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50-220

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

In reply refer to:
ER-73/946

Dear Mr. Muller:

Thank you for your letter of July 5, 1973, transmitting copies of the Atomic Energy Commission's draft environmental statement dated July 1973, on environmental considerations for Nine Mile Point Nuclear Station, Unit 1, Oswego County, New York.

General

Nine Mile Point Nuclear Station, Unit 1, is the initial component of a 2,531 MWe power generating complex located along the shoreline of Lake Ontario near Syracuse, New York. Unit 1, a 610 MWe plant which began operation in December 1969, will be complemented by the James A. Fitzpatrick Nuclear Power Plant, scheduled to begin operation in October 1973, and Nine Mile Point Unit 2 which is expected to be completed in 1978. Each facility is designed for once-through cooling.

Fish stocks of Lake Ontario have undergone substantial changes because of modification of vegetation patterns in the watershed, damming of tributary streams, depletion of the fish stocks by commercial harvest, introduction of exotic fish species, and effects of municipal and industrial waste disposal. These kinds of changes interact to alter the competitive composition of fish stocks, generally favoring those having lesser value to man.

The evidence of environmental deterioation is far more marked inshore than offshore. By 1950 algae began to foul gill nets of commercial fisherman, yet oxygen depletions which are often associated with such dense algae growth were not detected until 1970. These conditions do not favor successful reproduction of fish species such as lake herring and white fish.

The individual and cumulative impacts of once-through power plant cooling in the area of Nine Mile Point will place an unwarranted and unacceptable burden on the lake's resources.

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Technology for closed-cycle cooling systems has advanced to a point wherein the environmental effects, including drift and blowdown are minimal. Based on partial and incomplete studies on the environmental effects of Unit 1, we believe that continued use of the lake's water for power plant cooling at Nine Mile Point is not in the best public interest.

Our detailed comments are presented according to the format of the statement or according to specific subjects.

Summary and Conclusions

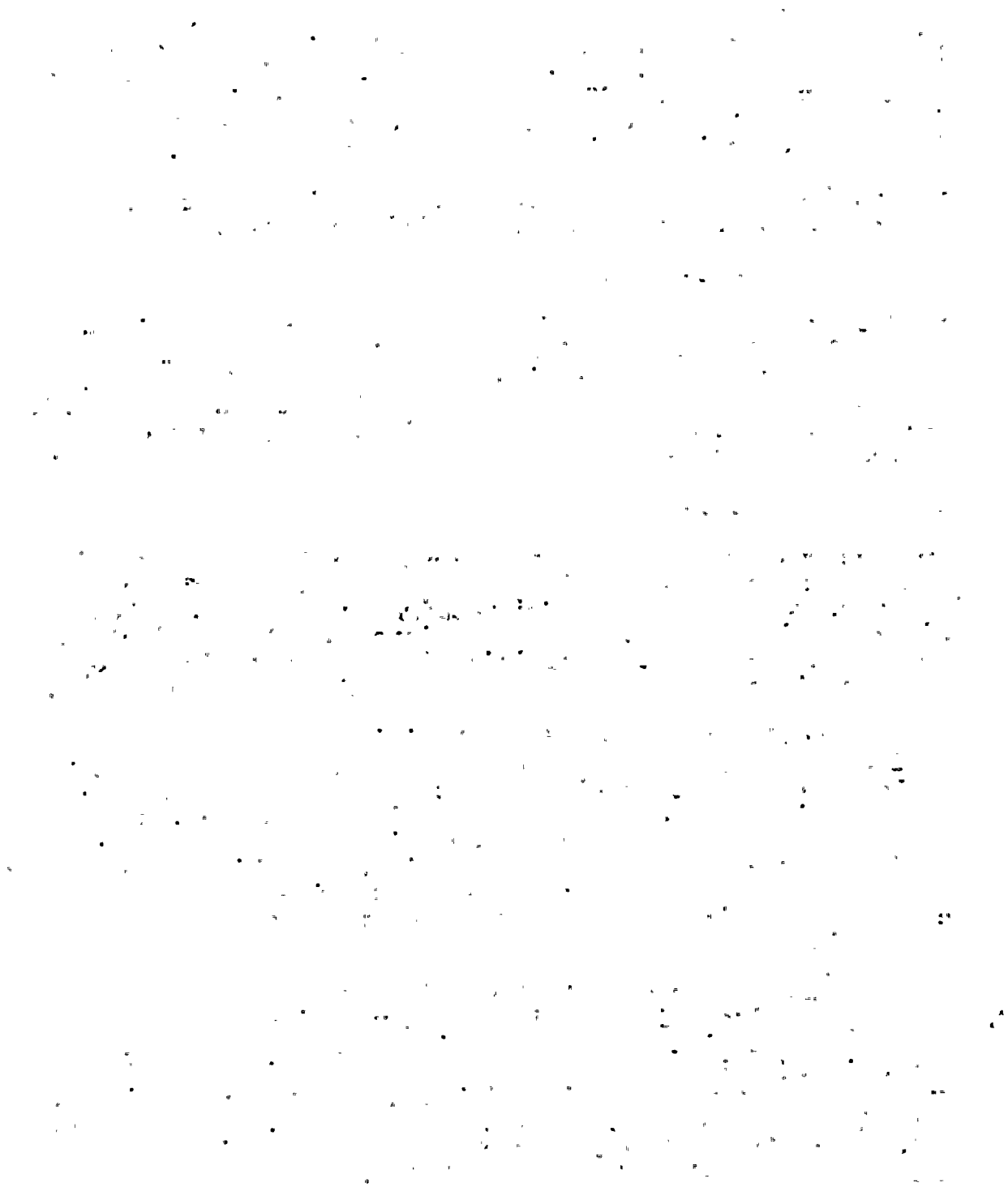
Based on the description of the thermal plume given in Section 5 and the locations of the intake and discharge facilities, it is probable that recirculation of the heated effluent will occur at Unit 1. We suggest that the impacts associated with recirculation should be identified in the Summary and Conclusions Section.

Outdoor Recreation

Our concerns for outdoor recreational development for this area have been expressed in our previous letters to the AEC in regard to the James A. Fitzpatrick Nuclear Power Plant and Unit 2 of Nine Mile Point. We believe that the subject statement should address the possibilities of developing an open space multiple-use plan for the lands of both power plants.

The plan could be developed by the joint efforts of the applicant, the Power Authority of the State of New York, the New York State Conservation Department, and the County of Oswego. Since the area is only 36 miles from the metropolitan area of Syracuse; an outdoor recreation plan for a major portion of the lands appears to be in the public interest. We are pleased that the applicant has established 130 acres of the site as a wildlife habitat by posting the northwest corner of the site.

Additionally, we suggest that consistent with general safety factors, consideration be given to developing secondary uses of the transmission right-of-way in the interest of outdoor recreation. This Department's Northeast Regional Office of the Bureau of Outdoor Recreation will welcome an opportunity to work with the applicant for such development. BOR's Northeast Region's office is located at the Federal Building, 1421 Cherry Street, Philadelphia, Pa. 19102.



Topography and Geology

The brief section on geology and topography is inadequate for an independent assessment of how these major elements of the environment relate to Unit 1. The distribution and thickness of surficial deposits and physical properties of rocks and soils should be summarized, particularly as they relate to design, construction, slope stability, and erosion. A topographic and geologic map should be included.

The seismic-design parameters and the methods of their derivation are not mentioned. Since at least 13 earthquakes have occurred within 50 miles of the station over a period of 110 years, including one with an intensity of VI on the modified Mercalli scale the final environmental statement should state specifically what seismic design criteria were used in construction of Unit 1 and what environmental effects are predicted from future earthquakes.

The statement is made on page 2-8 that "the relationship of site seismology to the safety of the Station, its design, and seismic design criteria have been considered in detail by the Staff in the safety review." We do not feel that environmental concerns related to seismology are satisfied by this statement or other discussions of seismology in the report.

The draft environmental statements for both the Nine Mile Point Nuclear Power Station Unit 2 and the James A. Fitzpatrick Nuclear Power Plant concluded that the site is located in an inactive seismic region. Our letter of April 1973, advised you that the Nine Mile Point Plant is shown in damage zone 2 (moderate damage) on a seismic zoning map dated 1969 (U.S. Coast and Geodetic Survey).

Based on these considerations we believe that this environmental statement should present a more comprehensive summary of the regional and local site geology, and should specify how the geologic and seismologic analyses have been taken into account. In this respect, we note that the AEC has published "Seismic and Geologic Siting Criteria for Nuclear Power Plants" (Proposed Appendix A, 10 CFR 100, Federal Register, November 25, 1971) which prescribe the nature of required investigations. The impact statement should clearly specify whether these criteria have been applied to the Nine Mile Point site.

Lake Water Hydrology

Additional information should be included in this section to

describe the temperature stratifications and development of thermoclines in the area of Nine Mile Point. Descriptive information regarding this subject is included in Technical Report No. 14 from the Great Lakes Fishery Commission, entitled "Limnological Survey of Lake Ontario, 1964." This publication is dated April 1969, and is available from the Great Lakes Fishery Commission, Ann Arbor, Michigan.

Aquatic Ecology

Because this section is heavily dependent upon information available in the literature, we believe that data and information in Technical Report No. 23 from the Great Lakes Fishery Commission, entitled, "A Review of Changes in the Fish Species Composition of Lake Ontario" dated January 1973, should be referenced also. Information contained in this report relates to the spawning characteristics of the white fish and lake herring as well as other fishes. Also, fish species such as the white fish, lake herring and the yellow perch require temperatures less than 4°C during winter periods to successfully reproduce. Exposing adults and eggs and larvae to temperatures higher than those which naturally occur during winter periods may cause deformities to develop either in the egg or larval stages. Although data are not available on the requirements of closely related species such as sauger and walleye, these and other species may have their reproductive potential impaired by increases in seasonal temperatures. Reference to these and other potential impacts on fishery resources are described in a report entitled, "Review of Recent Technical Information Concerning the Adverse Effects of Once-Through Cooling on Lake Michigan," prepared by the U.S. Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, Great Lakes Fishery Laboratory, Ann Arbor, Michigan, dated November 1, 1972. Much of this information is applicable to Lake Ontario.

Sanitary Wastes and Other Effluents

Copper and other heavy metals will erode and corrode from the cooling water system. The amounts of these materials and their potential environmental impacts should be described in this section of the environmental statement.

Solid Waste System

Solid radioactive wastes that result from operations of Unit 1 are described mainly by their gross charcter, as concentrates from radwaste evaporators, spent resins and filter sludge,

paper, air filters, rags, "and control rods, fuel channels, and contaminated replaced equipment." Their total quantity is roughly estimated as 11,000 cubic feet annually, with an activity of 2,700 curies. However, the draft statement does not specify the kinds of radionuclides, their physical states, or their concentrations in the wastes, nor has the location planned for offsite burial been identified. This information should be presented in the final environmental statement.

We believe that the offsite disposal of the operational solid radioactive wastes from the Nine Mile Point Nuclear Power Station constitutes an important long-term environmental impact. The AEC must satisfactorily solve the problem of these proliferating operational wastes from all nuclear plants before they present a major problem. Therefore, we believe and strongly recommend that the environmental statements for all reactors (including Nine Mile Point Unit 1) should specify the kinds of radionuclides, their physical states, and their concentrations in the wastes, and the estimated total volume of wastes for the expected operating life of the reactor. Additionally, if an environmental impact statement has not been prepared for the proposed burial or disposal site, or if such a statement does not fully consider wastes of the nature and quantity of those generated at the Nine Mile Point Station, then we believe it incumbent on the AEC to include an evaluation of the disposal site in this environmental statement. We believe such an evaluation should discuss the Federal and State licensing provisions, criteria, and responsibilities for the site in connection with: (1) determination of the hydrogeologic suitability of the site to isolate the wastes of the Nine Mile Point Station (and any other wastes accumulating or expected to accumulate at the site) from the biosphere for specific periods of time; (2) any remedial or regulatory actions that might be necessary throughout a specific period of time in which all the wastes will be hazardous.

We are aware that "radioactive wastes other than high-level," which apparently include reactor operational solid wastes, have been discussed on pages G-2 through G-9 of the AEC document "Environmental Survey of the Nuclear Fuel Cycle." We do not consider those generalized descriptions of the management and the disposal of these wastes as being adequate to cover the concerns expressed above because the descriptions on pages G-2 through G-9 and G-12 through G-14 are not specific to a particular site and to the particular wastes being disposed there. Similarly, the environmental considerations given on pages G-16 through G-21 are not specific to a particular site or to particular wastes.

Thermal Studies

Thermal effects of cooling water discharged into Lake Ontario should be estimated for the combined effect of operation of both adjoining power plants. Data available from infrared radiometer measurements should be included. This type of data has been published in the final environmental statement for the Fitzpatrick Plant. We also recommend that the applicant utilize remote sensor data in monitoring the thermal plume due to the extensive area and the complexities involved when several large waste heat sources are operating in a small area.

Field temperature surveys of the thermal plume resulting from the operation of Unit 1 far exceed water-quality standards. Throughout earlier reports on this plant, we are assured through mathematical and hydraulic model test results that there will be no thermal problems. Previously, we questioned the results of these studies and stated that alternatives should be considered. The AEC in this draft responds with the statement given on page 5-11.

> "The applicability of State and Federal Water Quality criteria related to the thermal discharge for Unit 1 is uncertain. However, it should be noted that no adverse effect on the aquatic biota due to the thermal discharge is expected."

We believe the New York State standard of 3 degrees Fahrenheit in 6.5 acres is too restrictive; but even if it were 5 degrees Fahrenheit, the heated water discharge from this unit would exceed the standard. Even though this draft statement covers Unit 1, it should recognize that the future operation of Unit 2 in a once-through mode will almost triple the waste heat from this plant compared to Unit 1 alone. This factor alone requires serious consideration of alternative cooling methods.

It is indicated on page 9-15 that no significant disadvantage of the existing discharge system has been identified. The AEC staff believes that modification of the existing system is not justified at this time even with the planned addition of Unit 2 with a once-through cooling system. Since a comprehensive evaluation of the expected thermal plumes from both units and from the neighboring James A. Fitzpatrick Plant has been performed, we find no basis to conclude that these three units can safely operate with once-through cooling at this site.

Transmission Line Environs

The use of herbicides for transmission line maintenance is briefly discussed. Since no specific herbicides are indicated, the following language should be added to this section, "It is essential that all herbicides, pesticides, and related chemicals must be registered in accordance with P.L. 92-516, The Federal Insecticide, Fungicide and Rodenticide Act. Application should be accomplished in a manner fully consistent with the protection of the entire environment. Any contemplative use of these chemicals must consider both known and possible environment effects. The applicant should consult with the Environmental Protection Agency, the Director of the State Conservation Agency, the County Agent and the nearest office of the Bureau of Sport Fisheries and Wildlife when chemical vegetation and pest control is contemplated. Such contact should be made early in the planning so that acceptable chemicals and methods of application known to be most effective can be used with the recommendations of the concerned agency.

Effects on Aquatic Environment

Table 5.1.2 contains data on studies conducted during June 1972 through January 1973. A comparison of this table with tables that were included in the environmental statement for Nine Mile Point Nuclear Station Unit 2, indicate that data collected prior to June were deleted from this table. Data were included on winter periods which would bias the information presented on impingement. We believe that all available information should be included to describe fish impingement.

As previously indicated, consideration should be given to the effects of increased temperature on the reproduction capabilities of various fish species, including that of yellow perch which are referred to in this section. Although species such as the yellow perch may be attracted to higher temperatures, the resulting effects may include reduced reproduction success. Also, it should be indicated that data from the Consumer's Power Company's report indicates that Steelhead Trout, Lake Trout, Coho, and Chinook Salmon do occur in the area of power plant intakes and thermal discharges and are subject to impingement. The potential impacts upon Federal and State sponsored programs to establish these species in Lake Ontario should be considered.

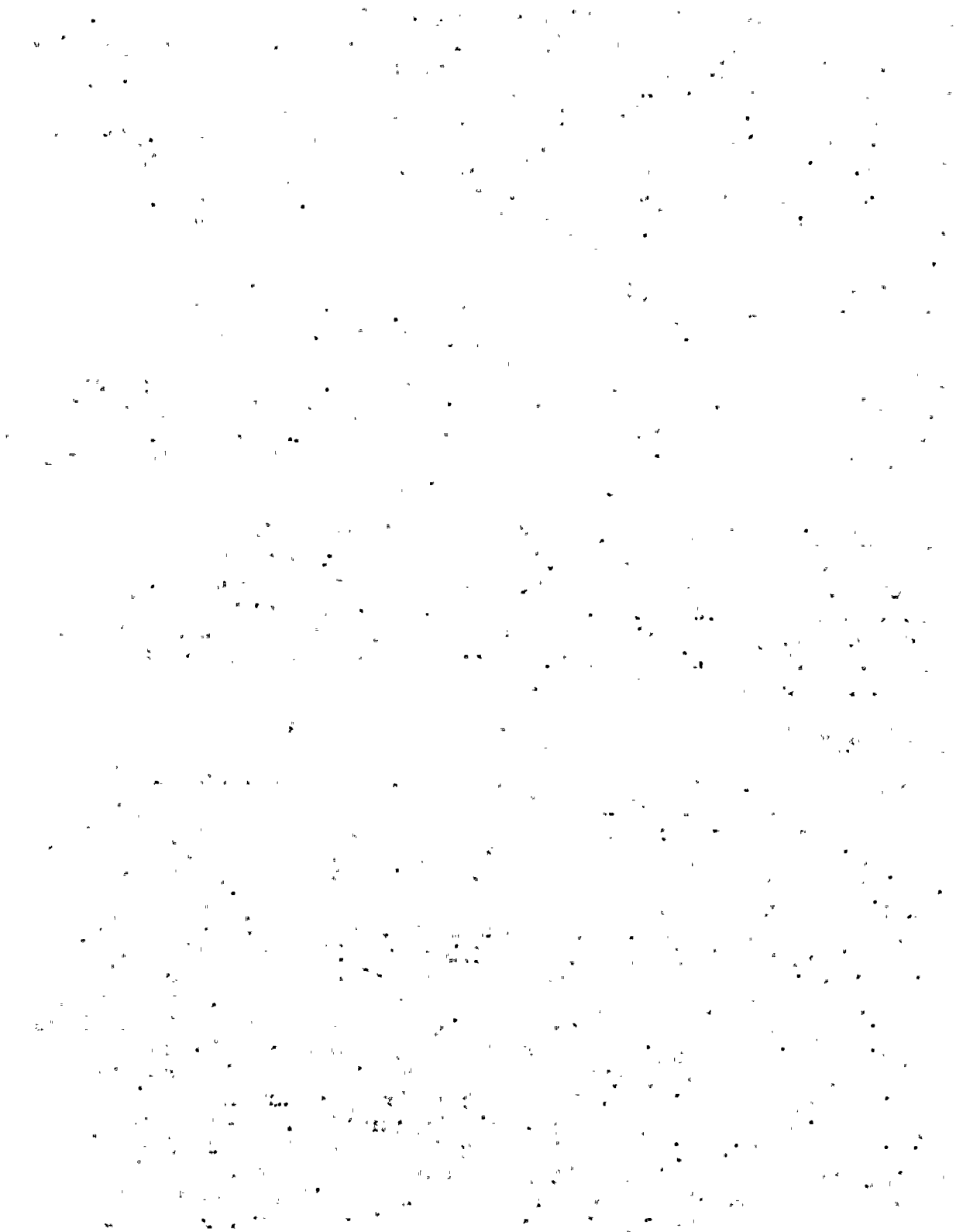
On page 5-38 of this section reference is made to the 6 degress Fahrenheit isotherm extending along about 1 mile of shoreline. On page 5-3 it is indicated that the 5 degress Fahrenheit isotherm extends along about 2 miles of shoreline. During periods of warmer natural lake water temperatures, a temperature rise much less than 5 or 6 degress Fahrenheit may inhibit fish movement, and discourage fish from entering important shallow water zones. Also, potential impacts of sinking plumes on fishes and fish reproduction potential should be mentioned in this section.

In discussing the environmental impact of plant operation on fish, plankton, benthos, and various aquatic organisms, it should be recognized that Lake Ontario is in a state of ecological change. This change is a result of the cumulative impact of man's activities on the lake and from recent introduction of exotic fish species which compete with the previously established fish populations. These considerations should be reflected in anticipating the environmental impacts of this development on the system in general.

The relationship of decomposing organic materials to the dissolved oxygen concentrations in the water should be described. Encouraging or accelerating the growth and reproduction of attached plants may compound problems which are presently occurring with the oxygen concentrations in the water. This section should discuss these aspects of the plant's operational impacts.

Environmental Monitoring Program

The Niagra Mohawk Power Company has conducted a monitoring program in the Nine Mile Point area since 1963. The AEC staff believes that studies, as they have been proposed and are being conducted by the applicant, will not provide information adequate to assess the operational effects of the station on the biota. For example, the collection of the data from July 1963 through December 1969 was infrequent. Only since May 1970 has the applicant collected data on fish distribution and food preferences of fish and benthos with some continuity. Sampling and observation of plankton from the intake discharge wells of Unit 1 during June-October 1971 provide neither estimates of plankton abundance in the area nor a base for reasonable assessment of damage due to entrainment. Sampling of lake water for the usual chemical and physical parameters is entirely wanting. Based on limited sampling information, it is apparent that Nine Mile Point Nuclear Station Unit 1, has caused damages to fishery resources. Continued operation of the Unit may cause unacceptable losses to local fish populations. It should be



noted that with the exception of the limits on total dissolved solids, phosphate concentrations in discharge sewage and the thermal plume size, the plant conforms to water quality standards. We believe that the applicant should be required to conform to existing standards and to adopt procedures which would require the environmental impact of the plant operation on the resources of the lake.

As a result of the Lake Michigan Enforcement Conference, specific guidelines are being developed for studies to determine the environmental impact of power plant cooling on Lake Michigan. It is anticipated that a draft outline of guidelines will be available by November 1973. Since the ecology of Lake Michigan and Lake Ontario are similar, techniques and studies that are suitable for Lake Michigan may be adaptable for Lake Ontario. We encourage the AEC staff to make use of these guidelines in developing any future plans for study of thermal discharges into Lake Ontario.

It is suggested that the thermal monitoring program be modified to include techniques developed in conjunction with the Surry Nuclear Power Station on the James River, Virginia. These studies should be designed and conducted to determine the impacts of once-through cooling in the Nine Mile Point area.

Nonradiological Effects on Ecological Systems

The concern for the possible impacts on fish and other aquatic life as a result of the maximum intake velocity of 2 fps is indicated on page 5-34. We share this concern since the applicant has not shown that fish losses will be low.

Environmental Impact of Postulated Accidents

This section contains an adequate evaluation of impacts resulting from plant accidents through class 8 for airborne emissions. However, the environmental effects of releases to water is lacking. Many of these postulated accidents listed in tables 7.1 and 7.2 could result in releases to Lake Ontario and should be evaluated.

We also think that class 9 accidents resulting in both air and water releases should be described and the impacts on human life and the remaining environment discussed as long as there is any possibility of occurrence. The consequences of an accident of this severity could have far-reaching effects on land and in Lake Ontario which could persit for centuries affecting millions of people.

Alternative Energy Sources

The expected emissions from alternative oil-fired and coal-fired power plants given on page 9-4 are misleading. Modern well-operated central stations discharge much smaller amounts of carbon monoxides and hydrocarbons than shown, since combustion is complete except for small amounts of unburned carbon in fly ash and bottom ash in coal-fired plants.

Environmental Cost

Although the total economic losses of the proposed action are difficult to estimate there are data and materials available which can be used to determine the replacement costs of resources. For example, the pollution committee of the American Fisheries Society, Southern Division, in 1970 estimated the monetary value of fish based on their replacement cost. Various states, including New York, Maryland and Washington have developed criteria for evaluating fish kill damages and computing fish kill damage claims. We believe the staff of the AEC should be aware of these criteria and whenever possible they should be used to determine economic or replacement cost for fish. In addition we believe that the impacts of this proposed action should not be related to entire lake alone but should also be compared to the production of the local area.

We hope these comments will be helpful to you in the preparation of the final environmental statement.

Sincerely yours,

Deputy Assistant Secretary of the Interior

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

Regulatory File Cy: