

Start Historical

## 2.1 GEOGRAPHY AND DEMOGRAPHY

### 2.1.1 SITE LOCATION AND DESCRIPTION

#### 2.1.1.1 Specification of Location

*The Susquehanna SES is located on the west bank of the Susquehanna River in Salem Township, Luzerne County, Pennsylvania with additional recreational and agricultural lands located on the east bank of the rivers in Conyngham and Hollenback Townships.*

*It is four miles south of Shickshinny and five miles northeast of Berwick. The nearest village is Beach Haven on the southeast edge of the main station site.*

*The Universal Transverse Mercator Coordinates for the center point between Susquehanna SES Units 1 and 2 reactors are 4,549,300 meters north and 403,800 meters east, Zone 18. These correspond to 41°05'30" north latitude and 76°08'55" west longitude and are also equivalent to the Pennsylvania Coordinate System (PCS) Coordinates 341,175 feet north and 2,442,025 feet east respectively. The PCS is used throughout this report.*

*The portion of the site in Salem Township is about 1,574 acres, which includes the property on the flood plain and agricultural land to the west of Confers Lane (Township Road T-438). The main station site area within the security fence is approximately 230 acres. An additional 717 acres of land on the east bank has woodlands, farming, reaction, etc.*

*Topography in the site vicinity ranges from relatively flat flood plains to gently rolling hills. Elevations range from 500 feet to 1,600 feet above mean sea level (msl). In an east-west direction, the site is essentially flat from the river to U.S. Route 11 and is 530 ft above mean sea level. Elevation increases sharply to the west from U.S. Route 11 to the station site, rising from about 530 feet (mean sea level) to about 700 feet (msl) in the station area (see Figure 2.1-21). Continuing to the westerly edge of the site, the land is relatively flat and at about the same elevation as the main station buildings. In a south-north direction, the site rises gradually from about 650 ft (msl) on the south boundary to about 900 ft (msl) on the north.*

*The main station buildings are located on a terrace above the flood plain approximately 4000 feet west of the Susquehanna River in Salem Township (see Figure 2.1-22). The land around the main station buildings is relatively open with trees on the steeper slopes. It was formerly under cultivation for farm and orchard crops and is slowly reverting back to woodlands.*

#### 2.1.1.2 Site Area Map

*A map of the site area including major structures and facilities is provided as (Figure 2.1-22). In addition to the site property in Salem Township the Licensee owns 717 acres of recreational land on the east side of the river in Conyngham and Hollenback Townships.*

*The exclusion area as defined in 10CFR100 (Ref. 2.1-1), is a circle of radius 1800 feet with the center at the common release point. Radiation dose limits at this location are regulated by*

10CFR50.67, Accident Source Term. The coordinates of the common release point are N341,175 and E 2,441,970.5. Aside from transit through the exclusion area, there are no activities permitted within this zone other than those related to station operation. There are no residences within the exclusion area.

Roads that traverse the site are:

- a) On the north - Beach Grove Road (T-419) which is approximately 1600 ft. from the center of the exclusion area and approximately 500 ft. from the nearest vital structure. (Salem Township)
- b) On the west - Confers Lane (T-438) which is approximately 2000 ft. from the center of the exclusion area and approximately 1400 ft. from the nearest vital structure. (Salem Township)
- c) On the south - Bell Bend (T-456) which is approximately 1800 ft. from the center of the exclusion area and approximately 1600 ft. from the nearest vital structure. (Salem Township)
- d) On the east - U.S. Route No. 11 which is approximately 2600 ft. from the center of the exclusion area and approximately 2500 ft. from the nearest vital structure. (Salem Township)
- e) On the floodplain on the east bank – Route 239 is located approximately 7,100 feet from the center of the exclusion area. (Conyngham Township).

Railways that traverse the site are:

A rail line owned by the Commonwealth of Pennsylvania traverses the flood plain. It is operated by the North Shore Railroad Co. and is located approximately 2,700 feet east of the center of the exclusion area. This line is exclusively used by the Licensee. The section of the line north of the site is not being used at present. An access spur from the main line of the railroad onto the site permits rail service to the station.

The Susquehanna River flows from north to south separating the site from recreational lands on the east side of the river. The river is navigable only by small pleasure and fishing boats because of shallow water and obstructions in the vicinity of the site.

### 2.1.1.3 Boundaries for Establishing Effluent Release Limits

The exclusion area is the area within a radius of 1,800 feet from the common release point of both reactors, (Figure 2.1-22). The distance from the gaseous effluent release points to the boundary is at least 1,800 feet. The station liquid effluent release point is located at the river approximately 4,000 feet from the common release point. See Section 2.1.2.3 for arrangements for traffic control.

## 2.1.2 EXCLUSION AREA AUTHORITY AND CONTROL

### 2.1.2.1 Authority

*PP&L owns the entire plant exclusion area (except for Township Route T-419) in fee simple and, therefore, has complete authority to regulate any and all access and activity within that area.*

*Minimum distance to exclusion area boundary is discussed in Subsection 2.1.1.2.*

#### 2.1.2.2 Control of Activities Unrelated to Plant Operation

*The only area within the exclusion area in which activities unrelated to plant operation may or will occur is Township Route T-419. See Section 2.1.2.3 for traffic control arrangements.*

*The location of this area within the exclusion area is shown in Figure 2.1-22. The exclusion area outside the protected area fence will be posted and, with the exception of the township route, will be closed to persons who have not received authorization to enter the property.*

*PP&L normally will not control passage along Township Route T-419 within the exclusion area although the Emergency Plan provides for execution of control over passage in the event of emergency conditions at the plant.*

#### 2.1.2.3 Arrangements for Traffic Control

*PP&L has made arrangements with the Salem Township Supervisors and with the Pennsylvania State Police for control of traffic on Township Route T-419 in the event of an emergency. In addition, Pennsylvania, Luzerne County, and Columbia County Emergency Management Agencies have incorporated traffic control in their emergency procedures.*

#### 2.1.2.4 Abandonment or Relocation of Roads

*Approximately 0.25 mile of Township Road T-419 was relocated approximately 250 feet south to improve the grade and lessen the number of curves. This road was relocated on property owned by PP&L. Access to the plant by a rail spur was also improved through this area.*

### 2.1.3 POPULATION DISTRIBUTION

*The population in the vicinity of the Susquehanna SES is sparsely distributed. The steep sloped ridges and the prevailing land use, agriculture, combine to yield a low population density outside of the communities. Table 2.1-33 indicates a decline in total population of counties within 20 miles of the site between the years 1950 and 2000. There was a decrease in population of about 111,000 people or 15.7% (Ref. 2.1-2 and 2.1-3). Between 1990 and 2000 in these counties there was a decrease in population by about 7,800 people or 1.3%. Sullivan County had the greatest percentage increase (7.4%) and Luzerne County had the greatest percentage loss (2.7%) in population (Ref. 2.1-4). The nearest major populated area, the Wilkes-Barre/Scranton corridor, is 15 to 30 miles northeast of the site.*

*Definitions for urban and rural areas changed in 2000 and, therefore, it is difficult to compare growth trends. For example, in 1990 urban and urbanized areas had population densities as low as 1,000 persons per square mile and in 2000 this definition decreased to 500 persons per*

square mile. The changes in urban and rural populations listed in Table 2.1-34 from 1990 to 2000 may only reflect the changes in definition and not major population shifts from urban to rural areas or vice versa (Ref. 2.1-5 and 2.1-6).

Transient populations were considered in calculating the population distribution in the site vicinity. Variations in the transient population occur from 30 to 50 miles away from the site. This subject is discussed in greater detail in Subsection 2.1.3.3.

Population projections are based upon U.S. Bureau of Census projections for the nation (Ref. 2.1-7). These projections are "stepped-down" to the local level by a ratio technique. The U.S. Census projection series for the nation is based upon fertility assumptions. For the projections used in this report, two basic fertility assumptions are made; one is that the completed cohort fertility is 2.7 children per woman, which is characteristic of a growing population, and the other is 2.1 children per woman, which is characteristic of a replacement population growth. In 1990 the 2.1 completed fertility generates birth rates were comparable to national birth rates experienced in 1970-1974 (Ref. 2.1-8). It is reasonable to assume that the 2.1 completed fertility rate applies to the site area. The U.S. Census projections virtually assume a closed population. That is, on the national level migration of persons into or out of the U.S. is considered negligible. However, such a situation does not exist for the Pennsylvania area. For example, between 1980 and 1990 the U.S. population increased by 9%; however, Pennsylvania's population increased by less than 1% (Ref. 2.1-9). These figures indicate that Pennsylvania experienced out-migration. To include migration in the projections, the trends established in the 1960 to 1970 decade were projected out to the years 2000 to 2020 (Ref. 2.1-10 and 2.1-11). The results of these projections are given in Tables 2.1-35 through 2.1-38 and Figures 2.1-23 through 2.1-26.

#### 2.1.3.1 Population Within 10 Miles

The population within 10 miles of the site was sparsely distributed in 2000, and may be characterized as a declining rural population with a few small communities scattered through the area. As shown in Figure 2.1-27 and Table 2.1-39, the bulk of the population was located in the WSW, NNE, NE, SE, N and SSE sectors (Ref. 2.1-4 and 2.1-12). Seasonal population data were included in this table and figure. These sectors contain all or part of several small communities (Table 2.1-40); however, none of these communities exceeded 25,000 people, and none qualifies as a population center (10CFR100) (Ref. 2.1-1).

The rest of the area is agricultural; however, the number of farms between 1969 and 1997 declined by 26% for Luzerne County and 32% for Columbia County (Ref. 2.1-12). This decline combined with a decline in farmland (24% for Luzerne and 22% for Columbia) indicates a decline in agriculture in the vicinity of the site (Ref. 2.1-13).

Population projections for the area from 0 to 10 miles from the site for 2010 and 2020 are given in Tables 2.1-35, 2.1-37 and Figures 2.1-23, 2.1-25. Between 2010 and 2020 there is a projected decline in population of approximately 2,500 people.

#### 2.1.3.2 Population Between 10 and 50 Miles

As shown in Figure 2.1-28 and Table 2.1-41, the major focus of the population between 10 and 50 miles is in the NE and SE sectors. Seasonal population data were included in this table and

figure. The cities contained in these sectors (Scranton, Wilkes-Barre, and Hazleton) form the nucleus of the Scranton/Wilkes-Barre/Hazleton Metropolitan Area. Between 1990 and 2000 the population decreased from 734,175 to 624,776 in this metropolitan area (Ref. 2.1-14).

Population projections for the area from 10 to 50 miles from the site for years 2010 and 2020 are given in Tables 2.1-36, 2.1-38, and Figures 2.1-24, 2.1-26. These projections are based on the 1990 Census since new projections are not available. After a slight increase in projected population from 2000 to 2010 there is a moderate but steady decline in population between 2010 and 2020.

### 2.1.3.3 Transient Population Between 0 and 50 Miles

The transient population around the site are of three types:

- a. Seasonal
- b. Daily
- c. Transportation

A seasonal population is dependent upon the time of year. Examples of seasonal dependency are tourists at resort areas and migrant workers. Commuters, a daily population, for example, may be present in an area 40 hours out of the 168 hours in a week. Another example of a daily population is the visitors to the mountains or beaches for the day. Finally, a transportation population is associated with some mode of transportation. For example, several thousand vehicles pass a particular location on a highway during a day; however, the persons in these vehicles may be in the site vicinity a few minutes only. Furthermore, many of the vehicles counted may be those of local residents going to and from work, or running errands. The seasonal and daily populations are of interest to the location of a nuclear power station and are discussed in more detail below.

#### 2.1.3.3.1 Seasonal Population Between 0 to 50 Miles

Within a 30-mile radius of this site there are all or part of eleven counties (Table 2.1-42). Table 2.1-42 lists current population (2000), seasonal potential population and seasonal population. Luzerne and Columbia Counties have a seasonal population of 8,586 or less than 2.2% of the seasonal potential population in these two counties (Ref. 2.1-14). Within 10 miles of the station assuming seasonal population is 2.2% of the total population then there are approximately 1179 people who are considered seasonal.

From 30 to 50 miles the seasonal population maintains the same general concentration as it does within 30 miles. Table 2.1-42 shows that Pike, Sullivan, Monroe and Wayne counties have rather high concentrations of seasonal population. These counties are NW, NE, and E of the site. The seasonal population for the area defined by a 50 mile radius from the site was weighted and incorporated in the Population Distribution (Tables 2.1-39 and 2.1-41 and Figures 2.1-27 and 2.1-28) and Projections (Tables 2.1-35, 2.1-36, 2.1-37, 2.1-38, and 2 Figures 2.1-23, 2.1-24, 2.1-25, 2.1-26), Ref. 2.1-15.

Other sources of seasonal populations are daily visitors to attractions such as parks, wildlife refuges and national forests. It is difficult to weigh the population due to these attractions since the length of stay is usually unknown. Furthermore, persons who visit a park and hike or swim for the day are often from within the study area. Thus, instead of there being a net increase of

persons in the study area, there may only be a redistribution of persons. The station recreation area is estimated to have a peak daily attendance of 1,000 persons and a daily average of 300 persons according to recreation personnel. The nearest recreational area of a significant size is Ricketts Glen State Park, located approximately 15 miles north-northwest of the site and Nescopeck State Park about 12 miles east both in Luzerne County. (Ref. 2.1.16). Attendance at these parks was not included because of possible counting of local residents who visit the parks.

#### 2.1.3.3.2 Daily Transient Population

Persons who work at locations which are different than their residences constitute shifts in population during working hours. Especially large employers or urban centers can result in substantial shifts in local population. The Susquehanna site experiences daily shifts in population both into and away from the site area. However, the resident population presents a conservative (high) estimate of the distribution of persons in the vicinity of the station since employment opportunities away from the site area (i.e., further than 5 miles) are greater than those within it. Population shifts into the area occur as workers commute to the 13 industries which occur within 5 miles of the site. These industries employ a total of 1,746 persons some of whom would be expected to reside in the site area (see Table 2.1-43, Ref. 2.1-17). When one weighs the proportion of working hours to total hours in a week (40/160) the residential population increased by only 437 persons.

Daily shifts in population away from the site would be expected to be greater than noted above due to the presence of a number of urban areas located nearby. In Luzerne County, the City of Wilkes-Barre, located 21 miles to the northeast, is a major urban and employment center. Valmont Industrial Park, located near the City of Hazleton 15 miles southeast of the site, is another important employment center. In Columbia County, Berwick Borough, located 5 miles to the southwest, and the Town of Bloomsburg, located approximately 18 miles to the west-southwest, are the major employment and urban centers.

#### 2.1.3.3.3 Low Population Zone

The distance of the Low Population Zone (LPZ), established for the Susquehanna SES in accordance with 10CFR100, is a three-mile radius from the center of exclusion area. Radiation dose limits at LPZ are regulated by 10CFR50.67, Accident Source Term. The estimated population in the LPZ in 2000 was 2,133 (Table 2.1-39). Projected and existing population distribution data for distances up to 50 miles from the plant are on Tables 2.1-36, 2.1-38, and 2.1-41, and Figures 2.1-24, 2.1-26 and 2.1-28.

No schools, hospitals, state or municipal parks are located within the LPZ. The plant recreation area is within the LPZ. Five industrial plants, Leggett and Platt, Castek, PMC Lifestyle, and MP Metals and Tech Packaging are located within the LPZ. These plants employ a total of 254 persons who would contribute to the peak daily transient population. Seasonal population and daily transient populations are discussed in Subsection 2.1.3.3.1.

Some of the facilities and institutions beyond the low population zone within five miles of the station which because of their nature, may require special consideration when evaluating emergency plans include: campgrounds, at state gamelands, public schools, municipal buildings, swimming and boating operations, a miniature golf course, and a number of

industries. Industries within five miles are identified in Table 2.1-43. The State and county emergency management agencies have plans for notification of facilities and institutions within the 10-mile Emergency Planning Zone (EPZ) in the event of an emergency. Also, State and local police departments will direct traffic in the event of an emergency. It should be noted that portions of communities outside this 10-mile EPZ are included in emergency planning evacuation plans.

#### 2.1.3.4 Population Center

The nearest population center as defined in 10CFR100 is the City of Wilkes-Barre, located about 21 miles northeast, which had a 1980 population of 55,551 and a 1990 population of 47,523 and a 2000 population of 43,123 (Ref. 2.1-4). It is part of the Scranton/Wilkes-Barre/Hazleton Metropolitan Area. See Section 2.1.3.2 for additional information.

Subsection 2.1.3.3 discusses transient population.

Tables 2.1-35, 2.1-36, 2.1-37, 2.1-38 and Figures 2.1-23, 2.1-24, 2.1-25, and 2.1-26 show population projections for the population around the Susquehanna site.

Berwick, Pennsylvania is not likely to exceed 25,000 people and become the population center within the next 40 years. Using population figures provided by the Columbia County Planning Commission (Ref. 2.1-18), Berwick's population is projected to decrease by 1,071 persons between 2000 and 2020 (Table 2.1-44). The 2000 projection of 10,395 was within 379 people according to the 2000 census.

#### 2.1.3.5 Population Density

Tables 2.1-45 and 2.1-46 show the comparison of cumulative population for the initial year of operation and final year of operation versus a cumulative population from a uniform population density of 500 people/sq. mile and 1000 people/sq. mile respectively.

#### 2.1.4 REFERENCES

- 2.1-1 Code of Federal Regulations, 10 Energy Part-100. The Office of Federal Register National Archives and Records Administration, January 1, 1990.
- 2.1-2 Pennsylvania State Data Center. Historical Population Counts for Pennsylvania Counties, 1790-1980. October 24, 1997. Web Site: <http://www.mnsfld.edu/depts/lib/ref/stats/pa-demog.txt>
- 2.1-3 Pennsylvania State Data Center. Pennsylvania County Profiles. October 24, 1997.
- 2.1-4 Pennsylvania State Data Center. Pennsylvania County Profiles. U.S. Census Bureau, Census 2000.
- 2.1-5 The Center for Rural Pennsylvania. A legislative Agency of the Pennsylvania General Assembly, Harrisburg, PA. U.S. Census Bureau, 2002. Web site: <http://www.ruralpa.org/rural> def/

- 2.1-6 *Johnson, Jonathan, The Center for Rural Pennsylvania. Personal Communications with J. S. Fields, PPL Susquehanna, LLC. October 30 and November 6, 2002.*
- 2.1-7 *U.S. Bureau of the Census. 1970 Census of Population Numbers of Inhabitants, Pennsylvania, PC (1)A-40, U. S. Government Printing Office, Washington, D.C. 1971.*
- 2.1-8 *Projections of the Population of the United States, by Age and Sex, 1975 to 2000, with Extensions of Total Population to 2025, Population Estimates and Projects, Current Population Reports No 541. U.S. Department of Commerce, February, 1975..*
- 2.1-9 *U.S. Bureau of the Census. U.S. and Pennsylvania Population Data, 1980 and 1990 (Fax). Philadelphia, PA.*
- 2.1-10 *Vital Statistics Report, Annual Summary for United States 1974, Volume 23. U.S. Department of Health, Education, and Welfare, Rockville, MD.*
- 2.1-11 *Regulatory Standard Review Plan, Section 2.1.3 Population Distribution, Directorate of Licensing, U.S. Atomic Energy Commission, October 1974.*
- 2.1-12 *Census 2000 including seasonal population. AccuData America, 2003. Fort Myers, Florida.*
- 2.1-13 *Census of Agriculture, National Agricultural Statistics Service. The Center for Rural Pennsylvania, Harrisburg, PA. 2002. Web site: <http://www.ruralpa.org/2002profiles/luzerne.html> (or columbia).*
- 2.1-14 *Pennsylvania State Data Center. Profile of General Demographic Characteristics: 2000, Table DP-1. US. Census Bureau, Census 2000.*
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- 2.1-16 *Fridman, John, PPL Services. Personal Communication with J. S. Fields, PPL Susquehanna, LLC. November 11, 2002.*
- 2.1-17 *Berwick Area Chamber of Commerce, 2000 Report and Personal Communication with T. V. Jacobsen, Ecology III on October 16, 2002.*
- 2.1-18 *Columbia County Planning Commission. Personal Communication with J.R. Schinner, Tetra Tech NUS, Inc., Gaithersburg, MD, June 12, 1998.*

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Table Rev. 0

TABLE 2.1-33 PAST POPULATION CHANGES OF COUNTIES WITHIN 20 MILES OF THE SITE*							
County	1950	1960	1970	1980	1990	2000	% Change 1990 to 2000
Luzerne	392,241	346,972	341,956	343,079	328,149	319,250	-2.7
Columbia	53,460	53,489	55,114	61,967	63,202	64,151	1.5
Sullivan	6,745	6,251	5,961	6,349	6,104	6,556	7.4
Schuylkill	200,577	173,027	160,089	160,630	152,585	150,336	-1.5
Carbon	57,558	52,889	50,573	53,285	56,846	58,802	3.4
Total	710,581	632,628	613,693	625,310	606,886	599,095	-1.3
Source: Refs. 2.1-2 and 2.1-3 and 2.1-4							

\* Population includes entire county even area outside 20 mile radius from site.

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Table Rev. 0

TABLE 2.1-34

POPULATION BY RESIDENCE FOR COUNTIES WITHIN 20 MILES OF THE SITE  
1980 TO 2000

County	1980		1990		2000	
	Urban	Rural	Urban	Rural	Urban	Rural
Luzerne	253,336	89,743	239,215	88,834	254,164	65,086
Columbia	23,576	38,391	23,418	39,784	35,730	28,421
Sullivan	0	6,349	0	6,104	0	6,556
Schuylkill	76,995	83,675	63,560	89,025	95,497	54,839
Carbon	30,665	22,620	29,795	27,051	29,109	29,693

Source: Ref. 2.1-5 and 2.1-6

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TABLE 2.1-35							
POPULATION DISTRIBUTION							
2010							
0-10 Miles							
Distance (Miles)							
Sector	0-1	1-2	2-3	3-4	4-5	5-10	10 Mile Total
N	40	15	48	1,112	2,157	1,200	4,572
NNE	0	75	29	0	0	1,600	1,704
NE	0	0	162	191	369	9,000	9,722
ENE	0	15	37	67	94	1,600	1,813
E	0	56	22	41	72	1,200	1,391
ESE	24	26	63	175	172	2,300	2,760
SE	44	245	147	143	13	3,000	3,592
SSE	40	154	37	89	46	3,700	4,066
S	36	147	29	137	10	1,900	2,259
SSW	4	245	44	83	120	1,000	1,496
SW	4	15	335	89	1,520	2,000	3,963
WSW	4	60	331	111	4,073	12,700	17,279
W	4	30	59	92	182	1,500	1,867
WNW	12	41	44	99	260	700	1,156
NW	16	72	92	0	94	800	1,074
NNW	70	19	15	0	23	1,000	1,127
TOTAL	298	1,215	1,494	2,429	9,205	45,200	59,841
CUMULATIVE TOTAL	298	1,513	3,007	5,436	14,641	59,841	
Source: Refs. 2.1-8 and 2.1-10							

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Table Rev. 0

TABLE 2.1-36  
 POPULATION DISTRIBUTION  
 2010  
 0-50 Miles  
 Distance (Miles)

Sector	10 Mile Total	10-20	20-30	30-40	40-50	50 Mile Total
N	4,572	3,700	1,800	7,700	4,800	22,572
NNE	1,704	17,200	17,100	20,100	8,900	65,004
NE	9,722	75,200	101,000	164,800	40,900	391,622
ENE	1,813	30,200	34,800	12,000	9,600	88,413
E	1,391	12,500	1,400	7,900	33,700	56,891
ESE	2,760	11,600	3,100	7,900	32,600	57,960
SE	3,592	37,200	26,500	34,600	211,500	313,392
SSE	4,066	10,700	23,400	11,500	57,400	107,066
S	2,259	9,000	28,300	38,200	31,100	108,859
SSW	1,496	5,200	42,200	12,600	21,500	82,996
SW	3,963	1,700	18,400	23,700	14,700	62,463
WSW	17,279	21,000	23,200	27,700	40,900	130,079
W	1,867	4,400	4,700	20,500	16,300	47,767
WNW	1,156	4,000	2,300	8,900	43,600	59,956
NW	1,074	1,600	1,500	2,000	1,900	8,074
NNW	1,127	1,500	800	3,000	7,500	13,927
TOTAL	59,841	246,700	330,500	403,100	576,900	1,617,041
CUMULATIVE TOTAL	59,841	306,541	637,041	1,040,141	1,617,041	

Source: Refs. 2.1-8 and 2.1-10

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Table Rev. 0

TABLE 2.1-37							
POPULATION DISTRIBUTION							
2020							
0-10 Miles							
Distance (Miles)							
Sector	0-1	1-2	2-3	3-4	4-5	5-10	10 Mile Total
N	41	15	47	1,056	2,010	1,200	4,369
NNE	0	76	29	0	0	1,400	1,505
NE	0	0	160	181	359	7,400	8,100
ENE	0	15	36	63	92	1,600	1,806
E	0	57	22	39	70	1,200	1,388
ESE	24	26	62	166	168	2,400	2,846
SE	45	246	145	136	13	3,100	3,685
SSE	41	155	36	84	44	4,000	4,360
S	37	147	29	130	10	1,800	2,153
SSW	4	246	44	78	117	1,000	1,489
SW	4	15	330	84	1,480	2,000	3,913
WSW	4	60	327	106	3,966	12,100	16,563
W	4	30	58	88	177	1,500	1,857
WNW	12	42	44	94	254	700	1,146
NW	16	72	91	0	92	800	1,071
NNW	20	19	15	0	22	1,000	1,076
TOTAL	252	1,221	1,475	2,305	8,874	43,200	57,327
CUMULATIVE TOTAL	252	1,473	2,948	5,253	14,127	57,327	

Source: Refs. 2.1-8 and 2.1-10

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TABLE 2.1-38  
 POPULATION DISTRIBUTION  
 2020  
 0-50 Miles  
 Distance (Miles)

Sector	10 Mile Total	10-20	20-30	30-40	40-50	50 Mile Total
N	4,369	3,600	2,000	8,200	4,500	22,669
NNE	1,505	18,300	18,800	21,400	9,900	69,905
NE	8,100	65,600	91,200	151,700	37,400	354,000
ENE	1,806	29,200	31,700	13,600	9,800	86,106
E	1,388	14,800	1,500	8,900	35,600	62,188
ESE	2,846	11,000	3,100	8,300	33,700	58,946
SE	3,685	32,500	23,600	34,700	225,600	320,085
SSE	4,360	9,600	21,200	12,000	62,700	109,860
S	2,153	7,900	25,200	38,600	33,700	107,553
SSW	1,489	4,800	37,800	11,800	21,600	77,489
SW	3,913	1,600	17,000	20,700	13,900	57,113
WSW	16,563	21,400	22,800	25,900	43,600	130,263
W	1,857	4,400	4,700	19,200	16,600	46,757
WNW	1,146	4,000	2,100	8,700	42,100	58,046
NW	1,071	1,500	1,400	1,900	1,800	7,671
NNW	1,076	1,500	700	2,700	7,500	13,476
TOTAL	57,327	231,700	304,800	388,300	600,000	1,582,127
CUMULATIVE TOTAL	57,327	289,027	593,827	982,127	1,582,127	

Source: Refs. 2.1-8 and 2.1-10

SSES-FSAR

Table Rev. 1

TABLE 2.1-39  
 POPULATION DISTRIBUTION  
 2000  
 0-10 MILES  
 DISTANCE (MILES)

Sector	0-1 Miles	1-2 Miles	2-3 Miles	3-4 Miles	4-5 Miles	5-10 Miles	10 Mile Total
N	12	29	49	711	937	1,575	3,313
NNE	13	28	46	176	83	3,460	3,806
NE	17	28	46	64	126	3,347	3,628
ENE	16	28	46	67	133	1,840	2,130
E	14	27	66	109	139	1,552	1,907
ESE	16	35	79	111	142	2,288	2,671
SE	22	34	77	111	144	3,873	4,261
SSE	29	48	61	90	161	2,505	2,894
S	30	70	61	85	122	1,076	1,444
SSW	30	88	69	85	110	1,015	1,397
SW	30	89	120	418	1,043	771	2,471
WSW	30	89	143	403	3,583	12,590	16,838
W	29	54	63	137	167	2,019	2,469
WNW	16	29	48	67	105	822	1,087
NW	13	29	48	67	86	1,077	1,320
NNW	12	29	48	67	91	1,384	1,631
TOTAL	329	734	1,070	2,768	7,172	41,194	53,267
53,267	329	1,063	2,133	4,901	12,073	53,267	

Ref. 2.1-4 and 2.1-12

TABLE 2.1-40					
COMMUNITIES WITHIN 10 MILES OF THE SITE, 2000					
COMMUNITIES <sup>(1)</sup>	POPULATION		DIRECTIONAL SECTOR	RADIAL DISTANCE	% CHANGE
	1990	2000			
Shickshinny	1,108	959	N	5 to 10	-13.45
Briar Creek	616	651	WSW	5 to 10	5.68
Berwick	10,976	10,774	WSW	5 to 10	-1.84
Nescopeck	1,651	1,528	SW	5 to 10	-7.45
Conyngham	2,060	1,958	SE	5 to 10	-4.95
Source: Ref. 2.1-3, 2.1-4, and 2.1-12					
NOTES: <sup>(1)</sup> Boroughs					



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Table Rev. 0

TABLE 2.1-41						
POPULATION DISTRIBUTION						
2000						
0-50 MILES						
DISTANCE (MILES)						
Sector	0-10 Miles	10-20 Miles	20-30 Miles	30-40 Miles	40-50 Miles	50 Mile Total
N	3,314	4,953	2,440	5,990	8,071	24,768
NNE	3,806	18,285	13,505	18,818	11,110	65,524
NE	3,629	119,400	78,944	147,035	40,712	389,720
ENE	2,130	13,926	5,178	21,330	35,341	77,905
E	1,909	8,346	7,131	35,232	52,694	105,312
ESE	2,671	13,938	17,073	27,333	56,689	117,704
SE	4,260	36,774	27,237	36,858	230,006	335,135
SSE	2,895	7,229	14,821	14,120	62,753	101,818
S	1,444	14,507	43,974	27,178	24,875	111,978
SSW	1,396	4,018	28,353	15,335	16,925	66,027
SW	2,470	3,511	21,747	18,465	15,064	61,257
WSW	16,839	25,498	18,138	34,811	38,435	133,721
W	2,470	5,868	6,089	27,774	23,573	65,774
WNW	1,086	4,040	4,437	16,797	57,231	83,591
NW	1,318	3,510	2,156	3,354	3,888	14,226
NNW	1,630	3,843	2,524	5,352	10,376	23,725
TOTAL	53,267	287,646	293,747	455,782	687,743	1,778,185
CUMULATIVE TOTAL	53,267	340,913	634,660	1,090,442	1,778,185	
Ref. 2.1-4 and 2.1-12						

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Table Rev. 0

TABLE 2.1-42				
SEASONAL POPULATION OF COUNTIES IN STUDY AREA, 2000				
Counties Within 30 Miles of Site	Current Population	Seasonal Potential Population	Seasonal Population	% Seasonal
Wyoming	28,080	30,892	2,812	9.1
Sullivan	6,556	12,672	6,116	48.3
Monroe	138,687	176,579	37,892	21.5
Lackawanna	213,295	217,984	4,689	2.2
Carbon	58,802	70,044	11,242	16
Schuylkill	150,336	152,745	2,409	1.6
Luzerne	319,250	325,270	6,020	1.9
Columbia	64,151	66,717	2,566	3.8
Montour	18,236	18,464	228	1.2
Northumberland	94,556	95,175	619	0.7
Lycoming	120,044	124,865	4,821	3.9
<b>SUBTOTAL</b>	<b>1,211,993</b>	<b>1,291,407</b>	<b>79,414</b>	
Counties Within 50 Miles of Site				
Susquehanna	42,238	51,108	8,870	17.4
Bradford	62,761	68,602	5,841	8.5
Wayne	47,722	72,509	24,787	34.2
Pike	46,302	80,804	34,502	42.7
Northampton	267,066	268,478	1,412	0.5
Lehigh	312,090	313,040	950	0.3
Berks	373,638	375,326	1,688	0.4
Lebanon	120,327	121,253	926	0.8
Dauphin	251,798	253,278	1,480	0.6
Snyder	37,546	38,617	1,071	2.8
Union	41,624	43,763	2,139	4.9
<b>SUBTOTAL</b>	<b>1,603,112</b>	<b>1,686,778</b>	<b>83,666</b>	
<b>TOTAL FOR ALL COUNTIES</b>	<b>2,815,105</b>	<b>2,978,185</b>	<b>163,080</b>	
Source: Ref. 2.1-4, 2.1-12 and 2.1-15				

## SSES-FSAR

Table Rev. 0

TABLE 2.1-43

INDUSTRIES WITHIN 5 MILES OF THE SITE  
2000

Industry	Distance (miles) and Direction from the Site	Number of Employees	Products
Riverview Vibrated Block Co.	4.0 WSW	5	Concrete Block and Brick
Crispin Multiplex Mfg. Co. Inc.	4.75 WSW	45	Valve
Tech Packaging	1.5 WSW	130	Packaging Material
RAD Woodwork Co., Inc.	4.5 SW	60	Lumber Mill
Zeiser Vault Co.	4.25 SW	15	Concrete Products
Cooks Wholesale Food, Inc.	5.0 WSW	8	Package Food Products
Leggett & Platt	1.25 NNE	57	Carpet Underlay
Berwick Industries, Inc.	3.9 WSW	1300	Decorative bows and ribbons
Castek, Inc.	1.5 WSW	10	Plastic/Cement
PMC Lifestyle	1.5 SSW	55	Foam Products
MP Metals	2.5 SW	2	Metal Scrap
Dyco	4.5 SW	59	Packaging Machines
Audimation	3.2 S	4	Stereo Amplifiers

Source: Ref. 2.1-17

TABLE 2.1-44 POPULATION PROJECTIONS FOR BERWICK, PENNSYLVANIA	
Year	Historical Trend <sup>1</sup>
1970	12,274
1980	11,850
1990	10,976
2000	10,395
2010	9,845
2020	9,324

<sup>1</sup> Calculated by TtNUS based on 1970-1990 population data supplied by the Columbia County Planning Commission (Ref. 2.1-8). Extrapolation based on 1970 to 1990 trend.

TABLE 2.1-45			
CUMULATIVE POPULATIONS FOR 1990 AND 2000			
Distance (mi)	1990	2000	500#/mile(sq)*
1	124	329	1,570
2	820	1,063	6,280
3	2,243	2,133	14,135
4	4,573	4,901	25,130
5	12,006	12,073	39,265
10	51,528	53,267	157,079
20	341,058	340,913	628,515
30	610,710	634,660	1,413,715
40	1,020,502	1,090,442	2,513,270
50	1,616,658	1,778,185	3,926,990
* This is the population that would occur if 500 persons per square mile were uniformly distributed over the study area.			
Source: Refs. 2.1-12, 2.1-14 and 2.1-16			

TABLE 2.1-46 CUMULATIVE POPULATIONS FOR 1990, 2000, 2010 AND 2020					
Distance (miles)	1990	2000	2010	2020	1000/mi <sup>2</sup> *
1	124	329	289	252	3,140
2	820	1,063	1,513	1,473	12,560
3	2,243	2,133	3,007	2,948	28,270
4	4,573	4,901	5,436	5,253	50,260
5	12,006	12,073	14,641	14,127	78,530
10	51,528	53,267	59,841	57,327	314,159
20	341,058	340,913	306,541	289,029	1,256,630
30	610,710	634,660	637,041	593,827	2,827,430
40	1,020,502	1,090,442	1,040,141	982,127	5,026,540
50	1,616,658	1,778,185	1,617,041	1,581,127	7,853,980
*This is the population that would occur if 1000 persons per square mile were uniformly distributed over the study area.					
Source: Refs. 2.1-12, and 2.1-14 and 2.1-16					

# Security-Related Information

## Figure Withheld Under 10 CFR 2.390

SUSQUEHANNA STEAM ELECTRIC STATION UNITS 1 & 2 FINAL SAFETY ANALYSIS REPORT
SITE VICINITY MAP
FIGURE 2.1-21

# Security-Related Information

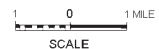
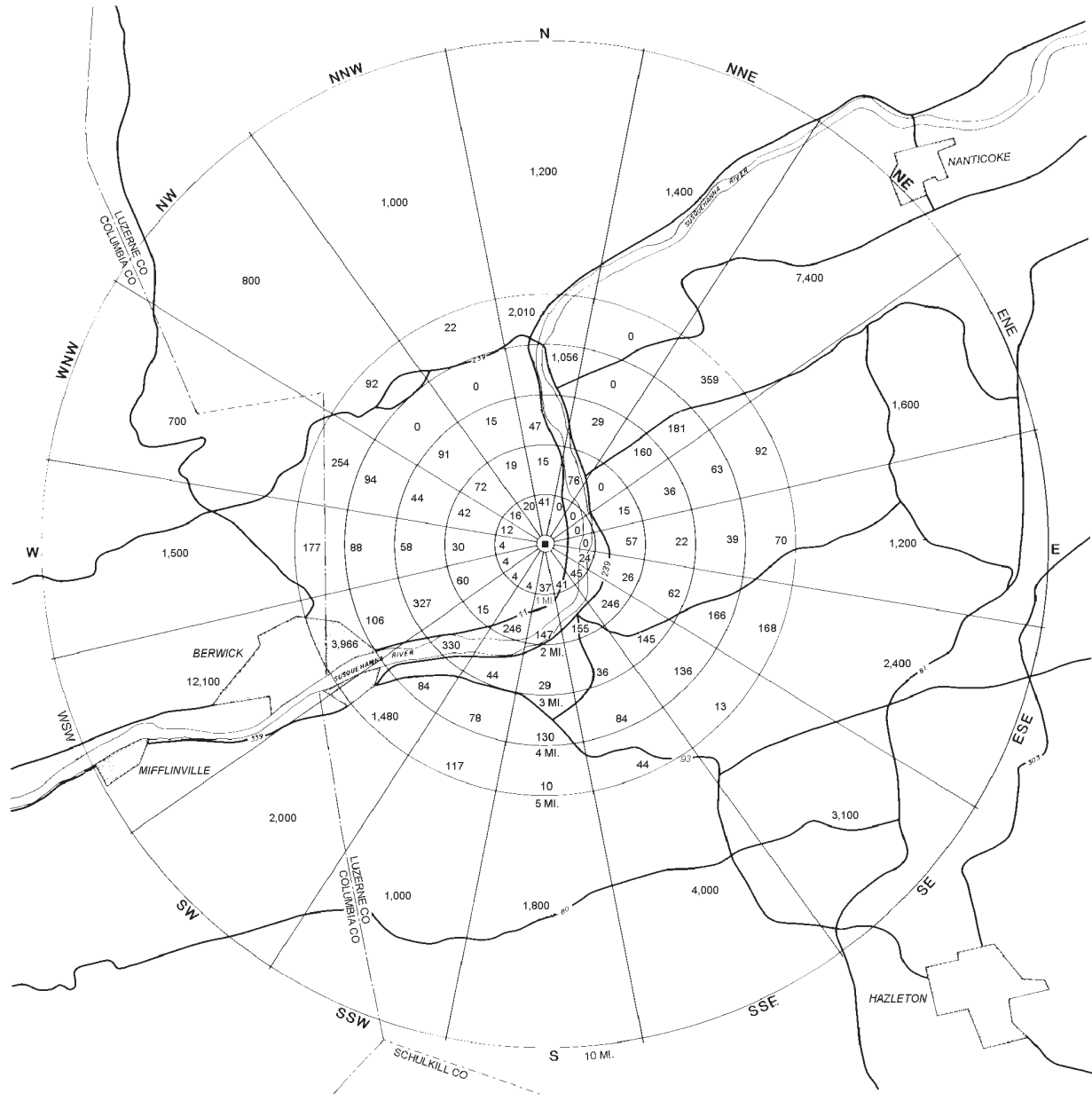
## Figure Withheld Under 10 CFR 2.390

SUSQUEHANNA STEAM ELECTRIC STATION UNITS 1 & 2 FINAL SAFETY ANALYSIS REPORT
SITE AREA MAP
FIGURE 2.1-22









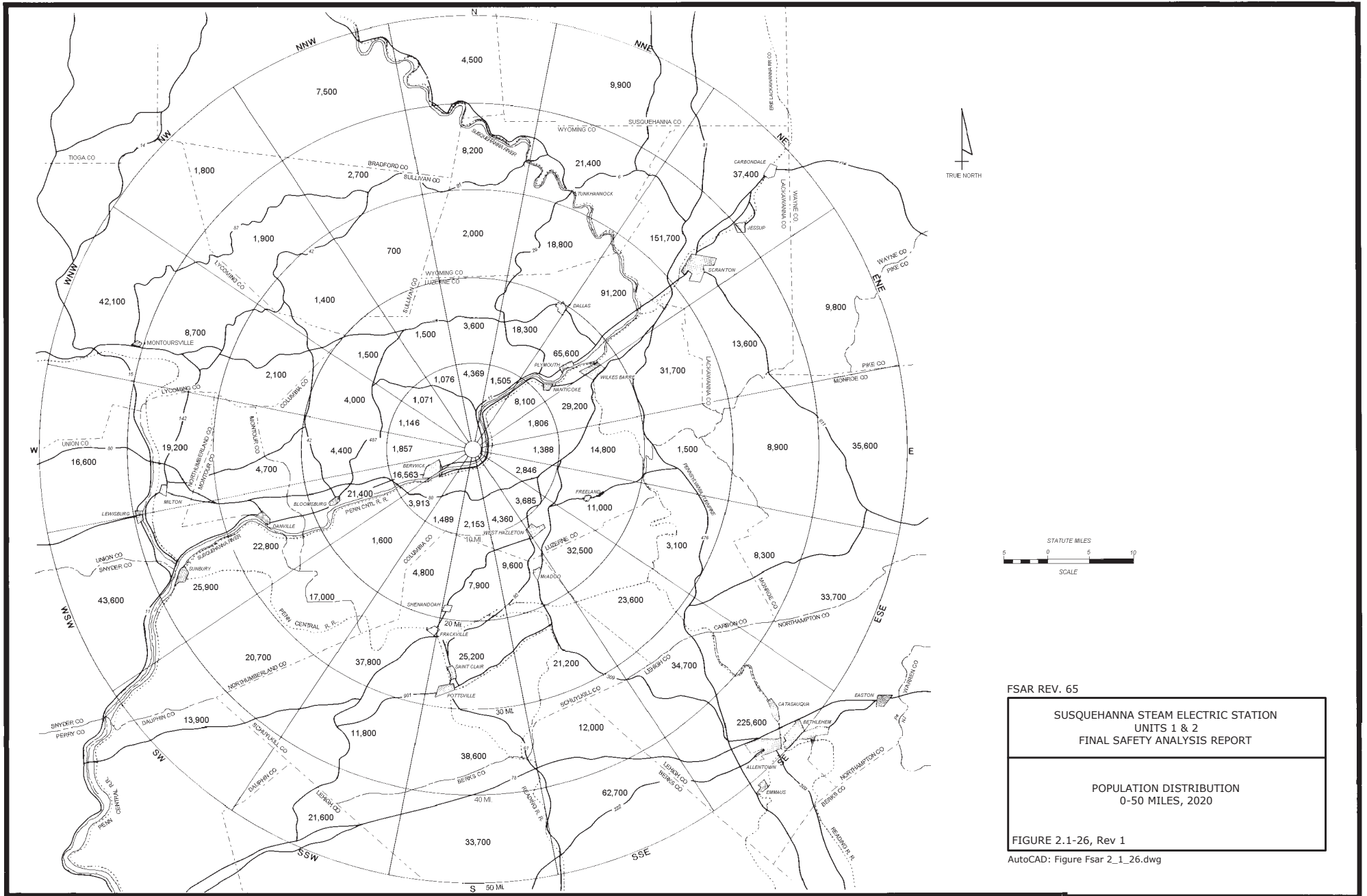
FSAR REV. 65

SUSQUEHANNA STEAM ELECTRIC STATION  
 UNITS 1 & 2  
 FINAL SAFETY ANALYSIS REPORT

POPULATION DISTRIBUTION  
 0-10 MILES, 2020

FIGURE 2.1-25, Rev 1

AutoCAD: Figure Fsar 2\_1\_25.dwg



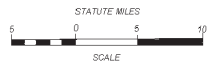
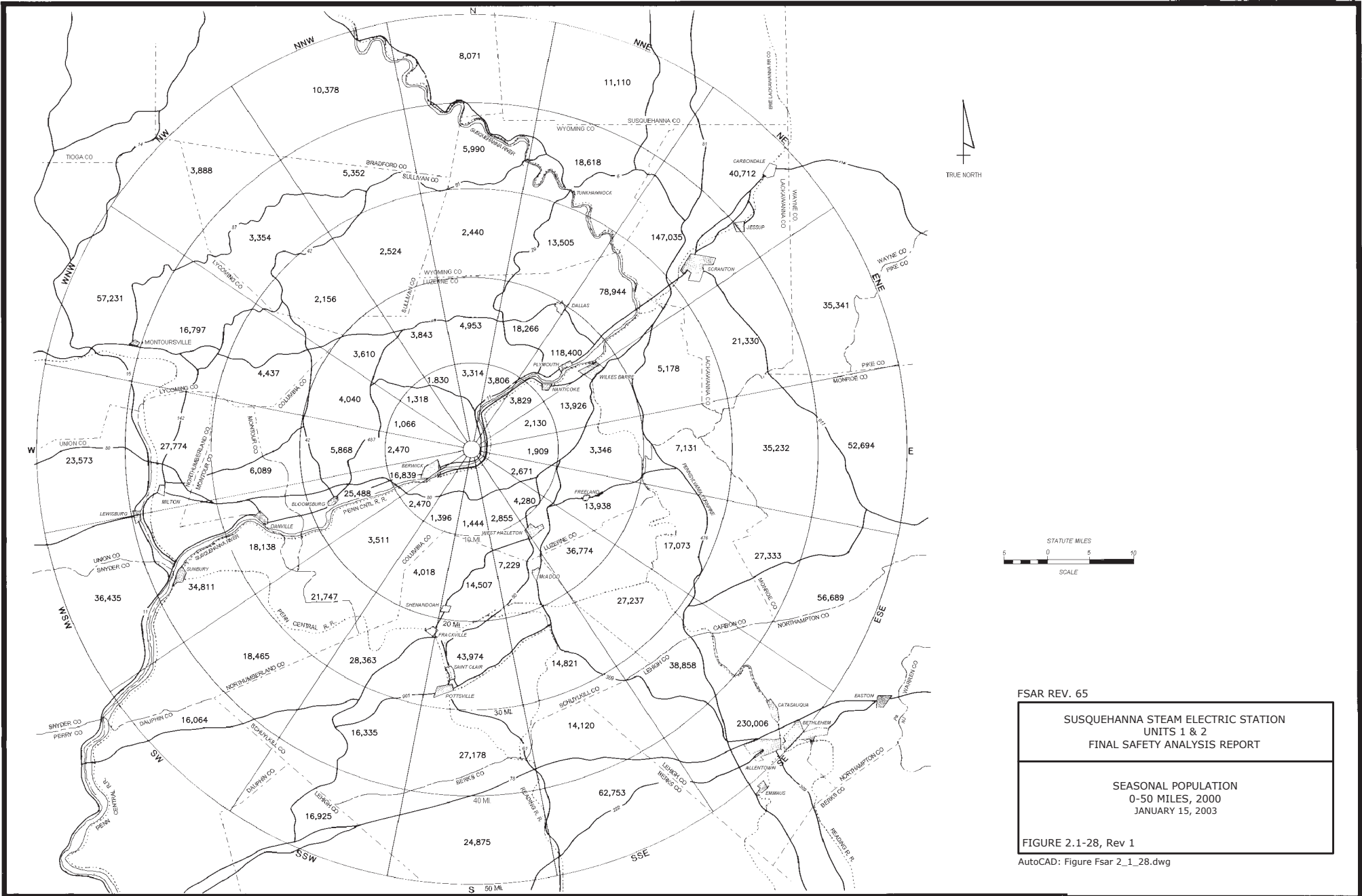
FSAR REV. 65

SUSQUEHANNA STEAM ELECTRIC STATION  
 UNITS 1 & 2  
 FINAL SAFETY ANALYSIS REPORT

POPULATION DISTRIBUTION  
 0-50 MILES, 2020

FIGURE 2.1-26, Rev 1  
 AutoCAD: Figure Fsar 2\_1\_26.dwg





FSAR REV. 65

SUSQUEHANNA STEAM ELECTRIC STATION  
UNITS 1 & 2  
FINAL SAFETY ANALYSIS REPORT

SEASONAL POPULATION  
0-50 MILES, 2000  
JANUARY 15, 2003

FIGURE 2.1-28, Rev 1

AutoCAD: Figure Fsar 2\_1\_28.dwg