For Bruce Masse (LTD)

NUREG-1064

Final Environmental Statement

related to the operation of
Millstone Nuclear Power Station,
Unit No. 3

Docket No. 50-423

Northeast Nuclear Energy Company, et al

U.S. Nuclear Regulatory Commission

Office of Nuclear Reactor Regulation

December 1984

constituents in the station discharges. Adverse effects on biota of Long Island Sound are not expected as a result of these discharges (Sections 5.3.1 and 5.5.2).

(f) Operation of Millstone 3 will not have adverse effects on the regional water use from Niantic Bay and Long Island Sound, regional use of public water supplies, or domestic use of groundwater. The effect of the presence or operation of the plant on the 100-year floodplain will be negligible (Section 5.3.2).

(g) Periodic operation of the diesel generators and auxiliary boilers will not have an adverse effect on air quality (Section 5.4).

(h) Operation of Millstone 3 is not expected to have adverse impacts on terrestrial ecology (Section 5.5.1.1).

(i) The staff has found no evidence indicating that operation of the Millstone transmission system will have adverse effects on human health or on plant and animal life (Section 5.5.1.2).

(j) The staff has evaluated the biological conditions anticipated with operation of the Unit 3 intake and discharge into the quarry. Organisms in the vicinity of the intake structure will be subjected to impingement on the traveling screens, but impacts will be mitigated by return of impinged organisms via a sluiceway to Niantic Bay (Section 5.5.2).

(k) Entrainment effects will be minimized by design of the intake structure and the absence of chlorine in the circulating water system (Section 5.5.2).

(l) The intake entrainment and impingement levels with Millstone Units 1, 2, and 3 operating are projected to be approximately double the levels now estimated for Units 1 and 2. Localized impacts on the winter flounder population of Niantic Bay are expected due to entrainment losses; however, these impacts are judged to be small and negligible with respect to the winter flounder population of Long Island Sound. Mitigation of impingement via a fish return system for Units 1 and 3 should reduce the impingement mortality rate to about the existing level for Units 1 and 2 (Section 5.5.2).

(m) Operation of Millstone 3 will not have significant adverse impacts on any aquatic or terrestrial species identified as threatened or endangered on the Federal or State Lists (Section 5.6).

(n) The staff concludes that the operation and maintenance of Millstone 3 will have no significant impact on sites listed or eligible for listing in the National Register of Historic Places (Section 5.7).

(o) The staff concludes that the primary socioeconomic impacts of plant operation are tax benefits and employment. The staff does not expect the operating workers or their families to have any significant impact on public or private facilities (Section 5.8).

within 10 km (6 miles) of the site are residents of the area and do not add greatly to the population. There is a 325-bed, 1200-staff-member hospital in New London. Within 10 km there are five nursing homes with more than 50 beds each, with a total of 560 beds. There is a correctional institute 6.2 km (3.9 miles) west-northwest of the site that has 300 inmates, 170 full-time employees, and fewer than 10 part-time employees. Although there are beaches and recreational facilities in the area, many are used by residents and do not generate any significant increase in population. Seasonal population variations resulting from an influx of summer residents is minimal.

There have been no other significant changes in these topics from the descriptions in the FES-CP.

4.3.8 Historic and Archeologic Sites

FES-CP Section 2.3 describes historic and archeologic sites in the area. New information developed since the issuance of the FES-CP consists of additional properties listed or determined eligible for listing in the National Register of Historic Places. Appendix H contains a listing of such properties within about 16 km (10 miles) of the site. With regard to the Millstone-to-Manchester 345-kV transmission line, the only site listed or eligible for listing on the National Register near the line is the Lebanon Green Historic District, 457 m (1500 feet) east of the route. The applicant has provided right-of-way development and management plans for all segments of the line to the Connecticut Siting Council and to the State Historic Preservation Officer.

4.4 References

Arntz, W. E., "Predation by Demersal Fish and its Impact on the Dynamics of Macrobenthos," in K. R. Tenore and B. C. Coull, Marine Benthic Dynamics, U. South Carolina Press, Columbia, SC, 1980.

Dowhan, J. J. and R. J. Craig, "Rare and Endangered Species of Connecticut and Their Habitats," Connecticut Department of Environmental Protection Report of Investigations No. 6, 1976.

Johnson, G., J. Foertch, M. Keser, and B. Johnson, "Thermal Backwash as a Method of Macrofouling Control Control at Millstone Nuclear Power Station, Waterford, Connecticut, USA," presented at the Symposium on Condenser Macrofouling Control Technologies, The State of the Art, sponsored by the Electric Power Research Institute, June 1-3, 1983, Hyannis, MA.

Martin, D., Marine Chemistry, Marcel Dekker Inc., New York, 1970.

Phillips, B. F., and A. N. Sastry, "Larval Ecology," in J. S. Cobb and B. F. Phillips, The Biology and Management of Lobsters, Vol 2, Ecology and Management, Academic Press, New York, 1980.

U.S. Department of Interior, "Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12," July 27, 1983.

U.S. Fish and Wildlife Service, letter from Gordon E. Beckett, Ecological Services, Concord, NH, to B. J. Youngblood, NRC, March 10, 1983.

Effects from entrainment of ichthyoplankton in the thermal plume will be minimized by the rapid mixing of the thermal discharge with ambient water in Long Island Sound. Organisms entrained in the plume could be exposed to a temperature increase of 6C° to 11C° (10.8F° to 19.8F°) at the quarry cut to 1.5C° (2.7F°) at the edge of the thermal plume. Because of the limited time these organisms would be exposed in the warmest part of the thermal plume (6°C (10°F) for 3 minutes), the effect from plume entrainment should be minimal. The short time of exposure and small numbers of individuals relative to finfish populations of Long Island Sound should minimize the effects of plume entrainment. The thermal plume discharge as the result of three-unit operation generally will be within the tolerance limits of sand lances, anchovies, grubby, winter flounder, cunner, and tautog. There should be only limited effects on shorezone organisms as the result of plume entrainment.

5.6 Treatened and Endangered Species

5.6.1 Terrestrial

No populations of the small whorled pogonia (Isotria medeoloides) are known to occur in the areas crossed by the transmission corridor, hence no adverse impacts to this endangered plant are expected.

Two Federally listed endangered species--the peregrine falcon (Falco peregrinus) and the bald eagle (Haliaeetus leucocephalus)--may occur transiently in the area (see Section 4.3.6.1). Raptors are known to collide with power lines occasionally (Kroodsma, 1978), but the low numbers and transient nature of eagles and falcons in the area make such collisions unlikely and unimportant in terms of species mortality. State-listed bird species occurring on site (see Section 4.3.5.1) will, if anything, benefit from the plant because valuable habitat is protected in the wildlife management area.

5.6.2 Aquatic

No threatened or endangered species were identified during preoperational monitoring in the vicinity of the site. The U.S. Fish and Wildlife Service (March 1983) determined that, except for occasional transient individuals, no individuals of species under its jurisdiction are known to exist in the project area.

5.7 Historic and Archeologic Impacts

The staff concludes that the operation and maintenance of Millstone 3 will have no significant impact on sites listed or eligible for listing in the National Register of Historic Places. Appendix H contains two letters from the Office of the State Historic Preservation Officer (SHPO) stating the opinion that there will be no impact on historical, architectural, and archeological resources as a result of the operation of Millstone 3.

5.8 Socioeconomic Impacts

The socioeconomic impacts of station operation are analyzed in FES-CP Sections 5.8 and 11.2. Changes that have occurred since that report was issued include an increase in the estimated operating work force to 400 persons and an increase to a maximum of 530 during scheduled refueling outages. The staff

APPENDIX H

HISTORIC AND ARCHEOLOGIC SITES

APPENDIX H

HISTORIC AND ARCHEOLOGIC SITES

This appendix contains a list of sites currently listed or eligible for inclusion in the National Register of Historic Places within 16 km of Millstone 3, a letter from John W. Shannahan, State Historic Preservation Officer, to H. C. Liang, Stone & Webster Engineering Corporation, dated January 5, 1981, and a letter from Dawn Maddox, Deputy State Historic Preservation Officer, to Raul de Brigard, Northeast Utilities, dated November 2, 1984.

SITES LISTED OR ELIGIBLE FOR LISTING IN
THE NATIONAL REGISTER OF HISTORIC PLACES
WITHIN 16 KM OF MILLSTONE 3

AREA	Property
East Lyme	Thomas Avery House
	Thomas Lee House
	Niantic River Railroad Bridge
	Niantic River Highway Bridge
	Rocky Neck Pavilion
	Samuel Smith House
Groton	Building 70
	Fort Griswold
	Groton Bank Historic District
	Groton Railroad Bridge
	Haley House
	Jabez Smith House
	Edward Yeoman House
	U.S.S. Nautilus (submarine)
New London	Acors Barns House
	Bank Street Historic District
	Bulkeley School
	Deshon-Allyn House
	Downtown New London Historic District
	Fort Trumbull
	Franklin Street Historic District
	Jonathan Newton Harris House
	Joshua Hempstead House
	Nathaniel Hempstead House
	Huntington Street Baptist Church
	138-148 Huntington Street
	Ledge Lighthouse
	Monte Cristo Cottage
	New London County Courthouse
	New London Custom House
	New London Public Library
	New London Railroad Station
	Old Town Mill
	Shaw's Cove Bridge
	Shaw Mansion
	Starr Street Area
	St. James Episcopal Church
	Thames Shipyard
	Whale Oil Row
	Williams Memorial Institute
	Winthrop Mill
	Nathan A. Woodworth House

AREA	Property
Old Lyme	Old Lyme Historic District Peck Tavern

Source: U.S. Department of the Interior, National Park Service, National Registers, 1979, 1980, 1981, 1982, 1983, 1984.

Office of the
STATE
HISTORIC
PRESERVATION
OFFICER
for Connecticut

59 SOUTH PROSPECT STREET - HARTFORD, CONNECTICUT 06106 - TEL: (203) 566-3005

January 5, 1981

Mr. H. C. Liang
Lead Environmental Engineer
Stone & Webster Engineering
Corporation
P.O. Box 2325
Boston, MA 02107

NOTED JAN 11 1982 H.C.LIANG

Subject: Data Request - Erols Section 2.6
Millstone Nuclear Power Station - Unit 3
Northeast Utilities Service Company

Dear Mr. Liang:

With respect to your request for information as to the architectural, historical and archaeological resources located within 10 km of Millstone - Unit 3, the following data are provided.

The following properties are listed on the National Register of Historic Places:

East Lyme	Thomas Lee House	CT 156 & Giant's Neck Road
	Thomas Avery House	Society Road
	Samuel Smith House	82-Plants Dam Road
New London	Barns, Acors, House	68 Federal Street
	Deshon-Allyn House	613 William Street
	Fort Trumbull	Fort Neck (HAER)
	Hempstead, Joshua, Hse.	11 Hempstead Street
	Hempstead, Nathaniel, House	Corner of Jay, Hempstead, Coit, and Truman Streets
	Monte Cristo Cottage	325 Pequot Avenue
	New London County Courthouse	70 Hunting Street
	New London Custom Hse.	150 Bank Street
	New London Public Library	63 Huntington Street
	New London Railroad Station	State Street
	Shaw Mansion	11 Blinman Street
	Thames Shipyard	Farnsworth Street
	Whale Oil Row	105-119 Huntington Street
	William Memorial Inst.	110 Broad Street

STATE HISTORIC PRESERVATION OFFICER: The person responsible for implementation in Connecticut of the National Historic Preservation Act of 1966 administered by the Department of the Interior, Heritage Conservation and Recreation Service, Washington, D.C.

AN EQUAL OPPORTUNITY EMPLOYER/AFFIRMATIVE ACTION AGENCY

2.6A-1

The following properties have been declared eligible for the National Register of Historic Places by the Secretary of the Interior:

East Lyme	Niantic River Railroad Bridge	Crosses Niantic River (HAER)
	Niantic River Highway Bridge	Crosses Niantic River (HAER)
Groton	Groton Bridge	Over Thames River (HAER)
New London	Old Town Mill	Mill & State Pier Sts.
	Shaw's Cove Bridge	Over Shaw's Cove (HAER)
	Starr Street Area	-
	Bank Street Historic District	-
	Ledge Lighthouse	New London harbor
	Franklin Street Historic District	-
	138-48 Huntington Street	-
	St. James Episcopal Church	125 Huntington Street

Please find enclosed the appropriate pages from Historic Preservation A Plan for Connecticut. Vol.II: An Inventory (Connecticut Historical Commission, 1974), which identifies architectural and historical resources within the area. In addition, properties identified by The Historic American Engineering Record has possessing engineering or industrial significance have been annotated with "HAER".

Further, please find enclosed the relevant zerox sections of a "scan" survey which this agency undertook in order to preliminarily identify potentially significant clusters of architectural resources. Minimal descriptive documentation exists to supplement this graphic data.

In general, as no systematic survey of Connecticut's archaeological resources has been accomplished to date, little information exists as to actual archaeological site density and distribution. However, coastal areas and major river drainage systems, such as, the Niantic River - Niantic Bay confluence, are especially sensitive with respect to the existence of prehistoric archaeological resources. In particular, the enclosed survey data should be of assistance; The State Historic Preservation Officer requests that the specific locational data for archaeological resources be treated in a confidential manner in accordance with Connecticut Public Act 81-286 in order to ensure continued preservation of these resources.

It should be realized that the above provided information represents an incomplete inventory of the architectural, historical and archaeological resources within the defined area.

In the opinion of the State Historic Preservation Officer the granting of an operating permit for Millstone Nuclear Power Station Unit 3 will have no impact upon historical, architectural and archaeological resources either listed on or eligible

for the National Register of Historic Places.

For further information, please contact David A. Poirier, Archaeologist.

Sincerely,

John W. Shannahan
State Historic Preservation Officer

DAP/ij

cc: Raul de Brigard
Northeast Utilities

Office of the
STATE
HISTORIC
PRESERVATION
OFFICER
for Connecticut

59 SOUTH PROSPECT STREET • HARTFORD, CONNECTICUT 06106 • TEL: (203) 566-3005

November 2, 1984

Mr. Raul de Brigard
Supervisor, Land Planning
Northeast Utilities
P.O. Box 270
Hartford, CT 06141-0270

SUBJECT: Operating License
Millstone Nuclear Power Station, Unit No. 3
Draft Environmental Statement
U.S. Nuclear Regulatory Commission
Docket 50-423

Dear Mr. de Brigard:

The State Historic Preservation Office has reviewed the draft Environmental Impact Statement prepared with respect to the Millstone Nuclear Power Station, Unit #3. This office has extensively review the document and other supplemental information provided by Northeast Utilities concerning the project.

In the opinion of the State Historic Preservation Office, the proposed route and facilities for the transmission line will have no effect on the state's cultural heritage.

We appreciate Northeast Utilities' concern for the professional management and conservation of the state's historic, architectural, and archaeological resources. This office further appreciates the opportunity to have reviewed and commented upon the project.

For additional information, please contact David A. Poirier, Archaeologist.

Sincerely,

Dawn Maddox

Dawn Maddox
Deputy State Historic
Preservation Officer

DAP/IL

STATE HISTORIC PRESERVATION OFFICER: The person responsible for implementation in Connecticut of the National Historic Preservation Act of 1966 administered by the Department of the Interior, Heritage Conservation and Recreation Service, Washington, D.C.
AN EQUAL OPPORTUNITY EMPLOYER/AFFIRMATIVE ACTION AGENCY

For Bruce Masse

Final

environmental statement

related to the continuation of construction of unit 2 and the operation of units 1 and 2

MILLSTONE NUCLEAR POWER STATION

MILLSTONE POINT COMPANY

DOCKET NOS. 50-245 and 50-336

June 1973

UNITED STATES ATOMIC ENERGY COMMISSION

DIRECTORATE OF LICENSING

400 people per day. It is to be noted that the public recreational areas on the site (play fields, picnicking, fishing, etc.) and the small beach used for public swimming are within the exclusion area defined by the applicant, and the applicant does have control of these areas (emergency plans for evacuation of people in the exclusion area will be reviewed in the Commission's Safety Evaluation Report).

Portions of the Millstone site have been in continuous industrial use for over two centuries. Since 1966, when Unit 1 construction was begun, the site has been devoted to power production. An experimental oyster culture program and a laboratory of the U.S. Navy Underwater Systems Center utilize portions of the quarry pond. There are now no other industries located on the Millstone site.

The commercial shipping lane nearest Millstone Point is in Long Island Sound approximately 2.5 miles to the south. Water-borne commerce at New London harbor averaged about a million tons per year until it jumped to over 3 million tons in 1969 because of a large increase in residual fuel oil handling. The total water-borne commerce for the year 1970 was 4 million tons. Additional noncommercial ship traffic in and out of the Thames River comes from the U.S. Navy submarine base in Groton.

The only significant commercial fishing port remaining along the eastern shore of Connecticut is Stonington, about 13 miles east of Millstone Point, from which boats sail to offshore fishing grounds in the Atlantic Ocean. This industry has declined significantly in recent years; landings of fin fish at Stonington dropped from 3 million lb in 1960 to 1-3/4 million lb in 1966.

The area around Millstone Point is a favored sport fishing site. On a typical summer weekend several thousand small craft can be seen in the shallow waters south and west of the point and near the offshore islands.

Pleasure boating is another major form of recreation in the area. Eight marinas and two yacht clubs provide over 500 boat slips in the Niantic River and its bay. Approximately 400 of the marina slips are available to transient cruisers. Fleets of smaller pleasure craft, both sail and power, are found in harbors of this area along the coast.

2.3 HISTORIC AND NATURAL LANDMARKS

The Millstone site has been in continuous industrial use for approximately two centuries. Prior to commencement of construction of the plant in 1966, the principal features of the site were a large abandoned quarry hole in the southern portion, piles of waste materials from the quarry operation

and a group of structures which had been used in the quarry operation. About 60 acres of the 500 acre Millstone site were planted in nursery stock.

The best known local historic landmark is the Mystic Seaport located at Mystic, Connecticut, about 10 miles from the Millstone site.[1] Also listed in the National Register of Historic Places are a number of notable homes and buildings. A one-room schoolhouse which once served Waterford students was located on the site. It has been restored by the applicant and relocated near the picnic area and is now used as a meeting house.

2.4 GEOLOGY

The site is a peninsula of outcrop which forms the eastern boundary of Niantic Bay. The topography of the plant site has a moderate variation in elevation with ground elevations ranging between 0 and 40 ft above sea level.

The bedrocks of the area are the Monson gneiss and the Westerly granite. Granite forms the higher elevations of Millstone Point because it has been more resistant to erosion than the gneiss. A limited source of potable water is available from a few depressions which are filled with glacial soils. The Monson gneiss is a layered, medium to coarse-grained rock formation made up of biotite, hornblende, quartz and plagoclase feldspar.

Westerly granite is a quartz-biotite-feldspar granite. It has penetrated into the neighboring Monson gneiss and, similarly, the gneiss has penetrated into the granite, leaving granite inclusions in the gneiss. The Westerly granite can be considered as a sheet interlayered within the gneiss which, at the quarry, has become thickened to a bulbous form.

The plant site has been subjected to glaciation. Boulders have been deposited in an erratic manner as a result of glaciation. The slowly moving glacier, dragging along rocks and gravel, scoured the bedrocks and caused them to be irregular. Soil and rock waste from the abandoned quarry and Unit 1 excavation covers the glacial material in certain areas.

The glacial soils on the site consist of till overlain by glacial outwash deposits. The till and outwash are comprised of rock fragments ranging from clay-size particles to boulders 3 ft in diameter. Both soil types are comprised predominantly of sand and gravel with a small amount of silt serving as a binder. Boulders are encountered in both the till and outwash, but are most common in the till.

2.5 HYDROLOGY

The public water supplies in the area consist of reservoirs and lakes that collect surface water from a number of water sheds. The collected