

Docket No. 50-220

DEC 21 1967

Niagara Mohawk Power Corporation
300 Erie Boulevard West
Syracuse, New York 13202

Attention: Mr. Minot H. Pratt
Vice President & Executive Engineer

Gentlemen:

This refers to your application for a construction permit and facility license which would authorize construction and operation of a nuclear power reactor at the Nine Mile Point site located in Oswego County, New York.

We are transmitting a copy of the United States Department of the Interior Fish and Wildlife Service Report. This report contains comments and recommendations on both radiological and non-radiological effects of the proposed reactor facility for your information. In particular, we would like to call your attention to the recommendations made by the Fish and Wildlife Service. We request that you review the report and submit your comments on the radiological matters discussed by the Fish and Wildlife Service.

Copies of this report are also being sent to appropriate state and local officials. The radiological safety aspects of this report will be considered in the analysis of the safety of the project by the regulatory staff and by the Advisory Committee on Reactor Safeguards. Our conclusions will be included in the public safety evaluation.

Those matters that deal with radiological consequences of plant operation noted in the Fish and Wildlife Service Report are within the jurisdiction of the Commission. However, as recommended in the Service's report, copies of your reports on the results of the radiological surveys should be submitted to the Secretary of the Interior.

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As you know, the Commission has no jurisdiction with respect to the non-radiological matters referred to in the Service's report. However, we wish to call these matters to your attention in order that you may have the benefit of the Service's recommendations concerning potential non-radiological effects upon the environment.

Sincerely yours,

Original Signed by
Peter A. Morris

Peter A. Morris, Director
Division of Reactor Licensing

Enclosure:
U. S. Fish and Wildlife Service
Report dated 12/6/67

cc: Oliver Townsend, Director
Office of Atomic & Space
Development
Executive Department
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William M. White, Chief
Division of River Basin Studies
Bureau of Sport Fisheries and Wildlife
U. S. Department of the Interior
Washington, D. C. 20240

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REG Reading

DRL Reading

RPB-2 Reading

Orig: VStello

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S. Levine

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SURNAME ▶	VStello	RLTedesco	JENewell	SLevine	RSBoyd	PAMorris
DATE ▶	12/11/67	12/11/67	12/11/67	12/10/67	12/20/67	12/21/67

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Original Signed by
Peter A. Harnett

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UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
WASHINGTON, D. C. 20240

IN REPLY REFER TO:

Mr. Harold L. Price
Director of Regulations
U. S. Atomic Energy Commission
Washington, D. C. 20545

DEC 6 - 1967

Dear Mr. Price:

This is in response to Mr. Boyd's letter of July 11 requesting our comments on the application by the Niagara Mohawk Power Corporation for a provisional operating license for its Nine Mile Point Nuclear Power Station, Lake Ontario, Oswego County, New York; Docket No. 50-220.

The Nine Mile Point Nuclear Station is located on the southeast shore of Lake Ontario, seven miles northeast of the City of Oswego, and 36 miles north-northwest of Syracuse. The plant will employ a direct-cycle boiling water system reactor designed for a power output of 1,538 thermal megawatts, and a net electrical output of 500 megawatts. A radioactive waste disposal system, and other on-site facilities required for a complete and operable nuclear power plant, are provided. Condenser cooling water will be pumped, at the rate of 600 c.f.s. at full capacity, from the bottom of Lake Ontario about two-tenths of a mile offshore through an enclosed intake structure and a screenhouse with trash racks and traveling water screens, and discharged to the bottom of the lake about one-tenth of a mile offshore. Inlet ports are equipped with galvanized steel grillwork having 2-inch by 3-inch spacing. The ports are equipped to accommodate electrical screening for fish protection if found necessary after the plant begins operation. The net heat rise through the condenser, at the assumed 100 percent load factor and circulating water flow, will be about 25° F.

Chemical treatment will be used to control the development of algae in the circulating water system, if necessary. The need for chemical treatment is considered unlikely, however, because fine silt in the circulating water will probably scour the channels sufficiently to effect adequate control.

Lake Ontario supports both commercial and sports fisheries of considerable magnitude. The dominant fish species, in order of greatest quantity in the commercial landings, include whitefish, carp, bullheads, yellow perch, smelt, American eel, sunfishes, and walleye. The principal sport fishes include smallmouth bass, yellow perch, walleye, bullheads and northern pike. Fishing pressure is moderate in the general project area, and moderate to heavy in Henderson and Sacketts Harbors and in Mexico Bay.

The applicant has developed an environmental surveillance program in which radiological monitoring of the biota depends upon the amount of radioactivity being released. For example, if the resulting one-year average concentration in the lake is less than 1/10 of the Maximum Permissible Concentrations established by the Code of Federal Regulations (10 CFR 20), no samples would be taken for analysis. When the average concentration of radioactivity exceeds 1/10 of the Maximum Permissible Concentrations, radionuclide surveillance would be maintained and biological samples would be collected periodically for radiochemical analysis. When biological sampling is indicated, organisms would include fish, clams, snails, fresh water shrimp (Gammarus), insect cases, and sponges.

Although the proposed radiological monitoring program itself appears to be satisfactory, the concept of having sampling frequency dependent only upon the amount of radioactivity released is not sound. Since the concentrations of radioactive effluent may be averaged over a 52-week period in order to conform to the Code of Federal Regulations, it is conceivable that concentrations will substantially exceed Maximum Permissible Concentrations during some portions of this time period. If the rate of dilution were the only consideration, these limits would be adequate criteria for determining the maximum safe rate of discharge. However, radioactive isotopes are concentrated by organisms which require many of the stable forms of these elements for their normal metabolic activities, and some organisms concentrate radioisotopes not normally required but which are chemically similar to elements essential for metabolism.

The radioactive content of the biota should be considered in establishing the rates of discharge of effluents, rather than using only the Maximum Permissible Concentrations as criteria for discharge rates. The radiological program should be modified and copies of the results of these surveys should be provided to the Secretary of the Interior as soon as the data are compiled.

We recommend that the Niagara Mohawk Power Corporation be required to:

1. Conduct radiological surveys of the environment in the vicinity of the plant every three months during the first year of reactor operation and every six months thereafter or until it has been conclusively demonstrated that no significant adverse conditions exist.
2. Collect and analyze samples for contained radioactivity as follows:
 - A. Water and sediment samples should be collected within 500 feet of the reactor effluent outfall.

- B. Aquatic plants and the animals (fish, clams, snails, Gammarus, insect cases, and sponges) mentioned in the Safety Analysis Report should be collected as near as possible to the reactor effluent outfall.
 - C. Samples of biological material should be analyzed for both beta and gamma radioactivity. Water and sediment samples need be measured only for gamma radioactivity;
3. Make modifications in project structures and operations to reduce the discharge of radioactive waste to acceptable levels if it is determined from the surveys that the release of radioactive material from the project results in harmful concentrations of radioactivity in fish and wildlife.

We understand it is the Commission's opinion that its regulatory authority over nuclear power plants involves only those hazards associated with radioactive materials. However, we recommend and urge that, before the permit is issued, thermal pollution and other detrimental effects to fish and wildlife which may result from plant construction and operation be called to the attention of the applicant. Measures designed to minimize detrimental effects of thermal pollution, pumping and other project operations on fish and wildlife resources should be developed by the applicant in cooperation with the New York Conservation Department, Division of Fish and Game and the U. S. Fish and Wildlife Service.

We are particularly concerned with the possibility of damages to aquatic life from heated effluent. Large volumes of heated water discharged into the lake may not only be detrimental to fishery resources directly but may also affect these resources indirectly through changes affecting the environment.

Ecological surveys, to measure biological and ecological changes in the lake, should be carried out prior to and during plant operation so that comparative data will be available for analysis. These surveys should be planned in cooperation with the U. S. Fish and Wildlife Service, the Federal Water Pollution Control Administration, and the New York Conservation Department, Division of Fish and Game. If these surveys establish that the heated water discharged into Lake Ontario results in changes in the environment that are significantly detrimental to fish and wildlife, as determined by the above named agencies, corrective measures should be taken to reduce the temperature of the effluent to acceptable levels.

Another potential hazard to fishery resources in the lake is the cooling-water intake. Unless the intake is adequately screened, fish and other aquatic organisms may be drawn in and destroyed. Suitable fish protective facilities should be installed to prevent loss of fish through the intake structure.

In view of the Administration's policy to maintain, protect, and improve the quality of our environment and most particularly the water and air media, we request that the Commission urge the Niagara Mohawk Power Corporation to:

1. Cooperate with the Fish and Wildlife Service, the Federal Water Pollution Control Administration, the New York Conservation Department, Division of Fish and Game, and other interested State agencies in developing plans for ecological surveys, initiate these surveys prior to reactor operation, and continue them on a regular basis or until it has been demonstrated conclusively that no significant adverse conditions exist.
2. Meet with the above mentioned Federal and State agencies to discuss new plans and to evaluate results of existing surveys.
3. Construct, operate and maintain such fish protective facilities over the intake structure as are needed to prevent significant damage to fishery resources.
4. Make such modifications in project structures and operations as may be determined necessary as a result of the surveys.

The opportunity for presenting our views on this project is appreciated.

Sincerely yours,


Acting Commissioner

