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DEC 11 1973

R. C. DeYoung, Assistant Director for PWR's, L

AAB INPUT TO VOGTLE SER

PLANT NAME: Vogtle Units 1-4  
LICENSING STAGE: CP  
DOCKET NUMBER: 50-424  
RESPONSIBLE BRANCH: PWR-2  
REQUESTED COMPLETION DATE: December 7, 1973  
REVIEW STATUS: AAB input partially complete.

Attached is the Accident Analysis Branch input for the Site Section and the Control Room Habitability Section of the Vogtle SER. We have not been able to complete the analyses of design basis accidents because the applicant has not provided final data on the primary containment leak rate. AAB input to the SER accident section can be provided within a few days of receipt of the required information on containment leak rate.

Original signed by  
H. R. Denton

Harold R. Denton, Assistant Director  
for Site Safety  
Directorate of Licensing

Enclosure:  
As stated

cc: w/o encl.  
A. Giambusso  
W. McDonald

DISTRIBUTION

Docket file ←

L-Rdg.  
L-AD/SS  
L-AAB

w/encl.  
S. Hanauer  
J. Hendrie  
B. Grimes  
K. Knial  
L. Crocker  
W. Nischan  
E. Adensan  
K. Murphy

8503080385 841009  
PDR FOIA  
BELL84-664 PDR

OFFICE →	L:AAB <i>W.N.</i>	L:AAB	L:AAB <i>B.G.</i>	L:SS		<i>Memo</i>
SURNAME →	WNischan:iml	EAdensan	BGrimes	HDenton		
DATE →	12/10/73	12/10/73	12/11/73	12/11/73		

## Vogtle

### Site Location and Description

The 3177 acre site of the Alvin W. Vogtle Nuclear Station is located in the eastern sector of Burke County, Georgia, about 15 miles east northeast of Waynesboro, Georgia and 26 miles south southeast of Augusta, Georgia. Figure 2.1 shows the plant location with respect to nearby communities and with respect to the AEC's Savannah River plant which lies across the Savannah River in South Carolina.

The applicant has specified a minimum exclusion area radius of 3600 feet (1098 meters). There are no residents within the exclusion area, and the applicant owns and controls all lands within his designated exclusion area. Figure 2.2 shows location of the principal plant structures within the area and with respect to the Savannah River.

The applicant has selected a low population zone radius of 2 miles. The nearest population center with more than about 25,000 people (as defined in 10 CFR Part 100) is Augusta, Georgia, about 26 miles north northwest of the site. The distance to the nearest boundary of the population center is therefore more than one and one third times the low population zone radius and in compliance with Part 100 guidelines.

The 1977 estimated population enclosed within the applicant's specified low population zone radius of 2 miles is 15 people. Figure 2.3 shows the applicant's estimated 1977 cumulative population surrounding the plant as a function of distance from the site out to 50 miles. The cumulative population corresponding to a moderately populated area of 400 people per square mile is also shown. Comparison of the curves in Figure 2.3 shows that the population around the Vogtle plant is well below the reference curve and that the site area is not heavily populated.

Augusta, Georgia (the nearest population center) had a 1970 population of 59,864, a loss of 15% from the 1960 population of 70,626. Burke County showed a population loss of about 11% in the decade from 1960 to 1970. For the area within a 50 mile radius of the plant the applicant projects a population growth of 32% during the 20 year period 1977-1997. We have compared this projection with population projections made by the Bureau of Economic Analysis, U.S. Department of Commerce for BEA Area No. 32. Figure 2.4 shows the circle of 50 miles radius around the Alvin W. Vogtle Plant in relation to BEA Area No. 32. BEA projects a population growth of 21% for BEA Area No. 32 during the 20 year period 1980-2000.

The applicant states that there are no seasonal variations in population of any significance in the general plant vicinity. The most significant changes in the number of people within a 10 mile radius will be daily variations due to the work force at the Savannah River Plant and the Vogtle construction force. The only significant variation within the low population zone will be directly attributable to the Vogtle Plant construction force.

Nearby Industrial Transportation and Military Facilities

On the basis of information presented in the PSAR, there are no airports, military facilities, gas pipelines, or major highways within 5 miles of the plant. The nearest highway with truck traffic is Georgia Route 23, which passes about 5 miles south-southwest of the site. The only significant transportation route in the vicinity is the Savannah River. The nearest of the four Vogtle reactors will be situated about 3600 feet from the river. During 1970 the river past the site carried 135,574 short tons of cargo, none of which, according to the applicant, is classified hazardous. The nearest railroad lines lies about 4 miles across the river and passes through the AEC's Savannah River Plant. The nearest airport is the Burke County Airport about 16 miles west-southwest.

There are no major commercial industries or commercial chemical plants within 5 miles. Because of the distances involved, we conclude that the above cited facilities will not adversely affect safe operation of the Vogtle Plant. There are, however, a number of facilities associated with the Savannah River Plant.

The Savannah River Plant (SRP)

The Savannah River Plant is operated for the United States Atomic Energy Commission by E. I. du Pont de Nemours and Company. It was established in 1950 to produce nuclear materials for national defense. Nuclear materials are produced at this site by transmutation of elements in nuclear reactors that are moderated and cooled by heavy water. Support facilities extract heavy water from natural water, fabricate nuclear fuel and targets, dissolve the irradiated materials, and separate nuclear products from the radioactive byproducts. Figure 2.5 shows the principal facilities of the Savannah River Plant and shows the location of the Vogtle Nuclear Station with respect to SRP. Circles of 2, 3, 4 and 5 miles are shown around the Vogtle Nuclear Station to illustrate distance to the various SRP facilities. The SRP facility nearest the Vogtle Nuclear Station is the Heavy Water Production facility (D) situated about 4 miles north-northeast. The nearest operating SRP reactor is the K reactor, about 7 miles east-northeast.

We have evaluated the consequences to the Vogtle Control Room Occupants of incidents at the Savannah River Plant. Results of our

evaluations are discussed in Section 9.4.

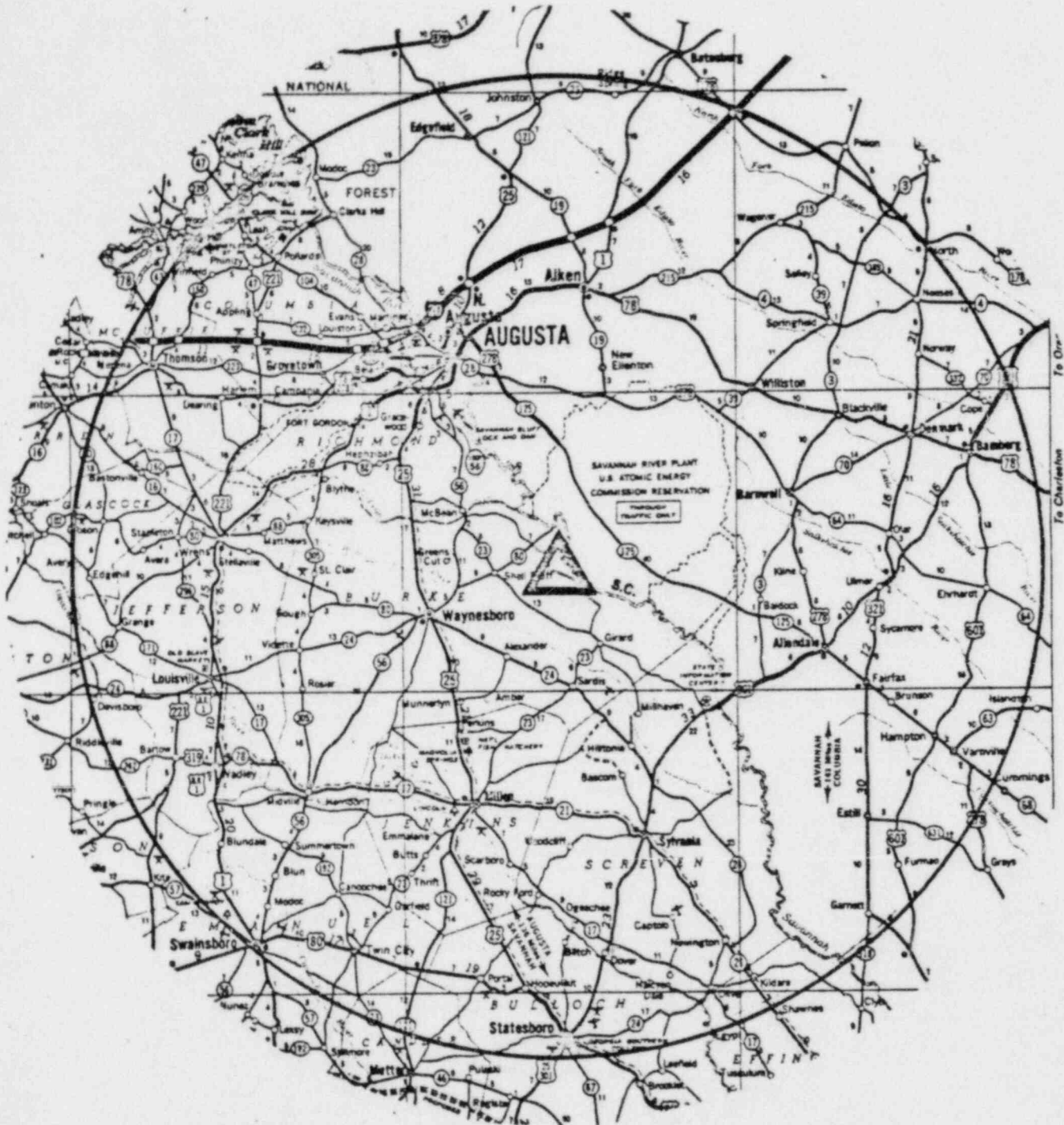


Figure 2.1

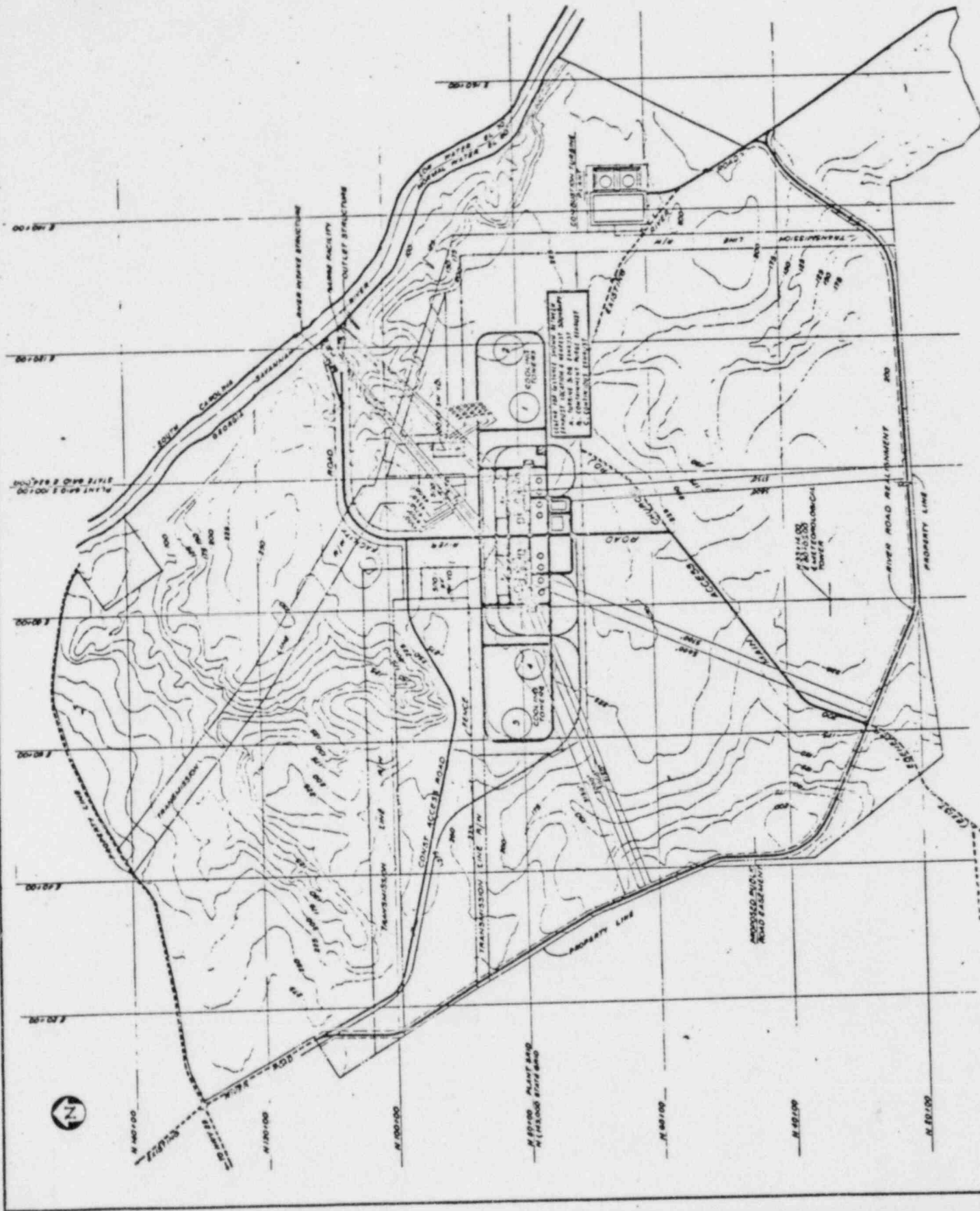


Figure 2.2



Alvin W. Vogtle Plant

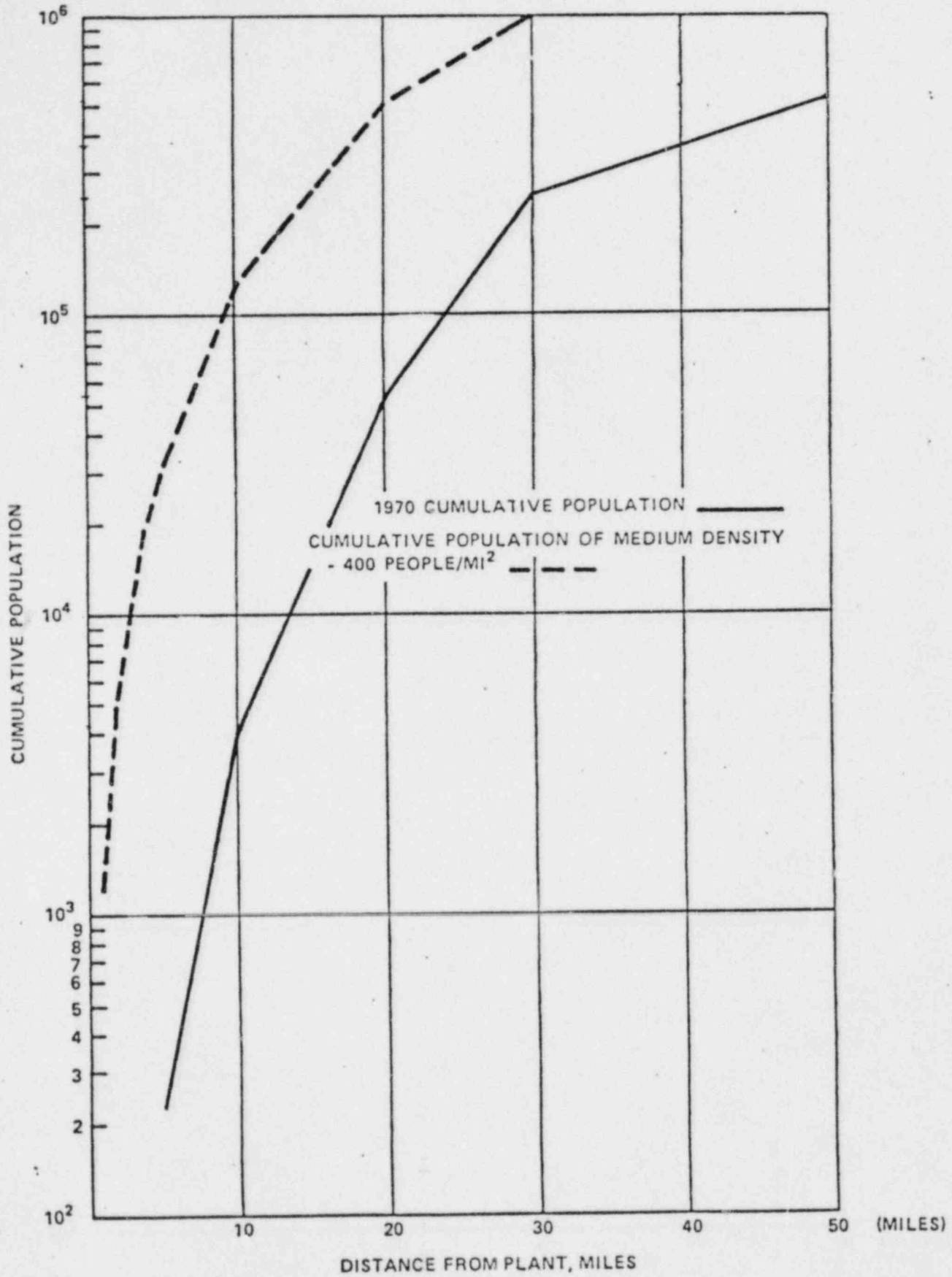
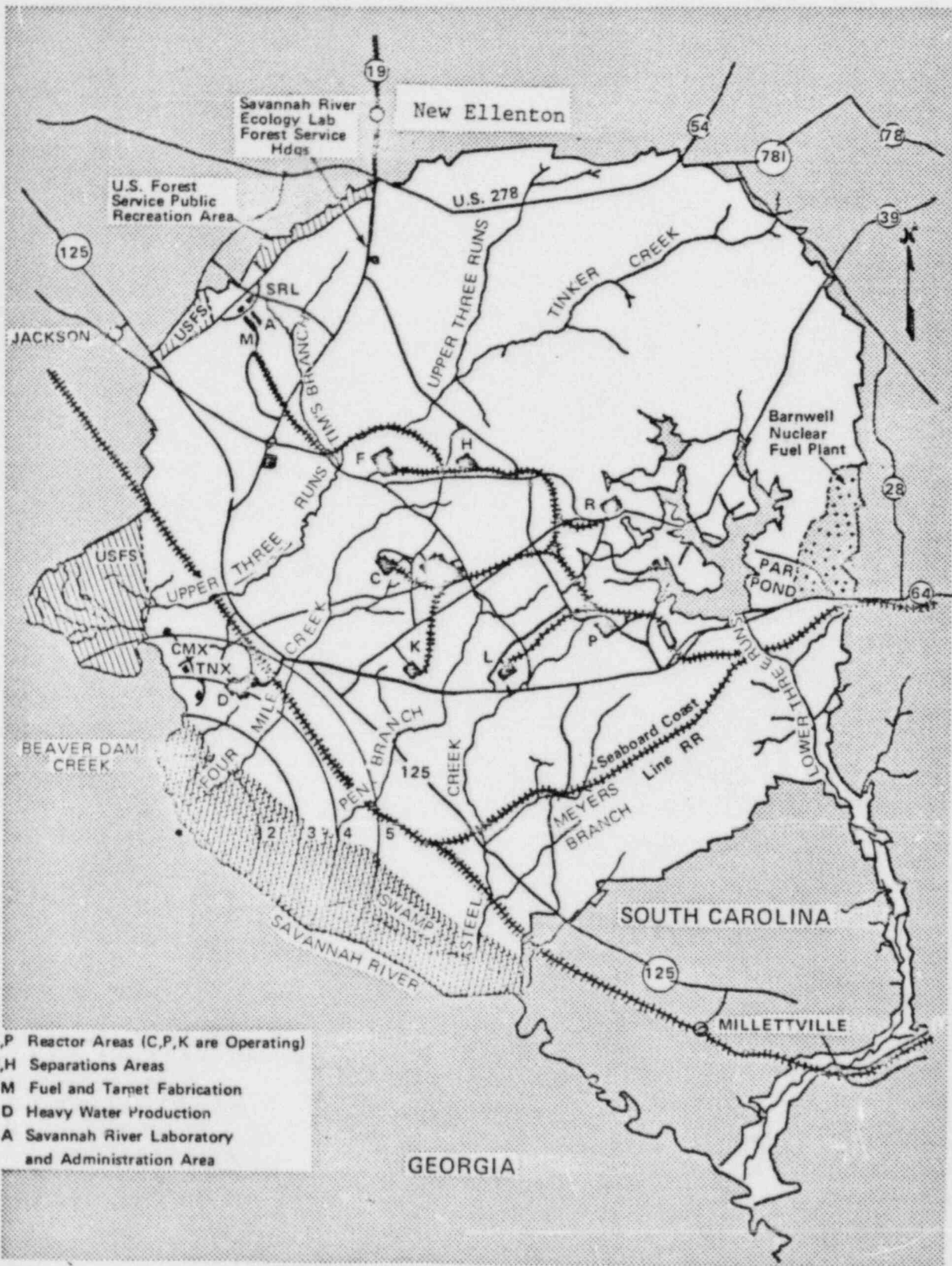


Figure 2.3 CUMULATIVE POPULATION DISTRIBUTION



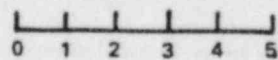
BEA AREA NO. 32  
Figure 2.4



- C,K,R,L,P Reactor Areas (C,P,K are Operating)
- F,H Separations Areas
- M Fuel and Target Fabrication
- D Heavy Water Production
- A Savannah River Laboratory and Administration Area

GEORGIA

SOUTH CAROLINA



Scale in Miles