October 6, 1981

Docket No. 50-237
LS05-81-10-005

Mr. L. DelGeorge
Director of Nuclear Licensing
Commonwealth Edison Company
Post Office Box 767
Chicago, Illinois 60690

Dear Mr. DelGeorge:

SUBJECT: SEP TOPICS II-1.A, "EXCLUSION AREA AUTHORITY AND CONTROL" AND II-1.B, "POPULATION DISTIBUTION (DRESDEN 2)

Enclosed are the staff's final evaluations of SEP Topics II-1.A, "Exclusion Area Authority and Control" and II.1.B, "Population Distribution" for the Dresden Unit 2 Nuclear Power Plant. The staff review of your topic assessments for topics II-1.A and II.1.B submitted June 1, 1981 and April 27, 1981, respectively, concludes that your facility meets the acceptance criteria for both topics.

These evaluations will be a basic input to the integrated safety assessment for your facility unless you identify changes needed to reflect the as-built conditions at your facility. The assessments may be revised in the future if your facility design is changed or if NRC criteria relating to these subjects are modified before the integrated assessment is completed.

Sincerely,

Dennis M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing

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DRESDEN UNIT 2

TOPIC II-1.A, EXCLUSION AREA AUTORITY AND CONTROL

I. INTRODUCTION

The safety objective of this topic is to assure that appropriate exclusion area authority and control are maintained by the licensee as required by 10 CFR Part 100.

II. REVIEW CRITERIA

Section 100.3(a) of 10 CFR Part 100 requires that a reactor licensee have the authority to determine all activities within the designated area, including the exclusion and removal of personnel and property.

III. RELATED SAFETY TOPICS

Topic XIII-1, "Conduct of Operations" will assure that the licensee can adequately specify proper operation in routine, accident and emergency conditions. The topic is being covered as part of the NRC TMI Task Action Plan.

IV. REVIEW GUIDELINES

The review was conducted in accordance with the guidance given in SRP 2.1.2. The capability of the plant to meet the dose criteria of 10 CFR Part 100 at the exclusion area boundary will be evaluated in the Design Event phase of the SEP review.

V. EVALUATION

The Dresden Nuclear Generating Station is located in Goose Lake Township, Grundy County in the State of Illinois. The plant site is approximately 14 miles southwest of the city of Joliet, Illinois and 25 miles south of Aurora, Illinois. The site property comprises approximately 953 acres, with approximately 450 acres leased to a neighboring farmer for cattle grazing and field crops. The lease has been modified with a clause which allows Commonwealth Edison to have "sole authority to determine the right of access and the right to be present in the area covered by this lease" when the Generating Station Emergency Plan (GSEP) is in effect. In addition to Unit 2, Unit 1 and 3 also occupy part of the site. No public highways or railroads transverse the exclusion area. The exclusion area and principle plant structures are shown in attached Figure 2.2.1, which is a common exclusion area for all three nuclear units.

The exclusion area radius of 800 meters is defined in Section 1.2 of the Commonwealth Edison-GSEP (3). Through direct ownership including mineral rights or a lease agreement with the State of Illinois the licensee has total control of the entire exclusion area with the exception of control over the Des Plaines and Kankakee Rivers. As a result, arrangements have been made through ESDA and DNS with the U.S. Coast Guard and documented in the Commonwealth Edison Generating Station Emergency Plan (4) for the control of the water traffic in event of a plant emergency.

VI. CONCLUSIONS

Based on the above evaluation we conclude that the licensee has the proper authority to determine all activities within the exclusion area, as required by 10 CFR Part 100.

This completes the evaluation of this SEP topic.

REFERENCES

(1) Dresden Units 2 and 3 - FSAR Section 2.9

(2) Dresden Units 2 and 3 - Amendment 17/18 Table 1

(3) Commonwealth Edison - GSEP Section 1.2

(4) Commonwealth Edison - GSEP Table 6.1-5
IPLA Concept of Operations - Figure 4.2-1
Section 4.7.4

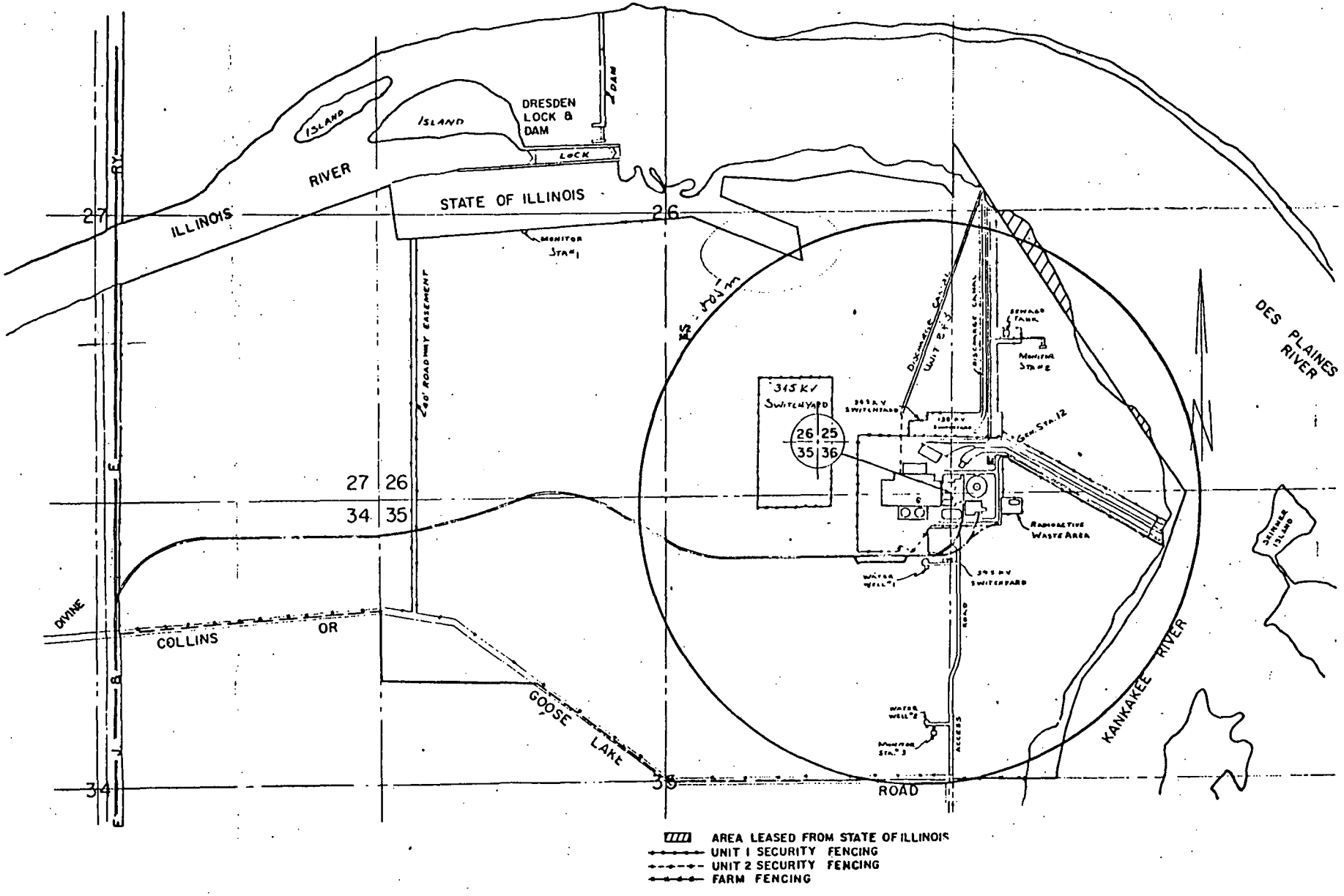

Figure 2.2.1 Station Property Plan

DRESDEN UNIT 2

TOPIC II-1.B, POPULATION DISTRIBUTION

I. INTRODUCTION

The safety objective of this topic is to ensure that the previously established low population zone and population center distance specified for the site are compatible with the current population distribution, and are in accordance with the guidelines of 10 CFR Part 100.

II. REVIEW CRITERIA

Sections 100.10 and 100.11 of 10 CFR Part 100, "Reactor Site Criteria" provide the site evaluation factors which should be considered when evaluating sites for nuclear power reactors. These sections include guidelines for determining the exclusion area, low population zone and population center distance.

III. RELATED SAFETY TOPICS

Topic II-1.A reviews the licensee's control over the exclusion area. Various other topics will evaluate the capability of the plant to meet the dose criteria of 10 CFR Part 100 at the exclusion area boundary and low population zone. 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.

IV. REVIEW GUIDELINES

The review has been conducted in accordance with Standard Review Plan (SRP) Section 2.1.3, "Population Distribution".

V. EVALUATION

The Exclusion Area Boundary (EAB) for the Dresden Nuclear Power Station is an area within 0.5 mile of the station. There is no resident population within the EAB. The transient population within the EAB of the nuclear station consists only of operating personnel, construction workers, visitors, and NRC inspectors. No changes are expected within the EAB.

The LPZ for the Dresden Station is an area within a 5-mile radius. The population distribution information within a 5-mile radius area was gathered during an April 1981 field survey, including a house count. Another source of information included the Northeast Illinois Planning Commission. These data update the demographic information presented in the Final Environmental Statement (FES) dated November 1973, issued by the Atomic Energy Commission.

The nearest resident population within the LPZ is contained in a cluster of cottages along the west shore of the Kankakee River; the nearest line of cottages is just outside the EAB.

In the FES the number of cottages was reported at approximately 20 located 0.7 miles from the site. They were described as largely for part-time use. Presently there are 39 dwellings in this development. Additional dwellings have been built closer to the site since the previous reports. Also the dwellings now appear to be used permanently. The estimated population of this cluster of homes is approximately 133 using an average number of residents per household of 3.4 for rural areas in this part of Illinois which was derived from data provided by the Northeast Illinois Planning Commission (Linda Fulkerson, 1981) based on 1980 census data.[1]

The other closest residences are widely separated in several directions from the station. A single residence is located approximately 0.6 miles southeast of the station on the east shore of the Kankakee River. To the northwest approximately 0.8 miles from the station are two permanent residences for the resident engineers at the Dresden Island Lock and Dam and a temporary construction office trailer. At the confluence of the Des Plaines and Kankakee rivers there is a new residential development that includes six houses from 0.8 to 1.0 miles from the station. Three individual residences are located along the Kankakee Bluffs on the north shore of the Des Plaines and Illinois rivers approximately 0.8 mile to the north-northwest, northeast, and east of the station.

[1]Note: The numbers of 1980 residents per household in the townships of Wilmington and Channahon, and the municipalities of Channahon and Minooka were averaged to derive the 3.4 per household value.

The closest significant residential concentration of over 1000 is from two to three miles southeast of the station along the north shore of the Kankakee River where the number of houses has increased to 319. This would be equivalent to a population of approximately 1100, using an average of 3.4 people per house.

The nearest incorporated municipality is Channahon with a 1980 census population of 3806 people, more than double the previously reported 1970 population of 1505. Channahon is actively expanding by annexing adjacent properties that have been recently developed for residential subdivisions. A large tract of vacant land extending from two to three miles northeast of the station has been annexed by the village of Channahon but not yet developed. Future expansion, however, is probable as the area near the confluence of the DuPage and Des Plaines rivers is developed.

The next closest incorporated municipality, Minooka, has its closest border approximately 3.5 miles north-northeast of the station. It has also been expanding. The present population according to the 1980 census is 1566, more than double the 1970 population of 768. However, a large tract of single-family houses is partially completed and a multiple-dwelling development is also in the planning stages which will further increase this population. This new development is primarily east and southeast of the old center of town.

Other significant unincorporated residential developments have been expanding in the strip-mined areas four to five miles southwest of the station, in a blue collar worker residential complex across U.S. Highway 6 from the industrial center 3.5 miles northwest of the station, and along Aux Sable Creek 4.5 miles northwest of the station.

The 1980 population of other municipalities including the population centers (containing more than 25,000 residents) within 50 miles of the station based on 1980 census data (Linda Fulkerson, 1981) is compared with the population data shown in the FES.

	1970 Population	1980 Population	Distance from Dresden Station	Direction
Morris, IL	8,194	8,833	7.5 miles	WSW
Coal City, IL	3,040	3,028	8 miles	S
Braidwood, IL	2,323	3,421	9 miles	SSE
Wilmington, IL	4,335	4,419	10 miles	SE
Joliet, IL	80,000	77,956	15 miles	NE
Aurora, IL	76,500	81,293	27 miles	N
Kankakee, IL	31,200	30,141	30 miles	SE
Chicago, IL	3,330,000	3,005,072	50 miles	NE

The criterion that the nearest major population center must be over one- and one-third times the distance of the LPZ radius (5 miles) is still being met. These residential concentrations do not appreciably alter the permanent population distribution patterns reported previously, except that the growth of the rural communities was greater than projected in the FES, whereas most large cities further from the station have declined.

The transient population in the vicinity of the station outside the EAB comprises workers employed by the various industries in the area and visitors to the many recreational facilities available.

The nearest industrial facilities to the station include the following:

1. General Electric Boiling Water Reactor Training Center and Spent Fuel Storage Facility — 0.7 mile SW
2. Reichhold Chemicals — 1.6 miles W

3.	A. P. Green	2.1 miles SSW
4.	Northern Petrochemicals Dock	2.1 miles W
5.	Airco CO_2 Plant	2.5 miles NW
6.	Northern Illinois Gas	2.5 miles NW
7.	Dow Chemicals Dock	2.7 miles E
8.	Alumax Mill Products	2.8 miles NW
9.	Durkee SCM Chemicals	3.2 miles NW
10.	Northern Petrochemicals	3.3 miles WNW
11.	Armak Chemicals	3.5 miles ENE
12.	Truck Terminal (under construction)	3.6 miles ENE
13.	Dow Chemicals	3.7 miles E
14.	Exxon (a chemical plant under construction)	3.9 miles NE
15.	Streator Industrial Supply	4.0 miles S
16.	Mobil Chemicals	4.1 miles NE
17.	Rexene Polymers	4.1 miles NE
18.	Joliet Livestock Market	4.2 miles ESE
19.	Mobil Oil Refinery	4.5 miles NE
20.	Commonwealth Edison Company Collins Station	5.0 miles WSW

This list of industrial facilities has expanded from that reported in the FES, Figure 2.4. Most of the new industrial development is adjacent to existing facilities so the distribution of this type of land use is similar to that reported previously.

Major recreation and institutional facilities include the following:

1.	Illinois, Kankakee, and Des Plaines rivers	Adjacent
2.	Goose Lake State Park	1.0 mile SW
3.	Collins Lake	2.0 miles W

4.	Des Plaines Conservation Area	2.5 miles SE
5.	Illinois Department of Corrections, Morris Juvenile Residential Center	3.2 miles W

There are additional private recreational facilities such as gun clubs and picnic grounds scattered throughout the strip-mined areas south of the station. A small unnamed public park is also located 1.5 miles east of the station on the Des Plaines River. Public access is available to the Dresden Lock and Dam and a public path parallels the Illinois and Michigan Canal which approaches within 0.7 miles north of the station. The recreational facilities are apparently being actively expanded and improved and data on daily use indicate a substantial increase in recreationists in recent years.

To summarize, the EAB of the Dresden Nuclear Power Station, as reported previously, has no permanent residents. Permanent population distribution around the station has not changed significantly although total population within the five mile LPZ has increased to an estimated 10,400 residents from 5,090 reported in the FES. The 1980 population was projected to be 8,003 in the LPZ (FES Figure 2.2). Industrial facilities and recreational facilities have also expanded although their distribution is largely unchanged. The daily maximum transient population including visitors to recreational facilities and workers employed by industries within five miles of the station is estimated to be approximately 11,000.

VI. CONCLUSION

The staff concludes that the low population zone and population center distances specified for the Dresden site are in conformance with the requirements of 10 CFR Part 100 in that the population center distance is more than one and one-third times the distance from the reactor to the outer boundary of the low population zone.

We further conclude that the site conforms to the current licensing criteria. This completes the evaluation of SEP Topic II-1.B for the Dresden site.