

# YANKEE ATOMIC ELECTRIC COMPANY

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2.C.2.1  
FYR 81-70

May 1, 1981

United States Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Mr. Dennis M. Crutchfield, Chief  
Operating Reactors Branch #5  
Division of Licensing

Reference: (a) License No. DPR-3 (Docket No. 50-29)

Subject: SEP Topic II-1.<sup>6</sup>, Population Distribution

Dear Sir:

Enclosed please find our assessment of SEP Topic II-1.D, "Population Distribution" for the Yankee Rowe plant.

If you have any questions or desire additional information, please contact us.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

J. A. Kay  
Senior Engineer - Licensing

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Enclosure

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## YANKEE ROWE

### Topic II-1.B Population Distribution

The population distribution in the vicinity of Yankee Rowe has been reviewed several times since the construction permit was issued. The safety objective of these reviews is to assure that the low population zone (LPZ) and population center distance specified for Yankee Rowe continue to be compatible with the current population distribution, and are in conformance with the guidance of 10 CFR Part 100.

The low population zone for Yankee Rowe has been defined as an S-shape area approximately 2 miles wide and centered on the Deerfield River, extending 2 miles upstream and 6 miles downstream from the plant. This area was originally selected based on the terrain and meteorology at the site. The total 1980 population within the low population zone is estimated to be approximately 260 persons, and has remained essentially unchanged over the last decade. Figure 1 shows the land area contained in the LPZ.

The nearest population center, as defined in 10 CFR Part 100, has remained unchanged over the operating life of the plant. The city of Pittsfield, Massachusetts, with a 1980 population of 51,942 and located 21 miles southwest of the site remains the nearest population center. The population center distance of 21 miles is greater than one and one-third times the LPZ distance

as required by 10 CFR Part 100. Table 1 presents the 1960, 1970 and 1980 populations for 11 major cities and large towns within 50 miles, and shows growth has only been minor in nature or negative over recent history.

The rural nature of the towns in the immediate vicinity of the site has remained basically unchanged over the last two decades. Table 2 indicates the change in resident population from 1960 through 1980 for those towns totally or partially 5 miles of the site. The current population density for the 5-mile radius is approximately 26 persons per square mile. There has been no significant additions of either new housing or commercial, military or institutional installations in the immediate vicinity of the plant since the initial population review.

Within a 50-mile radius of the site, the total population has increased from an estimate of 1,397,666 in 1970 to 1,444,489 in 1980. This represents a growth of only 3.4 percent over this ten-year interval and reflects the stable nature of the population distribution in the region. Table 3 shows both the 1970 and 1980 population distributions within 50 miles by radial rings. Current estimates of the population by sector out to 50 miles are contained in the Rowe Emergency Plan.<sup>1</sup>

Since the plant design conforms to current licensing criteria concerning population distribution, no additional SEP review is required.

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<sup>1</sup> Yankee Nuclear Power Station, Emergency Plan", Section 4.2, Yankee Atomic Electric Company, April 1, 1981.

TABLE 1

## POPULATION OF MAJOR COMMUNITIES

## WITHIN 50 MILES OF YANKEE ROWE

Community	Distance and Direction from Site	Population		
		1960 <sup>(a)</sup>	1970 <sup>(a)</sup>	1980 <sup>(b)</sup>
(Massachusetts)				
Agawam	46 miles SSE	15,718	21,717	26,281
Amherst	30 miles SE	13,718	26,331	33,210
Chicopee	40 miles SSE	61,553	66,676	55,048
Holyoke	35 miles SSE	52,689	50,112	44,819
Northampton	28 miles SSE	30,058	29,664	29,128
Pittsfield	21 miles SW	57,879	57,020	51,942
Springfield	48 miles SSE	163,905	163,905	152,212
Westfield	38 miles S	26,302	31,433	36,356
West Springfield	42 miles SSE	24,924	28,461	26,960
(New Hampshire)				
Keene	32 miles ENE	17,562	20,467	21,385
(New York)				
Albany	45 miles W	129,726	115,781	101,770
Bethlehem	44 miles W	18,936	23,427	24,301
Colonie	44 miles W	52,760	69,147	74,534
Troy	38 miles W	67,492	62,918	56,614

(a) 1970 Census of Population: Characteristics of the Population; Bureau of the Census, U.S. Department of Commerce, Vol. 1, 1973.

(b) 1980 Census of Population and Housing: Preliminary Reports; Bureau of Census, U.S. Department of Commerce, 1980.

TABLE 2

POPULATION OF TOWNS  
WITHIN 5 MILES OF YANKEE ROWE

<u>Town</u>	<u>1960(a)</u>	<u>Population</u> <u>1970(a)</u>	<u>1980(b)</u>
(Massachusetts)			
Rowe	231	277	325
Monroe	210	216	173
Florida	569	672	731
Charlemont	897	897	1,141
Heath	304	383	482
(Vermont)			
Readsboro	783	638	638
Whitingham	838	1,011	1,043

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(a) 1970 Census of Population: Characteristics of the Population; Bureau of the Census, U.S. Department of Commerce, Vol. 1, 1973

(b) 1980 Census of Population and Housing: Preliminary Reports; Bureau of Census, U.S. Department of Commerce, 1980.

TABLE 3

POPULATION DISTRIBUTION  
WITHIN 50 MILES OF YANKEE ROWE

<u>Ring</u> <u>(Miles)</u>	<u>Cumulative Population</u>	
	<u>1970(a)</u>	<u>1980(b)</u>
0 - 1	98	116
0 - 2	229	295
0 - 3	558	744
0 - 4	1,070	1,445
0 - 5	1,618	2,058
0 - 10	17,654	24,431
0 - 20	100,485	122,689
0 - 30	260,899	287,663
0 - 40	606,734	655,622
0 - 50	1,397,666	1,444,489

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(a) 1970 Census of Population: Characteristics of the Population; Bureau of the Census, U.S. Department of Commerce, Vol. 1, 1973

(b) 1980 Census of Population and Housing: Preliminary Reports; Bureau of Census, U.S. Department of Commerce, 1980.



LOW POPULATION ZONE

YANKEE-ROWE

FIGURE 1

**POOR ORIGINAL**