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50-410 Nine Mile Point Nuclear Station, Unit 2, Niagara Moha 05000410
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SUBJECT: "~~NRDES~~/SPDES Discharge Monitoring Rept for Jul-Dec 1989."
W/900209 ltr.

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NIAGARA MOHAWK

NMP62119

NINE MILE POINT NUCLEAR STATION / P.O. BOX 32 LYCOMING, NEW YORK 13093 / TELEPHONE (315) 343-2110

February 9, 1990

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

The following report has been issued so that the Commission's staff may be kept informed of any changes in the site's NPDES/SPDES Discharge Permit (No. NY-000-1015) and any permit violations. The site's permit is applicable to both Nine Mile Point Nuclear Station Unit 1 and Unit 2.

During the period of July-December 1989, there were six occurrences where the station failed to meet the requirements of the SPDES Discharge Permit. Of these occurrences, five were due to a failure to continuously record discharge temperature and flow parameters at Unit 2. Data for these parameters were obtained from hourly computer printouts instead of the chart recorder which was inoperable. The sixth occurrence was at the site sewage treatment plant where the total residual chlorine of the final effluent exceeded the SPDES Discharge Permit requirement for a short period of time. These occurrences were considered minor and had no significant impact on the environment. In addition, as the result of a sulfuric acid leak, the Unit 2 circulating water system experienced abnormally high copper levels. Before discharging this water to Lake Ontario, Niagara Mohawk obtained an Emergency Authorization for discharge from the New York State Department of Environmental Conservation. The controlled discharge was not a violation of the effluent limitations for the circulating water system contained in the discharge permit.

Attached are copies of the summary report sent to the New York State Department of Environmental Conservation detailing the permit violations and the copper excursion.

Niagara Mohawk has not received any revisions to the station's SPDES Discharge Permit during the period of July-December 1989. The existing permit, which expired July 1, 1988, is expected to be renewed in the near future by the New York State Department of Environmental Conservation. Relative to this matter, Niagara Mohawk received a "Request for Extension of Uniform Procedures Act (UPA) Deadline" from the New York State Department of Environmental Conservation requesting more time to process the permit renewal. More recently, Niagara Mohawk has received from the State of New York a draft permit dated December 28, 1988 and a request for comments. Niagara Mohawk provided comments to the State of New York on March 10, 1989. Once the permit renewal is received, Niagara Mohawk will notify the Commission as part of the normal six-month update status report on the station's SPDES Permit and as part of any reporting requirements contained in Appendix B of the Unit 2 License (Environmental Protection Plan). In the meantime, the requirements of the expired permit will be followed.

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Niagara Mohawk will fulfill the requirement to keep the NRC staff informed of any changes in the NPDES/SPDES Discharge Permit or of any permit violations. Such information will be supplied on a semi-annual basis.

In the event there are any questions concerning permit violations and revisions, or the reporting schedule, please contact Mr. Hugh Flanagan at (315) 349-2428.

Sincerely,

James L. Willis
General Superintendent
Nuclear Generation

JLW:HF:jg
(0536b)

Attachment

cc: William T. Russell
Regional Administrator

H. J. Flanagan

w/o Attachments

K. A. Dahlberg
R. B. Abbott
M. A. Peifer

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
JULY 1989

COMMENTS

1. There were no discharges from the Unit 2 Waste Neutralizing Tank to the Sewage Treatment Facility during July 1989.

2. For the month of July 1989, chart recording papers for several permit parameters relative to outfall 040 could not be located by the time the July Discharge Monitoring Report was prepared. The parameters in question, however, had been continuously recorded as required by the permit. For the parameters of Flow, Discharge Temperature, and Intake-Discharge Temperature Difference, data for the dates of July 6-15 and July 26-31 were obtained from the station computer which records hourly values. For the parameter of Free Available Chlorine, data for July 5-31 were also obtained from the station computer. In order to prevent a recurrence of this situation in the future, chart papers will be charged out or handled in a different manner to ensure their availability.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
AUGUST 1989

COMMENTS

1. There were no discharges from the Unit 2 Waste Neutralizing Tank to the Sewage Treatment Facility during August 1989.

2. No preprinted DMR form was received for outfall 022 (Security Building Air Conditioning). There were no discharges from this outfall directly to Lake Ontario (receiving water body) during August 1989. Any discharge during August 1989 was directed to the Site Sewage Treatment Facility.

3. For the month of August 1989, chart recording papers for several permit parameters relative to outfall 040 could not be located by the time the August Discharge Monitoring Report was prepared. The parameters in question, however, had been continuously recorded as required by the permit. For the parameters of Flow, Discharge Temperature, and Intake-Discharge Temperature Difference, data for the missing charts were obtained from the station computer which records hourly values. In order to prevent a recurrence of this situation in the future, chart papers will be charged out or handled in a different manner to ensure their availability.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
SEPTEMBER 1989

COMMENTS

1. There were no discharges from the Unit 2 Waste Neutralizing Tank to the Sewage Treatment Facility during September 1989.

2. No preprinted DMR form was received for outfall 022 (Security Building Air Conditioning). There were no discharges from this outfall directly to Lake Ontario (receiving water body) during September 1989. Any discharge during September 1989 was directed to the Site Sewage Treatment Facility.

3. For a period of time during the month of September 1989, the Circulating Water System (Cooling Tower System) was dewatered for system maintenance while Unit 2 was shutdown. During this period where the Circulating Water System was dewatered (09/11-22/89), twice per week pH grab samples were not obtained from outfall 040 because the system was dewatered. Data included under outfall 040 were obtained from periods of time other than 09/11-22/89 where the Circulating Water System was operable.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
OCTOBER 1989

COMMENTS

1. There were no discharges from the Unit 2 Waste Neutralizing Tank to the Sewage Treatment Facility during October 1989.

2. No preprinted DMR form was received for outfall 022 (Security Building Air Conditioning). There were no discharges from this outfall directly to Lake Ontario (receiving water body) during October 1989. Any discharge during October 1989 was directed to the Site Sewage Treatment Facility.

3. The strip chart recorder used to measure outfall 040 (Cooling Tower Blowdown) parameters for discharge temperature, condenser intake/discharge delta temperature and flow was inoperable for intermittent periods of time for October 6-31, 1989. For periods of time when the recorder was inoperable, data was obtained from the station's process computer on an hourly basis. The recorder was not able to be repaired and a replacement recorder has been ordered. The replacement recorder will be installed as soon as it is available.

   Also during the period of October 6-31, 1989, the station process computer was inoperable on October 13-14, 1989. Data for these two days were obtained from days immediately preceding or subsequent to the days in question where the station was at comparable power levels. Data obtained in this manner was conservative.

4. On October 23, 1989, the sewage treatment plant (outfall 030) final effluent total residual chlorine was measured at 2 ppm. This value exceeded the permit maximum value of 0.5 ppm. The time of occurrence started at some point during the early morning hours of October 23 and ended at approximately 1030 hours the same day. The cause of the occurrence was the failure of the chlorine room temperature controlled intake vent to close. Low morning temperatures on October 23, 1989 affected the electronic flow pacing equipment in the chlorine room. The low temperature caused the chlorine pump to operate at higher speeds than normal. The automatic vent was manually closed and the chlorine room temperature setting was increased. In addition, a Work Request was written to repair the temperature controlled intake vent. The chlorine pump flow pacing equipment has operated normally since the date of the occurrence.

4. (Cont'd)

An elevated chlorine concentration of 2 ppm in the final effluent is not expected to result in a significant environmental impact since the final effluent discharges to the west site drainage ditch where it is significantly diluted prior to entry into the critical receiving water (Lake Ontario). As a result of the volume of water in the drainage ditch and the distance to Lake Ontario, the total residual chlorine concentration of 2 ppm would be reduced to an insignificant level.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
NOVEMBER 1989

COMMENTS

1. There were no discharges from the Unit 2 Waste Neutralizing Tank to the Sewage Treatment Facility during November 1989.

2. The strip chart recorder used to measure outfall 040 (Cooling Tower Blowdown) parameters for discharge temperature, condenser intake/discharge delta temperature and flow was inoperable for November. Data was obtained from the station's process computer on an hourly basis. The recorder was not able to be repaired and a replacement recorder has been ordered. The replacement recorder will be installed as soon as it is available.

3. On October 24, 1989, the station became aware that excess acid (sulfuric acid) had leaked into the Nine Mile Point Nuclear Station Unit 2 circulating water system. Acid had leaked into the system from the normal acid injection point. The Unit 2 facility was shutdown at this time. As a result of the leak, the pH of the circulating water system decreased to approximately 2.5 - 2.8. During this time, excess copper was removed from the condenser tubes and put into solution. A portion of the copper precipitated onto carbon steel structures within the system. The system was not being blowndown during the acid leak, nor subsequent to the leak. The total copper was measured at approximately 28 ppm after the system was neutralized with sodium hydroxide.

   The NYSDEC was contacted on October 25, 1989 at approximately 1000 hours and informed of the situation. The NYSDEC asked Niagara Mohawk for options on how the copper could be cleaned up. Niagara Mohawk provided several cleanup options. All of the options except one were either not feasible or practical from a reactor safety point of view, a logistical point of view or an environmental point of view. The NYSDEC was informed of the options on October 28, 1989. The option approved for use was the slow discharge of the circulating water system to the Unit 1 facility where the copper would be greatly diluted. This method was the only method that was logistically practical and would minimize the impact to the environment.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
NOVEMBER 1989

On October 31, 1989, the NYSDEC issued an Emergency Authorization to discharge the Unit 2 circulating water to Lake Ontario. The authorization required the discharge to occur through the Unit 1 facility where the copper contaminated water would be diluted. A limitation of 10 ppb soluble copper in the mixing area in Lake Ontario was contained in the authorization.

Discharge was initiated on November 2, 1989 at a flowrate of 1200 gpm. The total copper at this time was 17.8 ppm. The soluble copper was 260 ppb. Samples of the circulating water system were obtained daily to determine the total and soluble copper concentration. The acceptable discharge rate was determined by dilution of the daily samples at various dilution amounts. The dilution factor that showed a soluble copper result of less than 10 ppb was used to calculate the discharge rate to the Unit 1 facility. The discharge to the Unit 1 facility was accomplished by portable pumps and temporary hoses and piping. This process continued throughout the month of November. The initial Emergency Authorization was extended for another 30 days on November 28, 1989. At the end of November, the total copper was 636 ppb and the soluble copper was 371 ppb.

At the initiation of discharge on November 2, 1989, the total suspended solids was 77 ppm which exceeded the permit monthly maximum of 50 ppm for a normal batch discharge, although the circulating water system has no specific permit limit for total suspended solids. Oil and grease was found to be 9.4 ppm and the pH was 8.5, both of which were within normal permit limitations, although the circulating water system has no specific limitation for oil and grease. The total suspended solids in the system was higher than normal because the low pH, which had occurred when acid leaked into the system, caused etching of the concrete structures.

On November 10, 1989, an additional sample was obtained from the Unit 2 circulating water system and analyzed for iron and zinc. These analyses were performed because the circulating water system contains steel structures and because the condenser tubes contain zinc in addition to copper. Results for iron and zinc analyses showed concentrations of 873 ppb and 259 ppb respectively.

DISCHARGE MONITORING REPORT
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NINE MILE POINT NUCLEAR STATION
NOVEMBER 1989

During the month of November, the 10 ppb soluble copper limitation was not exceeded. There were, however, two occurrences where the temporary water lines leaked. These occurrences included the following. On November 25, 1989, a section of hard piping had to be repaired. An estimated 200 - 300 gallons of water at a total and soluble copper concentration of 838 ppb and 340 ppb respectively was released to the roadway storm sewer system and subsequently discharged to Lake Ontario. The discharge occurred over an estimated period of 10 - 15 minutes. On November 29, 1989, a heavy load vehicle accidentally backed into the hard pipe line and caused a maximum of 1000 gallons to be released to the site drainage ditch. The water was diluted in the drainage ditch and discharged into Lake Ontario. The total and soluble copper concentration was 635 ppb and 364 ppb respectively. Samples of the drainage ditch prior to entry into Lake Ontario showed the total and soluble copper concentration at 50 ppb and 34 ppb respectively.

A continuation of the description of the discharge of copper contaminated water to Lake Ontario for the month of December will be provided in the Discharge Monitoring Report for the month of December.

Immediate and near term actions that have been taken to prevent the leakage of acid into the circulating water system include the following. Immediate actions include the isolation of the normal acid supply system. Isolation was accomplished by removing a section of the acid feed system piping and placing a blank flange on each end. As a near term action, a temporary acid feed system was installed that consisted of small diameter acid resistant tubing and a series of six small acid resistant chemical feed pumps. Any leakage from the temporary acid feed system would be noted in a short period of time and would result in a minimal amount of acid leakage into the circulating water system. A minimal amount of acid leakage would not significantly affect the system since the system contains approximately 8 million gallons of water.

Another near term action includes an investigation of what caused the initial acid leakage and a determination of what needs to be done in the long term to either modify the existing permanent acid feed system, modify the system operating procedures, or both. An alternate system may also be designed and installed if necessary. This investigation is continuing at the present time.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
DECEMBER 1989

COMMENTS

1. There were no discharges from the Unit 2 Waste Neutralizing Tank to the Sewage Treatment Facility during December 1989.

2. The strip chart recorder used to measure outfall 040 (Cooling Tower Blowdown) parameters for discharge temperature, condenser intake/discharge delta temperature and flow was inoperable until December 26. During the time period when the recorder was inoperable, data were obtained from the station's process computer on an hourly basis. A new strip chart recorder was installed and calibrated on December 26, 1989.

3. The following summary comment concerns the discharge of copper contaminated water from the Unit 2 circulating water system. The discharge was initiated on November 2, 1989 under an Emergency Authorization issued by the NYSDEC. Details of the discharge during November are provided in comment number 3 of the November 1989 Discharge Monitoring Report.

During the month of December 1989, the discharge of copper contaminated water continued. Copper during this period is believed to have originated from copper precipitated onto the carbon steel structures within the circulating water system and to a smaller extent, from normal copper loss from the Admiralty brass condenser tubes. Copper concentrations ranged from 152 to 842 ppb total copper and 68 to 416 ppb soluble copper. The minimum value of 68 ppb soluble copper resulted from the approved addition of Copper-Trol, an azole based copper corrosion inhibitor. Copper-Trol, in addition to preventing the corrosion of copper from the condenser tubes, also binds with soluble copper to convert it to insoluble copper. Normal soluble copper concentrations generally ranged from 100 to 300 ppb during periods when Copper-trol was not added. The trend of both total and soluble copper was downward during December. Total copper concentrations also fluctuated significantly when the Unit 2 facility was in an operable versus inoperable mode. Total copper concentrations were lower when the Unit 2 facility was not operating. This observation is believed to be as a result of the greater solubility of copper at warmer temperatures.

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DECEMBER 1989

The soluble copper concentration in Lake Ontario was maintained well below 10 ppb as a result of the discharge of the Unit 2 circulating water system through the Unit 1 facility. The Emergency Authorization required the copper concentration in Lake Ontario (near field dilution area) to be less than 10 ppb.

On December 22, 1989, Niagara Mohawk requested on Amendment to the Emergency Authorization (NMP59576). The Amendment basically allowed for the discharge of the Unit 2 circulating water system through the normal station blowdown routes and/or through the Unit 1 facility circulating water system. The Amendment also provided for a copper limitation of 17 ppb <u>total</u> copper in the near field dilution zone in Lake Ontario and a monitoring program with a frequency of twice per week. In addition, the Amendment allowed for the use of Copper-Trol on a weekly basis, as needed. Niagara Mohawk also requested, in correspondence dated December 22, 1989 (NMP59577), that the requirements of the amended Emergency Authorization be added to the SPDES Discharge Permit. The requested Amendment to the Emergency Authorization was approved by the NYSDEC shortly after the submittal.

Under the terms and conditions of the amended Emergency Authorization, the concentration of total copper in Lake Ontario is limited to 17 ppb. During the period of time when the amended Emergency Authorization was in effect, the maximum total copper concentration under the required terms was 8.2 ppb from discharge through the Unit 2 facility and 4.8 ppb from discharge through the Unit 1 facility.

On December 29, 1989, an additional sample was obtained for total iron and total zinc analysis. These results showed the Unit 2 circulating water system contained a total iron concentration of 306 ppb and a total zinc concentration of 67 ppb.

As noted previously, the effluent limitations for copper were not exceeded. There was one occurrence during December 1989, however, when the temporary piping system developed a slow leak north of the Unit 1 Radwaste facility. The leak essentially allowed a small amount of water being pumped from the Unit 2 circulating water system to enter the Unit 1 storm sewer system. Samples of the storm sewer system prior to entry into Lake Ontario showed the total copper concentration to be 318 ppb and the soluble copper concentration to be 11.7 ppb. The leak started on December 4 in the late afternoon hours and was repaired December 5 in the morning. The impact of the leak is considered to be insignificant since the leak was small (less than 0.5 gpm) and the soluble copper concentration in Lake Ontario in the immediate mixing area was less than 10 ppb.

On December 21, 1989, water from the Unit 2 circulating water system was inadvertently discharged to Lake Ontario through the service water system. The discharge rate was approximately 4,000 gpm and the total discharge time was 16 minutes. The time of occurrence was 1813 hours to 1829 hours. A sample taken of the Unit 2 circulating water system on December 21, showed a total copper result of 515 ppb. The soluble copper was 266 ppb. The Emergency Authorization to discharge copper contaminated water from the Unit 2 circulating water system prohibited the discharge of such water through the Unit 2 facility. Discharge was only allowed through the Unit 1 facility.

The cause of the inadvertent discharge was an improper lineup of the valves in the intake and service water systems. The sequence of events relative to this occurrence are as follows. On December 21, the Unit 2 facility noted a significant amount of ice in the intake system. Ice of this type in the intake system is referred to as frazzle ice and is identified by its "slush" like characteristics. Frazzle ice originates from the process of withdrawing water from Lake Ontario under cold water temperature and cold air temperatures. The occurrence of frazzle ice was taken into account by the design of the Unit 2 facility. Under normal conditions, a portion of the heated circulating water system is discharged into the intake canal and melts the incoming ice. The water at this point is mixed with the intake water (lake water) and is either used as makeup water to the circulating water system, as a water for the fish bypass system which is discharged to Lake Ontario or flows through the once through non-contact cooling service water system to Lake Ontario. Since the Emergency Authorization only authorized the discharge of the Unit 2 circulating water system through the Unit 1 facility, the normal process of adding water from the circulating water system to the intake canal could not be utilized. The Unit 2 Operations staff utilized a method of adding discharge water from the non-contact cooling service water system directly into the intake. This method is not a normal procedure. The heat from the service water discharge assists in melting the frazzle ice. A review of the drawings showed the appropriate valve lineup. Shortly after the discharge to the intake canal was initiated, it was noted that more water was being added to the intake canal than what was anticipated. The valve lineup was checked and it was discovered that one valve was open thereby, allowing water from the circulating water system to enter the intake canal.

It must be noted that the abnormal method of melting the frazzle ice was initiated because of a nuclear safety concern. Icing of the intake canal can seriously affect the safety of the station by significantly reducing the flow of cooling water to operating equipment and safety related shutdown cooling systems. An attempt was made to take immediate action to protect the systems at the Unit 2 facility and, at the same time, to meet the requirements of the Emergency Authorization by not discharging copper contaminated circulating water through the Unit 2 facility.

The environmental impact of the inadvertent discharge is not considered to be significant for several reasons. First, the unauthorized discharge lasted for a total of 16 minutes. Second, the concentration of soluble copper in Lake Ontario from the discharge was less than 3.3 ppb. The limitation for soluble copper in Lake Ontario was 10 ppb for discharge through the Unit 1 facility. The total copper concentration was 15 ppb in Lake Ontario as a result of the discharge. Although there was no limitation for total copper at the time of the discharge, the NYSDEC established a limit of 17 ppb subsequent to the discharge. In both cases (soluble and total copper), the calculated concentration in Lake Ontario was below any established limitations set by the NYSDEC. Third, an amendment to the Emergency Authorization issued by the NYSDEC subsequent to the unauthorized discharge allowed the discharge of the circulating water system through the Unit 2 facility.

DISCHARGE MONITORING REPORT
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NINE MILE POINT NUCLEAR STATION
DECEMBER 1989

The steps taken by the Permittee to eliminate the unauthorized discharge was the immediate termination of the discharge once it was determined that the water being discharged was also originating from the circulating water system in addition to the service water system. In addition, the abnormal process of discharging the service water discharge to the intake canal has been incorporated into a procedure. Since the NYSDEC authorized the discharge of the circulating water system through the Unit 2 facility subsequent to the unauthorized discharge, steps were not taken to prevent a recurrence of the incident.

(0405b)