

PERRY NUCLEAR POWER PLANT UNITS 1 & 2

ENVIRONMENTAL REPORT

**OPERATING
LICENSE STAGE**

**SUPPLEMENT 2
SEPTEMBER 1981**

THE CLEVELAND ELECTRIC ILLUMINATING CO.



THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

P.O. BOX 5000 ■ CLEVELAND, OHIO 44101 ■ TELEPHONE (216) 622-9800 ■ ILLUMINATING BLDG ■ 55 PUBLIC SQUARE

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Dalwyn R. Davidson

VICE PRESIDENT
SYSTEM ENGINEERING AND CONSTRUCTION

August 27, 1981

Mr. Robert L. Tedesco,
Assistant Director for Licensing
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Perry Nuclear Power Plant
Docket Nos. 50-440; 50-441
Response to Revised ER-OL
Review Questions

Dear Mr. Tedesco:

This letter and the enclosed forty-one (41) copies of PNPP ER-OL Supplement 2 are submitted in response to your letter dated July 31, 1981 concerning the Environmental Report - Operating License stage review.

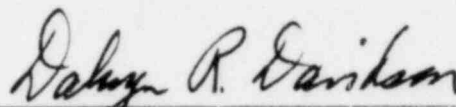
Also enclosed is an affidavit that direct distribution of copies of Supplement 2 to the Environmental Report - Operating License Stage has been made.

Very truly yours,

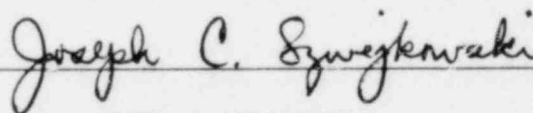
Dalwyn R. Davidson
Vice President
System Engineering and Construction

DRD:jcs
Enclosures
cc: G. Charnoff, Esq.
D. Hauser, Esq.
NRC Resident Inspector

Dalwyn R. Davidson who, being duly sworn, deposed and said that (1) he is Vice President, System Engineering and Construction of The Cleveland Electric Illuminating Company, (2) he is duly authorized to execute and file this report on behalf of The Cleveland Electric Illuminating Company and as duly authorized agent for Duquesne Light Company, Ohio Edison Company, Pennsylvania Power Company and the Toledo Edison Company, and (3) the statements set forth therein are true and correct to the best of his knowledge, information and belief.


Dalwyn R. Davidson

Sworn to and subscribed before me, this 27th day of AUGUST, 1981.



JOSEPH C. SZWEJKOWSKI

Notary Public, State of Ohio - Cuyahoga City.
My Commission Expires July 14, 1986

SUPPLEMENT 2
INSTRUCTION SHEET
PERRY NUCLEAR POWER PLANT
UNITS 1 AND 2
ENVIRONMENTAL REPORT
OPERATING LICENSE STAGE

The following listed pages and figures of the Cleveland Electric Illuminating Company's Environmental Report Operating License Stage for the Perry Nuclear Power Plant are to be removed and replaced, where applicable, with revised sheets 9/1/81.

<u>Section</u>	<u>Remove Pages</u>	<u>Insert Supplemental Pages</u>
2.1	2.1-6 2.1-24 2.1-25 to 2.1-29	2.1-6 2.1-24 to 2.1-24a 2.1-25 to 2.1-29
Q&R	Q&R i	Q&R i to Q&R ii
Q&R 2.1		Q&R 2.1-8 to 2.1-22
Q&R 2.6		Q&R 2.6-1 to 2.6-8
Q&R 3.4		Q&R 3.4-1 to 3.4-2
Q&R 5.5		Q&R 5.5-3
Q&R 6.2		Q&R 6.2-2

2.1.2.3 Transient Population

Transient populations within 10 miles of the plant are primarily the result of local, seasonal fluctuations of people at various parks and camps. Large recreational areas such as Township Park near Madison, and Headlands State Park, 7.5 miles west-southwest of the plant, offer a variety of facilities that also attract visitors from outside the 10-mile radius. Table 2.1-2 gives the annual attendance figures for significant parks and camps near the site.⁽⁴³⁾

Lake County has approximately 275 vacant and seasonal cottages, about 190 of which are located west of the site. These totals are assumed to be relatively static, although no current figures are available.⁽⁴⁴⁾ Geneva-on-the-Lake, in Ashtabula County, has 1,330 housing units, 783 of which are rental structures.⁽⁴⁵⁾

The Neff-Perkins Corporation, located 3,000 feet west-southwest of the PNPP, employs a work force of 130 persons.⁽⁴⁶⁾ The average residence time at work is 45 hours per week for each employee. This includes a 40-hour work week⁽⁴⁷⁾ and approximately 5 hours per week for lunch and miscellaneous time at the work site.

Formerly, the IRC Fibers Company was the only other manufacturing facility located in close proximity to PNPP employing a work force exceeding 100 people. The company discontinued operations August 31, 1980, and now employs only two individuals.⁽⁴⁸⁾

2.1.3 USES OF ADJACENT LANDS AND WATERS

2.1.3.1 Use of Land Immediately Adjacent to the PNPP

This section describes land and water uses adjacent to the PNPP. Figure 2.1-3 is a topographic map of the site and adjacent area. It shows key water- and land-use features, the

References for Section 2.1.2.3 ER/OL Update 5-81

37. Personal communication, Jim Schmidt (Ohio Geologic Survey, Well Log Division, Columbus), September 26, 1978.
38. Personal communication, Art Waldorf (Coastal Zone Program, Ohio Department of Natural Resources, Columbus), September 29, 1978.
39. Personal communication, Stanley J. Prazer (Bureau Chief, Bureau of Water, City of Erie, Pennsylvania), March 3, 1980.
40. Personal communication, Ralph Vanzant (Chief, Division of Parks and Recreation, Ohio Department of Natural Resources, Columbus), October 5, 1978.
41. Waterborne Commerce of the United States, Calendar Year 1976, Part 3, "Waterways and Harbors - Great Lakes," U.S. Army Corps of Engineers, Vicksburg, Mississippi.
42. Personal communication, Katie Crowell (Ohio Geological Survey, Well Log Division, Columbus), October 4, 1978.
43. Personal communication between R. Webster, Lake County Planning Commission, and R. Smyth, NUS Corporation, February 25, 1981.
44. Personal communication between R. Webster, Lake County Planning Commission, and R. Smyth, NUS Corporation, May 26, 1981.
45. Personal communication between L. Carter, Village Clerk, Geneva-on-the-Lake, and R. Smyth, NUS Corporation, May 27, 1981.

46. Personal communication between R. Pohl, Neff-Perkins Corporation, and R. Schlegel, NUS Corporation, May 27, 1981.
47. Personal communication between R. Elley, Vice President, Neff-Perkins Corporation, and R. Uleck, NUS Corporation, November 16, 1979.
48. Personal communication between T. Robinson, IRC Fibers Company, and R. Schlegel, NUS Corporation, May 26, 1981.
49. Personal communication between P. Vichosky, Headlands Beach State Park, and R. Smyth, NUS Corporation, May 26, 1981.

TABLE 2.1-1

TOWNS AND CITIES WITHIN 50 MILES OF THE PNPP

Town/City (Ohio)	1980 Population (a)	Distance (miles) From Plant Site	Direction From Plant Site
0-5 MILES FROM PNPP			
North Perry	897	1	E
Perry	961	3	S
5-10 MILES FROM PNPP			
Madison	2,291	6	ESE
Painesville City	16,391	7	SW
Fairport Harbor	3,357	8	WSW
Grand River	412	9	WSW
10-20 MILES FROM PNPP			
Geneva-on-the-Lake	1,634	11	ENE
Geneva	6,655	11	E
Mentor-on-the-Lake	7,919	14	WSW
Kirtland Hills	506	15	SW
Mentor	42,065	15	SW
Chardon	4,434	16	SSW
Aquilla	355	18	S
Ashtabula City	23,449	18	ENE
Rock Creek	652	18	SE
Willoughby City	19,329	18	SW
Waite Hill	529	19	SW
Eastlake	22,104	19	SW
Lakeline	258	19	WSW
Timberlake	885	19	WSW
20-30 MILES FROM PNPP			
Jefferson	2,952	20	ESE
Willowick City	17,834	21	SW
Willoughby Hills	8,612	22	SW
Burton	1,401	23	S
Kirtland	5,969	23	SW
Wickliffe	16,790	23	SW
Gates Mills	2,236	24	SW
Kingsville Township	2,146	24	ENE
Middlefield	1,997	24	S
Orwell	1,067	24	SE

TABLE 2.1-1 (continued)

TOWNS AND CITIES WITHIN 50 MILES OF THE PNPP

Town/City (Ohio)	1980 Population (a)	Distance (miles) From Plant Site	Direction From Plant Site
20-30 MILES FROM PNPP (con't)			
Euclid	59,999	25	SW
Highland Heights	5,739	25	SW
Richmond Heights City	10,095	25	SW
Mayfield	3,577	26	SW
North Kingsville	2,939	26	ENE
Hunting Valley	786	27	SSW
Chagrin Falls City	4,335	28	SSW
Lyndhurst	18,092	28	SW
Moreland Hills	3,083	28	SSW
Pepper Pike	6,177	28	SW
South Euclid	25,713	28	SW
South Russell	2,784	28	SSW
Beachwood City	9,983	29	SW
Bratenahl	1,485	29	SW
East Cleveland City	36,957	29	SW
University Heights	15,401	29	SW
Woodmere	772	29	SW
30-40 MILES FROM PNPP			
Bentleyville	381	31	SSW
Cleveland Heights	56,438	31	SW
Shaker Heights	32,487	31	SW
West Farmington	563	31	SSE
Andover	1,205	33	ESE
Cleveland	573,822	33	SW
North Randall	1,054	33	SW
Warrensville Heights	16,565	33	SW
Bedford Heights	13,214	34	SW
Hiram	1,360	34	S
Solon City	14,341	34	SSW
Bedford City	15,056	36	SW
Glenwillow	492	36	SSW
Maple Heights	29,735	36	SW
Reminderville	1,960	36	SSW
Garfield Heights	33,380	37	SW
Garrettsville	1,769	37	S
Newburgh Heights	2,678	37	SW
Oakwood	3,786	37	SSW
Cuyahoga Heights	739	38	SW
Macedonia	6,571	38	SSW
Mantua	1,041	38	S
Twinshurg	7,632	38	SSW

TABLE 2.1-1 (continued)

TOWNS AND CITIES WITHIN 50 MILES OF THE PNPP

<u>Town/City (Ohio)</u>	<u>1980 Population (a)</u>	<u>Distance (miles) From Plant Site</u>	<u>Direction From Plant Site</u>
30-40 MILES FROM PNPP (con't)			
Walton Hills	2,199	38	SW
Valley View	1,576	38	SW
Brooklyn Heights	1,653	39	SW
Cortland	5,011	39	SE
Independence	8,165	39	SW
Windham	3,721	39	S
<u>Town/City (Pennsylvania)</u>			
30-40 MILES FROM PNPP			
Linesville	1,198	39	ESE
<u>Town/City (Ohio)</u>			
40-50 MILES FROM PNPP			
Streetsboro	9,055	41	SSW
Seven Hills	13,650	41	SW
Linndale	129	41	SW
Brooklyn	12,342	42	SW
Lakewood	61,963	42	WSW
Warren	56,629	43	SSE
Boston Heights	781	43	SSW
Brecksville	10,132	43	SW
Newton Falls	4,960	44	SSE
Sugar Bush Knolls	201	44	SSE
Hudson	4,615	44	SSW
Broadview Heights	10,920	44	SW
Parma	92,548	44	SW
Parma Heights	23,112	44	SW
Rocky River	21,084	44	WSW
Orangeville	223	46	SE
Ravenna	11,987	46	S
Brady Lake	470	46	SSW
Peninsula	604	46	SSW
North Royalton	17,671	47	SW
Fairview Park	19,311	47	WSW
Niles City	23,088	48	SSE
Craig Beach	1,657	48	S
Silver Lake	2,915	48	SSW

TABLE 2.1-1 (continued)

TOWNS AND CITIES WITHIN 50 MILES OF THE PNPP

<u>Town/City (Ohio)</u>	<u>1980 Population (a)</u>	<u>Distance (miles) From Plant Site</u>	<u>Direction From Plant Site</u>
40-50 MILES FROM PNPP			
Richfield	3,437	48	SW
Middleburg Heights	16,218	48	SW
Brook Park	26,195	48	SW
Westlake	19,483	48	WSW
North Olmsted	36,486	48	WSW
Bay Village	17,846	48	WSW
Yankee Lake	99	49	SE
Munroe Falls	4,731	49	SSW
Berea City	19,567	49	SW
McDonald	3,744	50	SSE
Strongsville	28,577	50	SW
Avon Lake	13,222	50	WSW
<u>Town/City (Pennsylvania)</u>			
40-50 MILES FROM PNPP			
Springboro	557	41	E
Conneautville	971	41	E
Albion	1,818	42	E
Cranesville	703	43	E
Jamestown	854	43	ESE
Platea	492	44	ENE
Lake City	2,384	45	ENE
Girard	2,615	45	ENE
Conneaut Lake	767	46	ESE
Greenville	7,730	48	SE
Fairview	1,855	49	ENE

- (a) Bureau of the Census, U.S. Department of Commerce,
1980 Census of Population and Housing, Final Reports:
 1. PHC80-V-37, Ohio
 2. PHC80-V-40, Pennsylvania

TABLE 2.1-2
MAJOR CAMPS AND PARKS WITHIN 10 MILES OF THE PNPP

Park or Camp	Approximate Peak Transient Population	Distance (miles)	Direction
North Perry Park	50 (a) summer	1	ENE
Perry Township Park	50 (a) summer	1	WSW
Parmly Park	50 (a) summer	1	WSW
Camp Roosevelt	150 (b) summer	1.4	WSW
Lake Shore Park	50 (a) summer	2	ENE
CYO Camp Issac	350 (c) summer	2.5	ENE
Camp Wingfoot	50 (a) summer	2.5	ENE
Township Park, Madison	60,000 (d)	6	ENE
Headlands Beach St. Park	1,110,000 (e)	7.5	WSW

(a) Small parks for which no attendance records are kept; a summer weekend peak population of 50 is assumed for estimating the total peak. (43)

(b) Estimated 150 per 4-week camping period during summer. (43)

(c) Estimated 350 per 1-week camping period during summer. (43)

(d) 1978 estimated annual attendance, no recent figures available. (44)

(e) 1980 annual attendance. (49)

QUESTIONS AND RESPONSES (Q&R)

INDEX

<u>NRC</u> <u>QUESTION</u>	<u>TOPIC</u>	<u>SUPPLEMENT</u>	<u>Q&R</u> <u>PAGE NO.</u>
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240.00	Hydrologic Engineering		
240.01		1	2.1-1 to 2.1.2
240.01		1	5.2-1
240.02		1	2.4-1 to 2.4-4
240.03		1	7.1-1
290.00	Terrestrial Resources		
290.01		1	3.9-1
290.02		1	2.1-6 to 2.1-7
290.03		1	5.1-12 to 5.1-13
290.04		1	5.1-14
290.05		1	5.1-15
290.06		1	5.5-1 to 5.5-2
290.07		2	6.2-2
290.08		2	5.5-3
290.09		2	3.4-1 to 3.4-2
291.00	Aquatic Resources		
291.01		1	2.2-1 to 2.2-2
291.02		1	2.1-3 to 2.1-5
291.03		1	3.4-1
291.04		1	2.2-3
291.05		1	2.2-4
291.06		1	2.2-5 to 2.2-6
291.07		1	2.2-7 to 2.2-8
310.00	Socioeconomic		
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310.02		2	2.1-11 to 2.1-18
310.03		2	2.1-9 to 2.1-22
310.04		2	2.6-1 to 2.6-7
310.05		2	2.6-8
320.00	Need for Power, Alternatives and Cost Benefit Summary		
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320.02		1	1.1-2
320.03		1	1.1-3
320.04		1	1.3-1
320.05		1	1.3-2
320.06		1	1.3-3
320.07		1	1.1-4
320.08		1	11.2-1
320.09		1	1.1-5
320.10		1	1.1-6

QUESTIONS AND RESPONSES (Q&R)

INDEX

(Continued)

<u>QUESTION</u>	<u>TOPIC</u>	<u>SUPPLEMENT</u>	<u>Q&R PAGE NO.</u>
Request for Additional Information, June 9, 1981			
451.00	Meteorology		
451.01		1	2.3-1
451.02		1	5.1-1
451.03		1	5.1-2 to 5.1-5
451.04		1	5.1-6 to 5.1-11
451.05		1	6.1-1
451.06		1	6.2-1

310-01 Update the population forecasts in Figures 2.1-9 to
(2.1) 2.1-17 OL/ER, using the 1980 preliminary census count.
Using the 1980 census count, update the population
centers within 50 mile radius of PNPP, as found in
Table 2.1-1 in OL/ER. In addition, update the transient
population estimates found in Table 2.1-2 and Section
2.1.2.3, OL-ER.

Response

The population forecasts reflected in Figure 2.1-9 ER/OL are considered to be reasonably comparable to (within 10 percent of) the 1980 final census data. This conclusion is based on attached Tables A and B. In light of this data, updates of projected population estimates in Figures 2.1-9 to 2.1-17 are deemed to be unnecessary.

Updates of the population centers within a 50-mile radius of PNPP, as found in Table 2.1-1 ER/OL, were performed using the 1980 final census count. In addition, specific transient population estimates found in Table 2.1-2 and Section 2.1.2.3 ER/OL were brought up to date. (These pages are revised in Section 2.1)

Table A
Comparisons of County Population Data

<u>County (Ohio)</u>	<u>ER/OL 1980 Projections</u>	<u>1980 Census</u>	<u>% Difference</u>
Astabula	111,922	104,215	-6.9
Cuyahoga	1,556,439	1,498,295	-3.7
Geauga	68,607	74,474	8.6
Lake	201,556	212,801	5.6
Lorain	272,455	274,909	0.9
Mahoning	306,186	289,487	-5.4
Medina	107,004	113,150	5.7
Portage	134,184	135,856	1.2
Summit	508,454	524,472	3.2
Trumbull	<u>241,270</u>	<u>241,863</u>	<u>0.2</u>
Total	3,508,077	3,469,522	-1.1
<u>County (Pennsylvania)</u>			
Crawford	88,844	88,869	0.03
Erie	280,031	279,780	-0.09
Mercer	<u>132,002</u>	<u>128,299</u>	<u>-2.8</u>
Total	500,877	496,948	-0.8

Table B
Population Distribution (Based on Towns and
Cities from Table 2.1-1 - PNPP ER/OL Update)

<u>Radius (mi.)</u>	Estimated 1975 Population	<u>1980 Population</u>	<u>% Difference</u>
	<u>ER/OL</u>		
0-5	1,877	1,858	-1.0
5-10	23,067	22,451	-2.7
10-20	129,143	130,774	1.3
20-30	285,031	268,921	-5.7
30-40	906,320	839,792	-7.3
40-50	623,338	610,398	-2.1

310.02 Update the OL-ER Figures 2.1-18 and 2.1-20, which
(2.1) provides zoning designations and actual and future
 land use plans for a 10 mile radius of the plant.
 Identify any changes in these land use plans that
 may affect the pattern of population growth.

Response

Figures 2.1-18 and 2.1-20 provide land-use information out to 5 miles. Land-use data for the entire State of Ohio are available from the State Department of Natural Resources. A computerized mapping system (OCAP: Ohio Capability Analysis Program) provides land-use according to level 2 of the Anderson system (U.S. Geological Survey Circular 671). The user specifies the center and radius and the computer prints a map describing all of the land use within the specific area. For the purpose of this question, the center is Perry and the radius is 10 miles. The computer also presents summary statistics for the areas chosen. The data for OCAP have been obtained from 1972 USGS topographic maps (and in some cases more recent survey flights); the results give a general idea of the predominant land uses in the vicinity of the plant. The data are shown on Figure 310.02A.

Table 310-02A presents the 1972 summary statistics for the area. The largest portion, 63 percent, was devoted to cropland and pasture. Nearly 19 percent of the area was forested and about 17 percent was developed. Assuming that Lake County is following national trends, the percentage of land in agricultural uses has declined while the urban area has increased since 1972.

This assumption is reinforced by the more recent information provided in the 1980 Census Advance Counts. Between 1970 and 1980, the number of housing units in Lake County increased by 30.8 percent, from 57,485 to 75,166. Concord Township, the north eastern portion of which is within 10 miles of the PNPP, experienced the highest rate of increase. (See Figure 310-02B

and Table 310-02B.) During the decade the number of housing units rose by 115.3 percent, from 1,552 to 3,341. In general, the number of housing units in the townships and incorporated areas increased at a faster rate (or decreased at a slower rate) than population. This corresponds to the national trend of decreasing household size.

A number of townships experienced a decrease in population, including Painesville Township, directly to the east of the plant. The number of housing units also declined in this township from 4,753 to 4,512 (-5.1%). Perry Township, the site of the plant, had a moderate population increase. The housing figures for the townships within Ashtabula and Geauga Counties within 10 miles of the plant are also presented in Table 310.02B.

It can be seen from this figure that many of the jurisdictions in the vicinity of the plant are growing rather slowly. According to the Lake County Planning Commission, this slow growth will continue in the Perry area in the foreseeable future, particularly if only limited sewer lines are added.

Of the three counties within the 10-mile radius of the PNPP, Ashtabula has the most recent officially adopted land-use plan. This plan was adopted by the County Council in 1977 and covers all unincorporated areas of the County, including Geneva, Harpersfield, and Trumbull Townships, portions of which fall within 10 miles of the plant. However, there is no requirement that township policies or resolutions be consistent with the plan, and conversations with local planning officials indicate that the townships generally do not give much consideration to the plan.

Lake County officially adopted its land-use plan in 1960. As with Ashtabula County and all other Ohio Counties, the Lake County Council does not have jurisdiction over the townships, and the townships have the right to pass zoning resolutions which are not consonant with this plan. If a township proposes

an ordinance that the County Planning commission considers inconsistent with the County Plan, the Commission notifies the township. The township is required to inform the public of this finding at a public hearing but need not modify the ordinance.

Figure 2.1-20 of the ER/OL, Projected Land Use Within 5 Miles of the PNPP, is not taken from the 1960 Lake County Plan but is the part of the regional 208 Plan developed by the county for the North East Ohio Areawide Coordinating Agency (NOACA, the 208 planning agency for the region). The 208 Plan is not intended for official adoption and, therefore, does not represent county policy, but is simply a projection of the extent and location of future growth. The projections contained in the 208 Plan have not been changed.

Lake County has developed new plans for certain townships but none have been adopted. Thus, the only official county plan in the county is the 1960 Plan, much of which is currently out of date.

In Geauga County (where Thompson Township falls within the 10-mile radius of the plant) a land-use plan was developed in the 1960's but never officially adopted by the county. It is now out of date, according to the Geauga County Planning Commission.

Thus, no changes have occurred in the plans of Lake, Ashtabula, or Geauga Counties since the ER/OL was written. The area remains predominantly rural and growth has been rather slow. Planning officials expect that this pattern of growth will continue in the foreseeable future.

References

1. Personal conversation between David Gilmer (Lake County Planning Commission and Louis DiMento (NUS Corporation) (6/9/81; 7/17/81)
2. Personal conversation between Raymond Shore (Ashtabula County Planning Commission) and Louis DiMento (NUS Corporation) (7/17/81)
3. Personal conversation between Greg Parress (Geauga County Planning Commission and Louis DiMento (NUS Corporation) (6/5/81)
4. Personal conversation between David Crecelius (Ohio Department of Natural Resources, Resource Analysis Section) and Louis DiMento (NUS Corporation) (6/9/81)
5. Personal conversation between Mitchell Mize (Northeast Ohio Areawide Coordinating Agency) and Louis DiMento (NUS Corporation) (6/25/81)

Table 310.02A Land Uses Within 10 Miles of the
Perry Nuclear Power Plant*

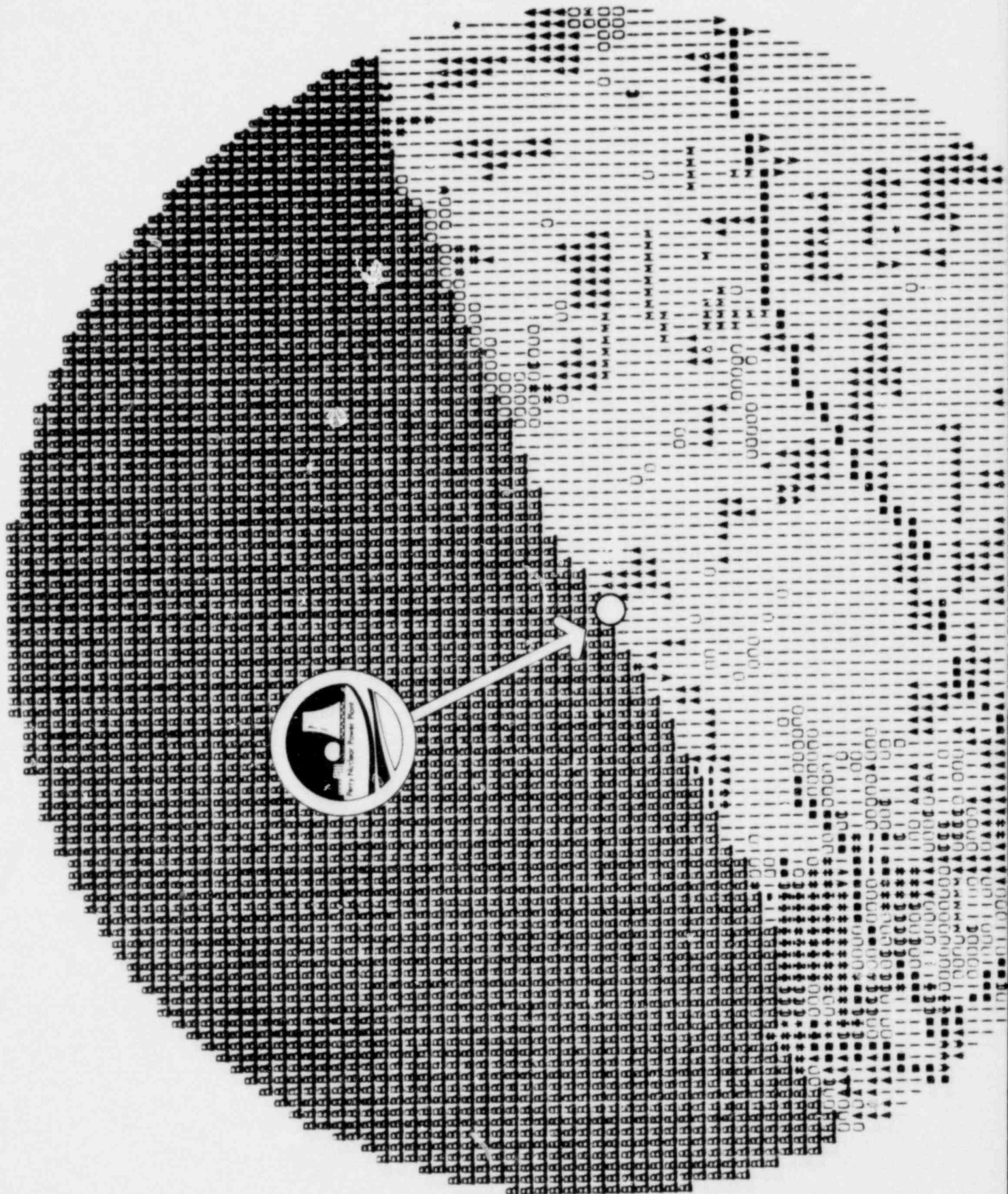
	<u>Acres</u>	<u>Percent</u>
Residential	7,820	8.04
Commercial and Services	1,447	1.49
Industrial	1,205	1.24
Transportation, Communications, and Utilities	2,654	2.73
Mixed Urban or Built-Up Land	1,336	1.37
Other Urban or Built-Up Land	1,985	2.01
Cropland and Pasture	61,258	63.05
Orchards, Groves, Vineyards, Nurseries, and Other Horticultural Areas	472	0.49
Confined Feeding Operations	17,893	18.39
Deciduous Forest Land	260	0.27
Evergreen Forest Land	60	0.06
Mixed Forest Land	12	0.08
Lakes	12	0.01
Reservoirs	161	0.17
Strip Mines, Quarries, and Gravel Pits	320	0.33
Transitional Areas	<u>302</u>	<u>0.31</u>
	97,315	99.99

*Excluding 102,257 acres of Lake Erie

Table 310.02B

Population and Number of Housing Units for
the Jurisdictions in the vicinity of
the Perry Nuclear Power Plant, 1970 and 1980,
and Percent Changes, 1970 to 1980

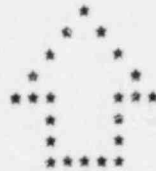
	Housing Units		Percent Change
	1980	1970	
<u>Lake County</u>	75,166	57,485	30.8
Concord Township	3,341	1,552	115.3
Eastlake City	7,310	5,678	28.7
Fairport Harbor Village	1,403	1,335	5.1
Grand River Village	155	187	-17.1
Kirtland City	1,988	1,544	28.8
Kirtland Hills Village	167	124	34.7
Lakeline Village	90	66	36.4
Leroy Township	816	494	65.2
Madison Township	5,214	4,201	24.1
Madison Village	779	508	53.3
Mentor City	14,147	10,404	36.0
Mentor-on-the-Lake City	2,557	1,761	45.2
North Perry Village	280	249	12.4
Painesville City	6,509	5,502	18.3
Painesville Township	4,512	4,753	-5.1
Perry Township	1,662	1,305	27.4
Perry Village	300	245	22.4
Timberlake Village	300	243	23.5
Waite Hill Village	190	159	19.5
Wickliffe City	5,540	5,525	0.3
Willoughby City	7,749	6,013	28.9
Willoughby Hills City	3,989	1,937	105.9
Willowick City	6,168	5,730	7.6
<u>Ashtabula County</u>	40,528	33,835	19.8
Geneva City	2,341	1,979	18.3
Geneva-on-the-Lake City	1,337	1,063	25.8
Geneva Township	1,481	1,277	16.0
Harpersfield Township	867	516	68.0
Trumbull Township	450	303	48.5
<u>Geauga County</u>	24,252	17,878	35.7
Thompson Township	683	530	28.9



STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
OHIO CAPABILITY ANALYSIS PROGRAM
06/12/81

LEGEND

CELL WIDTH(FT): 1040
CELL HEIGHT(FT): 1300

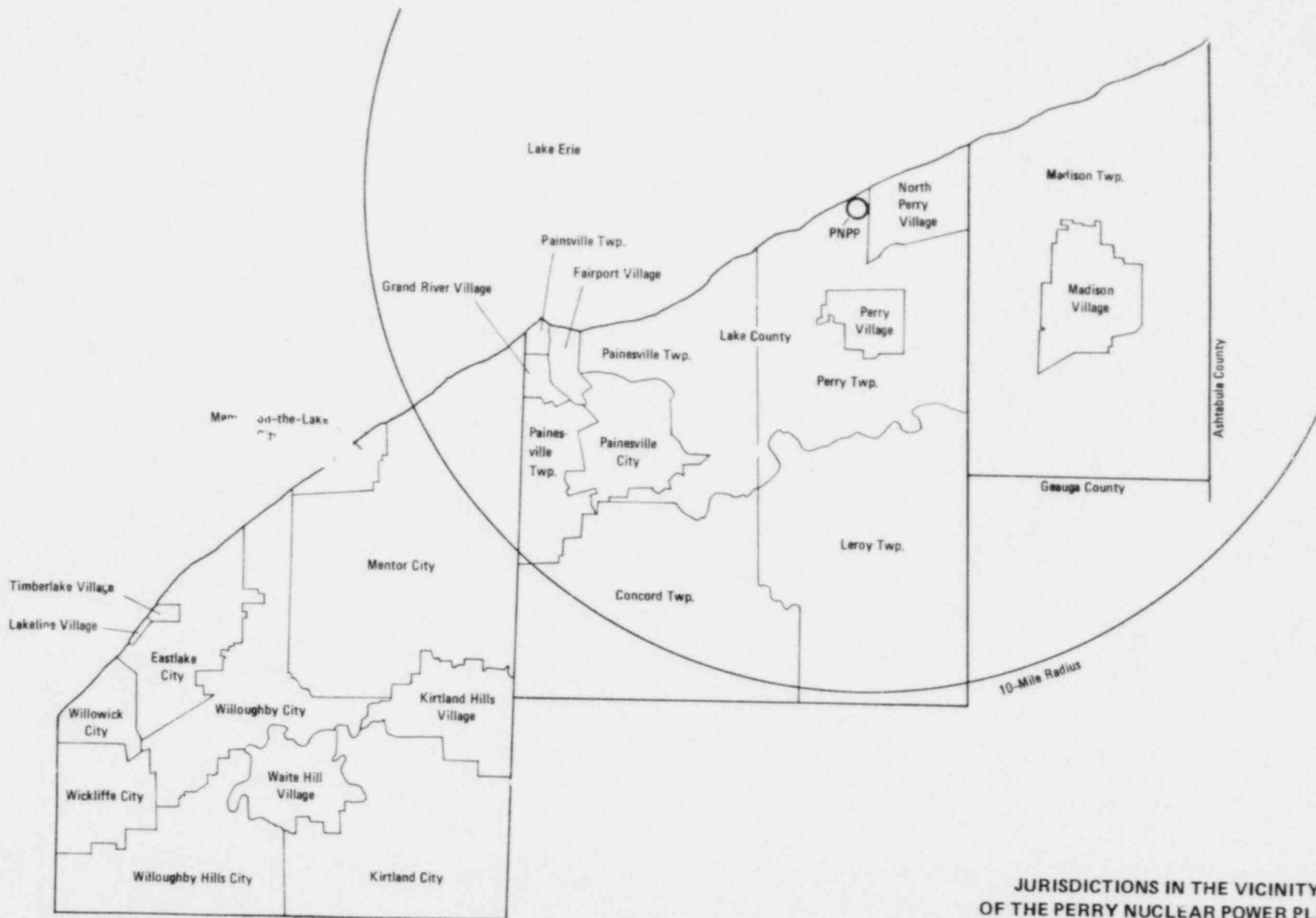


NORTH

DATA CODE	MAP SYMBOL	CODE DESCRIPTION	NUMBER OF CELLS	PERCENT OF STUDY AREA	AREA(ACRES)x 100
11	UD	RESIDENTIAL	239	3.88	78.2
12	UC	COMMERCIAL AND SERVICES	46	0.72	18.0
13	II	INDUSTRIAL	37	0.60	14.0
14	UT	TRANSPORTATION, COMMUNICATIONS, AND UTILITIES	145	1.32	33.0
16	MX	MIXED URBAN OR BUILT-UP LAND	43	0.69	14.0
17	**	OTHER URBAN OR BUILT-UP LAND	62	0.99	20.0
21	II	CROPLAND AND PASTURE	2020	31.56	60.0
22	VF	ORCHARDS, GROVES, VINEYARDS, NURSERIES, AND ORN. HORT. AREAS	15	0.23	3.0
23	FF	CONFINED FEEDING OPERATIONS	0	0.01	0.0
41	AA	DECIDUOUS FOREST LAND	573	8.86	17.0
42	AA	EVERGREEN FOREST LAND	8	0.13	0.0
43	AA	MIXED FOREST LAND	2	0.03	0.0
53	LL	LAKES	0	0.01	0.0
55	**	RESERVOIRS	0	0.00	0.0
57	EE	BAYS AND ESTUARIES	6	0.08	0.0
75	SS	STRIP MINES, QUARRIES, AND GRAVEL PITS	3298	50.78	102.0
76	TT	TRANSITIONAL AREAS	11	0.16	2.0
			9	0.15	0.0
TOTAL	17		6514	100.00	2013.7

PNPP ER/OL, Sup. 2 Q&R 2.1-17 9/1/81

PERRY NUCLEAR POWER PLANT
1972 USGS LAND USE/LAND COVER -
LEVEL 2, TEN-MILE RADIUS
PERRY NUCLEAR POWER PLANT
THE CLEVELAND ELECTRIC
ILLUMINATING COMPANY FIGURE 310.02A



JURISDICTIONS IN THE VICINITY
OF THE PERRY NUCLEAR POWER PLANT
PERRY NUCLEAR POWER PLANT 1 & 2

THE CLEVELAND ELECTRIC
ILLUMINATING COMPANY

FIGURE 310.02B

310.03 Identify any places where traffic congestion or problems
(2.1) of interference with patterns of local traffic might
be anticipated due to plant operation or maintenance.
Traffic counts of major access roads to the plant
site would be useful to support your position.

Response

Construction of the PNPP has caused substantial congestion at a number of points in the area. The heaviest congestion occurs on Center Road between U.S. 20 and the plant, on Parmley Road between Perry Park Road and the plant, and on Middle Ridge Road, east and west of Center Road. As Figure 310.03A indicates, average daily traffic (ADT) on Center road north of U.S. 20 increased from just over 700 in 1972 to about 4000 in 1980. Much of this increase can be attributed to the Perry Plant, which employed over 3000 workers in 1980. On Parmley Road between Perry Park Road and Center Road, traffic increased over 100 percent between 1972 and 1980. ADT on Middle Ridge Road east and west of Center Road experienced a similar increase as drivers are using the road to avoid congestion elsewhere. The data in Figure 310.03A is a summary of information mainly obtained from Douglas T. Harrison, Lake County Engineer⁽²⁾, who notes in his letter that examination of the data suggests that about "three-fourths of Center Road traffic can be attributed to Nuclear Plant Construction and ancilliary activities."

Although the State of Ohio does not have road capacity data, Mr. Harrison notes that "in the absence of capacity data, Level of Service 'E' would appear to be descriptive of that traffic situation." Level E is defined as follows:

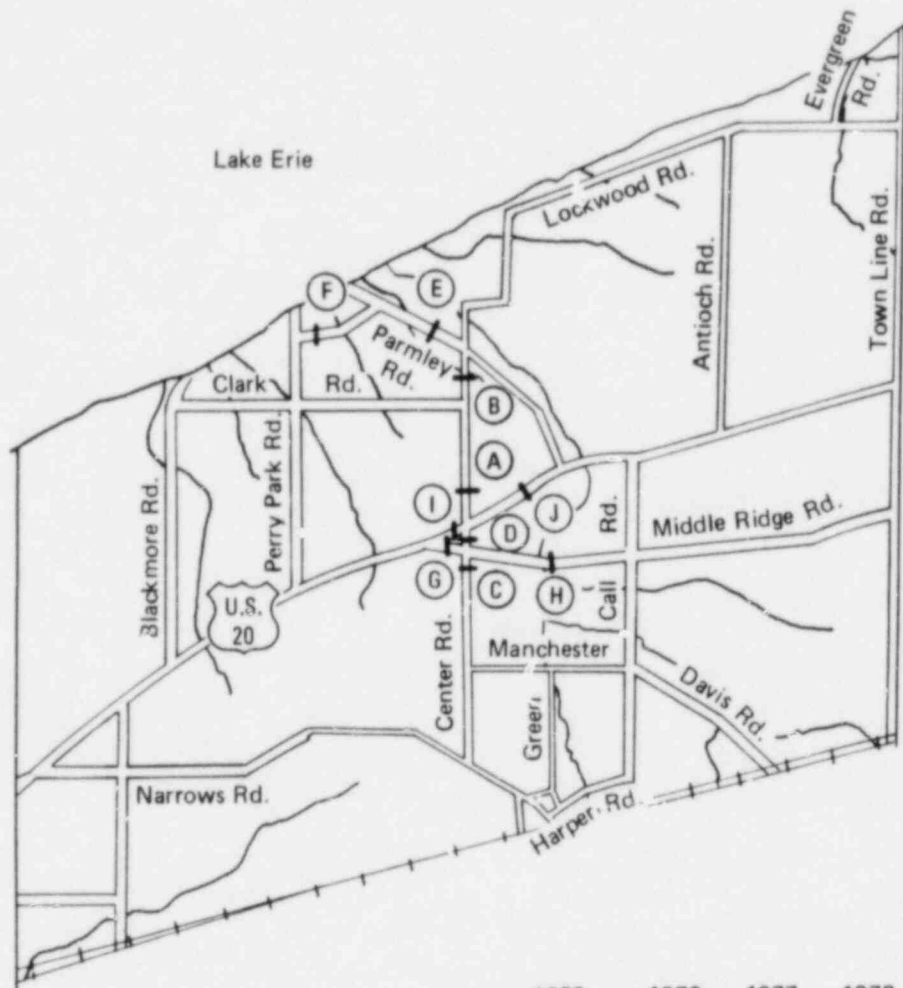
Extremely heavy flow and relatively low speeds. It is the condition under which the largest number of vehicles could be accommodated by the street or roadway. The traffic flow is unstable and short stoppages may occur.

The number of workers currently (August 1981) onsite is 3678, and this figure is expected to increase to about 3900 by May 1982, one year before the fuel load is installed in Unit 1. About 313 of these will be operating employees and the remainder will be construction workers. After 1982, employment will gradually increase until it reaches 4000 in May 1986, one year before the fuel loading for the second unit. At this time, there will be about 399 operating workers, and the construction work force will begin to decrease until it drops to zero in 1988. After this, the 399 operating workers will be present throughout the plant's life.

Thus, the congestion on Center, Parmley, and Middle Ridge Roads will continue and increase slightly until 1986. During this year, as the construction work force begins to decline, congestion will abate. In 1989, when only operating workers are present at the plant, congestion should decrease dramatically. It will remain at a low level throughout the rest of the plant's operation.

References

1. Personal conversation between Gary Bammerlin (Ohio Department of Transportation, District 12 Office) and Louis DiMento (NUS Corporation) (6/10/81)
2. Personal conversation between Douglas T. Harrison (Lake County Engineer, Traffic Engineering Department) and Louis DiMento (NUS Corporation) (6/10/81)
3. Personal conversation between Mr. Robson (Ohio Department of Transportation, Bureau of Technical Services) and Louis DiMento (NUS Corporation) (6/10/81)
4. Personal conversation between Dorothy Smith (Ohio Department of Transportation, Bureau of Technical Services) and Louis DiMento (NUS Corporation) (7/13/81)



	1980	1979	1977	1972
A - Center Rd. N of U.S. 20	3860	3640	2190	718
B - Center Rd. S of Parmley	4070	—	—	717
C - Center Rd. S of Middle Ridge	1850	—	1285	740
D - Center Rd. N of Middle Ridge	2050	—	1235	1754
E - Parmley Rd. W of Center Rd.	1080	—	525	1530
F - Parmley Rd. E of Perry Park Rd.	980	—	—	389
G - Middle Ridge Rd. W of Center Rd.	1250	—	1545	982
H - Middle Ridge Rd. E of Center Rd.	2300	—	1770	1303
I - U.S. 20 W of Center Rd.	18,850	—	—	—
J - U.S. 20 E of Center Rd.	15,570	—	—	—

Sources: Lake County Engineers, Traffic Engineering Department,
Ohio Department of Transportation, Bureau of Transportation
Technical Services.

TRAFFIC COUNTS ON ROADS
MOST AFFECTED BY THE PNPP
PERRY NUCLEAR POWER PLANT

THE CLEVELAND ELECTRIC
ILLUMINATING COMPANY

FIGURE 310.03A

310.04 Tables 2.6-1 and 2.6-2 in the ER-OL describe the cultural
(2.6) resources within the area of the PNPP site listed
 in the National Registers of National Landmarks and
 of Historical Places. Provide such a list of resources
 within 2 km of the transmission corridors. Include
 in the listing sites nominated for the Register.

Response

Figure 310.04A is a map of the area in which the site and the proposed transmission lines are located. The two proposed transmission lines, Perry-Hanna (PH) (preferred and alternate) and Perry-Macedonia (PM), are indicated on the figure. Also indicated on the map are the National Register Historic Sites and Natural Landmarks which are near these lines. Historic sites are labeled "H" and Natural Landmarks "N." Those along the Perry-Macedonia Line have the subscript "A" followed by a number and those along the Perry-Hanna Line have the subscript "B" followed by a number. In the description which follows, if a resource near a transmission line is within 2 km of the line, the estimated distance is given; otherwise it is indicated to be greater than 2 km away. The letters "P" and "A" following the PH refer to preferred and alternate routes. There is only one proposed route for the PM line. It is the same as the PH alternate from the start at North Perry Until just north of the Geauga County-Lake County line where the lines split. From this point, PM goes southeast and PH (P and A) goes south (see Figure 310.04A).

A. Historic Sites

All sites are on the National Register; no new sites have been nominated for the National Register in the area.

A.1 Sites located along the combined corridor for both lines:

Along this section, the PM line is coterminous with the PHA line and so references to PHA below also apply to PM.

Lake County

1A,B Perry, Green, Lucius, House, 4160 Main St. (7-12-76), (PHP, 1.3 km W; PHA 1.3 km W)

2A,B South Leroy Meetinghouse (NE of Painesville at OH 86 and Brakeman Road (5/9/79) (PHP, 0.4 km E; PHA, 0.4 km E)

A.2 Sites located along the Perry-Macedonia Line

Geauga County:

1A Chardon, Chardon Courthouse Square District, Public Green, roughly bounded by Main and Center Sts. (10-18-74) (> 2 km SE)

Summit County:

2A Twinsburg, Twinsburg Congregational Church, Twinsburg Public Sq. (5-3-74) (> 2 km S)

3A Twinsburg, Twinsburg Institute, 8996 Darrow Rd. (1-1-76) (> 2 km S)

4A Twinsburg vicinity, Herrick, Johnathan House, 8327 Darrow Rd. (7-18-74) (> 2 km S). This site has been dismantled and removed.

Cuyahoga County:

- 5A Oakwood, Drake, Alonzo, House, 24262 Broadway (11-28-78)
(1.6 km N)

A.3 Sites located along the Perry-Hanna Line

Geauga County:

- 1B Claridon, Claridon Congregational Church, U.S. 322 (8-13-74) (PHP, > 2 km W; PHA, > 2 km W)
- 2B East Claridon, Hathaway, Lot, House, 12236 Old State Rd. (10-16-74) (PHP, 1.6 km W; PHA, > 2 km W)
- 3B Burton, Domestic Arts Hall and Flower Hall, N. Cheshire St. (8-24-79); (PHP, > 2 km W, PHA > 2 km W)
- 4B Burton, Burton Village Historic District, Surrounding Public Sq. (11-20-74) (PHP, > 2 km W; PHA > 2 km W)
- 5B Burton, Goodwin, Dr. Erastus House, 14485 Main St. (8-1-75) (PHP, > 2 km W; PHA, > 2 km W)
- 6B Auburn Corners, Free Will Baptist Church of Auburn, 14742 E. Washington St. (5-28-76) (PHP, > 2 km w; PHA > 2 km W)

Portage County:

- 7B Hiram, Garfield, James A. House, 6825 Hinsdale St. (1-30-76) (PHP, 1.3 km E; PHA, 2.0 km E)
- 8B Hiram, Young, Thomas F House, Wakefield and Garfield Sts. (10-22-76) (PHP, 1.6 km E; PHA 1.8 km W)

- 9B Hiram vicinity, Johnson, John Farm, 6203 Pioneer Trail
(12-12-76) (PHP, 0.9 km E; PHA, > 2 km W)
- 10B Mantua, Mantua Station Brick Commercial District, Main
and Prospect Sts. (12-24-74) (PHP, > 2 km W; PHA, > 2 km
W)
- 11B Mantua, Hine, Horace L. House, 4624 W. Prospect St. (12-
12-76) (PHP, > 2 km W; PHA, > 2 km W)
- 12B Ravenna, Riddle Block, Public Sq., Chestnut and Main Sts.
(3-17-76) (PHP, > 2 km W; PHA, > 2 km W)
- 13B Garrettsville vicinity, Ellenwood House, NW of Garrettsville
on OH 82 (6-20-75) (PHP, > 2 km E; PHA, 0.6 km E)

B. Natural Landmarks

The National Register Natural Landmarks in the general area
are provided in the following list.

One site, Kimbal Woods, has been nominated as a potential National
Register site, but has not yet been designated.

B.1 Sites located along the combined route for both lines

Lake County:

1A,B Mentor Marsh - Near Painesville. The site consists of
marsh vegetation, aquatic plants, swamp and bottomland
forest, and upland forest. A migration stopover and year-
round habitat for birds and mammals, the site is a rarity
in heavily population northern Ohio. (October 1964) Owner:
State, Municipal (> 2 km W)

2A,B Kimball's Woods - Potential Natural Landmark, located in the southwest corner of Madison. The site consists of 57 acres of "near virgin" hardwood forest and 41 acres of oldfield, second-growth elm, swamp woods, and abandoned vineyard (> 2 km E)

B.2 Sites located along the Perry-Macedonia Line

Geauga County:

1A Holden Natural Areas (extends into Lake County) - 30 miles east of Cleveland. A complex of three natural areas: Steblins Gulch, possessing geological formations of Chardon, Brea sandstone, Bedford and Cleveland types; Bole Forest, a northern hardwood virgin forest; and Hanging Rock Farm, a stand of natural northern hardwoods. The three areas serve as a unique control to arboretum lands abutting this landmark. (November 1967) Owner: Private (1.0 km S)

Cuyahoga County:

2A Arthur B. Williams Memorial Woods - Within Mayfield. The site contains a remarkably pristine remnant beech-maple forest, among the finest timber stands remaining in the state of Ohio. (December 1974) Owner: Municipal (> 2 km NE)

3A Tinkers Creek Gorge - 12 miles southeast of Cleveland. Oak-hickory and beech-maple-hemlock predominate in this virgin forest. (November 1967) Owner: Municipal (> 2 km S)

B.3 Sites located along the Perry-Hanna Line

Geauga County:

- 1B White Pine Bog Forest - Three miles south-southwest of Burton. The only remaining near virgin remnant white pine boreal bog in Ohio. (January 1976) Owner: Municipal, Private (PHP, > 2 km W; PHA, > 2 km W)

Portage County:

- 2B Mantua Swamp - At the southeastern edge of Mantua. The area contains many different wetland communities, including a floodplain swamp forest, cattail marshes, a beaver pond, and relict boreal bog. (January 1976) Owner: State, Private (PHP, adjacent; PHA, 2.0 km W)

Review and recommendations concerning the impact of the transmission lines on the Historic Sites and Natural Landmarks have been requested from the State Historic Preservation Officer and the Department of Natural Resources (see response to Question 310.05.



0 1 2 3 4 5 miles
0 1 2 3 4 5 6 7 8 kilometers

Legend:



- Historic Sites

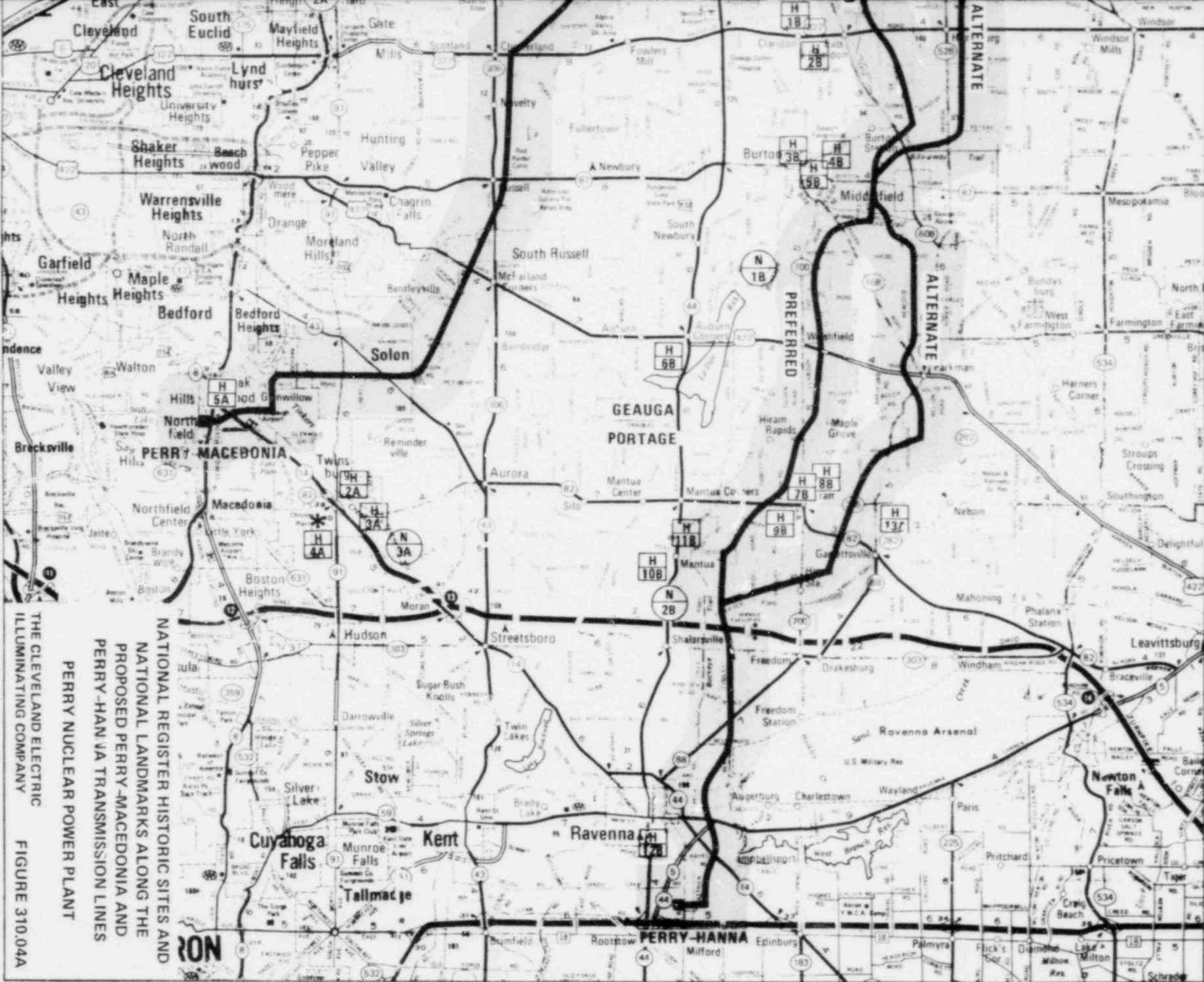


- Natural Landmarks

- 2 Kilometer distance on either side of the Transmission Line

* - Dismantled and Removed





THE CLEVELAND ELECTRIC
ILLUMINATING COMPANY
FIGURE 310.04A

310.05 Please provide documentation of any communication
(2.6) you have had with the State Historical Preservation
Officer (SHPO) and with local historical and archeological
groups concerning impacts of the site and transmission
corridors.

Response

The information presented in the response to question 310.04 regarding historic sites was discussed by phone with Mr. Eric Johannesen of the Western Reserve Historical Society; a letter has been sent to Mr. Johannesen requesting confirmation of the data with the understanding that his review will also be sent to the State Historic Preservation Officer; his comments have been incorporated into the response to question 310.04. Similarly, the information on natural landmarks was discussed with Mr. Richard Mosely of the Ohio Department of Natural Resources for his review. This correspondence will be provided to NRC under separate cover.

290.09 In addition to responses to other specifically requested
(3.4) information provide a summary and brief discussion
in table form, by section, of differences between
currently projected environmental effects of the nuclear
power station (including those that would degrade,
and those that would enhance environmental conditions)
and the effects discussed in the environmental report
submitted at the construction stage.

Response

The major design changes that result in changes in potential environmental impacts are those related to the revision in the cooling system from open-cycle to closed-cycle cooling. These changes are outlined in the following table.

PNPP MAJOR DESIGN CHANGES

	<u>Open-Cycle Cooling*</u>	<u>Closed-Cycle Cooling**</u>
<u>Intake Flow (GPM)</u>	1,150,000	69,400
<u>Discharge Flow (GPM)</u>	1,150,000	46,000 (average)
<u>Overall T (°F)</u>	29.1	18.1 (average)
<u>Intake Structure</u>	12 PODS (each 35.5' in diameter)	2 PODS (each 36' in diameter)
<u>Discharge Structure</u>	6 PORTS (each 4' in diameter)	1 NOZZLE (3' in diameter)
<u>Heat Rejection to Lake Erie (x 10⁶ BTU/min)</u>	280	7 (average)
<u>Pumphouses</u>	2 one combination circulating and service water, and one emergency service water	4 one service water, one emergency service water, and two circulating water (one for each unit)
<u>Heat Sink</u>	100% to Lake Erie	97% to atmosphere 3% to Lake Erie

*From ER-CP: Information based on normal operation of both units

**From ER-OL: Information based on normal operation of both units

290.08 Provide an assessment of the effects of transmission
(5.5) line maintenance procedures on the spotted turtle
(Clemmys guttata). Indicate whether herbicides will
be used along any portions of the Perry transmission
lines.

Response

It is not the policy of CEI to use herbicides for vegetation control along the Perry transmission lines. CEI cuts the vegetation periodically with a bush hog. To date, there have not been apparent effects on the spotted turtle.

290.07 Update the ER-OL with respect to Cleveland Electric
(6.2) Illuminating Company's proposed confirmatory monitoring
 (if any) of offsite noise levels during Perry Nuclear
 Power Plant operation.

Response

The applicant plans to conduct a confirmatory survey of off-site noise levels during the Perry Nuclear Power Plant operational phase.