



**North  
Atlantic**

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The Northeast Utilities System

April 27, 2001  
Docket No. 50-443  
NYN-01037

CR # 01-02866-01

United States Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

**Seabrook Station**  
**2000 Annual Environmental Operating Report**

North Atlantic Energy Service Corporation (North Atlantic) submits the 2000 Annual Environmental Operating Report for Seabrook Station. The enclosed report is a summary of the implementation of the Environmental Protection Plan (EPP) for the period of January 1, 2000 to December 31, 2000. This report is submitted pursuant to the requirements of Section 5.4 of the Seabrook Station Environmental Protection Plan.

Should you have any questions regarding this report, please contact Mr. James M. Peschel, Manager – Regulatory Programs at (603) 773-7194.

Very truly yours,

NORTH ATLANTIC ENERGY SERVICE CORP.

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Gene St. Pierre  
Station Director

cc: H. J. Miller, Regional Administrator  
V. Nerses, NRC Project Manager, Project Directorate 1-2  
NRC Senior Resident Inspector

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**Seabrook Station**  
**Annual Environmental Operating Report**  
**January 1, 2000 to December 31, 2000**

**Environmental Monitoring Program**

The following provides a summary of the reports related to the Seabrook Station Environmental Monitoring Program and Water Quality Monitoring Program that were submitted to the Environmental Protection Agency (EPA) pursuant to NPDES Permit No. NH0020338.

1. North Atlantic letter NYE-00006, "1999 Hydrological Monitoring Report," dated February 18, 2000. This letter was submitted to the EPA and demonstrated compliance with the NPDES Permit limits on the thermal component of the cooling water system discharge from Seabrook Station in 1999.

Seabrook Station's National Pollutant Discharge Elimination System (NPDES) Permit sets thermal discharge limits during station operation. Specifically, the thermal component of the discharge cannot increase the surface temperature in the near-field jet-mixing region by more than 5° F. The jet-mixing region is the receiving waters within 300 feet of the submerged diffuser in the direction of discharge. This temperature difference, or  $\Delta T$ , is the parameter of interest in demonstrating permit compliance.

The largest  $\Delta T$  values in 1999 occurred during cold-weather months when isothermal ocean conditions exist. The maximum monthly  $\Delta T$  was 3.58° F and occurred during the month of December. Negative monthly mean  $\Delta T$  values occurred for the months of May through September at which time the ocean temperature profile is thermally stratified. When the relatively cold bottom water is entrained by the discharge plume, the discharge plume's temperature is significantly reduced so that at the discharge surface temperature monitoring station, this mixed volume's temperature can actually be less than the that of the relatively warm reference temperature monitoring station.

2. North Atlantic letter NYE-00009, "Fourth Supplement to NPDES Permit Renewal Application," dated April 26, 2000. This letter was submitted to the EPA and provided supplemental information on Seabrook Station's NPDES Permit renewal application submitted in April 1998. The letter provided more detailed information on three inputs to the ocean discharge (Outfall 001).

A copy of this letter was provided to the NRC at the time of submittal.

3. North Atlantic letter NYE-00018, "1999 Chlorine Minimization Report," dated June 23, 2000. This letter was submitted to the EPA and describes compliance with the NPDES Permit limits on the chlorine levels discharged by Seabrook Station's cooling water system. One NPDES Permit exceedence for chlorine occurred on July 26, 1999. The 1999 Chlorine Minimization Report provided the same information describing this exceedence that was contained in the July 1999 Discharge Monitoring Reports submitted to the EPA. During the remainder of 1999, chlorine levels discharged from Seabrook Station, measured as the Total Residual Oxidant (TRO), were below the NPDES Permit limits of 0.2 ppm daily maximum and 0.15 ppm monthly average.

Seabrook Station employs continuous low-level chlorination to control biofouling in the Circulating Water and Service Water Systems as specified by Part I.A.1.a of the NPDES Permit. Section I.A.2.h of the Permit states that the "objective of this chlorination report is to continue minimizing the usage of chlorine consistent with maintaining a suitable biofouling control of the intake cooling water system and maintaining a high condenser efficiency."

Chlorine measurements of the Cooling Water System discharge (measured as total Residual Oxidant or TRO) are obtained at the Discharge Transition Structure prior to entry into the discharge tunnel. The TRO values are reported in the monthly Discharge Monitoring Reports (DMRs) to both the Environmental Protection Agency (EPA) and the New Hampshire Department of Environmental Services (NHDES).

4. North Atlantic letter NYE-00025, "Discharge of Steam Generator Scale Conditioning Agent," dated August 14, 2000. This letter was submitted to the EPA and provided information to support plans to discharge a steam generator scale conditioning agent (SCA) on a one-time basis during the refueling outage scheduled for October through November 2000. The SCA chemical solution was to be applied to the secondary-side of two steam generators to assist in the subsequent mechanical removal of scale on the steam generator tubes. The removal of scale will increase the long-term integrity and longevity of Seabrook Station's steam generators. The chemical solution was to be discharged to the ocean through the plant's cooling water system discharge (NPDES Outfall 001) following the SCA application. North Atlantic had plans to discharge the SCA in accordance with paragraph I.A.1.i. (2) of Seabrook Station's NPDES Permit which pertains to discharges of less than 0.5 mg/l that occur on a non-routine or infrequent basis.

A copy of this letter was provided to the NRC at the time of submittal.

North Atlantic subsequently informed the EPA on October 5, 2000 that it did not plan to use the SCA chemical solution. See item six below.

5. North Atlantic letter NYE-00028, "Notification of Germicidal Cleaning Compound Discharge." This letter was submitted to the EPA and provided notification of the discharge of the cleaning compound, "Confidence Plus" in accordance with the label requirements of the product. The de minimis quantities of "Confidence Plus" that are discharged are well below the notification requirements of paragraph I.A.1.i.(1) of Seabrook Station's NPDES Permit that pertains to discharges of less than 0.1 mg/l that occur on a routine or frequent basis. The product is used in accordance with manufacturers' instructions (one ounce per gallon of water) to disinfect respirators. After use the wastewater is discharged to Outfall 025 and then Outfall 001 (ocean discharge). Before discharge to Outfall 025 this wastewater is normally processed through demineralizers which effectively remove "Confidence Plus." About 45 liters of this germicidal cleaner per year would have the potential to be discharged into these outfalls.
6. North Atlantic letter NYE-00030, "Steam Generator Maintenance During Refueling Outage." This letter was submitted to the EPA and explained that no scale conditioning agent (SCA) would be used during the refueling outage scheduled for October and November 2000. North Atlantic had previously notified the EPA that it planned to use the SCA chemical solution (see item four above). North Atlantic revised the steam generator maintenance plan for the refueling outage that called for

limited mechanical scale removal at targeted steam generator tube surface locations with no utilization of scale conditioning chemicals. It is expected that future refueling outage plans will include the use of scale conditioning chemicals in the steam generators.

7. North Atlantic letter NYE-00036, "Environmental Monitoring Program White Papers and Modification Requests." This letter was submitted to the EPA and included white papers that requested modifications to certain elements of Seabrook Station's Environmental Monitoring Program. The following changes were requested.

The first program change requested was to enhance the Ichthyoplankton Entrainment Monitoring Program. These modifications include day-night sampling, increases in the volume of entrained water sampled by three-fold and decreases in the mesh size of the sampling net. These changes are enhancements over the former day-time sampling program and were developed during the special 24-hour entrainment sampling study employed since 1998.

The second program change requested involved enhancements to the Impingement Monitoring Program. These proposed modifications include collecting two 24-hour impingement samples each week, screen wash efficiency tests and a special sampling protocol for high impingement events. These features of the proposed Impingement Monitoring Program are enhancements over the former program that was based on impingement estimates using one screen wash assessment per week. The proposed program was based on the special 6-day, 1-day impingement monitoring study that also involved assessments for screen washes employed since 1998.

The third program change requested was to eliminate the Bivalve Larvae Monitoring Program. This program change was supported by a white paper entitled, "Evaluation of Bivalve Larvae Monitoring Program of the Seabrook Station Environmental Studies." The white paper concluded that there is no evidence that either larval or benthic stages of soft-shell clam have been affected by the operation of Seabrook Station and the production of larvae and settlement of young-of-the-year clams are completely independent of plant operation. The paper also concludes that the harvesting of clams is the largest single factor affecting the density of benthic stages of clams.

The fourth program change requested was to eliminate the Intertidal Benthic Monitoring Program. This program change was originally submitted to the EPA in 1996 as part of Seabrook Station's Long-Term Studies Program Proposals. The specific objection to approving this change then was related to monitoring impacts to the intertidal benthos from thermal backflushing of the Circulating Water System that could be used to control biofouling. New Hampshire Fish & Game explained that as long as backflushing remains a possible option, this monitoring program should continue. North Atlantic explained that there are no plans to employ backflushing at Seabrook Station and provided an updated basis for eliminating this monitoring program.

The part of the submittal was a white paper entitled, "Long-term Patterns of Kelp Community off Coastal New Hampshire as Part of the Seabrook Station Environmental Studies Environmental Monitoring Program." The white paper was prepared to evaluate a decline in a certain kelp species. The white paper concludes that changes in the kelp community are the result of the complex interaction of physical and biological factors including competition between kelp species, predation by sea urchins and turbidity from the Hampton-Seabrook Estuary rather than impacts from Seabrook Station. No monitoring program change was requested.

### **EPP Non-Compliance and Corrective Actions**

There was one NPDES Permit exceedence reported to the EPA in the monthly Seabrook Station Discharge Monitoring Reports (DMRs) for the 2000 operating period and is described below.

An oil and grease exceedence of 32 mg/L (permit limit is 20 mg/l) occurred for Oil/Water Separator Vault #3 (Outfall 024) on November 15, 2000. The exceedence was caused by excessive flow to the vault during dewatering of the Auxiliary Boiler Fuel Oil Storage Tank secondary containment. The secondary containment area for the Auxiliary Boiler Fuel Oil Storage Tank area was being used at the time to collect oily water from an excavation dug to repair an underground oil leak from the Auxiliary Boiler fuel line. The oily water from the excavation was being discharged from the Auxiliary Boiler Fuel Oil Storage Tank secondary containment via its normal flow path to Oil/Water Separator Vault #3. Oil and grease samples taken before and after the November 15 exceedence were within the maximum daily NPDES Permit limit of 20 mg/L.

The procedure for dewatering the Auxiliary Boiler Fuel Oil Storage Tank secondary containment was been updated to limit the flow to the Oil/Water Separator vault in order to preclude this event from recurring.

### **Changes in Station Design or Operation, Tests and Experiments Involving a Potentially Unreviewed Environmental Question**

None.

### **Non-Routine Reports**

1. North Atlantic letter LIC-00012, "Request for Relief from Seal Monitoring Requirements," dated January 12, 2000. This submittal to the National Marine Fisheries Service requested relief from certain monitoring requirements of the National Marine Fisheries Service (NMFS) Letter of Authorization to take a small number of seals incidental to intake cooling water system operations at Seabrook Station.

The request was based on the effectiveness of the Seal Deterrent Barrier installed in August 1999. No seals have been entrapped since that time. Specifically, North Atlantic requested that the requirement to conduct daily cooling water system traveling screen washes and debris examinations for seal remains from August through December, be eliminated. The requirement to conduct twice per week screen washes and debris examinations throughout the year in accordance with our environmental monitoring program will continue. In the unlikely event of another entrapment, the environmental monitoring program screen washes would adequately detect the presence of any seal remains. North Atlantic requested that the requirement to inspect the Intake Transition Structure for seal remains during the April through December time period also be eliminated. The inspections of the pumphouse forebays at least twice per day would adequately detect the presence of entrapped seals.

2. North Atlantic letter NYE-00003, "January 17, 2000 Sanitary Wastewater Discharge Report," dated March 24, 2000. This submittal to the EPA reported that approximately 1,000 gallons of sanitary wastewater flowed onto the asphalt and ground in the area adjacent to Sanitary Lift Station #8, which directs all Seabrook Station sanitary wastewater to the Town of Seabrook Sewage Treatment Plant. There was no evidence that any sanitary wastewater entered the nearby storm drain due to the freezing, single digit temperatures and snow buildup around the storm drain circumference. Therefore, there were no discharges to a surface water through Outfall 001 (ocean discharge). The asphalt surface was sprayed with 15 per cent sodium hypochlorite (chlorine bleach) and the slushy sanitary wastewater was covered with lime (to disinfect) per the recommendation of the Town of Seabrook Health Officer. North Atlantic stated that there were no adverse environmental consequences associated with this sanitary wastewater overflow.

The cause of the sanitary wastewater overflow was the inadvertent shutdown of the sanitary lift station pump and the failure to restart the pump in a timely fashion in order to stop the overflow. The pump was started about six hours after it shut down. Factors that contributed to the delay in restarting the pump included lack of ownership for the operation and maintenance of the sanitary lift station as well as a lack of understanding of the environmental consequences of a pump shutdown. Changes made to prevent recurrence of this event were to update instructions to identify the personnel responsible for the initial prompt response when there is a sanitary lift station high water level alarm. An Operator Aid was created to provide general instructions for responding to such conditions.

3. North Atlantic letter LIC-00155, "Annual Report on Seal Entrapment Mitigation Measures," dated May 26, 2000. This report to the National Marine Fisheries Service (NMFS) was the first annual report on Seabrook Station's Seal Entrapment Mitigation Measures and was submitted in accordance with the NMFS Letter of Authorization to take a small number of seals incidental to intake cooling water system operations. North Atlantic previously reported to NMFS that Seal Deterrent Barriers had been installed on Seabrook Station's offshore intake structures in August 1999. No seals have been entrapped since the installation of the Seal Deterrent Barriers was completed. This time frame includes the peak entrapment period (late summer to mid-fall). In light of the success of the Seal Deterrent Barrier, North Atlantic requested relief from certain in-plant monitoring requirements in a letter submitted to NMFS on January 12, 2000 (see above).