UNITED STATES NUCLEAR REGULATORY COMMISSION

NIAGARA MOHAWK POWER CORPORATION

DOCKET NO. 50-410

ENVIRONMENTAL ASSESSMENT AND FINDING OF

NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. NPF-69, issued to Niagara Mohawk Power Corporation (the licensee), for operation of the Nine Mile Point Nuclear Station, Unit 2 (NMP-2), located in Oswego County, New York.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

This Environmental Assessment has been prepared to address potential environmental issues related to the licensee's application to amend the NMP-2 operating license dated July 22, 1993, as supplemented January 9, 1995. The proposed amendment would increase the licensed core thermal power from 3323 MWt to 3467 MWt, which represents an approximate increase of 4.3% over the current licensed power level. This request is in accordance with the generic boiling water reactor (BWR) power uprate program established by the General Electric Company (GE) and approved by the U.S. Nuclear Regulatory Commission (NRC) staff in a letter from W. Russell, NRC, to P. Marriotte, GE, dated September 30, 1991. Implementation of the proposed power uprate at NMP-2 will result in an increase of steam flow to approximately 105% of the current operating limit, but will require no changes to the basic fuel design. Core reload design and fuel parameters will be modified as power uprate is

implemented to support the current 18-month reload cycle. The higher power level will be achieved by expanding the power/flow map and by increasing, slightly, reactor vessel dome pressure. The maximum recirculation flow limit will not be increased over the preuprate value. Implementation of this proposed power uprate will require minor modifications, such as, resetting of the low set safety relief setpoints, as well as the calibration of plant instrumentation to reflect the uprated power. Plant operating, emergency, and other procedure changes will be made where necessary to support uprated operation.

The proposed action involves NRC issuance of a license amendment to uprate the authorized power level by changing the operating license, including Appendix A of the license (Technical Specifications). No change is needed to Appendix B of the license (Environmental Protection Plan - Nonradiological).

The Need for the Proposed Action:

The proposed action would authorize the licensee to increase the potential electrical output of NMP2 by approximately 45 megawatts and thus would provide additional electrical power to service domestic and commercial areas of the licensee's grid.

Environmental Impacts of the Proposed Action:

The "Final Environmental Statement (FES) related to operation of Nine Mile Point Nuclear Station, Unit No. 2" was issued May 1985 (NUREG-1085). By letter of July 22, 1993, the licensee submitted the proposed amendment to implement power uprate for NMP2, which is the subject of this environmental assessment. Section 11.3 of the NMP2 power uprate licensing topical report

(GE report NEDC-31994P, Revision 1) which was submitted as Enclosure 3 to NMPC's July 22, 1993, submittal, provided an environmental assessment of the proposed power uprate. Some environmental effects will remain the same, while power uprate may nominally increase others. Actual effects are at worst proportional to the approximately 5% increase in turbine steam flow. Increased core flow has no discernable effect on the environmental assessment.

The licensee provided information regarding the nonradiological and radiological environmental effects of the proposed action in the July 22, 1993, application and in its supplemental information dated January 9, 1995. The NRC staff has reviewed the potential nonradiological and radiological effects of the proposed action on the environment as described below.

Nonradiological Environmental Assessment:

Power uprate will not change the method of generating electricity nor the method of handling any influents from nor effluents to the environment. Therefore, no new or different types of environmental impacts are expected.

The NRC staff reviewed the nonradiological impact of operation at uprated power levels on influents from and effluents to Lake Ontario. NMP-2 utilizes a closed-loop circulating water system and a natural draft cooling tower for dissipating heat from the main turbine condenser. Other equipment is cooled by the service water system. The cooling tower and service water system are operated in accordance with the requirements of the State Pollutant Discharge Elimination System (SPDES) Permit No. NY-000-1015, which was issued by the New York State Department of Environmental Conservation (NYSDEC) on October 26, 1994, and became effective on December 1, 1994. It expires on December 1, 1999. This new discharge permit was issued by New York State since the previous permit had expired.

The withdrawal of cooling water from Lake Ontario is expected to increase slightly due to the increased heat loads. Emergency system flows are expected to remain generally unchanged. Increased heat loads are expected for nonsafety related loads such as the main generator stator coolers, hydrogen coolers, and exciter coolers. These systems, as well as other systems (e.g., RHR heat exchangers, emergency diesel generator coolers, and spent fuel pool heat exchangers) noted in Section 6 of the July 22, 1993, submittal are expected to require additional cooling and an increase in flowrate. The increase in water intake to the cooling tower is due to increased evaporation in the cooling tower. The increase in flowrate is expected to be small and within a nominal 5 percent increase. Conservatively assuming a 5 percent increase in the withdrawal rate, the intake approach flowrate velocity is expected to increase from 0.5 fps to 0.53 fps. Observations by the licensee have shown fish impingement to be very low and in most cases nonexistent. The NYSDEC has evaluated the potential effects of the current intake flowrate and has concluded that no special aquatic studies are required to assess the biological impact. No aquatic studies were included in the licensee's new SPDES discharge permit which was effective December 1, 1994. The licensee has stated that because the current intake flowrates are low and the aquatic impacts of withdrawal are minimal, an increase of 5 percent is not expected to result in a significant impact, if any impact at all. The NRC staff agrees with the licensee's assessment and does not expect any significant impact due to the 5 percent increase in withdrawal flowrate.

The licensee does not expect an increase in the cooling tower blowdown. The cooling tower blowdown rate is controlled by total copper concentration in the circulating water system and the economic use of water treatment

chemicals. The current blowdown rate is approximately 40 percent of the designed rate and is restricted to ensure compliance with the total copper concentration limitation imposed by the SPDES permit and by economic use of water treatment chemicals. The licensee has stated that if the blowdown rate was increased by 5-10 percent in order to evaluate cooling tower efficiency and to reduce the cycles of concentration of natural salts in the circulating water system, the copper limitation could still be met and the flowrate impact would be less than design. In addition, the NYSDEC has evaluated the service water and cooling tower blowdown based on the original design flowrates, as well as the state of the art technology of the discharge diffuser. The NYSDEC has concluded that no thermal measurements or thermal plume studies are necessary because of the low flowrates and the design of the discharge structure. Therefore, the licensee concluded that because the withdrawal rate is currently low and the cooling tower blowdown rate is currently below original design, the 5 percent increase in water withdrawal or an increase in blowdown is not expected to result in any additional environmental impact since any increase in flowrate is expected to be no more than the original system design. The NRC staff has reviewed the licensee's assessment and concludes the increased flowrates will not result in a significant increase in environmental impact.

The licensee has conservatively estimated that the power uprate will result in an annual increase in dissolved solids from water passing through the soil in the area of the Energy Center of approximately 0.012 ppm. Since even the most sensitive species are not affected by soil salinization of less than 1,280 ppm, it is highly unlikely that even salt-sensitive species would be measurably affected by this additional deposition rate during operation of

the NMP-2 cooling tower at power uprate conditions. Therefore, the NRC staff has concluded that the increase in cooling tower drift due to the proposed power uprate will have no significant increase in environment impact and would still be well below the levels of concern to local soil and vegetation.

Nonradiological effluent discharges from other systems were also considered. Nonradiological effluent limits for such systems as floor and equipment drains are established in the SPDES permit. Discharges from these systems are not expected to change significantly, if at all, because operation at uprated power levels are governed by the limits in the SPDES permit. Thus, the impact on the environment from these systems as a result of operation at uprated power levels is not significant.

With the exception of the cooling tower, all other significant noise producing equipment associated with the service water and circulating water systems are located inside buildings and/or well below grade where the noise level would have little, if any, environmental impact. There is no expected increase in cooling tower noise levels associated with the proposed power uprate since there are no plans to increase its flow rate as part of the proposed power uprate. The main turbine and generator will operate at the same speed and thus will not contribute to increased offsite noise. Although the main station transformers will operate at a slightly (approximately 4.3 percent) increased kilovolt-ampere level, the slight increase will cause an insignificant increase in the overall noise level. Therefore, the NRC staff has concluded that the outside noise level increase will be insignificant.

The licensee has stated that the proposed power uprate will not require any changes to the SPDES discharge permit nor to the NMP-2 Environmental Protection Plan. The NRC staff agrees with this assessment and, therefore, we

have concluded that the proposed power uprate will have an insignificant impact on the nonradiological elements of concern.

Radiological Environmental Assessment:

The licensee evaluated the impact of the proposed power uprate amendment to show that the applicable regulatory acceptance criteria relative to radiological environmental impacts will continue to be satisfied for the uprated power conditions. In conducting this evaluation, the licensee considered the effect of the higher power level on liquid radioactive wastes, gaseous radioactive wastes, and radiation levels both in the plant and offsite during both normal operation and post-accident.

The floor drain collector subsystem and waste collector subsystem both receive inputs from a variety of sources (e.g., leakage from component cooling water system, reactor coolant system, condensate and feedwater system, turbine plant cooling water system, and auxiliary steam system). However, leakages from these systems are not expected to increase significantly since the operating pressures of these systems are either being maintained constant or are being increased only slightly due to the proposed power uprate.

The largest single source of liquid radioactive waste is from the ultrasonic cleaning of the condensate demineralizers. These demineralizers remove activated corrosion products which are expected to increase proportionally to the proposed power uprate. However, the total volume of processed waste is not expected to increase significantly, since the only appreciable increase in processed waste will be due to the slightly more frequent cleaning of these demineralizers. Based on a review of plant effluent reports and the slight increase expected due to the proposed power uprate, the NRC staff has concluded that the slight increase in the processing

of liquid radioactive wastes will not have a significant increase in environment impact and that requirements of 10 CFR Part 20 and 10 CFR Part 50, Appendix I, will continue to be met.

Gaseous radioactive effluents are produced during both normal operation and abnormal operational occurrences. These effluents are collected, controlled, processed, stored, and disposed of by the gaseous radioactive waste management systems which include the various building ventilation systems, the offgas system, and the standby gas treatment system (SGTS). The concentration of radioactive gaseous effluents released through the building ventilation systems during normal operation is not expected to increase significantly due to the proposed power uprate since the amount of fission products released into the reactor coolant (and subsequently into the building atmosphere) depends on the number and nature of fuel rod defects and is not dependent on reactor power level. The concentration of activation products contained in the reactor coolant is expected to remain unchanged, since the linear increase in the production of these activation products will be offset by the linear increase in steaming rate. Therefore, based on its review of the various building ventilation systems, the NRC staff has concluded that there will not be a significant adverse effect on airborne radioactive effluents as a result of the proposed power uprate.

Radiolysis of the reactor coolant causes the formation of hydrogen and oxygen, the quantities of which increase linearly with core power. These additional quantities of hydrogen and oxygen would increase the flow to the recombiners by 4.3 percent during uprated power conditions. The offgas system was originally designed for 105 percent of warranted steam flow which would

not be exceeded during operation at the proposed uprated power level. Therefore, no changes will be required in the offgas system and since the offgas system will be operated within the originally evaluated design conditions, there will be no environmental impact that was not previously evaluated.

The SGTS is designed to minimize offsite radiation dose rates during venting and purging of both the primary and secondary containment atmosphere under accident or abnormal conditions. This is accomplished by maintaining the secondary containment at a slightly negative pressure (more negative than or equal to -0.25 inch water gauge) with respect to the outside atmosphere and discharging the secondary containment atmosphere through high-efficiency particulate air (HEPA) filters and charcoal absorbers. As noted in the Updated Safety Analysis Report (USAR), the SGTS charcoal absorbers are designed for a charcoal loading capacity of 10 mgI/gC and meet the design requirements for 30-day and 100-day loss-of-coolant accident (LOCA) scenarios. The proposed power uprate would increase the post-LOCA iodine loading by 4.3 percent but the charcoal loading would still remain within the 10 mgI/gC loading and therefore, there would be no significant increase in environmental impact.

The licensee has evaluated the effects of the power uprate on in-plant radiation levels in the NMP-2 facility during both normal operation and post-accident. The licensee has concluded that radiation levels during both normal operation and post-accident may increase slightly (at most, proportional to the increase in power level). The slight increases in in-plant radiation levels expected due to the proposed power uprate are not expected to affect radiation zoning or shielding requirements. Individual worker occupational exposures will be maintained within acceptable limits by the existing as low

as is reasonably achievable (ALARA) program which the licensee uses to control access to radiation areas. Therefore, the NRC staff has concluded that the slightly increased in-plant radiation levels will not have a significant environmental impact.

The offsite doses associated with normal operation are not significantly affected by operation at the proposed uprated power level and are expected to remain well within the limits of 10 CFR Part 20 and 10 CFR Part 50, Appendix I. These limits are imposed by Technical Specifications 3/4.11.1, 3/4.11.2, 3/4.11.3, and 3/4.11.4, which will not be changed by the proposed power uprate. Therefore, the NRC staff has concluded that the offsite doses due to normal operation at the proposed power uprate conditions will not result in a significant environment impact.

The dose evaluations for design basis accidents were performed for issuance of the current operating license based on 105 percent of the current rated power level. The proposed power uprate would be within the assumptions used during original licensing of the plant and; therefore, there will be no increase in environmental impacts over those evaluated in the NRC staff's Final Environmental Statement related to the operation of Nine Mile Point Nuclear Station, Unit No. 2 (NUREG-1085), May 1985.

The NRC staff has concluded that the NRC's FES (NUREG-1085) is valid for operation at the proposed uprated power conditions. The NRC staff also concluded that the plant operating parameters impacted by the proposed uprate would remain within the bounding conditions on which the conclusions of the FES are based.

The NRC staff has reviewed the licensee's reevaluation of the potential radiological and nonradiological environmental impacts for the proposed action. On the basis of this review, the NRC staff finds that the

radiological and nonradiological environmental impacts associated with the proposed small increase in power are essentially immeasurable and do not change the conclusion in the FES that the operation of NMP-2 would cause no significant adverse impact upon the quality of the human environment.

Accordingly, the Commission concludes that this proposed action would result in no significant radiological or nonradiological environmental impact.

Alternative to the Proposed Action:

Since the Commission has concluded there is no measurable environmental impact associated with the proposed action, any alternatives with equal or greater impact need not be evaluated. The principal alternative would be to deny the requested amendment. Denial would not significantly reduce the environmental impact of plant operations, but would restrict operation of NMP-2 to the currently licensed power level. Denial of the amendment would prevent the facility from generating the approximately additional 45 MWe that is obtainable from the existing plant.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the "Final Environmental Statement related to the operation of Nine Mile Point Nuclear Station, Unit No. 2," dated May 1985.

Agencies and Persons Consulted:

The Commission's staff reviewed the licensee's request and consulted with the New York State official regarding the environmental impact of the proposed action. The State official had no comment regarding the NRC's proposed action.

FINDING OF NO SIGNIFICANT IMPACT

Based upon the foregoing environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment.

Accordingly, the Commission has determined not to prepare an environmental impact statement for the proposed license amendment.

For further details with respect to this action, see the application for amendment dated July 22, 1993, as supplemented January 9, 1995. These documents are available for public inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, NW, Washington, DC 20555 and at the Reference and Documents Department, Penfield Library, State University of New York, Oswego, New York 13126.

Dated at Rockville, Maryland, this 24th day of February 1995.

FOR THE NUCLEAR REGULATORY COMMISSION

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