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SUBJECT: NPDES noncompliance notification:on 880721 & 24,cooling tower blowdown effluent showed pH of 4.5 for 130 minutes.

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NIAGARA MOHAWK

NMP44730

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February 6, 1989

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

Gentlemen:

Correspondence dated March 11, 1983, from the Nuclear Regulatory Commission (NRC) transmitted Amendment 51 to Facility Operating License No. DPR-63 (Docket No. 50-220) for the Nine Mile Point Nuclear Station Unit I. Contained therein was a request that the NRC staff 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 Unit 1 and Unit 2.

During the period of July - December 1988, there were two occurrences at the Unit 2 facility where the Station failed to meet the requirements of the SPDES Discharge Permit relative to pH level of the cooling tower blowdown effluent. The two occurrences were considered minor and had no impact on the environment. Attached are copies of the summary reports sent to the Environmental Protection Agency and the New York State Department of Environmental Conservation.

Niagara Mohawk has not received any revisions to the station's SPDES Discharge Permit during the period of July - December 1988. 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 has 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. 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).

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.

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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/HJF/mad
(0874H)

Attachment

cc: William T. Russell
Regional Administrator

H. J. Flanagan

w/o Attachments

C. V. Mangan
K. A. Dahlberg
R. B. Abbott
M. A. Peifer

SPDES DISCHARGE MONITORING REPORT

SUMMARY OF EXCURSIONS

PERMIT NO. NY0001015

Station Nine Mile Point Nuclear Station Month July Year 1988

Type of Discharge Cooling Tower Blowdown

Discharge Serial Number 040

Parameter pH

Permit Limit 6.0 - 9.0 Reported Value 4.5

1. A Description of the Non-Compliance:

The cooling tower blowdown effluent showed a pH value of 4.5 for approximately 130 minutes on July 21, 1988. The time of occurrence was approximately 0435 - 0645 hours.. In addition, on July 24, 1988 the cooling tower blowdown effluent showed a pH value of 4.5 for approximately 45 minutes. The time of occurrence was approximately 1900 - 1945 hours.

2. The Cause of the Non-Complying Discharge Including Its Impact Upon the Receiving Water:

Sulfuric acid is added to the cooling tower circulating water system as part of an effort to reduce scaling and corrosion. During July 1988, a temporary acid addition system was utilized while the normal system was being repaired. On July 21, 1988, the acid addition was decreased as the system pH fell below 7.0. Although the system makeup water was at a pH of greater than 8.0 and the acid addition was reduced, the system pH (and subsequent blowdown pH) fell below a pH of 6.0. Blowdown and acid addition were then terminated to allow the pH to increase. In addition, on July 24, 1988, the circulating water system pH had been gradually decreasing. Acid addition was reduced in order to allow the system pH to increase. The system pH fell below a pH of 6.0 The circulating water system blowdown and acid addition were then terminated to allow the pH to increase.

The major causes of the excursions were the failure to decrease the acid addition to a sufficient level at the proper time and the capacity size (too large) of the acid addition control valve.

The impact upon the receiving water (Lake Ontario) is not significant. The cooling tower blowdown effluent mixes with station service water effluent prior to discharge to Lake Ontario. A review of station records for circulating water system blowdown and service water flowrates was performed and dilution ratios were calculated for the applicable time periods and excursion dates.

SPDES DISCHARGE MONITORING REPORT (Cont'd)

SUMMARY OF EXCURSIONS

PERMIT NO. NY0001015

2. The Cause of the Non-Complying Discharge Including Its Impact Upon the Receiving Water: (Cont'd)

Simulated dilutions in the laboratory showed that the cooling tower blowdown effluent pH, after mixing with the service water system effluent, was elevated to 6.5 for the July 21 excursion date. In addition, for the July 24 excursion, simulated dilution in the laboratory with blowdown and service water flowrate ratios resulted in a final station effluent pH of 8.0. A final pH of 6.5 and 8.0 is within permit limitations and has no significant impact on the receiving water.

3. The Duration of the Period on Non-Compliance:

The duration of the non-compliance on July 21, 1988 was approximately 130 minutes (0435-0645 hours). The duration of the non-compliance on July 24, 1988 was approximately 45 minutes (1900-1945 hours).

4. The Steps Taken by the Permittee to Reduce and/or Eliminate the Non-Compliance:

Immediate corrective actions were taken for both the July 21 and July 24, 1988 excursions. On both occasions, the circulating water system blowdown and acid addition were terminated as soon as possible after the excursions were noted. Termination of the blowdown eliminated the discharge of circulating water at a pH of less than 6.0 to the service water system. The termination of acid addition allowed the isolated circulating water system pH to rise as system makeup water was added to replace water loss through evaporative drift from the cooling tower.

5. Steps Taken by the Permittee to Prevent a Recurrence of the Condition of Non-Compliance:

In addition to the immediate corrective actions noted above to reduce or eliminate the permit non-compliance, several other steps were taken in an attempt to prevent a recurrence. These actions included the following:

- Acid addition was terminated on July 24 after the second occurrence of a pH excursion. Acid addition was not initiated until after the cause of the July 21 and July 24 excursions was determined and corrective actions could be developed and implemented as applicable.

- The cooling tower circulating water system blowdown was set at a high flowrate. This action allowed for a high system makeup water flowrate. A high makeup rate increased the system buffering capacity (in relation to pH) once acid addition is decreased or terminated. This action will assist in reducing the potential of a system pH of less than 6.0.

SPDES DISCHARGE MONITORING REPORT (Cont'd)

SUMMARY OF EXCURSIONS

PERMIT NO. NY0001015

5. Steps Taken by the Permittee to Prevent a Recurrence of the Condition of Non-Compliance: (Cont'd)

- The addition of acid was accomplished in the south canal at the gatehouse instead of both north and south canals. Addition to the south canal requires the acid to proceed through the entire circulating water system prior the final system blowdown. This action allowed for maximum dilution and use of the acid before blowdown.

- An "operator aid" was posted in the Control Room near the pH chart recorder that defined the optimum pH range for system operation. This action provided for a defined understanding of what the system pH should be maintained at and also assisted in reducing the possibility of a pH excursion.

- A smaller capacity valve was installed on the addition system. This action provided better control of the flow of acid to the circulating water system in order to assist in preventing excess acid addition.

6. Contact for Further Information:

Hugh J. Flanagan at (315) 349-2428

SPDES DISCHARGE MONITORING REPORT (Cont'd)

SUMMARY OF EXCURSIONS

PERMIT NO. NY0001015

3. The Duration of the Period on Non-Compliance:

The duration of the non-compliance was approximately 5 minutes (0105 - 0110 hours) on August 6, 1988.

4. The Steps Taken by the Permittee to Reduce and/or Eliminate the Non-Compliance:

Corrective action was initiated immediately. The immediate corrective action taken for the excursion was to terminate the circulating water system blowdown and acid addition as soon as possible after the excursion was noted. Termination of the blowdown eliminated the discharge of circulating water at a pH of less than 6.0 to the service water system. The termination of acid addition allowed the isolated circulating water system pH to rise as system makeup water was added to replace water loss through evaporative drift from the cooling tower.

5. Steps Taken by the Permittee to Prevent a Recurrence of the Condition of Non-Compliance:

In addition to the immediate corrective actions noted above, several other steps were taken in an attempt to prevent a recurrence. These actions included the following:

- The acid injection manifold over the north flume was modified such that the injection ports were sealed. Thus no acid could enter the north flume and immediately enter the circulating water system blowdown.

- The injection manifold over the south flume was modified by sealing two of the eight ports. This would help reduce the possibility of a rapid acid injection rate.

- A change was made to the procedure which controls acid injection. This change required that acid injection be terminated once the circulating water system decreased to a pH of 7.4 or lower. Additionally, acid injection could only be initiated during a shift where site engineering personnel and operations personnel were present.

A pH excursion for the reasons noted above in item 2 is not expected to recur since the temporary acid injection system has been disassembled and removed. The permanent installed system, which had been shutdown for repair, was reactivated at that point.

6. Contact for Further Information:

Hugh J. Flanagan at (315) 349-2428

SPDES DISCHARGE MONITORING REPORT

SUMMARY OF EXCURSIONS

PERMIT NO. NY0001015

Station Nine Mile Point Nuclear Station Month August Year 1988

Type of Discharge Cooling Tower Blowdown Unit No. 2

Discharge Serial Number 040

Parameter pH

Permit Limit 6.0 - 9.0 Reported Value 3.9

1. A Description of the Non-Compliance:

The cooling tower blowdown effluent showed a pH of 3.9 for approximately 5 minutes on August 6, 1988. The time of occurrence was approximately 0105 - 0110 hours.

2. The Cause of the Non-Complying Discharge Including Its Impact Upon the Receiving Water:

Sulfuric acid is added to the cooling tower circulating water system as part of an effort to reduce scaling and corrosion. Prior to the excursion, the circulating water pH had been increasing from a pH of 6.7 to a pH of 7.7. While at a pH of 7.7, the flow of acid was increased to the circulting water system. The acid was added at too rapid a rate which caused the pH to drop rapidly from 7.7 to 6.0 in approximately 8-10 minutes. At this point, the acid flowrate was reduced. At 0105 the pH had dropped to 5.6, and blowdown was isolated. A grab sample of the isolated blowdown line revealed a minimum pH of 3.9.

The major cause of this excursion was the rapid addition of acid to the circulating water system. In addition, the installed valve, which controlled the acid flowrate, was of such a capacity that it was difficult to attain a fine adjustment.

The impact upon the receiving water (Lake Ontario) is not significant. The cooling tower blowdown effluent mixes with station service water effluent prior to discharge to Lake Ontario. A review of station records for circulating water system blowdown and service water flowrates was performed and a dilution ratio was calculated.

Simulated dilutions in the laboratory showed that the minimum cooling tower blowdown effluent pH, after mixing with the service water effluent, was elevated to a value of 7.0 during the excursion. A final pH of 7.0 is within permit limitations and has no significant impact upon the receiving water.