North Atlantic

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The Northeast Utilities System

January 16, 2002

NPDES Permit NH0020338
NYE-020002
CR 02-00264

Ref: NYE-99017, NYE-98012
NYE-98021, NYE-98031
NYE-99017, NYE-00009
NYE-01009, NYE-01021

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Seabrook Station
Comments of Draft NPDES Permit

North Atlantic Energy Service Corporation the operator of Seabrook Station hereby submits comments on Seabrook Station's Draft NPDES Permit. These comments are provided in Enclosure 1 for the following items:

1. Increase the discharge limit for the molluscicide EVAC from 3.0 ppm to 4.3 ppm

2. Eliminate requirement to gain written EPA approval to add or substitute laboratory chemicals

3. Proposed change in the chlorine limits for Cooling Tower Blowdown (Outfall 027)

4. Proposed change to the Impingement Monitoring Program Screen Wash Efficiency Studies

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Very truly yours,

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C001

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ENCLOSURE 1 TO NYE-02002

Seabrook Station
Comments on Draft NPDES Permit

1. Increase the discharge limit for the molluscicide EVAC from 3.0 ppm to 4.3 ppm

Seabrook Station's draft NPDES Permit states that the "discharge concentration (of EVAC) shall not exceed 3.0 mg/l, at the Discharge Transition Structure". The draft NPDES Permit limits for EVAC are referenced in Part I.A.11.a. (pg. 5 of 28) and Part I.A.11.f. (pg. 8 of 28).

EVAC is a molluscicide that Seabrook Station proposes to use to supplement the application of sodium hypochlorite to control macrofouling by mussels and barnacles in the Circulating Water System. Seabrook Station's NPDES Permit Renewal Application[1] did not clearly state that the intended EVAC limit at the Discharge Transition Structure (Outfall 001) should be 4.3 ppm. The Permit Renewal Application stated:

> *"Application of EVAC in Seabrook Station's Circulating Water System is expected to be required twice each year (late spring and late summer). The expected application dosage would be about 4.3 ppm EVAC. The total application would occur over a period of about 36 and 48 hours. It is estimated that the discharge concentration would be about 3.0 ppm EVAC. The 10:1 dilution provided by the discharge diffuser nozzles would further reduce the concentration of EVAC to about 0.3 ppm a short distance from the discharge."*

An EVAC application dosage of 4.3 ppm is based on the >90 percent mortality achieved for blue mussels during a 1998 Seabrook Station EVAC feasibility study[2]. This application dosage is intended to be the minimum concentration achieved for the entire intake portion of the Circulating Water System up to the main condenser. Seabrook Station conservatively assumes that there would be minimal consumption of EVAC between the condenser and the Discharge Transition Structure (Outfall 001, the ocean discharge). Therefore, the expected concentration (and NPDES Permit limit) at Outfall 001 should be 4.3 ppm.

The NPDES Permit Renewal Application reference to an EVAC discharge concentration of 3.0 ppm was intended to be at the offshore discharge diffuser nozzles (three miles downstream of Outfall 001) and not Outfall 001. The estimated EVAC discharge concentration of 3.0 ppm from the diffuser nozzles remains unchanged from the Permit Renewal Application.

Seabrook Station, therefore, requests that the NPDES Permit limit for EVAC (at Outfall 001) be changed to 4.3 ppm.

2. Eliminate requirement to gain written EPA approval to add or substitute laboratory chemicals

Seabrook Station's draft NPDES Permit states that "The permittee shall gain approval from the Regional Administrator (EPA) and the Director (NHDES) before any such additions/substitutions (of laboratory

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[1] North Atlantic Letter NYE-01009, dated June 6, 2001, Fifth Supplement to NPDES Permit Renewal Application, T. Feigenbaum (North Atlantic) to I. Leighton (EPA)

[2] North Atlantic Letter NYE-98037, dated November 25, 1998, "EVAC Molluscicide Feasibility Study Report," J. Hart (Seabrook Station) to C. DeLoi (EPA)

chemicals) takes place." This draft NPDES Permit requirement is stated in Part I.A.20. (pg. 18 of 28) and the list of laboratory chemicals is provided as Attachment C.

During the NPDES Permit renewal application process Seabrook Station provided extensive documentation on the chemicals expected to be present in the power plant's outfalls. This documentation included a list of more than 200 typical laboratory chemicals, including reagents and standards, some of which are used to analyze NPDES Permit compliance samples. The reported concentrations of these laboratory chemicals at the ocean discharge (Outfall 001) are at *de minimus* levels – typically a small fraction of one part per billion (ppb). Laboratory discharges are typically processed through a Radioactive Waste System that removes many of these materials prior to the internal power plant discharge (Outfall 025D, Waste Test Tank). Thus the actual discharge concentrations are likely less than listed in draft NPDES Permit Attachment C.

Seabrook Station provided the list of laboratory chemicals in an effort to describe the typical types and concentrations of these chemicals and did not intend that written regulatory approval be required before any new laboratory chemicals could be used. This requirement is unnecessarily restrictive for the following reasons:

- Frequent changes in laboratory methods require new chemical reagents and standards to be used. There have been circumstances at Seabrook Station where new analytical methods have been employed with very short notice in response to changing power plant conditions. In these cases the time needed to acquire written regulatory approval to use the new laboratory chemical (at best several weeks) could significantly restrict Seabrook Station's response to plant conditions.

- The concentrations of laboratory chemicals in the discharge (Outfall 001) are *de minimus* and will not impact the aquatic environment.

- Routine Whole Effluent Toxicity (WET) testing will be performed that will include discharges of laboratory chemicals. Therefore, potential aquatic impacts of the discharge will be monitored by this testing.

- The notification requirements of the draft NPDES Permit (Part I.C.1.) do not require regulatory notification of chemicals not limited in the permit if they are less than specified levels. The laboratory chemicals will be discharged at concentrations well below these notification levels.

Seabrook Station employs a Best Management Practice to ensure the proper management of laboratory chemicals and to minimize the discharge of chemicals into laboratory drains. The governing Chemistry Department Procedure, "Disposal of Laboratory Chemicals and Reagents," is provided (Enclosure 2). This procedure provides specific guidance for the disposal of chemicals from laboratories and facilities.

For the above cited reasons Seabrook Station requests that the requirement to receive written approval from the EPA and NHDES for additions/substitutions of laboratory chemicals, be removed from the text of the NPDES Permit.

3. Proposed change in the Chlorine Limits for Cooling Tower Blowdown (Outfall 027)

Seabrook Station's draft NPDES Permit Cooling Tower Blowdown (Outfall 027) limit for Total Residual Oxidants (chlorine) is a daily average concentration of 0.2 mg/l and a maximum concentration of 0.5 mg/l. This draft NPDES Permit requirement is stated in Part I.A.18.a. (pg. 15 of 28).

Seabrook Station proposes to apply the draft NPDES Permit limits to discharges related to any Cooling Tower blowdown evolution required for the purposes of reducing salinity and/or total dissolved solids in order to improve heat transfer capabilities. These particular discharges are very infrequent and should only be necessary when the Cooling Tower has been operated for an extended period of time. The Cooling Tower is a backup cooling water supply to Seabrook Station's safety-related systems that are normally cooled by the Service Water System. As such, the Cooling Tower is generally in a stand-by condition and does not normally operate.

Other routine discharges from the Cooling Tower are of short-duration when surveillance testing and routine maintenance of the Service Water System is performed. The frequency of these Cooling Tower discharges is in the range of about 12-24 times per year. For these routine discharges, Seabrook Station proposes a mass-based limit based on a two-hour discharge at the monthly average concentration of 0.2 mg/l. The assumptions used in calculating the mass-based limit are:

- 13,000 gpm
- two hour (120 min) flow at 0.2 mg/l TRO (Total Residual Oxidant)
- 0.2 mg/l as the monthly average.

Calculation of the mass-based limit:

(120 min) (13,000 gpm) (3.78 l/gal) (0.2 mg/l) / 454,000 mg/pound = 2.6 pounds mass of TRO Based on the TRO measurement in the Cooling Tower.

Therefore, Seabrook Station requests a 2.6 pound TRO mass release per Cooling Tower discharge when this discharge occurs for surveillance purposes. A mark-up of the draft NPDES Permit page for Outfall 027 is provided (Enclosure 3) which includes the requested change.

4. Proposed change to the Impingement Monitoring Program Screen Wash Efficiency Studies

Seabrook Station's draft NPDES Permit specifies that the evaluation of screen wash efficiencies be conducted using "moribund" (near-dead) fish. This draft NPDES Permit requirement is stated in Part I.A.

During the NPDES Permit renewal application process Seabrook Station proposed to perform a screenwash efficiency study using dead fish. The purpose of the screenwash efficiency study is to estimate the number of fish that may be lost as part of the screenwash process and fish count assessment. Seabrook Station's Environmental Monitoring Contractor – that will be performing the efficiency study – will acquire the dead fish from screen wash assessments and offshore trawls. We propose to make this estimate by introducing a known number of marked, dead fish directly on to the traveling screens and recapturing these fish in the subsequent impingement sample. The difference between the number of marked fish released and the number recaptured will form the basis for the estimate of the number of fish lost during screen wash procedures. Use of dead fish for screen efficiency studies is standard practice in impingement studies.

The screen efficiency method is based on the realistic assumption that all fish that contact the screens are dead or will die soon after contact. Most fish entrapped in the offshore intake structures die in-transit to the pumphouse forebay due to pressure changes in the three-mile long intake tunnel. Entrapped fish experience abrupt pressure changes in the 120-foot descent – at six feet per second – from the offshore intake structures to the horizontal three-mile long intake tunnel. Another abrupt pressure change occurs in the 200-foot ascent – at four feet per second – in the Intake Transition Structure to the pumphouse forebay. Therefore, it is representative to use dead fish in the proposed screen wash efficiency evaluations.

Finally the use of moribund (near-dead) fish would also require the collection of live fish that would be unnecessarily wasteful.

Thus Seabrook Station requests that the use of dead fish (not moribund fish) in the screen efficiency study be specified in the NPDES Permit because introduced dead fish more accurately model the fate of impinged fish.

ENCLOSURE 2 TO NYE-02002

SEABROOK STATION

Chemistry Procedure

Disposal Of Laboratory Chemicals And Reagents

CD0900.27

Rev. 01 Chg. 02

Protected Document (Ref. 5.3)

Level of Use
Information

Procedure Owner:
J. C. Gallagher

Disposal Of Laboratory Chemicals And Reagents

TABLE OF CONTENTS

1. PURPOSE

1.1 Objective

This procedure describes the proper disposal of chemicals including stock reagents and prepared solutions from the chemistry laboratories. The chemistry laboratories include the hot chemistry lab, secondary chemistry lab, chlorination building, chemistry bench and other locations where the department may use or store laboratory chemicals.

This procedure does **not** apply to bulk quantities of chemicals used for control of plant system chemistry. Disposal of bulk quantities of these chemicals is controlled by the Hazardous Waste Management Program (HWMP) as described in the North Atlantic Environmental Compliance Manual (NAEC). (Protected: Ref. 5.2).

1.2 Discussion

This procedure provides specific guidance for the disposal of chemicals from chemistry laboratories and facilities. Liquids which are **not** hazardous waste may be disposed of in the laboratory drains with the exception of stock liquid reagents and standards in manufacturer's bottles which are handled by the Waste Services Department. Solid chemicals, whether hazardous waste or non-hazardous waste are **never** (except as noted below) disposed of in the laboratory drains. Solid chemical wastes and liquid hazardous wastes are processed by the Hazardous Waste Group.

In all cases, disposal of waste solutions into laboratory drains should be minimized by:

- prudent laboratory analytical and waste management
- preparing that quantity of liquid reagent which may be used prior to it expiring.

Incidental quantities (e.g., repipet rinses, small transfer quantities used in analysis) of solid and liquid stock chemical waste generated during preparation of laboratory standards and reagents may be disposed in the appropriate manner. Solids may be disposed in the laboratory trash containers and liquids may be disposed in the laboratory sinks.

1.3 Definitions

"Hazardous by pH characteristic only" is defined as a substance that has a pH less than 2 or greater than 12.5.

RCA - Radiologically Controlled Area.

2. PREREQUISITES

None

3. PRECAUTIONS

None

4. INSTRUCTIONS

4.1 Disposal Of Solid Manufacturer's Stock Reagent

☐ 4.1.1 STORE solid stock reagent waste in the Satellite Storage Area provided in the lab.

☐ 4.1.2 If waste is in the RCA, REMOVE from the RCA in accordance with Health Physics direction.

4.1.2.1 If waste does **not** meet Health Physics criteria for free release, PERFORM the following:

☐ • INDICATE container is radiologically contaminated

☐ • LABEL container with Spectrum ID number from gamma analysis

☐ • STORE in lab satellite storage area

☐ • NOTIFY Chemistry supervision and Waste Services

☐ 4.1.3 When the waste has been released from the RCA, STORE in the cabinet provided at the HP Checkpoint.

☐ 4.1.4 INFORM the Hazardous Waste Coordinator if the cabinet needs to be emptied.

4.2 Disposal Of Liquid Manufacturer's Stock Reagents

C A U T I O N

Glycol and paraffin oil **cannot** be disposed of in the laboratory drains due to potential for damage to waste liquid processing demineralizers.

☐ 4.2.1 STORE liquid stock reagent waste in the Satellite Storage Area provided in the lab.

☐ 4.2.2 If waste is in the RCA, REMOVE from the RCA in accordance with Health Physics direction.

4.2.2.1 If waste does **not** meet Health Physics criteria for free release, PERFORM the following:

☐ • INDICATE container is radiologically contaminated

☐ • LABEL container with Spectrum ID number from gamma analysis

☐ • STORE in lab satellite storage area

☐ • NOTIFY Chemistry supervision and Waste Services

☐ 4.2.3 When the waste has been released from the RCA, STORE in the cabinet provided at the HP Checkpoint.

☐ 4.2.4 INFORM the Hazardous Waste Coordinator if the cabinet needs to be emptied.

4.3 Disposal Of Prepared Reagents And Standards

CAUTION

Glycol and paraffin oil **cannot** be disposed of in the laboratory drains due to potential for damage to waste liquid processing demineralizers.

☐ 4.3.1 Refer to reagent or standard label and DETERMINE if the prepared reagent or standard is a hazardous waste.

☐ 4.3.2 DISPOSE of non-hazardous prepared reagents and standards in the lab sink.

☐ 4.3.3 DISPOSE of prepared reagents and standards, that are *hazardous by pH characteristic only,* in the lab sinks and RECORD volume in the Waste Disposal Log.

☐ 4.3.4 STORE all other hazardous waste in the Satellite Storage Area provided in the lab.

☐ 4.3.5 If waste is in the RCA, REMOVE from the RCA in accordance with Health Physics direction.

4.3.5.1 If waste does **not** meet Health Physics criteria for free release, the waste may be disposed of in the lab sink drain.

☐ 4.3.6 When the waste has been released from the RCA, STORE in the cabinet provided at the HP Checkpoint.

☐ 4.3.7 INFORM the Hazardous Waste Coordinator if the cabinet needs to be emptied.

4.4 Disposal Of Samples

CAUTION

Glycol and oily samples **cannot** be disposed of in the laboratory drains due to potential for damage to waste liquid processing demineralizers.

☐ 4.4.1 DISPOSE of sample waste in laboratory sinks or drains.

☐ 4.4.2 If sample is *hazardous by pH characteristic only*, RECORD volume in Waste Disposal Log.

☐ 4.4.3 If sample is in the RCA, and disposal outside RCA is desired, REMOVE from the RCA in accordance with Health Physics direction.

5. REFERENCES

5.1 Prudent Practices for Disposal of Chemicals from Laboratories, National Academy Press, Washington, D.C., 1983.

5.2 Environmental Compliance Manual (NAEC)

5.3 CHSTID 98-006, Laboratory Waste Disposal Guidance.

6. SUMMARY OF CHANGES

6.1 Rev. 01: Converted from WordPerfect to Microsoft Word in format specified in Rev. 01 of MNPR, PR3.2.

- Removed references to sewage treatment plant.
- Removed references to sending expired reagents to other NU facilities.

6.2 Rev. 01 Chg. 01:

Added to steps 4.1.2.1, 4.2.2.1 and 4.3.5.1

- to label container with Spectrum ID number to allow HP to evaluate contamination
- a notification of Waste Services to ensure proper storage of material.

6.3 Rev. 01 Chg. 02:

- Changed step 4.3.5.1 and Figure 1 to allow disposal of radioactively contaminated prepared reagents and standards into the lab sink.

Figure 1: Examples of Waste Disposal Practices

Disposal into Laboratory Drains

1. Rinsates of beakers/pipettes in preparation of standards.
2. Ion chromatograph eluent/regenerant flows from the operating instruments.
3. AA and ICP nebulizer drain collection bottle liquid.
4. Any standard or reagent prepared by Chemistry personnel which is **not** a HW.
    - Ion chromatography standards
    - pH buffer solutions
    - boric acid standards
    - sample waste stream from NPOC analyzer
    - NPOC standards
5. Any standard or reagent prepared by Chemistry personnel that is *hazardous by pH characteristic only*. The volumes disposed shall be recorded in the Waste Disposal Log.
6. Acidic rinsate used to clean glassware. The volumes disposed shall be recorded in the Waste Disposal Log.
7. Radioactively contaminated prepared reagents and standards.

Disposal by Collection, Free Release and Transfer to Waste Services Personnel

1. Any standard or reagent which is in a manufacturer's original bottle.
2. Any standard or reagent prepared by the Chemistry personnel which is not radioactively contaminated and is a HW such as:
    - Nickel standards
    - PDMABA reagent

PROCEDURE BASIS INFORMATION

Rev. 01: Procedure was revised in accordance with PR 3.2, Rev 01.

Revised to remove references to sewage treatment plant and to sending expired reagents to other NU facilities.

ENCLOSURE 3 TO NYE-02002

PART I

A. Effluent Limitations, Conditions, and Monitoring Requirements (Continued)

18. During the period beginning on the Effective Date and lasting through the Expiration Date, the permittee is authorized to discharge from outfall serial number **027**, Cooling Tower Blowdown.

a. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Avg. Concentration	Max. Concentration	Measurement Frequency	Sample Type
Flow, gpd	Report	Report	Daily[1]	Estimate
Total Residual Oxidants, mg/l	0.2[2]	0.5[3]	Daily[1]	Grab
pH, s.u.	6.0 to 9.0		Daily[1]	Grab

[1]Sample frequency is once daily when the Cooling Tower has a discharge.
[2]This limit is an average concentration, made over a single period of chlorine release, not to exceed two hours. Applies when a discharge is made to lower contaminant levels.
[3]This limit is an instantaneous maximum concentration. Applies when a discharge is made to lower contaminant levels.

b. None of the 126 priority pollutants shall be used for cooling tower maintenance chemicals.

c. The samples taken in compliance with the monitoring requirements specified above shall be taken at a representative point prior to mixing with any other stream.

d. See Section I.A.11.b for Total Residual Oxidants analytical requirements.

DRAFT

[4] This limit applies for Cooling Tower discharges that are a result of a routine surveillance or maintenance.

	Daily Max	Measurement Frequency	Sample Type
Total Residual Oxidant, pounds	2.6 [4]	Daily[1]	Grab