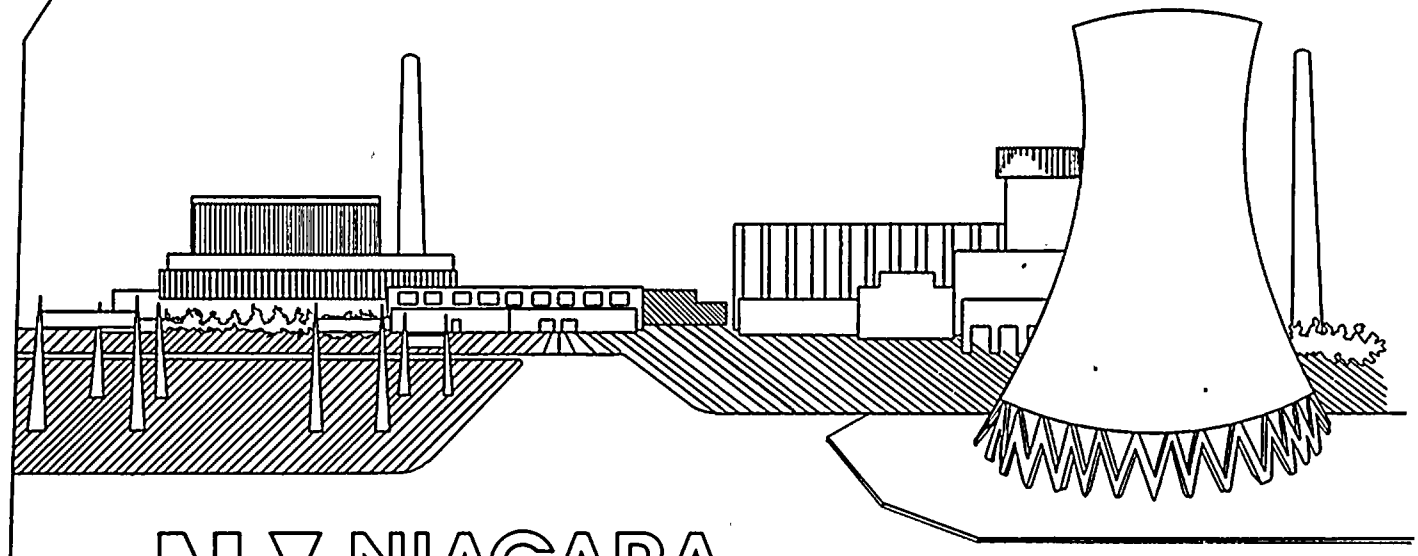
ENVIRONMENTAL REPORT

OPERATING LICENSE STAGE

NINE MILE POINT NUCLEAR STATION — UNIT 2



NIAGARA MOHAWK

SUPPLEMENT 7

NINE MILE POINT NUCLEAR STATION UNIT 2
NIAGARA MOHAWK POWER CORPORATION

ER-OLS SUPPLEMENT RECEIPT ACKNOWLEDGMENT

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Supplement 8

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Please reassign this set to, and/or change my address as follows:

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Stone & Webster Engineering Corporation
3 Executive Campus
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Cherry Hill, NJ 08034

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INSERTION INSTRUCTIONS

The following instructions are for the insertion of the current Supplement into the Unit 2 ER-OLS. Remove pages, tables, and/or figures listed in the REMOVE column and replace them with the pages, tables, and/or figures listed in the INSERT column. Dashes (---) in either column indicate no action required.

Vertical bars have been placed in the margins of inserted pages and tables to indicate revision locations.

(Scriba Substation) to be located 0.81 km (0.5 mi) south of the plant. From the new Scriba Substation, a new single-circuit 345-kV line will be constructed within an existing right-of-way, 14.35 km (8.9 mi) south to NMPC's existing Volney Substation.

An application for an amendment reflecting the revised proposal was filed with the Public Service Commission in April 1982[2]. Commission approval of NMPC's request for a Certificate of Environmental Compatibility and Public Need is anticipated by April 1983.

Section 3.7 provides a detailed description of the transmission facilities that will serve Unit 2. Sections 5.1.2 and 5.6 describe the anticipated environmental impacts related to the operation of the line.

1.2.1 References

1. Article VII Application for Proposed Nine Mile 2 - Volney 765 KV Transmission Facility. Niagara Mohawk Power Corporation, March 1978.

2. Amended Article VII Application for Proposed Nine Mile 2 - Volney 345 KV Transmission Facility. Niagara Mohawk Power Corporation, April 1982.

TABLE 1.2-1

PERMITS AND APPROVALS

Agency	Type of Approval	Authorized Activity/ Plant Component	Application Date	Status	
Nuclear Regulatory Commission	Special nuclear material license	Storage of neutron detectors	7/6/81	Granted 4/19/82	3
	Special nuclear material license	Fuel receipts	3/1/85	Approval anticipated by 7/1/85	
	By-product material license	Radiation monitors/ calibration sources	1/1/84	Approval anticipated by 6/1/84	
	Reactor operating license	Fuel loading	1/31/83	Approval anticipated by 1/1/86	
Federal Aviation Administration	Navigational interference approval	Cooling tower	4/25/77	Granted 8/8/77 Extended 5/29/79 and 10/8/80	
	Navigational interference approval	Stack	6/6/83	Granted 8/17/83	3
American Society of Mechanical Engineers	Owner certificate of authorization	Nuclear power plant components	4/17/76	Granted 8/23/76 Extended 7/5/79 and 8/23/82	3
New York State Department of Environmental Conservation	Emission source environmental rating	Operation of cooling tower	1/1/84	Approval anticipated by 8/1/84	
	Section 401 water quality certification	Discharge of wastewater effluents	2/24/76	Granted 2/23/77	
	SPDES permit	Discharge of wastewater effluents	9/28/79	Granted 6/6/83	3
New York State Public Service Commission	Certificate of environmental compatibility and public need	Transmission line	3/15/78 Amended application filed 4/82	Granted 8/12/83	3

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning with initiation of preoperational testing (Unit #2) and lasting until EDP + 5 Years
the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

Outfall Number & Effluent Parameter	Discharge Limitations Daily Avg.	Daily Max.	Units	Monitoring Reqmts. Measurement Frequency	Sample Type
001-006 Storm Drainage (No Monitoring Required)					
007 Floor and Equipment Drains					
Oil and Grease		15	mg/l	2/Month	Grab
Suspended Solids	30	50	mg/l	"	"
pH	6.0 - 9.0 (Range)		SU	"	"
008 Screen Well Fish Diversion System (No Monitoring Required)					
040 Cooling Tower Blowdown (Unit #2)[c]					
Flow*				Continuous	Recorder
Discharge Temperature		110(43.3)	°F(°C)	"	"
Intake - Discharge Temperature Difference		30(16.7)	"	"	"
Net Addition of Heat		0.12×10^9	kcal/hr.	Daily	Calculated
Total Residual Chlorine	0.2	0.5	mg/l	Continuous	Recorder
pH	6.0 - 9.0 (Range)		SU	2/Week	Grab
041 Unit #2 Wastewater (Including Demineralizer Regeneration Wastes, Filter Backwash, Floor Drains, & Treated Radioactive Wastes[e].)					
Flow*				Batch	Calculated
Oil and Grease		15	mg/l	"	Grab (once before discharge)
Suspended Solids	30	50	mg/l	"	"
pH	6.0 - 9.0 (Range)		SU	"	"

FOOTNOTES

*Monitoring Requirement Only

[a]The intake temperature shall be considered that temperature existing after intake water tempering.

[b]These limits and monitoring requirements shall not apply if this wastewater is discharged upstream of the sewage treatment facility.

[c]There shall be no discharge of heat from the main condensers except heat may be discharged in blowdown from recirculated cooling water systems provided the temperature at which the blowdown is discharged does not exceed at any time the lowest temperature of recirculated cooling water prior to the addition of the makeup water.

[d]Monitoring and limits may be deleted following DEC evaluation of monitoring data.
91-20-2(5/80)Pg. 4

[e]pH range of 4.0 - 9.0 is allowable for wastewater having a conductivity of less than 10 μmho/cm

EFFLUENT LIMITATIONS

During the period beginning EDP and lasting until EDP + 5 Years discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

TABLE I

Outfall Number	Effluent Limitations (Maximum Limits except where otherwise indicated)			
030	(X) Flow	30 day arithmetic mean	65,000 ( )MGD (X)GPD	
	(X) BOD_5	30 day arithmetic mean	25 mg/l and _____ lbs/day	(1)
	( ) BOD_5	7 day arithmetic mean	_____ mg/l and _____ lbs/day	
	(X) BOD_5	Daily	45 mg/l and _____ lbs/day	
	( ) UOD (2)	Daily	_____ mg/l and _____ lbs/day	
	(X) Suspended Solids	30 day arithmetic mean	25 mg/l and _____ lbs/day	(1)
	( ) Suspended Solids	7 day arithmetic mean	_____ mg/l and _____ lbs/day	
	(X) Suspended Solids	Daily	45 mg/l and _____ lbs/day	
	(X) Effluent disinfection required: (X) all year			
	( ) Seasonal from _____ to _____			
	Fecal Coliform	30 day geometric mean shall not exceed 200/100 ml		
	Fecal Coliform	7 day geometric mean shall not exceed 400/100 ml		
	Fecal Coliform	6 hour geometric mean shall not exceed 800/100 ml (3)		
	Fecal Coliform	No individual sample may exceed 2400/100 ml (3)		
	The chlorine residual in the final discharge shall not exceed 0.5 mg/l.			
	( ) Total Coliform	Daily	_____/100 ml	
	( ) Total Kjeldahl Nitrogen	Daily	_____/mg/l as N	
	( ) Ammonia	Daily	_____/mg/l as NH_3	
	( ) Dissolved Oxygen	Minimum	greater than _____ mg/l	
	(X) pH	Range	6.0 to 9.0	
	(X) Settleable Solids	Daily	0.1 ml/l	
	( ) Phosphorus	Daily	_____ mg/l as P	
	( ) Total Nitrogen	Daily	_____ mg/l as N	
	( ) _____			

TABLE 2

Monitoring Requirements Parameter	Frequency	Sample Type	Sample Location Influent	Sample Location Effluent
(X) Total Flow, MGD	2/Month	Grab		
(X) BOD_5, mg/l	"	"		
(X) Suspended Solids, mg/l	"	"		
(X) Fecal Coliform, No./100 ml	"	"		
( ) Total Coliform, No./100 ml				
( ) Total Kjeldahl Nitrogen, mg/l as N				
( ) Ammonia, mg/l as NH_3				
( ) Dissolved Oxygen, mg/l				
(X) pH	2/Month	Grab		
(X) Settleable Solids, ml/l	"	"		
(X) Residual Chlorine, mg/l	"	"		X
( ) Phosphorus, mg/l as P				
( ) Temperature, °C				
( ) Total Nitrogen, mg/l as N				
( ) Visual Observation				
( ) _____				

(1) and effluent values shall not exceed _____ % of influent values.
(2) UOD (Ultimate Oxygen Demand) shall be computed and reported as follows:
UOD = 1½ x BOD_5 + 4½ x TKN (Total Kjeldahl Nitrogen).
(3) applicable only in the Interstate Sanitation District.
(4) sample contact chamber effluent and final effluent if limits are specified for both.

CHAPTER 2

ENVIRONMENTAL DESCRIPTIONS

2.1 DESCRIPTION OF THE STATION LOCATION

The Nine Mile Point site comprises approximately 364 ha (900 acres) on Great Lots 12 and 13, which are located on the south shore of Lake Ontario in the town of Scriba, Oswego County, New York. The land is owned by Niagara Mohawk Power Corporation (NMPC). Figure 2.1-1 shows the general location of the site in relation to the surrounding 80-km (50-mi) area and shows parts of New York State, Lake Ontario, and Canada. Figure 2.1-2 shows the surrounding 10-km (6.2-mi) area and the location of the site in relation to Oswego County, New York.

Unit 2 shares the site with Nine Mile Point Unit 1. Unit 2 occupies about 18.2 ha (45 acres) of the total site. The structures located onsite are principally owned by NMPC and include: the Energy Information Center (owned jointly by NMPC and the Power Authority of the State of New York), sewage treatment plants, security buildings, Nine Mile Point Units 1 and 2, and contractor buildings. The Unit 2 natural-draft cooling tower is approximately 454 m (1,490 ft) southeast of the Unit 2 reactor centerline. Other structures are associated with the transmission lines. The James A. FitzPatrick Nuclear Power Plant, owned by the Power Authority of the State of New York, is located on a 283.5-ha (700.5-acre) site immediately east and adjacent to the Nine Mile Point site. Centerline-to-centerline distance between Unit 2 and the FitzPatrick plant is about 716 m (2,350 ft). Details of Unit 2 structures are shown on Figure 3.1-1.

There are no private residences or public facilities onsite. The Energy Information Center, however, is open to the public Tuesday through Sunday, 10:00 am to 5:00 pm, throughout the year. A picnic area is provided west of the center.

Plant property lines, site boundary lines, and the exclusion area boundary are identical as indicated on Figure 2.1-3.

The reactor center coordinates for Unit 2 are listed as follows:

Geographic Coordinates	Zone Universal Transverse Mercator (UTM)	NYS Coordinate System - Central Grid Zone
43 deg - 31' 17" N. Latitude	N4819478 m	N1283187
76 deg - 24' 27" W. Longitude	E386254 m	E546658

The nearest city is Oswego, which is about 10 km (6.2 mi) southwest of the site. Other towns, villages, and shore points located within 10 km (6.2 mi) of the site are listed in Table 2.1-1(1). Further information about population is provided in Section 2.5.1.

Syracuse, the nearest major population center, is located about 53 km (32.8 mi) southeast of the site. Other cities, towns, and villages are shown on Figures 2.1-1 and 2.1-2. Section 2.2 provides further information on land use.

Nearby water bodies include the Otter Branch and Catfish Creek, which both flow into Lake Ontario. The former is located about 5.5 km (3.4 mi) southeast of the site, and the latter is approximately 6.8 km (4.2 mi) to the southeast.

Unit 2 is located about 1.6 km (1 mi) from the nearest public road, County Route 29, which delineates the eastern boundary of the FitzPatrick plant site. State Highway 104 is located about 6.2 km (3.9 mi) southeast of Unit 2. A spur of the Consolidated Railroad Corporation provides rail service to the station. Figure 2.1-3 provides locations and routes of major highways and railroads.

The location of the station on the south shore of Lake Ontario places it outside regular ship traffic lanes. Ships enroute to and from the Port of Oswego, the nearest commercial port, pass about 11.3 km (7 mi) north of the site(2).

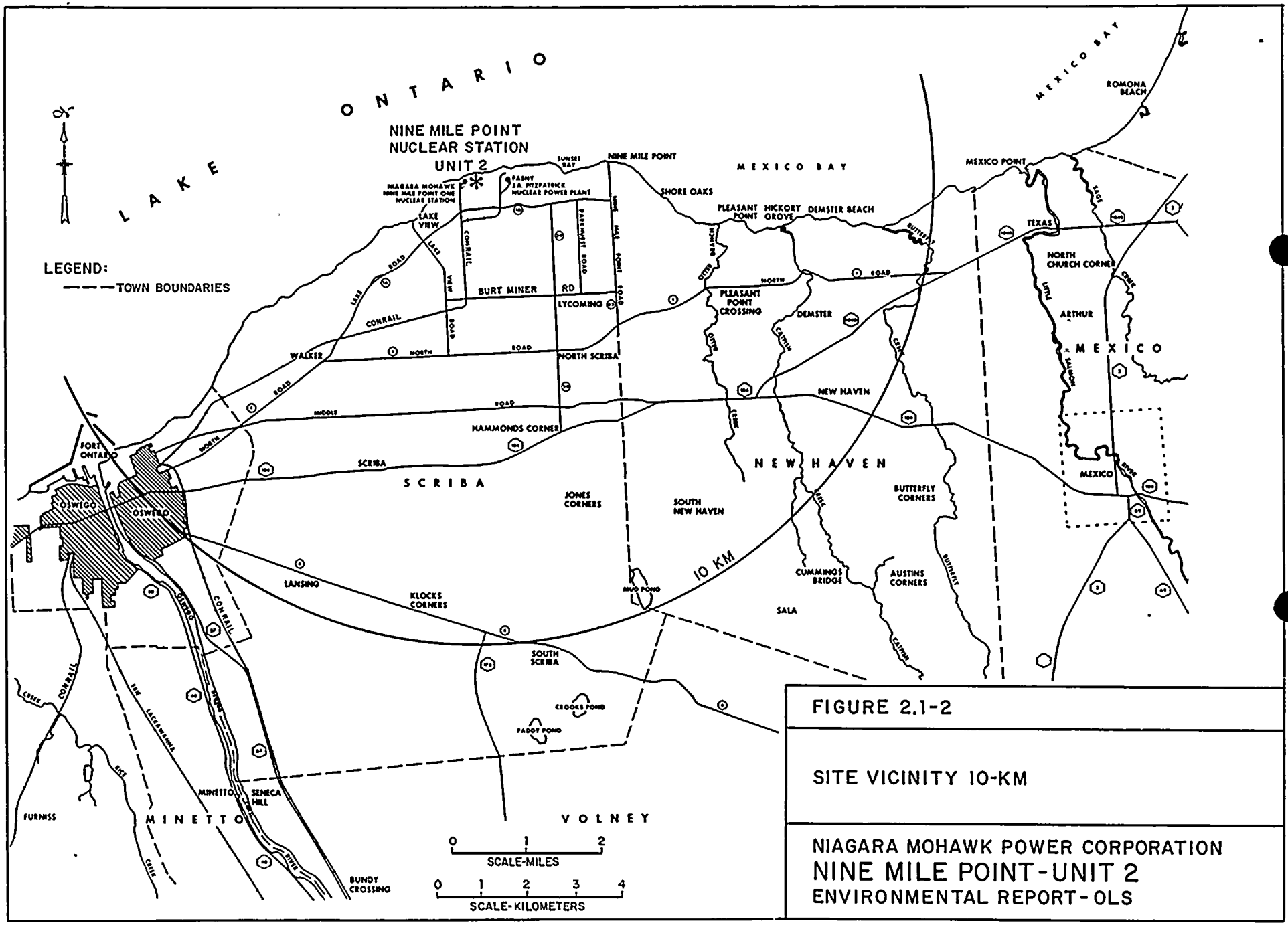

FIGURE 2.1-2

SITE VICINITY 10-KM

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ENVIRONMENTAL REPORT-OLS

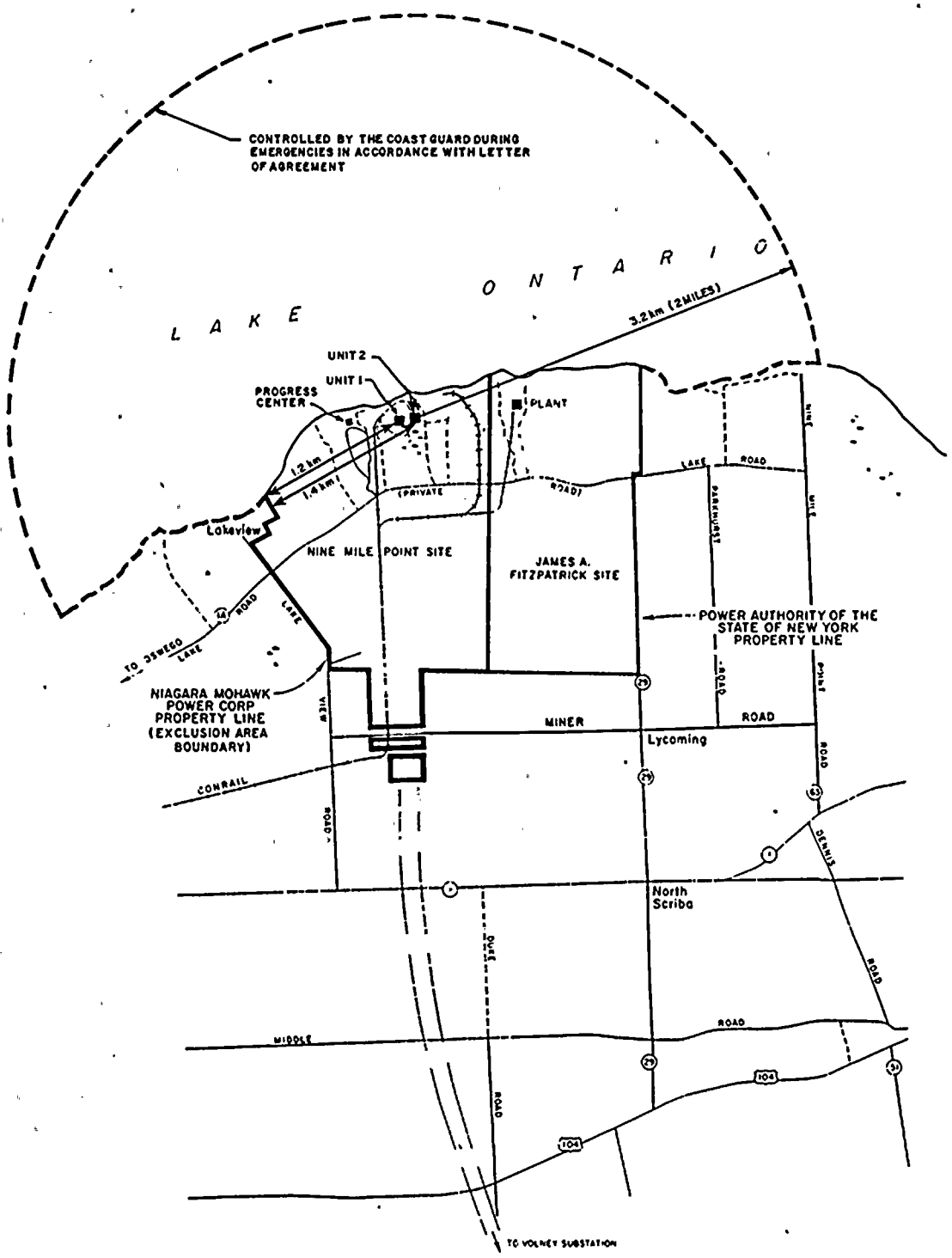

FIGURE 2.1-3

SITE BOUNDARIES AND TRANSPORTATION ROUTES

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NINE MILE POINT-UNIT 2
ENVIRONMENTAL REPORT-OLS

TABLE 2.2-2

SELECTED AGRICULTURAL CHARACTERISTICS
OSWEGO COUNTY - 1974 AND 1978

	1974		1978	
Total number of farms	904		835	
With sales of $2,500 and over	538		555	
With sales less than $2,500	366		280	
Dairy farms with sales of $2,500 and over	273		225	
Value of dairy products sold	$ 9,648,000		$11,019,000	
Total land in farms, ha (acres)	60,860	(150,382)	57,285	(141,549)
Total cropland	33,642	(23,128)	33,098	(81,784)
Harvested croplands	21,785	(53,830)	20,626	(50,967)
Crop grain	1,624	(4,014)	1,457	(3,603)
Corn silage	3,337	(8,272)	3,348	(8,270)
Wheat	248	(612)	53	(130)
Oats (farms with sales of $2,500 and over)	837	(2,067)	666	(1,645)
Hay and grass silage	12,003	(29,647)	13,920	(34,395)
Alfalfa	2,678	(6,615)	3,822	(9,445)
Orchards	419	(1,035)	304	(751)
Vegetables, sweet corn, melons	1,787	(4,315)	2,118	(5,234)
Animals				
Milk cows	11,837		9,835	
Beef cows	2,969		1,759	
Hogs and pigs	1,827		1,179	
Sheep and lambs	360		252	
Chickens (3 months and older)	31,555		7,278	
Value of agricultural products sold	$18,189,000		$21,488,000	

SOURCES: References 21 and 22

Several studies have been conducted by investor-owned utilities, including a 1973 survey performed by Rochester Gas and Electric Company at the Sterling site, approximately 35 km (22 mi) west of Nine Mile Point[53]. A comprehensive water quality investigation was conducted in the Mexico Bay area by New York State Electric and Gas Corporation during April 1977 to March 1978[49]. NMPC and the Power Authority of the State of New York (PASNY) sponsored water quality surveys in the Nine Mile Point study area from 1973 through 1978[15-20]. Less extensive water quality monitoring reports were compiled in 1979 and 1980 by NMPC[54,55]. The 1978 NMPC/PASNY survey provides the latest extensive data base and is used in this report for analysis of seasonal trends and for comparison with previous studies for long-term water quality trends[20]. | 2

2.3.3.3 Lake Ontario Water Quality Overview

Lake Ontario has been designated by NYSDEC as Class A - Special Waters (International Boundary Waters), 6NYCRR702.1[56]. Its waters are suitable for use as public water supplies, for culinary or food-processing purposes, and for primary contact recreation. In general, the water in Lake Ontario near Nine Mile Point has been found to be of good quality, with relatively low nutrient concentrations, low bacterial densities, and little industrial contamination. Relatively high levels of dissolved oxygen, more than adequate for most aquatic organisms, were found during all seasons. The total dissolved solids (TDS) concentrations in Lake Ontario have increased since the early 1900s and are now above the New York State Water Quality Standard[52]. | 2

Quality of the water in the Nine Mile Point study area was determined to be similar to the general water quality previously reported for the lake. Spatial and temporal variations in water quality have been attributed to natural thermal stratification, action of wind and storms, the Oswego River, west-to-east longshore currents, and hypolimnetic upwellings of cold, often nutrient-rich waters[20]. | 2

2.3.3.4 Water Quality Parameters Monitored in Nine Mile Point Region Waters

The 45 water quality parameters measured in the Nine Mile Point site studies and reported in this section are listed in Table 2.3-12. Parameters 1 through 17 were used to assess the general chemical quality of the water. Parameters 18 through 24 are the major nutrients necessary for algal growth and are useful in identifying any potential influence

from agricultural and sanitary waste discharges. Parameters 25 through 31 are generally used to indicate contamination of waters by sanitary and industrial wastes. Trace metals analyses, parameters 32 through 45, provide a basis for the evaluation of toxicity impacts on aquatic life (Section 5.5) and were included to characterize ambient water quality relative to criteria based on toxicity to aquatic life. The sampling locations, survey designs, and analytical procedures utilized in the Nine Mile Point studies conducted for NMPC and PASNY are described in Section 6.6.

2.3.3.5 Water Quality in the Nine Mile Point Region of Lake Ontario

Table 2.3-13 summarizes the water quality data for Lake Ontario in the vicinity of Nine Mile Point. An 8-yr record of water quality is presented. In addition to year-to-year trend description, data in Table 2.3-13 cover historical high and low values for the Nine Mile Point region and yearly mean, maximum, and minimum values for each sampling year. Significant spatial water quality variability in Lake Ontario waters of the Nine Mile Point region was not evident in the raw transect data, excepting solids and temperature. Trends evident in important selected water quality parameter subsets are summarized in the following paragraphs.

Water Temperature

Water temperature influences the kinetics of chemical and biochemical reactions. This parameter displays seasonal variations directly related to air temperature. Water temperature was measured monthly or twice monthly in Lake Ontario in the water quality monitoring program. In addition, continuous in situ monitoring was conducted[1]. Long-term trends indicate no significant change in water temperature over time. Seasonal water temperature variations are illustrated on Figure 2.3-14. 2

Spatial temperature variations are evident in the raw data presented in References 6 through 11 and 44 and 45. The Nine Mile Point Unit 1 (Unit 1) discharge elevates lake surface temperature, particularly in the nearshore region. The JAF plant has less of a temperature effect, as evidenced by data taken from the water column in the vicinity of its discharge (Section 2.3.1.1.6).

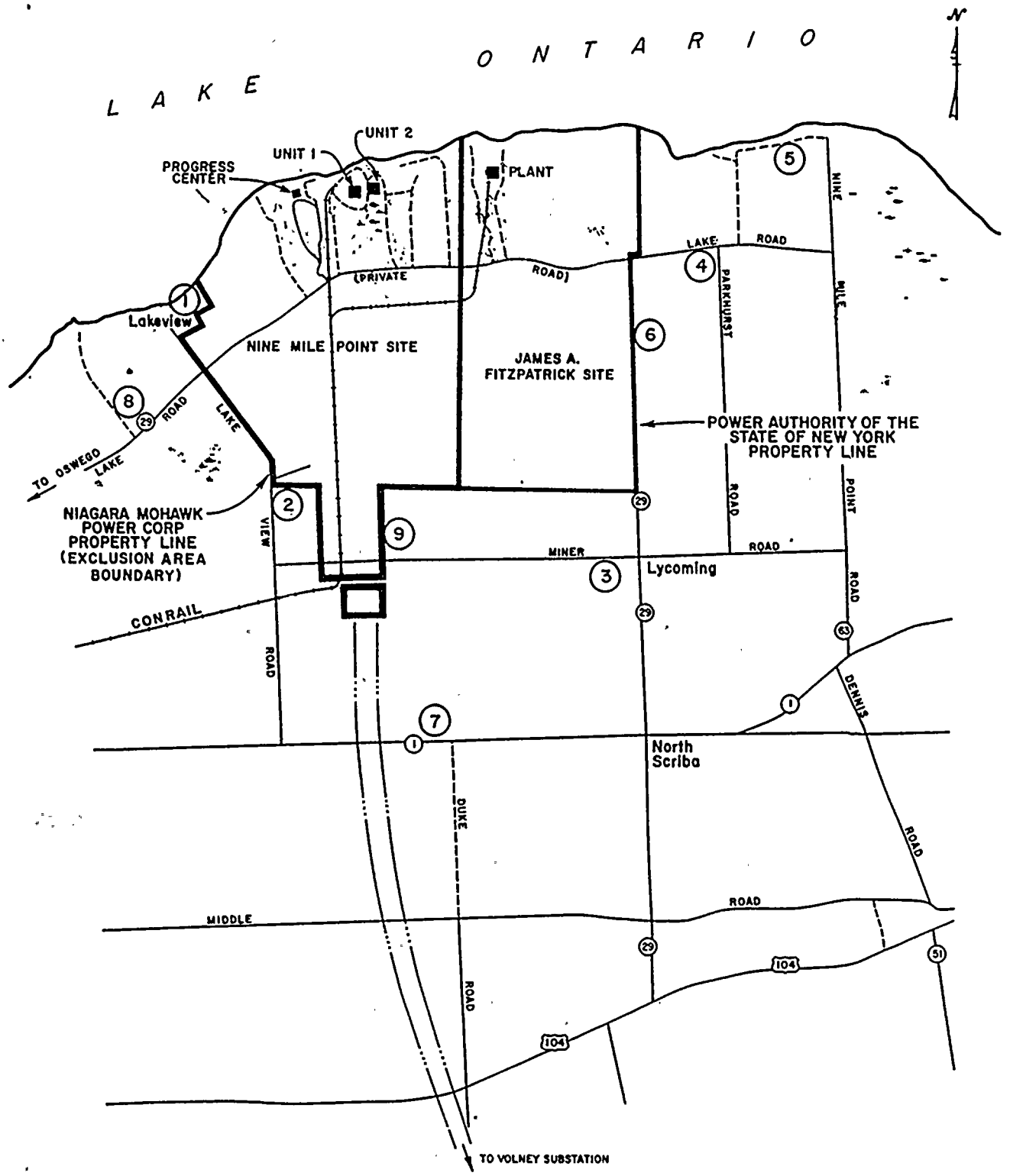

FIGURE 2.10-1

AMBIENT NOISE SURVEY MEASUREMENT LOCATIONS

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NINE MILE POINT-UNIT 2
ENVIRONMENTAL REPORT-OLS

CHAPTER 3

PLANT DESCRIPTION

3.1 EXTERNAL APPEARANCE AND PLANT LAYOUT

3.1.1 Description of the Project

Unit 2 is located between Nine Mile Point Unit 1 (Unit 1) and the James A. FitzPatrick (JAF) plant. The major station structures of Unit 2 are connected to the Unit 1 station structures by a passageway. Unit 2 follows the basic visual character of Unit 1 through the use of compatible color treatment and similar materials, including concrete and metal siding.

The reactor building, natural-draft cooling tower, and main stack dominate the skyline. The reactor building has a drum-like cap sheathed in fluted metal siding that contrasts with the lower concrete portion. The exposed surface of the lower portion of the reactor building, the cooling tower, and the stack are cast-in-place concrete that is untextured and natural in color. Tanks and open metal frame structures, such as transmission towers and switchyards, are protected with corrosion-resistant coatings.

Permanent station roads and parking areas are asphalt paved. An existing railroad line extends to the Unit 2 reactor building and turbine building (Figure 3.1-1) to provide rail freight access.

The site is landscaped to blend with the surrounding natural topography, consistent with security requirements. Land previously cleared and excavated during construction of adjacent power stations has been utilized during construction of Unit 2 for temporary office facilities, laydown area, switchyard and parking areas, thus minimizing the additional excavation around the station structures. At the conclusion of construction activities, the majority of this area, except for some office facilities and portions of parking areas, will be graded and seeded to promote the return of vegetative cover. To control erosion in areas not planted with trees or shrubs, ground cover of either lawn or crushed stone is provided.

The Energy Information Center, located in the northwest portion of the site, is a contemporary stone and glass ranch-style structure used for public education and is a tourist attraction. Here, a three-part show is offered on

nuclear electric power, the growth of energy in upstate New York, the story of Niagara Mohawk Power Corporation (NMPC) and the Power Authority of the State of New York (PASNY), and the operation of Unit 1. This show includes a working scale model of the plant and a nuclear fission display. There are also energy exhibits, nature trails, and picnic areas on the bluffs overlooking Lake Ontario.

Figure 3.1-1 presents the station layout, including major structures, buildings, and important roads. The baseline site topography, including baseline and proposed contours and landscaping around the structures, is shown on Figure 3.1-2. Figure 3.1-3 shows the location and elevation of release points for gaseous wastes. Figures 3.1-4 through 3.1-7 present ground-level photographs of the site from different locations. Figure 3.1-8 shows an architectural rendering of the plant.

3.1.2 Ground-Level Photographs of Site

To assess visual impact, visually sensitive and intensive land uses (e.g., residential concentrations, major transportation routes, state and local historic sites, and recreational attractions) within 10 km (6.2 mi) of Unit 2 were identified. Properties listed in the National Register of Historic Places were identified within 16 km (10 mi) of the Unit 2 site. Visually sensitive locations were visited in late October, when foliage density was lower than at other times of the year. Sites surveyed for potential visual impact are identified and described in Table 3.1-1 and shown on Figure 3.1-9.

Surveys began with reconnaissance of all viewing locations. Photographs were taken in the direction of Unit 2 at locations from which distant views were possible. Where plant structures would be clearly visible within 10 km (6.2 mi), plant perspectives, based on distance and direction from photograph locations, were provided by computer and superimposed on the photographs. These visual perspectives are presented on Figures 3.1-4 through 3.1-7.

As discussed in Section 2.2.1, Unit 2 is located in a region of predominantly rural residential, agricultural, and forest land uses. The potential for visual impact of the plant is minimized by the remoteness of the site. Vegetation and topography screen or block views of the plant at most visually sensitive areas. In addition, since the industrial character of the area has already been established by Unit 1 and the JAF plant, the change in visual quality associated with Unit 2 is marginal. Unit 2 will not significantly im-