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Niagra Mohawk Power Corporation Syracuse, New York 13202 T. J. Brosnan	02-28-73	03-05-73	X			

TO:	ORIG	CC	OTHER	SENT AEC PDR	SENT LOCAL PDR
Mr. A. Giambusso	1			X	X

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DESCRIPTION:

Ltr trans the following:

ENCLOSURES:

Niagra Mohawk Power Corporation comments on the draft environmental statement for Nine Mile Point, Unit 2.

PLANT NAMES: Nine Mile Point, Unit 2

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FOR ACTION/INFORMATION 03-06-73 rht

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Niagra Mohawk Power Corporation
Syracuse, New York 13202
T. J. Brosnan

02-23-73 03-05-73 X

Mr. A. Giambusso 1

X
X

1 50-410

Ltr trans the following:

Niagra Mohawk Power Corporation comments on the draft environmental statement for Nine Mile Point, Unit 2.

Nine Mile Point, Unit 2

(21 cys encl rec'd)

03-06-73 zht

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Oswego, New York

ANL

NIAGARA MOHAWK POWER CORPORATION

NIAGARA MOHAWK

300 ERIE BOULEVARD WEST
SYRACUSE, N. Y. 13202

February 28, 1973

Regulatory File Cy.

Mr. Angelo Giambusso
Deputy Director for Reactor Projects
Directorate of Licensing
United States Atomic Energy Commission
Washington, D.C. 20545

RE: Nine Mile Point Unit 2
Docket No. 50-410

Dear Mr. Giambusso:

Niagara Mohawk Power Corporation has reviewed the Draft Environmental Statement related to the proposed issuance of a construction permit for Nine Mile Point Unit 2.

We appreciate the opportunity to review this document and attach several comments for Staff's information in preparing the final Environmental Statement relating to this proposal.

Very truly yours,

T. J. Brosnan
Vice President and Chief Engineer

Attachment

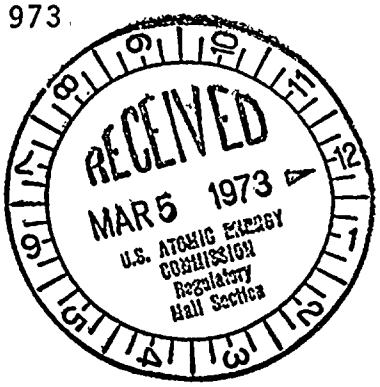
147

NIAGARA MOHAWK POWER CORPORATION

NIAGARA MOHAWK

300 ERIE BOULEVARD WEST
SYRACUSE, N. Y. 13202

February 28, 1973



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Vice President and Chief Engineer

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1476

Niagara Mohawk wishes to clarify several areas covered in the Nine Mile Point Unit 2 Draft Environmental Statement which indicate misinterpretation of information submitted in the Environmental Report and/or its Supplements.

Item 1: Page 2-9, paragraph 5

The statement appears --- "with approximately 85% of the water mass below the epiliminion." This percentage is apparently based on an assumed thermocline depth of 40 ft. However, data collected and evaluated by Niagara Mohawk and others (references listed) conclude that a stable thermocline is not found in this area of Lake Ontario until depths of between 70 and 100 ft. We offer the following information to support and amplify these conclusions:

> The New York State Rules & Regulations (73.102) define the thermocline to be "...that first seasonally stable layer of a stratified lake found between the epilimnion and the hypolimnion where the temperature drop equals or exceeds 1°C (1.8°F) per meter (39.37 inches)."
>
> (a) Lake current studies were carried out in 1969 and 1970 on behalf of PASNY, as part of the pre-operational surveys for the James A. FitzPatrick Plant (ref. 2). In conjunction with the current studies, observations were also made of water temperatures. Temperature measurements included intermittent vertical profiles in 60 and 100 ft. of water and continuous temperature recordings using seven self-contained underwater instruments mounted at various depths on two underwater towers.
>
> The vertical temperature profiles in the 60 ft. water depth indicate the seasonal increase and decrease of water temperatures. In 1969, a pronounced stratification was seen in August at the 45 ft. depth, and a less pronounced one in July at about the 35 ft. depth. In 1970, no stratification was identifiable from the vertical profile plots.
>
> (b) For seventeen consecutive weeks (July-November 1970), lake temperatures were recorded off Oswego Harbor (ref. 3). Analysis of the data disclosed that the lake exhibited some degree of stratification on three sampling dates in July and two in August, and from September 4 through November 15 the lake was isothermal. Although the lake in the vicinity of Oswego was stratified at times, stratification was lost and re-established quite rapidly. For example, on July 10 the lake was stratified, however, on July 17, following 10 to 14 mph westerly winds and wave action, temperatures from surface to bottom varied by less than 1.0°F. One week later, the water column was again stratified but again the stratification was broken up by August 10. Differences between surface and bottom temperatures observed on August 28 were probably not due to the usual temporary stratification as distinctly colder water was recorded only in the lower 2 to 3 meters (6.5 to 9 ft.) where there was a temperature difference of from 5 to 9°F.

The inshore area near Oswego is subject to temporary stratification that appears to last a maximum of two weeks time. There was no evidence of any stable thermocline in this part of Lake Ontario to a depth of 12 meters (approximately 39 ft.), as evidenced by the fact that the temperature differential between the surface and bottom in this depth exceeded 2.7° on only four occasions.

(c) In 1963 and 1964, temperature surveys were performed off the western end of Nine Mile Point in over 100 ft. of water (ref. 1). Six traverses were made during July through September 1963 and twelve during May through August 1964. Vertical temperature profiles were plotted from the data collected and indicate a seasonal change. Data for May and early June show a temperature difference of about 5°F between the surface and the 40 ft. depth (but definitely no thermocline), and uniform temperature below that. During late June and through July, thermoclines appear at depths ranging from 10 ft. to 70 ft., and last no more than a few days each. In August, the lake reaches its maximum temperature, ranging from about 71°F at the surface to about 62°F at the 100 ft. depth, with no thermocline to be seen. However, in late August and throughout September, stratification is seen, with a thermocline in 70 to 90 ft. depth lasting for about two weeks.

(d) In a report prepared by the International Lake Erie Water Pollution Board and the International Lake Ontario St. Lawrence River Water Pollution Board (ref. 4), a description of the thermocline in Lake Ontario is given. This report indicates that during the summer months the epilimnion is separated from the hypolimnion by a strong thermocline. It further indicates that the average depth to the thermocline in the southeastern portion of Lake Ontario (area of Lake Ontario near Oswego) is almost 30 meters or nearly 100 ft. deep.

Taking all of the above data into consideration, it is concluded that off-shore of Nine Mile Point, no persistent thermocline is identifiable except in late summer, and then in water depths considerably greater than those in which it is proposed that intake and discharge structures for Nine Mile Point Unit 2 be installed.

References

1. Storr, J. F., Temperature Variation with Depth at Nine Mile Point (Summer, 1963 and 1964). A report submitted to Niagara Mohawk Power Corporation, June 1968.

References (Cont.)

2. Power Authority of the State of New York, Environmental Report for James A. FitzPatrick Nuclear Power Plant - Operating License Stage. Prepared for United States Atomic Energy Commission, May 1971.

3. Quirk, Lawler & Matusky Engineers, Effect of Circulating Water System on Lake Ontario Water Temperature and Aquatic Biology. A report submitted to Niagara Mohawk Power Corporation, November 1972.

4. International Lake Erie Water Pollution Board and the International Lake Ontario-St. Lawrence River Water Pollution Board, Pollution of Lake Erie, Lake Ontario and the International Section of the St. Lawrence River - Vol. 3. A report to the International Joint Commission, 1969.

Item 2: Page 3-20, 3-21, paragraphs 5. (Plume Interaction)

The simulated interaction of model plumes depends on the dispersion in the model. Dispersion is theoretically scaled in accordance with the other phenomenon in the Nine Mile Model. This has been verified by comparing far-field plume dispersion in the model with published prototype dispersion measurements. Wnek and Fochtman (*) discuss theoretical and observed dispersion in the Great Lakes citing horizontal dispersion coefficients in the range of 10 to 50 ft^2/sec. The model plumes correspond to prototype dispersion coefficients in the range of 10 to 70 ft^2/sec, with the scatter partially attributable to uncertainties in the assumed plume velocity distribution. Model results indicate that the FitzPatrick plume is deflected much sooner than the Nine Mile plume. The momentum effluent rate of the FitzPatrick discharge is 717,600 lbs. ft/sec^2. In contrast, the momentum effluent rate of the Nine Mile discharge is 2,009,280 lbs. ft/sec^2 (2.8 times greater than FitzPatrick) and, therefore, its plume would be expected to extend further into the lake as indicated by the model results. Comparison among various plume shapes for different power plant discharges must take into account differences in plume depth, momentum concentration and possible effects of bottom topography on discharges in shallow water.

The Applicant believes that interaction between the Nine Mile and FitzPatrick plumes will not be of significant concern and has been accurately simulated in the hydraulic model within the limitations imposed by model boundaries.

* Wnek, W. J., and Fochtman, E. G., Mathematical Model for Fate of Pollutants in Near-Shore Waters. Env. Sci. & Tech., 6 (4), April 1972.

Item 3: (General) Intake Velocity

In studies performed for the design of the California Edison Company's, Huntington Beach Steam Station (*), a series of model studies and prototype measurements at the El Segundo power plant were conducted. The results of these studies culminated in a design for the Huntington Beach station circulating water intake which utilized a radial horizontal approach velocity of about 2 fps. It was the opinion of the engineers concerned with the project that the entrance velocity was not critical as long as it was greater than the velocity the fish normally experienced. They recommended an intake velocity ranging from 1 to 3 fps to permit fish to sense the velocity at different distances from the structure and avoid the intake current flow.

Natural current velocities in Lake Ontario in the area of Nine Mile Point, at the depth of the intake, have been recorded to be less than 0.08 fps approximately fifty percent of the time, and never exceed 1 fps. Based on these lake current measurements, it is expected that the radial, horizontal approach velocity of 1 fps of the Nine Mile Point Unit 2 intake will be greater than the normal velocity experienced by the fish and would serve its function as a warning to the fish.

* Weight, R. H., Ocean Cooling Water System for 800 MW Power Station. J. Power Div., A.S.C.E., 84 (P06), December 1958.

Item 4: Page 5-9, paragraph 2 (Radiological Assessment)

We believe that staff has not accounted for the fact that Niagara Mohawk is upgrading the radiological waste treatment facilities for Nine Mile Point Unit 1 as mentioned in the Nine Mile Point Unit 2 Environmental Report and detailed in the Nine Mile Point Unit 1 Environmental Report (Docket 50-220). In any event, the upgraded system, complying with the guidelines of 10CFR50, Appendix I, will be in operation prior to completion of construction of Unit 2 thereby further reducing the impact of site radiological releases upon the environment.

Niagara Mohawk also submits the following commentary for Staff's information in the preparation of their Final Environmental Statement.

(a) We have proposed comprehensive biological monitoring programs to measure the impact of station operation on the biota of Lake Ontario. In view of Staff's comments on this program, it would be our intention to meet with the Staff at an appropriate time to establish a mutually satisfactory monitoring program.

(b) We have conducted a monitoring and sampling program at the intake structures of Unit 1 over the course of the last year. The results of these fish impingement studies are detailed in Supplement No. 3 to the Environmental Report. Extension of this monitoring and sampling program has already been undertaken at Nine Mile Point and will be continued throughout 1973.

(c) The critical pathways of exposure for radiological releases from Nine Mile Point Unit 2, include the milk chain, submersion in a cloud and ingestion of fish and invertebrates which result in doses to the thyroid, whole body and the GI tract, respectively. All other pathways are far less significant. These critical pathways will be monitored around the site by the monitoring program as currently operated. We believe this program to be entirely adequate to determine radiological effects on the environment from operation of this station. However, in view of AEC Staff comments in this matter, we would expect to meet with the Staff at an appropriate time to discuss the basis of their recommendations and possible modifications to the monitoring program.

(d) In our review of the statement, several typographical errors were noted. A list of the most significant of these errata is included for your information in preparing the final statement.

ERRATA
DRAFT ENVIRONMENTAL STATEMENT
NINE MILE POINT NUCLEAR STATION

Page

S-1 Para. 3

Change "3223 (MWt)" to "3323 (MWt)"

1-3 Table 1.1

8th Line, 1st column, change "U. S. Corps of Engineers" to"U. S. Environmental Protection Agency."

8th Line, 2nd column, change to read "Liquid Waste Discharge Permit (NPDES).

11th Line, Thermal Discharge Operating Permit, 3rd column, change to read "Application not filed".

12th Line, Emission Source Construction Permit, 3rd column, change to read "Application not filed".

15th Line, Environmental Feasibility Report, 3rd column, change to read "Submitted June 19, 1972".

16th Line, Water Quality Certificate, 3rd column, change to read "Requested January 5, 1973".

2-13 Table 2.2

Turbidity Units, 2nd column, change "ft" to "JTU".

Heading, last column - change "HYS" to "NYS".

3-5 Para. 2

The sentence, "The maximum service water flow of 32,000 gpm will be heated to 9.2°F." should be changed to read as follows, "The summer service water flow of 32,000 gpm will be heated by 6.9°F, while the winter service water flow of 24,000 gpm will be heated by 9.2°F."

3-21 Para. 2

Change "1730 fps" to "1730 cfs".

3-22 Para. 1

Change "20 feet" in lines 6 and 8 to "30 feet".

Page

3-25 Table 3.3

Under column Y, first line, change "10" to"10^2."

3-34 Table 3.6

1st column, change "RO_4" to"PO_4"

3-36 Para. 2

Change "Oswego Steam Station" to "Nine Mile Point Unit 1."

5-11 Para. 4

Next to last sentence, change "---released from the turbine building vent." to "---released from the turbine building through the stack." (NOTE: NMP-2 T. B. will vent to the stack rather than directly to atmosphere).

5-18 Para. 5

Change "43 man-rem" to "7 man-rem" (NOTE: the combined annual population dose excluding exposure from gaseous effluents).

5-29 Para. 3

Change "15 fps" to "18 fps".