NMP-3817 LER

NIAGARA MOHAWK POWER CORPORATION

NIAGARA MOHAWK

300 ERIE BOULEVARD, WEST
SYRACUSE, N. Y. 13202

October 30, 1981

Mr. Ronald C. Haynes, Director
United States Nuclear Regulatory Comm.
Region I
631 Park Avenue
King of Prussia, PA 19406

Re: Docket No. 50-220

Dear Mr. Haynes,

On July 8-9, 1981, after four months of refueling outage and during startup, a controlled discharge of liquid radioactive waste into Lake Ontario totaling 5.3 curies occurred at the Nine Mile Point Unit #1 generating facility. Enclosed herein, in compliance with Environmental Technical Specification 2.4.1.h, is a report detailing (I) the causes of the release and (II) actions taken to reduce the frequency and magnitude of future releases.

Sincerely,

T E Lempges

Thomas E. Lempges
Vice President
Nuclear Generation

TEL/jb/jm
Enclosures

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II. CAUSES OF THE RELEASE

The following conditions directly or indirectly necessitated the release of liquid radioactive waste into Lake Ontario in July 1981:

1) The influx of floor drain waters into the Radwaste facility during the first week of July 1981 exceeded the storage capacity of the system and the processing capabilities of the Waste Concentrator. #11 and #12 Floor Drain Sample Tanks, the Floor Drain Collector Tank, the Waste Neutralizer Tank and the Waste Surge Tank were all filled or nearly filled with high conductivity liquid waste.

2) The performance of the Radwaste demineralizer was unexpectedly poor during the latter part of the outage, resulting in considerable downtime, frequent resin regenerations and a backlog of "clean waste" (ie, radioactive liquid waste with a conductivity less than 20μmhos/cm).

3) The processing of approximately 500,000 gallons of torus water in the early part of the outage yielded a high inventory of filter sludge and necessitated additional resin regenerations.

4) The cation tank lateral network, an integral part of the resin regeneration system, was readjusted during the outage and required about one week downtime. This further reduced the frequency of permissible Radwaste demineralizer regenerations and the associated processing of equipment drain waters.

5) Cross contamination of equipment drain sumps in Radwaste Building 229' elevation with high conductivity floor drain - filter sludge waters from Radwaste 225' elevation was imminent unless prompt action was taken.

In response to the backlog of Radwaste waters noted above, several actions, including liquid waste discharge to Lake Ontario, were evaluated. To prepare for a potential discharge, the 50,000 gallon Waste Surge Tank (on a continuous recirculation mode) was sampled and isotopically analyzed on July 7, 1981. Finally, on July 8, 1981, condition #5 noted above dictated no alternative recourse and the discharge commenced.

Pertinent data associated with the release is listed on Table #1. The discharge conformed with all 10CFR20 and Environmental Technical Specification limits regarding nuclide concentrations and quantities.

II. ACTION PLAN

Nine Mile Point #1 has made a conscious effort in recent years to limit the discharge of liquid radioactive waste into Lake Ontario. For example, in the 42 month period between late 1977 and July 1981, less than 2 curies of liquid waste was discharged. This value, on the average, represents only about 12% of the design objective release goal of 5 curies/year (Environmental Technical Specifications - Section 2.4).

Despite present capabilities to stay well within 10CFR20 and design objective discharge limitations during normal operation, several measures are now under consideration (*), planned for implementation (**) or already being implemented (***); which should further enhance the station's commitment toward the 10CFR50 ALARA concept and reduce the frequency and magnitude of future liquid radioactive discharges.

1) The processing of filter sludge material through a newly installed phase separator thereby reducing concentrator inputs (**).

2) The procurement of two large capacity, semi-portable, standby demineralizers for use during Radwaste demineralizers downtimes (if necessary). (***)

3) The installation of an additional 15gpm evaporator for the processing of high conductivity waste. (**)

4) Replacement of the Waste Surge Tank with a new tank of larger capacity. (*)

5) The installation of either or both an additional storage tank and an additional demineralizer in the Radwaste Complex. (*)

TABLE 1

Tank Discharge Rate (gpm)	30
Dilution Water Flow (gpm)	2.11E5
Batch MPC (µCi/ml)	1.9E-5
Activity Concentration in Discharge Canal (µCi/ml)	7.4E-6
% MPC in Discharge Canal	39