AEC DISTRIBUTION FOR PART 50 DOCKET MATERIAL
(TEMPORARY FORM)

CONTROL NO: 6126

FILE: ENVIRO

FROM:	DATE OF DOC	DATE REC'D	LTR	MEMO	RPT	OTHER
Office of the Asst. Secretary of Commerce, Washington, D. C. 20230, Sidney R. Galler	8-8-73	8-10-73	x			

TO:	ORIG	CC	OTHER	
Daniel R. Muller	1			SENT AEC PDR x SENT LOCAL PDR x

CLASS	UNCLASS	PROP INFO	INPUT	NO CYS REC'D	DOCKET NO:
	x			1	50-220

DESCRIPTION:

Ltr furnishing comments on draft environmental statement for Nine Mile Point Unit 1.....

ENCLOSURES:

ACKNOWLEDGED

Do Not Remove

PLANT NAME: Nine Mile Point Unit 1

FOR ACTION/INFORMATION 8-10-73 LB

BUTLER(L)	SCHWENCER(L)	ZIEMANN(L)	✓REGAN(E)
W/ Copies	W/ Copies	W/ 1 Copies (info)	W/4 Copies
CLARK(L)	STOLZ(L)	DICKER(E)	
W/ Copies	W/ Copies	W/ Copies	W/ Copies
GOLLER(L)	VASSALLO(L)	KNIGHTON(E)	
W/ Copies	W/ Copies	W/ Copies	W/ Copies
KNIEL(L)	SCHEMEL(L)	YOUNGBLOOD(E)	
W/ Copies	W/ Copies	W/ Copies	W/ Copies

INTERNAL DISTRIBUTION

REG FILE	TECH REVIEW	DENTON	LIC ASST	A/T IND
✓AEC PDR	HENDRIE	GRIMES	BROWN (E)	BRAITMAN
OGC, ROOM P-506A	SCHROEDER	GAMMILL	✓DIGGS (L)	SALTZMAN
✓MUNTZING/STAFF	MACCARY	KASTNER	GEARIN (L)	
CASE	KNIGHT	✓BALLARD	GOULBOURNE (L)	PLANS
GIAMBUSSO	PAWLICKI	SPANGLER	LEE (L)	MCDONALD
BOYD	SHAO		MAIGRET (L)	DUBE
MOORE (L)(BWR)	STELLO	ENVIRO	SERVICE (L)	
DEYOUNG(L)(PWR)	HOUSTON	MULLER	✓SHEPPARD (E)	INFO
✓SKOVHOLT (L)	NOVAK	DICKER	SMITH (L)	C. MILES
P. COLLINS	ROSS	KNIGHTON	TEETS (L)	
	IPPOLITO	YOUNGBLOOD	WADE (E)	
REG OPR	TEDESCO	REGAN	WILLIAMS (E)	
✓FILE & REGION(3)	LONG	PROJECT LDR	WILSON (L)	
MORRIS	LAINAS			
STEELE	✓BENAROYA	✓HARLESS		
	VOLLMER			

EXTERNAL DISTRIBUTION

✓1 - LOCAL PDR Oswego, N. Y.		
✓1 - DTIE(ABERNATHY)	✓(1) (2)(X)(X)-NATIONAL LAB'S ANL	1-PDR-SAN/LA/NY
1 - NSIC(BUCHANAN)	1-R.Schoonmaker,OC,GT,D-323	1-GERALD LELLOUCHE
1 - ASLB(YORE/SAYRE/	✓1-R. CATLIN, E-256-GT	BROOKHAVEN NAT. LAB
WOODARD/"H" ST.	1-CONSULTANT'S	1-AGMED(WALTER KOESTER
16 - CYS ACRS HOLDING	NEWMARK/BLUME/AGBABIAN	RM-C-427-GT
	1-GERALD ULRIKSON...ORNL	1-RD..MULLER..F-309 GT

OFFICE OF THE ASSISTANT SECRETARY OF COMMERCE
Washington, D.C. 20230

50-220

August 8, 1973

Mr. Daniel R. Muller
Assistant Director for
Environmental Projects
Directorate of Licensing
U.S. Atomic Energy Commission
Washington, D.C. 20545

Dear Mr. Muller:

The draft environmental impact statement for Nine Mile Point Nuclear Station, Unit 1, which accompanied your letter of July 5, 1973, has been received by the Department of Commerce for review and comment.

The statement has been reviewed and the following comments are offered for your consideration.

General Comments

In the Summary and Conclusions section, as well as in the main text, the staff concludes that the plant's operation will have no significant impact on the biota in Lake Ontario. This type of lakewide approach fails to adequately consider all the point sources of waste heat that should be included in the evaluation if the lake as a whole is used as the unit of measurement of significant impact. In addition, the statement should include a discussion of the plume interaction with Nine Mile Point Unit 2, and the nearby James A. Fitzpatrick Nuclear Power Plant. Secondly, consultation with appropriate State and Federal agencies should be included in the design of the comprehensive environmental monitoring program. These agencies should also be involved in the evaluation of the information collected.

Since this plant has been operating under a provisional license since 1969, actual measurements, rather than estimates, of environmental impact have been possible. This greatly increases the confidence one can place in the conclusions.

From our point of view, the statement is satisfactory with regard to consideration of this single power station's impact on the environment. It appears, for example, that the thermal effect on the lake will be negligible. But what about the big picture? How many plants of this type can be constructed before the cumulative effect is no longer negligible? We should not consider each case as a separate problem. The National Oceanic and Atmospheric Administration's International Field Year for the Great Lakes Project Office recently completed an extensive study of Lake Ontario and they can provide input to this aspect of the impact statement.

Section 2.7.2, Aquatic Ecology

Page 2-18. It is stated that "Despite the high nutrient content of Lake Ontario, the fish production is rather low." Although fish production is presently low for a lake with the productive capacity of Lake Ontario, the situation may be altered in the near future. The Great Lakes Fishery Commission treated all lamprey spawning streams last year, and the Canadian streams and several key streams in U.S. waters again this year. Moreover, fishery management agencies in New York and Ontario have been planting salmonid species in Lake Ontario, and these agencies plan to intensify this activity in years to come. Since the forage base in Lake Ontario is as good or better than that in Lake Michigan when the Lake's salmon stocking program was begun in 1965, it is expected that the fishery which would develop in Lake Ontario will be equally as good. New York has planted salmonids in the Salmon River (10 miles east) and the Little Salmon River (6 miles east). Both rivers are close enough to the plant site that the fish leaving and returning to them could conceivably pass the intake and discharge of the Nine Mile Point Nuclear Station.

With regard to the assertion that the reason the alewife has flourished is that large predators have not been present, it is now thought that the population of alewife, an early colonist

of the lake, stabilized prior to the decline of the large predators. This recent theory is supported by the resurgence of premium fish stocks in the 1920's and newspaper reports during the same era of two major alewife mortalities.1/

Concerning the controversy between Smith (1970) and Christie (1972), Christie (pp. 920-921) provides the following analysis of the interactions between the colonists and the native species in Lake Ontario:

> "Of the species of fish which invaded or were introduced into Lake Ontario in the last century, the carp and alewife were the most obviously successful. Both must have affected other species in important ways, but it is difficult to make judgments because of the early colonization of these species.
>
> "ALEWIFE
>
> "Smith (1970) has argued on the basis of the recent effects of alewife colonization of the upper Great Lakes, that the species effectively caused all the misfortunes of the Lake Ontario fish stocks subsequent to its establishment there in the 1870s. The view held by the present author however, is that whatever the initial impact, the resurgence of the premium fish stocks in the 1920s in the face of heavy alewife densities, argues in favor of a harmless role for the alewife. The resurgence of the deepwater ciscoes (Coregonus sp.) in the 1930s was also seemingly unaffected by the alewife. Equally important, the collapse of the ciscoes was not followed by a surge of alewife abundance as might have been expected if competition pressure had been a major consideration.
>
> There are no statistics with which to evaluate trends in alewife abundance but it has been assumed by Pritchard (1929) and Graham (1956) that the frequency of heavy

---

1/ Christie, W.J. 1972. Lake Ontario: effects of exploitation, introductions, and eutrophication on the salmonid community. J. Fish. Res. Bd. Can. 29:913-929.

spring beach mortalities is at least a rough indication of alewife density. On this basis, newspaper reports of two major mortalities in the 1920 decade do not suggest that the alewife, like the ciscoes, were scarce during the period of peak predator abundance. Dymond (1928) found that the alewife was an important item in the diets of both lake trout and burbot, but noted alewife were not as often eaten by the trout after the alewife moved inshore in the early summer. Juveniles would have been largely protected from these species by reason of their inshore distribution, and it is possible that the post-spawning adult alewife did not extend lakeward very far into the range of these predators in late summer. Wells (1969) found that trawling in September in Lake Ontario produced 81.2 alewife per tow at 120 ft. (37 m) and less, and only 7.2 for tows at 180 ft. (55 m) and greater. This would certainly reduce it, and possibly enough to reduce the severity of the predation impact on alewife adults. Predation on both juveniles and adults in the inshore areas is on the other hand, heavy, and inflicted by many fish species. The lack of obvious change in the abundance of the alewife stocks after the 1940s is especially compelling evidence that the abundance is limited by inshore factors, and possibly by the effects of the mortalities themselves to some extent."

Section 2.7.2.a, Fishes

Page 2-19. With regard to the Applicant's echo-sounder survey, more information should be supplied concerning the type of fathometer used and what its capabilities were for detecting concentrations of fish larvae, fry, and young-of-the-year. In addition, an example of a fathometer recording should be provided, including an explanation of its interpretation.

Page 2-22. It is stated that "The Applicant has not seined in in the area and therefore no information on juveniles near the shore is available." Newly hatched young-of-the-year alewives

[illegible]

[illegible]

[illegible]

begin to show up in seine catches in the middle of August and remain inshore until late fall.2/ Therefore, from late spring until fall larval and juvenile alewives would be susceptible to entrainment. In addition, the spottail shiner, also abundant inshore, remains inshore (in depths of less than 50ft); this species is considered an excellent forage stock.

Section 2.7.2.d.(2), Phytoplankton

Page 2-25. It is stated that "Very few fish larvae were observed in the plankton samples. . .". The sampling equipment used to collect plankton, fish eggs, and larvae should be described, and available data and literature on the comparative efficiency and effectiveness of the various types of sampling methods and equipment should be evaluated and discussed. In our opinion, if information from reference 30 was used to determine the abundance and distribution of fish larvae, sample collection with a Nansen bottle, as used in this survey, virtually precluded any larval entrapment.

Section 3.4.1, Intake Structure

Page 3-7. An estimate for the intake velocity at the traveling screens should be provided.

Section 5.2.2, Thermal Studies

Page 5-2. The combined effects of Nine Mile Point Unit 1, Nine Mile Point Unit 2, and the James A. FitzPatrick Nuclear Power Plant should be evaluated by the thermal studies.

Section 5.5.2.a, Effect on Aquatic Environment - Intake Effects

Pages 5-31 through 5-35. Given the tendency for fish to concentrate along the 25-ft. depth contour and the location of the intake at about the 20-ft. contour, and given the numbers of fish entrained

---

2/ Dr. Wilbur L. Hartman, Personal Communication. (Project Leader, Ecology of Fish Populations of Lower Great Lakes, Bureau of Sport Fisheries and Wildlife, Sandusky Field Station, 2022 Cleveland, Road, Sandusky, Ohio 44870.)

and subsequently impinged according to studies to date, even though not sufficient to permit a valid quantitative assessment of the problems of impingement, it is apparent to us that a potentially serious impingement problem may develop. We believe that this situation may require corrective action to reduce the intake velocity to 1 ft/sec or less, in addition to conducting the monitoring program. We also recommend that evaluation of the fish-kill problem be coordinated with the appropriate State and Federal agencies. Finally, we consider the statement that "The Staff does not intend to imply that fish impingement at the Station will produce significant adverse effects on lakewide fish populations" to be misleading. This statement should be revised to consider the effects of all water intakes in the lake if the entire lake is to be the frame of reference for evaluating the effects of this power plant on fish populations in Lake Ontario.

Section 5.5.2.c, Thermal Discharge Effects

Page 5-37. This section should include information on the combined effects of the Nine Mile Point Unit 2 and James A. FitzPatrick plants.

Yellow perch, a common fish in the area, require a given period of time at 4°C or below for maturation. 3/ The possibility that those fish remaining in or near the plume may not receive this low-temperature exposure and that they would, therefore, not mature should be discussed. This discussion should include appropriate data and documentation.

Section 5.5.2.c.(1) Fishes

Page 5-38. We suggest that the tagging study referred to in the fourth paragraph be required, rather than simply recommended, by the Staff.

3/ Edsall, T. A. and T. G. Yocom. 1972. Review of recent technical information concerning adverse effects on once-through cooling on Lake Michigan. Prepared for the Lake Michigan Enforcement Conference, September 19-21, 1972, Chicago, Ill., U.S. Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, Great Lakes Fishery Laboratory, Ann Arbor, Michigan 48107. 86 pages.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Section 5.5.2.c.(3), Benthos

Page 5-39. The impact of sinking plumes on the benthic community should be discussed in this section.

Section 6.1, Aquatic Monitoring Program

Page 6-1. Based on the Staff's assessment that the present environmental studies now proposed and being carried out by the Applicant are inadequate to assess the effects of operation of the Station, we recommend denial of the full-term operating license until an adequate environmental monitoring program has been established and coordinated with appropriate State and Federal agencies.

A map depicting the sampling transects and stations should be provided in the final environmental statement.

With reference to the Staff's recommendation for improvements in the monitoring program (pages 6-2 and 6-5), we basically agree with the proposed changes. However, we feel that some sort of tabular format should be used to summarize for the reader the improved program. In addition, this program should be coordinated with appropriate agencies, as suggested above.

With regard to a sampling procedure that would permit reporting the results in terms of biomass per unit area, the possible use of a Ponar dredge for benthic work should be discussed.

Section 6.3, Radiological Monitoring Program

Page 6-6. A list of organisms typically sampled and subjected to radioanalysis should be presented in the final environmental statement. In our opinion, the primary function of an environmental impact statement is to serve as a full disclosure document. Therefore, we do not believe it is sufficient to merely refer the reader to a document such as the Applicant's Environmental Report, which may or may not be readily available to the reader. If the Staff disagrees with our opinion on this matter, we would appreciate a full explanation in the final environmental statement.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Section 9, Alternatives to the Proposed Project

Page 9-1. This section should include a complete environmental analysis of each alternative so that informed conclusions can be drawn and decisions made by responsible officials and others who review this document.

The warm water plumes tend to be close to the lake shore, due to the exposed location and the lake currents flowing near the shore. This could have some effect in reducing nearshore ice cover. However, this will cause no adverse effects either on water intake or shore erosion. The calculated increase in average lake surface temperature of about 0.002° F has no physical meaning and may mask adverse local effects. Much more meaningful is the area affected by a significant temperature increase.

To reduce the fish entrapment in the intake system and thus fish kills, the report recommends that alternative intake structures be examined. It is suggested that in addition to the above, a fish replenishment program be considered. Samplings indicate that 82% of the fish killed are the alewifes and smelts. This low quality fish could be replaced by more desirable fish from hatcheries in the same or significantly larger amounts.

As described on page 3-23, the major source of radioactivity released to the open atmosphere during reactor operation is the off gas from the main condenser air ejectors. These off-gases are allowed to flow through a 30-minute holdup pipe before being discharged through the main plant stack. Consequently, we would consider the release to be continuous throughout the year and, assuming a rather uniform source emission rate, average annual diffusion parameters can be appropriately used.

In our comments on the Final Safety Analysis Report for this facility sent to the Atomic Energy Commission Division of Reactor Licensing on December 18, 1967, we computed that the

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

highest off-site annual concentration is 5×10^{-8} sec m^{-3} at a distance of 2 km to the northeast corner of the site assuming the effluent is released from a 350-ft. stack. This is somewhat higher than the 1.9×10^{-8} sec m^{-3} computed by the staff in table 5.7.

Thank you for giving us an opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving a copy of the final statement.

Sincerely,

Sidney R. Galler

Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

Regulatory File Cy.