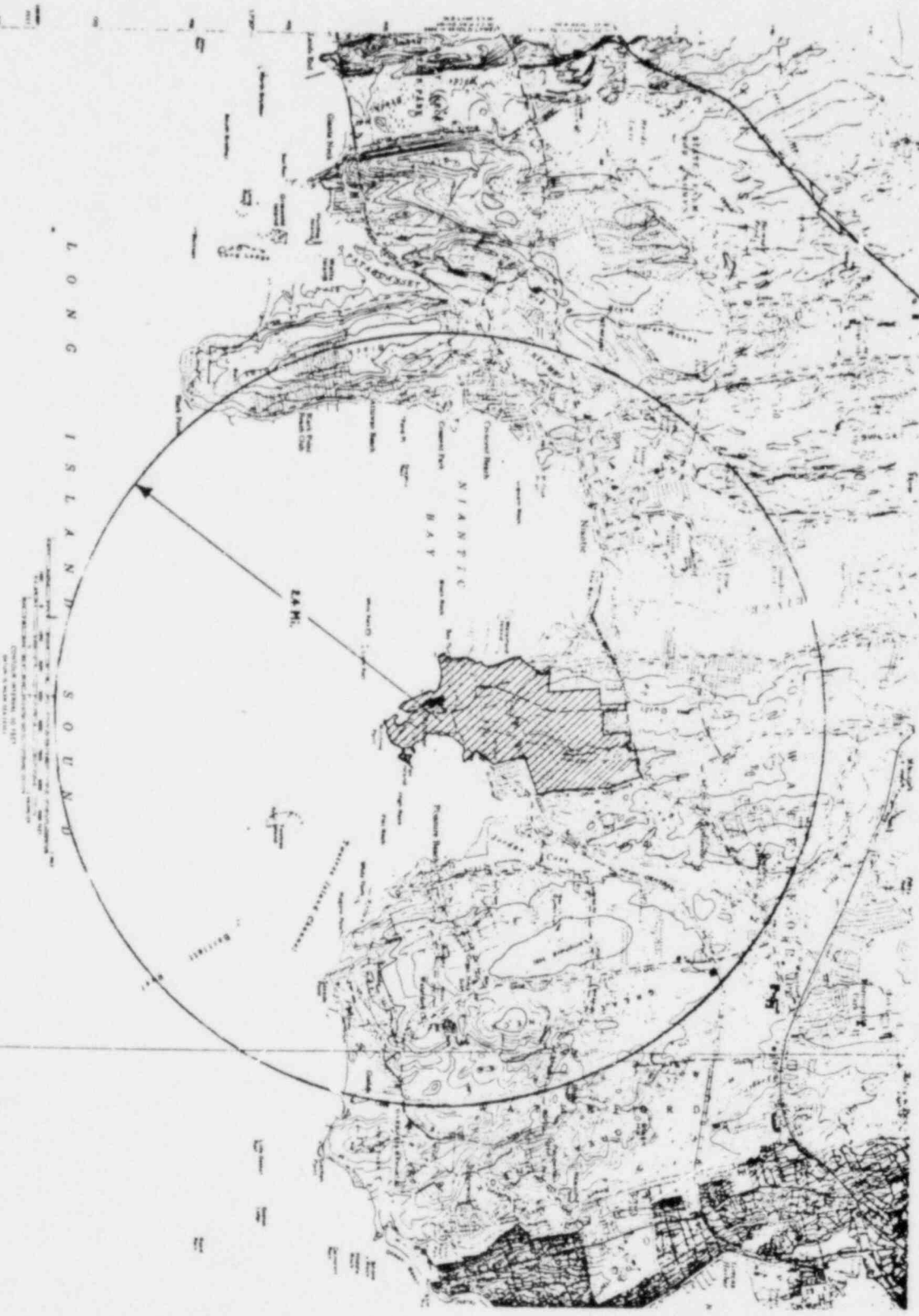


Figure 2

LOW POPULATION ZONE

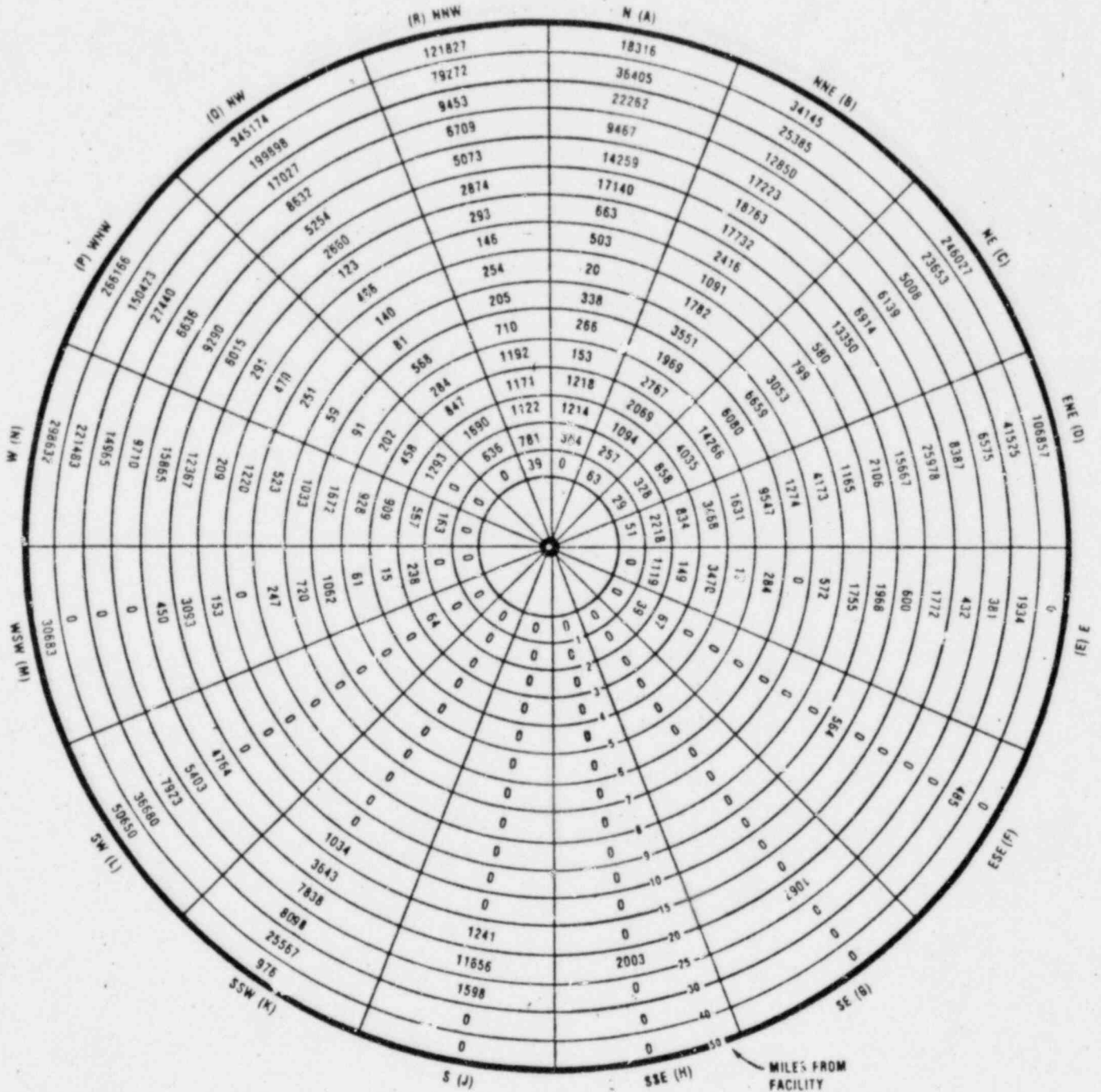
POOR ORIGINAL



# MILLSTONE NUCLEAR POWER STATION

Figure 3

## 1980 PROJECTED RESIDENT POPULATION DISTRIBUTION



KEY  
N = 1980 RESIDENT POPULATION

POOR ORIGINAL



# MILLSTONE NUCLEAR POWER STATION

Figure 4

## 1980 PROJECTED TOTAL POPULATION DISTRIBUTION

