GPU Nuclear

GPU Nuclear Corporation
Post Office Box 480
Route 441 South
Middletown, Pennsylvania 17057-0191
717 944-7621
TELEX 84-2386
Writer's Direct Dial Number:
(717) 948-8005

February 26, 1992
C311-92-2031

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Dear Sir:

Subject: Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Final Response for Generic Letter 88-14,
Generic Issue 8107 and TAC 71730

This letter is to confirm that the actions necessary to satisfy GL 88-14 actions have been completed.

GPU Nuclear responded to Generic Letter 88-14, Instrument Air Supply to Safety Related Equipment, by GPU Nuclear letter C311-89-2016, dated February 24, 1989. The NRC reviewed the response and concluded that appropriate actions were being taken and would be completed by the end of the TMI-1 9R Refueling Outage, estimated to be December 1991 (see NRC letter dated March 29, 1989). The items that remained to be completed were part of the Safety and Performance Improvement Program (SPIP). GPU Nuclear completed the Instrument Air Supply items prior to the 9R Refueling Outage.

Sincerely,

T. G. Broughton
Vice President and Director, TMI-1

DVH/mkk

cc: TMI-1 Senior Project Manager
Region I Administrator
TMI Senior Resident Inspector

A048 1/0

SPDES Discharge Permit. All effluent limitations contained within the Emergency Authorization were not exceeded during July - December 1991.

Attached are copies of the monthly summary reports sent to the New York State Department of Environmental Conservation detailing the permit non-compliances and the discharge of copper in the circulating water.

The existing SPDES Discharge 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 Procedure Act (UPA) Deadline" from the New York State Department of Environmental Conservation requesting more time to process the permit renewal. Subsequent to this request, Niagara Mohawk 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.

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 non-compliances. Such information will be supplied on a semi-annual basis.

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

Sincerely,

Robert L Tessier
FOR K. A. DAHLBERG
PLANT MANAGER - NMP #1

Kim A. Dahlberg
Plant Manager - Unit 1

M. McCormick Jr.

Martin J. McCormick Jr.
Plant Manager - Unit 2

KAD/MJM/HJF/jm
Attachment
pc: Mr. Thomas T. Martin, Regional Administrator
Mr. W.L. Schmidt, Senior Resident Inspector
Mr. R.A. Capra, Project Director, NRR
Mr. D.S. Brinkman, Senior Project Manager, NRR
Mr. J.E. Menning, Project Manager, NRR
Mr. L.E. Nicholson, Chief, Reactor Projects, Branch No. 1B
Records Management

hugh\nrcrpt

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
JULY 1991

COMMENTS

1. There were no discharges from the Unit 2 Waste Neutralizing Tank to the Sewage Treatment Facility during July 1991.

2. The strip chart recorder used to measure outfall 040 (Cooling Tower Blowdown and Service Water Unit 2) discharge flow, intake/discharge temperature difference, and discharge temperature was inoperable for approximately 4 hours on July 26, 1991. Inoperability was due to equipment malfunctions.

3. Betz Clam-Trol (CT-1), a molluscicide used for zebra mussel control, was added to the Unit 2 service and fire water systems on July 23, 1990. The addition followed the requirements of the NYSDEC as contained in the site's NPDES/SPDES Permit modification dated September 28, 1990. All detoxified effluent sample results were less than the 0.2 mg/l permit limitation.

   The treatment resulted in 100% mortality in a service water biobox containing live zebra mussels.

4. The following summary comment concerns the discharge of water from the Unit 2 circulating water system (outfall 040). The discharge was initiated on November 2, 1989 under an Emergency Authorization issued by the NYSDEC for the discharge of copper contaminated water. Details of the discharge during November and December 1989 are provided in the comment sections of the November and December 1989 Discharge Monitoring Reports.

   During the month of July 1991, the discharge of water continued under the terms and conditions of an amended Emergency Authorization dated December 22, 1989. The Amendment basically allows 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 limits the concentration of total copper in the mixing area in Lake Ontario to 17 ppb, and requires a monitoring frequency of twice per week.

   Copper-Trol, an azole based copper corrosion inhibitor, was added to the Unit 2 Circulating Water System on July 9, 1991. The addition followed the requirements of the NYSDEC as contained in Niagara Mohawk's request dated September 11, 1989 (NMP53843), and the Department's subsequent approval dated November 11, 1989. Results of online corrosion monitoring indicate that copper loss from the condenser tubes has decreased appreciably from system design specifications as a result of Copper-Trol use.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NIFE MILE POINT NUCLEAR STATION
JULY 1991
(CONTINUED)

Any copper discharged from the Circulating Water System during July 1991, is believed to have originated from copper precipitated onto the Circulating Water System structures and from normal copper loss from the Admiralty brass condenser tubes. The source of the precipitated copper originated from the acid leak into the Circulating Water System in October 1989. Copper concentrations during July 1991 ranged from 119 to 245 ppb (181 ppb average) total copper. The Unit 2 facility operated at or near full power during July 1991.

The total copper concentration in Lake Ontario during July 1991 was maintained below 17 ppb as a result of the discharge of water from the Unit 2 Circulating Water System. Copper concentrations ranged from 3.5 to 8.5 ppb total copper. The discharge of the Unit 2 Circulating Water System was through the normal system blowdown during July 1991.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
AUGUST 1991

COMMENTS

1. There were no discharges from the Unit 2 Waste Neutralizing Tank to the Sewage Treatment Facility during August 1991.

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 1991. Any discharge during August 1991 was directed to the site sewage treatment facility.

3. The strip chart recorder used to measure outfall 040 (Cooling Tower Blowdown and Service Water Unit 2) discharge flow, intake/discharge temperature difference, and discharge temperature was inoperable for brief periods during August 1991. Inoperability was due to equipment malfunctions and computer/electrical testing following plant shutdown.

4. For a period of time during the month of August 1991, 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 (08/15-27/91), 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 08/15-27/91 where the Circulating Water System was operable.

5. Betz Clam-Trol (CT-1), a molluscicide used for zebra mussel control, was added to the Unit 1 service and fire water systems on August 27 and 28, 1991. The addition followed the requirements of the NYSDEC as contained in the site's NPDES/SPDES Permit modification dated September 28, 1990. Three consecutive effluent samples collected during the Clam-Trol addition were greater than the permit effluent limitation of 0.2 mg/l after detoxification. The values were 0.31 mg/l, 0.26 mg/l, and 0.26 mg/l. These values are not considered to be representative of the actual plant discharge due to interference from a change in sampling equipment. All of the detoxified effluent sample results before and after the above values were less than the 0.2 mg/l effluent limit. Prior to the first >0.2 mg/l value (0.31 mg/l) the original sample line used to pump the discharge sample from the discharge canal was lost and replaced with another line. The sample line was lost while changing to a larger capacity pump. During the approximately 2-hour period of slightly elevated sample results, the detoxification agent (bentonite clay) ratio to CT-1 was increased from 2.5 to 1 up to 4.0 to 1. Since the CT-1 addition

rate remained unchanged during the entire treatment and the detoxification rate was more than adequate (a ratio of 1:1 detox to CT-1 is adequate according to Betz), it is very unlikely that the elevated results were representative of the actual effluent CT-1 concentration. Rather, we suspect that the sample line used to replace the lost original line was contaminated with CT-1 or some other interfering agent (any cationic organic species). The replacement sample line was obtained from the Betz equipment storage area and may have been contaminated from previous use, furthermore, the line was not constructed of the same material as the original line. The fact that the three consecutive sample results were slightly above the permit limit subsequent to the sample line exchange before decreasing to less than 0.2 mg/l likely reflects that the replacement sample line was eventually rinsed free of the interference. Additionally, laboratory analysis of the suspect sample line indicated a positive interference with the colorimetric analysis used for the analysis of CT-1. Based on the positive interference found with the replacement sample line and the excess amount of detoxification agent added with no change in CT-1 injection rate, the three above mentioned samples are not considered to be representative of actual plant discharges but instead indicate a sample line problem. We are changing the procedure to require that only new non-interfering sample line be used for effluent sampling.

The treatment resulted in 99% mortality in a service water biobox containing live zebra mussels.

6. On August 13, 1991, a large electrical transformer at Unit 2 malfunctioned releasing approximately 25 gallons of mineral oil. The majority of the oil was contained within the designed secondary containment area for the transformer and as such does not pose a threat to the environment. The containment consists of a large concrete tank filled with crushed stone surrounding the transformer. The contained area drains to an oil/water separator designed for such spills. A portion of the oil was sprayed outside of the containment area during the malfunction and deposited on an area of crushed stones over dry soil. The oil contaminated soil and stones were excavated from this area and placed in covered 55 gallon drums for disposal.

On August 18, 1991, during the removal of the above mentioned transformer from the containment area, approximately 10 gallons of oil leaked to an area of crushed stone over dry soil outside the containment area. The oil leaked from several components (air duct work), thought to be empty, that actually contained small quantities of mineral oil remaining from the August 13, 1991 malfunction. The oil contaminated soil and stones were removed

from this area and placed in covered 55 gallon drums for disposal. The oil soaked stones and soil outside the contained area resulting from the two above-mentioned occurrences, were removed prior to any rainfall and posed no threat to the environment. Efforts to cleanup the containment area will commence after an evaluation of the engineering requirements involved. The contaminated soil and stones from the cleanup of the above oil spills will be disposed of at a secure landfill or a permitted TSDF in accordance with NYSDEC requirements.

7. The following summary comment concerns the discharge of water from the Unit 2 circulating water system (outfall 040). The discharge was initiated on November 2, 1989 under an Emergency Authorization issued by the NYSDEC for the discharge of copper contaminated water. Details of the discharge during November and December 1989 are provided in the comment sections of the November and December 1989 Discharge Monitoring Reports.

During the month of August 1991, the discharge of water continued under the terms and conditions of an amended Emergency Authorization dated December 22, 1989. The Amendment basically allows 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 limits the concentration of total copper in the mixing area in Lake Ontario to 17 ppb, and requires a monitoring frequency of twice per week.

Any copper discharged from the Circulating Water System during August 1991, is believed to have originated from copper precipitated onto the Circulating Water System structures and from normal copper loss from the Admiralty brass condenser tubes. The source of the precipitated copper originated from the acid leak into the Circulating Water System in October 1989. Copper concentrations during August 1991 ranged from 40 to 277 ppb (143 ppb average) total copper. The Unit 2 facility operated at or near full power until August 13, 1991 when the facility shutdown.

The total copper concentration in Lake Ontario during August 1991 was maintained below 17 ppb as a result of the discharge of water from the Unit 2 Circulating Water System. Copper concentrations ranged from 1.2 to 7.2 ppb total copper. The discharge of the Unit 2 Circulating Water System was through the normal system blowdown and/or drainline pathways during August 1991.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
SEPTEMBER 1991

COMMENTS

1. There were no discharges from the Unit 2 Waste Neutralizing Tank to the Sewage Treatment Facility during September 1991.

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 1991. Any discharge during September 1991 was directed to the site sewage treatment facility.

3. The strip chart recorder used to measure outfall 040 (Cooling Tower Blowdown and Service Water Unit 2) discharge flow, intake/discharge temperature difference, and discharge temperature was inoperable for brief periods during September 1991. Inoperability was due to equipment malfunctions and calibration.

4. Betz Clam-Trol (CT-1), a molluscicide used for zebra mussel control, was added to the Unit 2 service and fire water systems from September 30, 1991 to October 1, 1991. The addition followed the requirements of the NYSDEC as contained in the site's NPDES/SPDES Permit modification dated September 28, 1990. All detoxified effluent sample results were less than the 0.2 mg/l permit limitation.

5. The following summary corment concerns the discharge of water from the Unit 2 circulating water system (outfall 040,. The discharge was initiated on November 2, 1989 under an Emergency Authorization issued by the NYSDEC for the discharge of copper contaminated water. Details of the discharge during November and December 1989 are provided in the comment sections of the November and December 1989 Discharge Monitoring Reports.

   During the month of September 1991, the discharge of water continued urder the terms and conditions of an amended Emergency Authorization dated December 22, 1989. The Amendment basically allows 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 limits the concentration of total copper in the mixing area in Lake Ontario to 17 ppb, and requires a monitoring frequency of twice per week.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
SEPTEMBER 1991
(CONTINUED)

Copper-Trol, an azole based copper corrosion inhibitor, was added to the Unit 2 Circulating Water System on September 16, 1991. The addition followed the requirements of the NYSDEC as contained in Niagara Mohawk's request dated September 11, 1989 (NMP53843), and the Department's subsequent approval dated November 11, 1989. Results of online corrosion monitoring indicate that copper loss from the condenser tubes has decreased appreciably from system design specifications as a result of Copper-Trol use.

Any copper discharged from the Circulating Water System during September 1991, is believed to have originated from copper precipitated onto the Circulating Water System structures and from normal copper loss from the Admiralty brass condenser tubes. The source of the precipitated copper originated from the acid leak into the Circulating Water System in October 1989. Copper concentrations during September 1991 ranged from 44 to 209 ppb (119 ppb average) total copper. The Unit 2 facility was shutdown for maintenance until September 27, 1991 after which the facility operated at low power for testing.

The total copper concentration in Lake Ontario during September 1991 was maintained below 17 ppb as a result of the discharge of water from the Unit 2 Circulating Water System. Copper concentrations ranged from 0.8 to 3.9 ppb total copper. The discharge of the Unit 2 Circulating Water System was through the normal system blowdown pathway during September 1991.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
OCTOBER 1991

COMMENTS

1. There were no discharges from the Unit 2 Waste Neutralizing Tank to the Sewage Treatment Facility during October 1991.

2. On October 18, 1991, the Unit 1 oil spill catchment basin was discharged because the basin was near its maximum design level which required it to be discharged. In the event the basin was allowed to exceed this level, then there would not be complete assurance that the maximum credible oil spill would be contained. This outfall is presently being added to the SPDES Discharge Permit. Prior to the discharge, an oil and grease sample was obtained and was found to contain less than 5.0 mg/liter oil and grease. Samples for total suspended solids and pH were also obtained and showed results of 1.9 mg/liter and 7.8 respectively. The volume discharged was approximately 110,600 gallons of water.

3. The strip chart recorder used to measure outfall 040 (Cooling Tower Blowdown and Service Water Unit 2) discharge flow, intake/discharge temperature difference, and discharge temperature was inoperable for approximately 11 hours on October 23, 1991. Inoperability was due to equipment testing.

4. Betz Clam-Trol (CT-1), a molluscicide used for zebra mussel control, was added to the Unit 2 service and fire water systems from October 17, 1991 to October 18, 1991. The addition followed the requirements of the NYSDEC as contained in the site's NPDES/SPDES Permit modification dated September 28, 1990. All detoxified effluent sample results were less than the 0.2 mg/l permit limitation.

5. The following summary comment concerns the discharge of water from the Unit 2 circulating water system (Outfall 040). The discharge was initiated on November 2, 1989 under an Emergency Authorization issued by the NYSDEC for the discharge of copper contaminated water. Details of the discharge during November and December 1989 are provided in the comment sections of the November and December 1989 Discharge Monitoring Reports.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
OCTOBER 199[illegible]
(CONTINUED)

During the month of October 1991, the discharge of water continued under the terms and conditions of an amended Emergency Authorization dated December 22, 1989. The Amendment basically allows 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 limits the concentration of total copper in the mixing area in Lake Ontario to 17 ppb, and requires a monitoring frequency of twice per week.

Copper-Trol, an azole based copper corrosion inhibitor, was added to the Unit 2 Circulating Water System on October 31, 1991. The addition followed the requirements of the NYSDEC as contained in the Niagara Mohawk's request dated September 11, 1989 (NMP53843), and the Department's subsequent approval dated November 11, 1989. Results of online corrosion monitoring indicate that copper loss from the condenser tubes has decreased appreciably from system design specifications as a result of Copper-Trol use.

Any copper discharged from the Circulating Water System during October 1991, is believed to have originated from copper precipitated on the Circulating Water System structures and from normal copper loss from the Admiralty brass condenser tubes. The source of the precipitated copper originated from the acid leak into the Circulating Water System in October 1989. Copper concentrations during October 1991 ranged from 123 to 200 ppb (169 ppb average) total copper. The Unit 2 facility was operated at or near full power during the month of October 1991.

The total copper concentration in Lake Ontario during October 1991 was maintained below 17 ppb as a result of the discharge of water from the Unit 2 Circulating Water System. Copper concentrations in Lake Ontario ranged from 1.6 to 4.7 ppb total copper. The discharge of the Unit 2 Circulating Water System was through the normal system blowdown pathway during October 1991.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
NOVEMBER 1991

COMMENTS

1. There were no discharges from the Unit 2 Waste Neutralizing Tank to the Sewage Treatment Facility during November 1991.

2. The strip chart recorder used to measure outfall 040 (Cooling Tower Blowdown and Service Water Unit 2) discharge flow, intake/discharge temperature difference, and discharge temperature exhibited intermittent interruption of the discharge flow trace for a duration of approximately 9 hours and 15 minutes on November 27, 1991. Interruption was due to equipment malfunctions.

3. Betz Clam-Trol (CT-1), a molluscicide used for zebra mussel control, was added to the Unit 1 service and fire water systems from November 6 to November 7, 1991. The addition followed the requirements of the NYSDEC as contained in the site's NPDES/SPDES Permit modification dated September 28, 1990. All detoxified effluent sample results were less than the 0.2 mg/1 permit limitation.

   The treatment resulted in 100% mortality in a service water biobox containing live adult zebra mussels.

4. 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 November 1991. Any discharge during November 1991 was directed to the site sewage treatment facility.

5. The following summary comment concerns the discharge of water from the Unit 2 circulating water system (Outfall 040). The discharge was initiated on November 2, 1989 under an Emergency Authorization issued by the NYSDEC for the discharge of copper contaminated water. Details of the discharge during November and December 1989 are provided in the comment sections of the November and December 1989 Discharge Monitoring Reports.

   During the month of November 1991, the discharge of water continued under the terms and conditions of an amended Emergency Authorization dated December 22, 1989. The Amendment basically allows 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 limits the concentration of

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
NOVEMBER 1991
(CONTINUED)

total copper in the mixing area in Lake Ontario to 17 ppb, and requires a monitoring frequency of twice per week.

Any copper discharged from the Circulating Water System during November 1991, is believed to have originated from copper precipitated on the Circulating Water System structures and from normal copper loss from the Admiralty brass condenser tubes. The source of the precipitated copper originated from the acid leak into the Circulating Water System in October 1989. Copper concentrations during November 1991 ranged from 72 to 110 ppb (88 ppb average) total copper. The Unit 2 facility was operated at or near full power during the month of November 1991.

The total copper concentration in Lake Ontario during November 1991 was maintained below 17 ppb as a result of the discharge of water from the Unit 2 Circulating Water System. Copper concentrations in Lake Ontario ranged from 1.8 to 3.4 ppb total copper. The discharge of the Unit 2 Circulating Water System was through the normal system blowdown pathway during November 1991.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
DECEMBER 1991

COMMENTS

1. There were no discharges from the Unit 2 Waste Neutralizing Tank to the Sewage Treatment Facility during December 1991.

2. The strip chart recorder used to measure outfall 040 (Cooling Tower Blowdown and Service Water Unit 2) discharge flow, intake/discharge temperature difference, and discharge temperature was inoperable for 1 hour on December 9, 1991, due to equipment testing. The recorder was also inoperable for approximately 2 hours on December 12, 1991, due to an equipment malfunction.

3. 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 December 1991. Any discharge during December 1991 was directed to the site sewage treatment facility.

4. The following summary comment concerns the discharge of water from the Unit 2 circulating water system (Outfall 040). The discharge was initiated on November 2, 1989 under an Emergency Authorization issued by the NYSDEC for the discharge of copper contaminated water. Details of the discharge during November and December 1989 are provided in the comment sections of the November and December 1989 Discharge Monitoring Reports.

   During the month of December 1991, the discharge of water continued under the terms and conditions of an amended Emergency Authorization dated December 22, 1989. The Amendment basically allows 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 limits the concentration of total copper in the mixing area in Lake Ontario to 17 ppb, and requires a monitoring frequency of twice per week.

   Copper-Trol, an azole based copper corrosion inhibitor, was added to the Unit 2 Circulating Water System on December 16, 1991. The addition followed the requirements of the NYSDEC as contained in Niagara Mohawk's request dated September 11, 1989 (NMP53843), and the Department's subsequent approval dated November 11, 1989. Results of online corrosion monitoring indicate that copper loss from the condenser tubes has decreased appreciably from system design specifications as a result of Copper-Trol use.

DISCHARGE MONITORING REPORT
PERMIT NUMBER NY0001015
NINE MILE POINT NUCLEAR STATION
DECEMBER 1991
(CONTINUED)

Any copper discharged from the Circulating Water System during December 1991 is believed to have originated from copper precipitated on the Circulating Water System structures and from normal copper loss from the Admiralty brass condenser tubes. The source of the precipitated copper originated from the acid leak into the Circulating Water System in October 1989. Copper concentration during December 1991 ranged from 66 to 199 ppb (108 ppb average) total copper.

The total copper concentration in Lake Ontario during December 1991 was maintained below 17 ppb as a result of the discharge of water from the Unit 2 Circulating Water System. Copper concentration in Lake Ontario ranged from 1.6 to 6.7 ppb total copper. The discharge of the Unit 2 Circulating Water System was through the normal system blowdown pathway during December 1991.