North Atlantic

North Atlantic Energy Service Corporation
P.O. Box 300
Seabrook, NH 03874
(603) 474-9521

The Northeast Utilities System

September 18, 1998

NPDES Permit NH0020338

NYE-98031

Ref: AR#97001236-03
NYE-98012
NYE-98021

United States Environmental Protection Agency
Region I
Attn.: John P. DeVillars, Regional Administrator
c/o Shelly B. Puleo, Environmental Protection Specialist
Municipal Assistance Unit
Office of EcoSystem Protection
John F. Kennedy Federal Building
Boston, Massachusetts 02203-0001

Seabrook Station
Second Supplement to NPDES Permit Renewal Application

North Atlantic Energy Service Corporation (NAESCO) hereby submits, pursuant to 40 CFR 122.21(d), a second supplement to its April 23, 1998[1], application to renew National Pollutant Discharge Elimination System (NPDES) Permit No. NH0020338 for Seabrook Station, a nuclear electric generating facility located in Seabrook, NH. This supplement provides additional information related to proposed Outfall 025C (Waste Holdup Sump). It consists of the attached replacement page to the application. Additional background discussion is provided below.

Seabrook Station's previous and current NPDES Permits, issued in 1985 and 1993 respectively, combined multiple processes into Outfall 025. It includes steam generator blowdown, steam generator blowdown distillate, Waste Test Tank and Recovery Test Tank effluent, and Waste Holdup Sump effluent. Seabrook Station's 1985 NPDES Permit required that pH from this outfall be maintained between 6 and 9. At that time, two mixed bed demineralizers were used to treat steam generator blowdown for return to the secondary plant system. Sodium hydroxide was used to reactivate the anion resin beads within the mixed bed demineralizer and sulfuric acid to

[1] North Atlantic Energy Service Corporation letter NYE-98012, dated April 23, 1998, "NPDES Permit Renewal Application" Mr. Ted C. Feigenbaum (North Atlantic) to Mr. John P. DeVillars

reactivate the cation resin beads. The mixed bed demineralizer bed regeneration effluent was collected in the Waste Holdup Sump. Before discharge to the Circulating Water System (Outfall 001), the sump was sampled and neutralized if necessary.

The pH limits (and consequently the need for pH sampling and neutralization) for Outfall 025 were removed in the 1993 renewal permit. In the 1991 request for removal of pH limits on Outfall 025[2], North Atlantic pointed out that the *normal* steam generator blowdown pH, ranging from 8.8 to 9.2 and as high as 9.6 in order to minimize steam generator corrosion and sludge buildup, could exceed these limits. The request also noted that there was a downstream monitoring point that ensured applicable water quality standards were met. In 1994, a lead cation bed was installed to supplement the mixed bed demineralizers and increase the effectiveness of the demineralization process. Sulfuric acid is used to reactivate the cation bed resin beds. When the cation bed is reactivated, the effluent in the sump is acidic with a pH less than 2.

A point not stated in the 1991 request that applies to the discharge of both the cation and mixed bed demineralizer reactivation effluent from the Waste Holdup Sump is that the buffering action of the seawater ensures that the pH is well within permit limits by the time it reaches the discharge transition structure (Outfall 001). The sump can be discharged at a maximum rate of 75 gpm when there is maximum combined Service Water and Circulating Water flow through the discharge transition structure of about 500,000 gpm. The maximum allowed Waste Holdup Sump flow is reduced proportionately for reduced Service Water/Circulating Water flow. Prior to a recent discharge, the sump was sampled and determined to have a pH of 1.3. During the discharge, Outfall 001 was sampled at the discharge transition structure and found to have a pH of 7.9, within the required range and a typical value when there is no discharge from the Waste Holdup Sump. North Atlantic intends to collect another confirmatory sample at Outfall 001 during the next discharge of cation bed reactivation effluent. Thus all water quality standards continue to be met when Seabrook Station is reactivating either the mixed bed demineralizers or the cation bed demineralizer.

If you have any questions, please call John Hart at (603) 773 7762.

Very truly yours,

NORTH ATLANTIC ENERGY SERVICE CORP.

Ted C. Feigenbaum
Executive Vice President
and Chief Nuclear Officer

[2] North Atlantic Energy Service Corporation letter NYE-91009, dated April 11, 1991, "Amended NPDES Permit Renewal Application" Mr. Ted C. Feigenbaum (North Atlantic) to Mr. Edward K. McSweeney

cc:

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Mr. J. T. Harrison, Project Manager
Project Directorate I-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Mr. Hubert J. Miller
Regional Administrator - Region 1
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

Mr. George C. Berlandi, P.E.
Sanitary Engineer
Surface Water Quality Bureau
NH Department of Environmental Services
Water Supply and Pollution Control Div.
64 North Main Street, 3rd Floor
Concord NH 03301

Marcia A. Brown Thunberg, Attorney
Federal Consistency Coordinator
NH Coastal Program
Office of State Planning
State of New Hampshire
2 1/2 Beacon Street
Concord, NH 03301-4497

Mr. Jeffrey Andrews
NH Dept. Of Environmental Services
Water Division
6 Hazen Drive
Concord, NH 03302

Certification pursuant to 40 CFR 122.22(d)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Bruce L. Drawbridge
Director - Services

Date 9/18/98

STATE OF NEW HAMPSHIRE

Rockingham, ss.

Then personally appeared before me, the above-named Bruce L. Drawbridge, Director - Services, North Atlantic Energy Service Corporation, that he is duly authorized to execute and file the foregoing information in the name and on the behalf of North Atlantic Energy Service Corporation and that the statements therein are true to the best of his knowledge and belief.

Susan J. Messer, Notary Public
My Commission Expires: December 22, 1998

9/18/98
Date

ENCLOSURE TO NYE-98031

Support equipment is needed to regenerate the resins in the Steam Generator Blowdown System recovery subsystem demineralizers. The basic regeneration equipment consists of an Acid Skid, a Caustic Skid and the Waste Holdup Sump.

Sulfuric acid is used to reactivate the Cation (positive ion) resin beads within the mixed-bed demineralizers and the lead cation bed demineralizer. Sodium hydroxide is used to reactivate the Anion (negative ion) resin beads within the mixed-bed demineralizers. ***Following a cation bed regeneration, the contents of the sump may be acidic with pH less than 2.*** The Waste Holdup Sump transfers liquids to the Waste Liquid System for direct discharge to the Circulating Water System (Outfall 001) or to either of the Chemical Drain Treatment Tanks which are directed to the Waste Test Tanks (Outfall 025D). Manual startup of this process is needed to initiate the regeneration cycle. After the process is started the remainder is automatically sequenced. The entire regeneration process can be manually controlled. Interlocks ensure that only one mixed-bed demineralizer is regenerated at a time. Interlocks will also stop the regeneration cycle if there is not enough acid or caustic available to complete a cycle, or if the level in the Waste Holdup Sump is above a setpoint level.

The Steam Generator Waste Holdup Sump is a 30,000 gallon sump designed to contain fluids from the regeneration of the demineralizer beds. It is a concrete sump lined with Plasite™ liner. The sump also captures some of the floor drains from the demineralizer room. The sump is normally directed to the Waste Liquid System for direct discharge to the Circulating Water System. ***It is sampled once prior to or during batch discharge for oil and grease and total suspended solids. The relatively low flow volume of the discharge and the buffering action of the seawater ensures that all pH limits at Outfall 001 are met.*** The sump may also be discharged to the Chemical Drain Treatment Tanks which are directed to the Waste Test Tanks. There is a recirculation system on the sump which allows for mixing and sampling prior to discharge. This recirculation system also contains components which remove larger suspended solids. The maximum discharge rate for the Waste Holdup Sump is 75 gpm.

Alternate paths for this discharge:

- Waste Test Tank(s) (025D)
- Turbine Building Sump
- Storm Drains (if no beta/gamma radioactivity detected)
- Turbine Building Auxiliary Sump - (holding only - no discharge)

Potential chemicals in discharge:

- Any chemicals listed in outfalls Steam Generator Blowdown (025A) and Steam Generator Blowdown demineralizer Rinses (025B)

  Note: Some of the chemicals listed below are also listed in outfalls 025A and 025B. They are listed below because they are also directly discharged into this outfall.

- Ammonia/Ammonium hydroxide - Secondary chemical additive (from thermal decomposition of hydrazine), Primary Component Cooling water drainage, Steam Generator drainage, sample system waste, trace quantities from silica analyzer cleaning
- Methoxypropylamine - Secondary chemical additive, Steam Generator drainage, sample system waste
- Hydrazine - Secondary chemical additive, Steam Generator drainage, Primary Component Cooling Water System drainage, sample system waste
- Suspended solids - particulates from all potential inputs
- Ethanolamine - Secondary chemical additive, Steam Generator drainage, sample system waste
- Total Residual Chlorine - Ocean cooling water system leakage and drainage, fire protection water
- Diisopropylamine - trace quantities from sodium analyzer drains
- Sodium Hydroxide - Regeneration of demineralizer beds, leakage from caustic skid, drainage of system components for maintenance