New Hampshire Yankee

Ted C. Feigenbaum
Senior Vice President and
Chief Operating Officer

NYN- 90044

February 21, 1990

United States Nuclear Regulatory Commission
Washington, DC 20555

Attention: Document Control Desk

References: (a) Facility Operating License NPF-67, Docket No. 50-443

(b) NHY Letter NYN-90029 dated January 31, 1990, "Seabrook Station NPDES Permit Modification", T. C. Feigenbaum to USNRC

Subject: Seabrook Station NPDES Permit Renewal

Gentlemen:

A copy of the New Hampshire Yankee (NHY) renewal application for the Seabrook Station NPDES Permit No. NH0020338 is provided as Enclosure 1. The renewal application, provided to the Environmental Protection Agency and the State of New Hampshire under separate cover, is submitted in accordance with Section 3.2 of the Environmental Protection Plan (Nonradiological), Appendix B to Facility Operating License NPF-67. The current Seabrook Station NPDES Permit expires on August 25, 1990, and the renewal application is required by 40 CFR 122.21 to be submitted at least 180 days prior to the expiration of the existing permit.

New Hampshire Yankee has determined that the requested permit modifications will not involve an unreviewed environmental question and do not involve a change in the Environmental Protection Plan. Additionally, the Environmental Protection Agency and the State of New Hampshire have reviewed the requested changes to Discharges 001, 022, 023 and 024, and have determined that they are of minor technical nature and will not jeopardize the environment when Seabrook Station begins full power operation. A copy of the January 18, 1990 Environmental Protection Agency letter to NHY is provided as Enclosure 2.

New Hampshire Yankee will continue to operate within the guidelines provided by the existing NPDES Permit until such time as the Environmental Protection Agency issues a new or modified permit.

A001
1/1

Should you require any additional information regarding this matter, please contact Mr. Terry L. Harpster, Director of Licensing Services, at (603) 474-9521, extension 2765.

Very truly yours,

Ted C. Feigenbaum

cc: Mr. William T. Russell
Regional Administrator
United States Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

Mr. Victor Nerses, Project Manager
Project Directorate I-3
United States Nuclear Regulatory Commission
Division of Reactor Projects
Washington, DC 20555

Mr. Noel Dudley
NRC Senior Resident Inspector
P.O. Box 1149
Seabrook, NH 03874

New Hampshire Yankee
February 21, 1990

Enclosure 1 to NYN-90044

Seabrook Station NPDES Permit Renewal
Application NYE-90014

New Hampshire
Yankee

Ted C. Feigenbaum
Senior Vice President and
Chief Operating Officer

NYE-90014

February 21, 1990

Mr. Edward K. McSweeney
Chief, Wastewater Management Branch
United States Environmental Protection Agency
John F. Kennedy Building
Boston, Massachusetts 02203

Reference: (a) NPDES Permit No. NH0020338

(b) NHY Letter NYE-89056 dated November 6, 1989, "NPDES Permit Modification," T. C. Feigenbaum to E. K. McSweeney

Subject: NPDES Permit Renewal Application

Dear Mr. McSweeney:

The New Hampshire Yankee Division (NHY) of Public Service Company of New Hampshire hereby submits, in accordance with 40 CFR 122.2(d), a renewal application for National Pollutant Discharge Elimination System (NPDES) Permit No. NH0020338 for Seabrook Station which expires on August 25, 1990. The renewal application, which is comprised of EPA Form 3510-1 and EPA Form 3510-2C is provided as Enclosure 1.

Additionally, we have included a list of proposed changes to the effluent limitations and monitoring requirements as Enclosure 2. We request that these modifications to our existing permit be processed along with the previous modifications that we transmitted on November 6, 1989, via Reference (b). New Hampshire Yankee will continue to meet all current NPDES Permit requirements until such time as the Environmental Protection Agency issues a permit modification.

The following clarifications are provided regarding the details of the application.

- Seabrook Station has not operated at greater than 5% reactor power since the present NPDES Permit was issued in July of 1985. Operational data is not available since only testing of various systems and components has been performed. Accordingly, the information provided on EPA Form 3510-2C is based upon preoperational data or best engineering estimates. Effluent test analyses have not been conducted. We intend to conduct the effluent tests after three months of Station operation at power. The results of these tests will be submitted to the Environmental Protection Agency as a revised EPA Form 3510-2C with a request for a modification to the NPDES Permit.

- The effluent characteristics of outfall 003, the back-flushing operation for biofouling control of the intake water system, are the same as outfall 001, the circulating water system, except for an increase in temperature and the absence of chlorine. Therefore, we are not submitting Item V, Parts A, B, and C of EPA Form 3510-2C for outfall 003.

- There have been no changes in the design or operation of the intake or discharge structures or the receiving waters since the original issuance of the NPDES Permit. We certify that the biological conditions within the Hampton-Seabrook estuary and the near shore marine environment have not changed beyond that associated with natural variability. Supporting material has been presented within annual Baseline Characterization Reports provided to both the EPA and the State of New Hampshire. Consequently, we consider the 316(a) and 316(b) documentation that was previously submitted to remain valid and it is not being resubmitted.

Should you require additional information regarding this matter, please contact Mr. James M. Peschel, Regulatory Compliance Manager, at (603) 474-9521, extension 3772.

Very truly yours,

Ted C. Feigenbaum

Enclosures

cc: Department of Environmental Services
Water Supply and Pollution Control Division
State of New Hampshire
6 Hazen Drive, P.O. Box 95
Concord, NH 03301

ENCLOSURE 1 TO NYE-90014

EPA FORM 3510-1 AND ATTACHMENTS
EPA FORM 3510-2C AND ATTACHMENTS

GENERAL 1

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F N H D 0 8 1 2 5 7 4 4 6 | Y | A | C | D

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)	X		X	D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)		X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP: S E A B R O O K S T A T I O N

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*

2 P E S C H E L , J A M E S , R E G U L A T O R Y M G R

B. PHONE *(area code & no.)*: 6 0 3 | 4 7 4 | 9 5 2 1

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 P O B O X 3 0 0

B. CITY OR TOWN: 4 S E A B R O O K

C. STATE: N H

D. ZIP CODE: 0 3 8 7 4

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 U S R O U T E 1

B. COUNTY NAME

R O C K I N G H A M

C. CITY OR TOWN: 6 S E A B R O O K

D. STATE: N H

E. ZIP CODE: 0 3 8 7 4

F. COUNTY CODE *(if known)*:

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
4911 (specify) Electric Power Generation	(specify)
C. THIRD	**D. FOURTH**
(specify)	(specify)

VIII. OPERATOR INFORMATION

A. NAME

NEW HAMPSHIRE YANKEE, DIV. OF PUB. SERV. NH

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☒ NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC (other than federal or state)
O = OTHER (specify)

P (specify)

D. PHONE (area code & no.)

A 603 474 9521

E. STREET OR P.O. BOX

PO BOX 300

F. CITY OR TOWN

B SEABROOK

G. STATE NH **H. ZIP CODE** 03874

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☒ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water): 9 N NH0020338

D. PSD (Air Emissions from Proposed Sources): 9 P

B. UIC (Underground Injection of Fluids): 9 U

E. OTHER (specify): 9 (specify)

C. RCRA (Hazardous Wastes): 9 R

E. OTHER (specify): 9 (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

Investor - owned electric utility nuclear generating station.

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
T.C. Feigenbaum Senior Vice President	T C Feigenbaum	2/21/90

COMMENTS FOR OFFICIAL USE ONLY

C

Supplemental Information

Seabrook Station, New Hampshire Yankee

EPA I.D. Number NHD081257446

Form 1, VIII.B.

Ownership (Additional Owners)

Canal Electric Company
The Connecticut Light and Power Company
EUA Power Corporation
Hudson Light and Power Department
Massachusetts Municipal Wholesale Electric Company
Montaup Electric Company
New England Power Company
New Hampshire Electric Cooperative, Inc.
Taunton Municipal Lighting Plant
The United Illuminating Company
Vermont Electric Generation and Transmission Cooperative

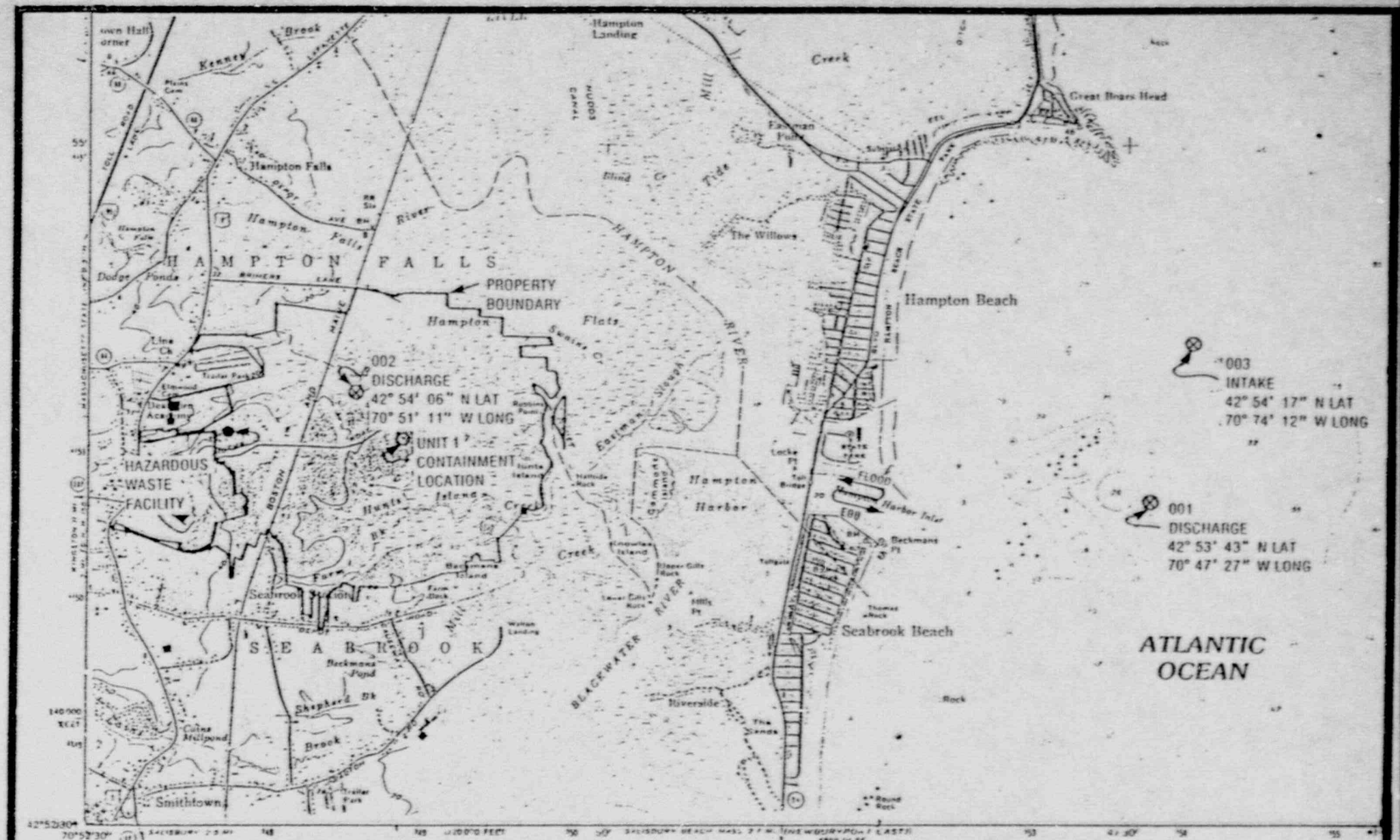
HAMPTON FALLS
SEABROOK
PROPERTY BOUNDARY
002
DISCHARGE
42° 54' 06" N LAT
70° 51' 11" W LONG
UNIT 1
CONTAINMENT
LOCATION
HAZARDOUS
WASTE
FACILITY
003
INTAKE
42° 54' 17" N LAT
70° 74' 12" W LONG
001
DISCHARGE
42° 53' 43" N LAT
70° 47' 27" W LONG
Hampton Beach
Seabrook Beach
ATLANTIC
OCEAN
Great Boars Head
Hampton Harbor
Hampton River
Blackwater River
Hampton Falls
Seabrook Station
Smithtown
Riverside
Hampton Landing
The Willows
Hunts Island
Boars Head
Mapped by the Army Map Service
Edited and published by the Geological Survey
Control by USGS and USC&GS
Culture and drainage in part compiled from aerial photographs taken 1943. Topography by planetable surveys 1944
Culture revised by the Geological Survey 1957
Hydrography from USC&GS chart 1206 (1955)
Polyconic projection. 1927 North American datum
10 000 foot grid based on New Hampshire coordinate system
1000-meter Universal Transverse Mercator grid ticks, zone 19, shown in blue
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET. DATUM IS MEAN LOW WATER
SHORELINE DATUM REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 7 FEET

FIGURE 1

FORM 2C NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	
001	42	53	43	70	47	27	Atlantic Ocean
002	42	54	06	70	51	11	Browns River
003	42	54	17	70	47	12	Atlantic Ocean

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined *(e.g., for certain mining activities)*, provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (list)	b. AVERAGE FLOW (include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
001	Condenser, Auxiliary Cooling	714 MGD	Continuous Chlorination	2F	4B
	Demineralizer Wastes	0.36 MGD	Neutralization	2K	
	(022) Secondary Plant Leakage	0.03 MGD	Oil Separation, Filtration	1H	1N
	(025) Distillation, Neutral-	0.61 MGD	Evaporation, Filtration	1D	1F
	ization Wastes; Steam Gener-		Neutralization, Distillation	1Q	2J
	ator Blowdown		Demineralization	4B	
	(027) Cooling Tower Blowdown	0.50 MGD	Low-level Chlorination, Scale	2F	XX
			Control		
002	Storm Runoff	6.1 MGD	Settlement, Neutralization	1U	2K
				4A	
	(021) Treated Sanitary Waste	0.035 MGD	Primary, Secondary Aeration,	1G,1L	1M,1Q
			Disinfection	2F,3A	3B,4A
	(023, 024) Secondary Plant	0.03 MGD	Oil Separation, Filtration	1H	1N
	Leakage				
	(026) Chemical Cleaning	1.0 MGD	Settlement, Neutralization	1U	2K
	Wastes			4A	
003	Back-flush Operation	677 MGD	Heat Treatment	XX	4B

OFFICIAL USE ONLY *(effluent guidelines sub-categories)*

X YES (complete the following table) ☐ NO (go to Section III)

1. OUTFALL NUMBER (List)	2. OPERATION(s) CONTRIBUTING FLOW (List)	3. FREQUENCY a. DAYS PER WEEK (specify average)	3. FREQUENCY b. MONTHS PER YEAR (specify average)	4. FLOW a. FLOW RATE (in mgd) 1. LONG TERM AVERAGE	4. FLOW a. FLOW RATE (in mgd) 2. MAXIMUM DAILY	4. FLOW b. TOTAL VOLUME (specify with units) 1. LONG TERM AVERAGE	4. FLOW b. TOTAL VOLUME (specify with units) 2. MAXIMUM DAILY	4. FLOW c. DURATION (in days)
001	Demineralization	3	12	0.36	0.36	30,000G	30,000G	0.08
003	Backflush Operation	Four/Year		677	677	170MG	170MG	0.25
021	Sanitary Treatment	5	12	0.03	0.05	35,000G	50,000G	1.00
025	Liquid Waste Treatment	7	12	0.11	0.22	20,000G	20,000G	0.23
	Distillation Waste	7	12	0.11	0.22	25,000G	50,000G	0.23
	Steam Generator Blowdown	7	12	0.28	0.38	280,000G	384,000G	1.00
	Steam Generator Blowdown Holdup sump	1	12	0.11	0.22	28,000G	56,000G	0.25
026	Chemical Cleaning Wastes	Once/Month		1.0	1.0	1.0MG	1.0MG	1.00
027	Cooling Tower Blowdown	Once/Month		0.5	1.0	0.5MG	1.0MG	1.00

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

X YES (complete Item III-B) ☐ NO (go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measure of operation)?

☐ YES (complete Item III-C) X NO (go to Section IV)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (specify)	2. AFFECTED OUTFALLS (list outfall numbers)

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ YES (complete the following table) X NO (go to Item IV-B)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS a. NO.	2. AFFECTED OUTFALLS b. SOURCE OF DISCHARGE	3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE a. REQUIRED	4. FINAL COMPLIANCE DATE b. PROJECTED

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction. ☐ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding -- Complete one set of tables for each outfall -- Annotate the outfall number in the space provided. NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
See Supplemental Information			

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ YES *(list all such pollutants below)* ☒ NO *(go to Item VI-B)*

CONTINUED FROM THE FRONT

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ YES *(identify the test(s) and describe their purposes below)* ☒ NO *(go to Section VIII)*

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☐ YES *(list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)* ☒ NO *(go to Section IX)*

A. NAME	B. ADDRESS	C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED (list)

IX. CERTIFICATION

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.

A. NAME & OFFICIAL TITLE (type or print)	B. PHONE NO. (area code & no.)
T.C. Feigenbaum, Senior Vice President	(603) 474-9521
C. SIGNATURE	**D. DATE SIGNED**
T C Feigenbaum	2/21/90

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: NHD081257446

Form Approved OMB No. 2000-0059 Approval expires 12-31-85

OUTFALL: 001

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	2. EFFLUENT a. MAXIMUM DAILY VALUE (2) MASS	2. EFFLUENT b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	2. EFFLUENT b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	2. EFFLUENT c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	2. EFFLUENT c. LONG TERM AVRG. VALUE (if available) (2) MASS	2. EFFLUENT d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	3. UNITS (specify if blank) b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE (optional) b. NO. ANAL
a. Biochemical Oxygen Demand *(BOD)*												
b. Chemical Oxygen Demand *(COD)*												
c. Total Organic Carbon *(TOC)*												
d. Total Suspended Solids *(TSS)*												
e. Ammonia *(as N)*												
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK "X" a. BELIEVED PRESENT	2. MARK "X" b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	3. EFFLUENT a. MAXIMUM DAILY VALUE (2) MASS	3. EFFLUENT b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	3. EFFLUENT b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	3. EFFLUENT c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	3. EFFLUENT c. LONG TERM AVRG. VALUE (if available) (2) MASS	3. EFFLUENT d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE (optional) b. NO. ANALYSES
a. Bromide (24959-67-9)		X												
b. Chlorine, Total Residual	X													
c. Color		X												
d. Fecal Coliform		X												
e. Fluoride (16984-48-8)		X												
f. Nitrate-Nitrite *(as N)*	X													

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'		3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)	X													
h. Oil and Grease	X													
i. Phosphorus (as P), Total (7723-14-0)	X													
j. Radioactivity														
(1) Alpha, Total	X													
(2) Beta, Total	X													
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (as SO_4) (14808-79-8)	X													
l. Sulfide (as S)	X													
m. Sulfite (as SO_3) (14265-45-3)	X													
n. Surfactants	X													
o. Aluminum, Total (7429-90-5)		X												
p. Barium, Total (7440-39-3)		X												
q. Boron, Total (7440-42-8)	X													
r. Cobalt, Total (7440-48-4)	X													
s. Iron, Total (7439-89-6)	X													
t. Magnesium, Total (7439-95-4)	X													
u. Molybdenum, Total (7439-98-7)	X													
v. Manganese, Total (7439-96-5)	X													
w. Tin, Total (7440-31-5)		X												
x. Titanium, Total (7440-32-6)		X												

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CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table *(all 7 pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)			X												
2M. Arsenic, Total (7440-38-2)		X													
3M. Beryllium, Total (7440-41-7)			X												
4M. Cadmium, Total (7440-43-9)			X												
5M. Chromium, Total (7440-47-3)		X													
6M. Copper, Total (7440-50-8)		X													
7M. Lead, Total (7439-92-1)			X												
8M. Mercury, Total (7439-97-6)		X													
9M. Nickel, Total (7440-02-0)		X													
10M. Selenium, Total (7782-49-2)			X												
11M. Silver, Total (7440-22-4)			X												
12M. Thallium, Total (7440-28-0)			X												
13M. Zinc, Total (7440-66-6)		X													
14M. Cyanide, Total (57-12-5)			X												
15M. Phenols, Total			X												
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)	
	a. TEST-ED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAL-YSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVRG. VALUE	
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCEN-TRATION	(2) MASS
GC/MS FRACTION – VOLATILE COMPOUNDS														
1V. Acrolein (107-02-8)			X											
2V. Acrylonitrile (107-13-1)			X											
3V. Benzene (71-43-2)			X											
4V. Bis (Chloromethyl) Ether (542-88-1)			X											
5V. Bromoform (75-25-2)		X												
6V. Carbon Tetrachloride (56-23-5)			X											
7V. Chlorobenzene (108-90-7)			X											
8V. Chlorodibromomethane (124-48-1)		X												
9V. Chloroethane (75-00-3)			X											
10V. 2-Chloroethylvinyl Ether (110-75-8)			X											
11V. Chloroform (67-66-3)			X											
12V. Dichlorobromomethane (75-27-4)			X											
13V. Dichlorodifluoromethane (75-71-8)			X											
14V. 1,1-Dichloroethane (75-34-3)			X											
15V. 1,2-Dichloroethane (107-06-2)			X											
16V. 1,1-Dichloroethylene (75-35-4)			X											
17V. 1,2-Dichloropropane (78-87-5)			X											
18V. 1,3-Dichloropropylene (542-75-6)			X											
19V. Ethylbenzene (100-41-4)			X											
20V. Methyl Bromide (74-83-9)			X											
21V. Methyl Chloride (74-87-3)			X											

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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS *(continued)*															
22V. Methylene Chloride (75-09-2)			X												
23V. 1,1,2,2-Tetrachloroethane (79-34-5)			X												
24V. Tetrachloroethylene (127-18-4)			X												
25V. Toluene (108-88-3)			X												
26V. 1,2-Trans-Dichloroethylene (156-60-5)			X												
27V. 1,1,1-Trichloroethane (71-55-6)			X												
28V. 1,1,2-Trichloroethane (79-00-5)			X												
29V. Trichloroethylene (79-01-6)			X												
30V. Trichlorofluoromethane (75-69-4)			X												
31V. Vinyl Chloride (75-01-4)			X												
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)			X												
2A. 2,4-Dichlorophenol (120-83-2)			X												
3A. 2,4-Dimethylphenol (105-67-9)			X												
4A. 4,6-Dinitro-O-Cresol (534-52-1)			X												
5A. 2,4-Dinitrophenol (51-28-5)			X												
6A. 2-Nitrophenol (88-75-5)			X												
7A. 4-Nitrophenol (100-02-7)			X												
8A. P-Chloro-M-Cresol (59-50-7)			X												
9A. Pentachlorophenol (87-86-5)			X												
10A. Phenol (108-95-2)			X												
11A. 2,4,6-Trichlorophenol (88-06-2)			X												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)	
	a. TEST-ED	b. BE-LIEVED PRESENT	c. BE-LIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAL-YSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE	
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCEN-TRATION	(2) MASS
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS														
1B. Acenaphthene (83-32-9)			X											
2B. Acenaphtylene (208-96-8)			X											
3B. Anthracene (120-12-7)			X											
4B. Benzidine (92-87-5)			X											
5B. Benzo *(a)* Anthracene (56-55-3)			X											
6B. Benzo *(a)* Pyrene (50-32-8)			X											
7B. 3,4-Benzo-fluoranthene (205-99-2)			X											
8B. Benzo *(ghi)* Perylene (191-24-2)			X											
9B. Benzo *(k)* Fluoranthene (207-08-9)			X											
10B. Bis *(2-Chloro-ethoxy)* Methane (111-91-1)			X											
11B. Bis *(2-Chloro-ethyl)* Ether (111-44-4)			X											
12B. Bis *(2-Chloroso-propyl)* Ether (102-60-1)			X											
13B. Bis *(2-Ethyl-hexyl)* Phthalate (117-81-7)			X											
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)			X											
15B. Butyl Benzyl Phthalate (85-68-7)			X											
16B. 2-Chloro-naphthalene (91-58-7)			X											
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)			X											
18B. Chrysene (218-01-9)			X											
19B. Dibenzo *(a,h)* Anthracene (53-70-3)			X											
20B. 1,2-Dichloro-benzene (95-50-1)			X											
21B. 1,3-Dichloro-benzene (541-73-1)			X											

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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b.
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)															
22B. 1,4-Dichlorobenzene (106-46-7)			X												
23B. 3,3'-Dichlorobenzidine (91-94-1)			X												
24B. Diethyl Phthalate (84-66-2)			X												
25B. Dimethyl Phthalate (131-11-3)			X												
26B. Di-N-Butyl Phthalate (84-74-2)			X												
27B. 2,4-Dinitrotoluene (121-14-2)			X												
28B. 2,6-Dinitrotoluene (606-20-2)			X												
29B. Di-N-Octyl Phthalate (117-84-0)			X												
30B. 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)			X												
31B. Fluoranthene (206-44-0)			X												
32B. Fluorene (86-73-7)			X												
33B. Hexachlorobenzene (118-74-1)			X												
34B. Hexachlorobutadiene (87-68-3)			X												
35B. Hexachlorocyclopentadiene (77-47-4)			X												
36B. Hexachloroethane (67-72-1)			X												
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)			X												
38B. Isophorone (78-59-1)			X												
39B. Naphthalene (91-20-3)			X												
40B. Nitrobenzene (98-95-3)			X												
41B. N-Nitrosodimethylamine (62-75-9)			X												
42B. N-Nitrosodi-N-Propylamine (621-64-7)			X												

CONTINUED ON PAGE V-8

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)	
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE	
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*														
43B. N-Nitrosodiphenylamine (86-30-6)			X											
44B. Phenanthrene (85-01-8)			X											
45B. Pyrene (129-00-0)			X											
46B. 1,2,4-Trichlorobenzene (120-82-1)			X											
GC/MS FRACTION – PESTICIDES														
1P. Aldrin (309-00-2)	NA													
2P. α-BHC (319-84-6)	NA													
3P. β-BHC (319-85-7)	NA													
4P. γ-BHC (58-89-9)	NA													
5P. δ-BHC (319-86-8)	NA													
6P. Chlordane (57-74-9)	NA													
7P. 4,4'-DDT (50-29-3)	NA													
8P. 4,4'-DDE (72-55-9)	NA													
9P. 4,4'-DDD (72-54-8)	NA													
10P. Dieldrin (60-57-1)	NA													
11P. α-Endosulfan (115-29-7)	NA													
12P. β-Endosulfan (115-29-7)	NA													
13P. Endosulfan Sulfate (1031-07-8)	NA													
14P. Endrin (72-20-8)	NA													
15P. Endrin Aldehyde (7421-93-4)	NA													
16P. Heptachlor (76-44-8)	NA													

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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. TEST INCLUDED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE (optional) b. NO. OF ANALYSES
GC/MS FRACTION – PESTICIDES (continued)															
17P. Heptachlor Epoxide (1024-57-3)	NA														
18P. PCB-1242 (53469-21-9)	NA														
19P. PCB-1254 (11097-69-1)	NA														
20P. PCB-1221 (11104-28-2)	NA														
21P. PCB-1232 (11141-16-5)	NA														
22P. PCB-1248 (12672-29-6)	NA														
23P. PCB-1260 (11096-82-5)	NA														
24P. PCB-1016 (12674-11-2)	NA														
25P. Toxaphene (8001-35-2)	NA														

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

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OUTFALL NO. 002

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE *(if available)* (2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c. LONG TERM AVRG. VALUE *(if available)* (2) MASS	d. NO. OF ANALYSES	3. UNITS *(specify if blank)* a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand *(BOD)*												
b. Chemical Oxygen Demand *(COD)*												
c. Total Organic Carbon *(TOC)*												
d. Total Suspended Solids *(TSS)*												
e. Ammonia *(as N)*												
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK "X" a. BELIEVED PRESENT	2. MARK "X" b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE *(if available)* (2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c. LONG TERM AVRG. VALUE *(if available)* (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)		X												
b. Chlorine, Total Residual	X													
c. Color		X												
d. Fecal Coliform	X													
e. Fluoride (16984-48-8)		X												
f. Nitrate–Nitrite *(as N)*	X													

CONTINUE ON REVERSE

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'		3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)	X													
h. Oil and Grease	X													
i. Phosphorus (as P), Total (7723-14-0)	X													
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (as SO_4) (14808-79-8)	X													
l. Sulfide (as S)	X													
m. Sulfite (as SO_3) (14265-45-3)	X													
n. Surfactants	X													
o. Aluminum, Total (7429-90-5)		X												
p. Barium, Total (7440-39-3)		X												
q. Boron, Total (7440-42-8)		X												
r. Cobalt, Total (7440-48-4)		X												
s. Iron, Total (7439-89-6)	X													
t. Magnesium, Total (7439-95-4)	X													
u. Molybdenum, Total (7439-98-7)		X												
v. Manganese, Total (7439-96-5)		X												
w. Tin, Total (7440-31-5)		X												
x. Titanium, Total (7440-32-6)		X												

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EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
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PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in colum 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, nonproces wastewater outfalls, and nonrequired GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant yo believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the result of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2, dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table *(all 7 pages)* for each outfall. See instructions for additional details and requirements

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS
METALS, CYANIDE, AND TOTAL PHENOLS													
1M. Antimony, Total (7440-36-0)			X										
2M. Arsenic, Total (7440-38-2)			X										
3M. Beryllium, Total, 7440-41-7)			X										
4M. Cadmium, Total (7440-43-9)			X										
5M. Chromium, Total (7440-47-3)			X										
6M. Copper, Total (7440-50-8)			X										
7M. Lead, Total (7439-92-1)			X										
8M. Mercury, Total (7439-97-6)			X										
9M. Nickel, Total (7440-02-0)			X										
10M. Selenium, Total (7782-49-2)			X										
11M. Silver, Total (7440-22-4)			X										
12M. Thallium, Total (7440-28-0)			X										
13M. Zinc, Total (7440-66-6)			X										
14M. Cyanide, Total (57-12-5)			X										
15M. Phenols, Total			X										
DIOXIN													
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS									

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)	
	a. TEST-ED, BELIEVED PRESENT	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS
GC/MS FRACTION – VOLATILE COMPOUNDS														
1V. Acrolein (107-02-8)			X											
2V. Acrylonitrile (107-13-1)			X											
3V. Benzene (71-43-2)			X											
4V. Bis (Chloromethyl) Ether (542-88-1)			X											
5V. Bromoform (75-25-2)			X											
6V. Carbon Tetrachloride (56-23-5)			X											
7V. Chlorobenzene (108-90-7)			X											
8V. Chlorodibromomethane (124-48-1)			X											
9V. Chloroethane (75-00-3)			X											
10V. 2-Chloroethylvinyl Ether (110-75-8)			X											
11V. Chloroform (67-66-3)			X											
12V. Dichlorobromomethane (75-27-4)			X											
13V. Dichlorodifluoromethane (75-71-8)			X											
14V. 1,1-Dichloroethane (75-34-3)			X											
15V. 1,2-Dichloroethane (107-06-2)			X											
16V. 1,1-Dichloroethylene (75-35-4)			X											
17V. 1,2-Dichloropropane (78-87-5)			X											
18V. 1,3-Dichloropropylene (542-75-6)			X											
19V. Ethylbenzene (100-41-4)			X											
20V. Methyl Bromide (74-83-9)			X											
21V. Methyl Chloride (74-87-3)			X											

EPA I.D. NUMBER (copy from Item 1 of Form 1): NHD081257446

OUTFALL NUMBER: 002

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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TEST INCLUDED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVG. VALUE (if available) (2) MASS	d. NO. OF ANAL. YSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVRAGE VALUE (1) CONCENTRATION	5. INTAKE (optional) a. LONG TERM AVRAGE VALUE (2) MASS	5. INTAKE (optional) b. N A Y
GC/MS FRACTION – VOLATILE COMPOUNDS (continued)															
22V. Methylene Chloride (75-09-2)			X												
23V. 1,1,2,2-Tetrachloroethane (79-34-5)			X												
24V. Tetrachloroethylene (127-18-4)			X												
25V. Toluene (108-88-3)			X												
26V. 1,2-Trans-Dichloroethylene (156-60-5)			X												
27V. 1,1,1-Trichloroethane (71-55-6)			X												
28V. 1,1,2-Trichloroethane (79-00-5)			X												
29V. Trichloroethylene (79-01-6)			X												
30V. Trichlorofluoromethane (75-69-4)			X												
31V. Vinyl Chloride (75-01-4)			X												
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2 Chlorophenol (95-57-8)			X												
2A. 2,4 Dichlorophenol (120-83-2)			X												
3A. 2,4 Dimethylphenol (105-67-9)			X												
4A. 4,6 Dinitro-O-Cresol (534-52-1)			X												
5A. 2,4-Dinitrophenol (51-28-5)			X												
6A. 2-Nitrophenol (88-75-5)			X												
7A. 4 Nitrophenol (100-02-7)			X												
8A. P-Chloro-M-Cresol (59-50-7)			X												
9A. Pentachlorophenol (87-86-5)			X												
10A. Phenol (108-95-2)			X												
11A. 2,4,6-Trichlorophenol (88-06-2)			X												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT						4. UNITS		5. INTAKE (optional)	
	a. TEST INC. REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS													
1B. Acenaphthene (83-32-9)			X										
2B. Acenaphtylene (208-96-8)			X										
3B. Anthracene (120-12-7)			X										
4B. Benzidine (92-87-5)			X										
5B. Benzo (a) Anthracene (56-55-3)			X										
6B. Benzo (a) Pyrene (50-32-8)			X										
7B. 3,4-Benzo-fluoranthene (205-99-2)			X										
8B. Benzo (ghi) Perylene (191-24-2)			X										
9B. Benzo (k) Fluoranthene (207-08-9)			X										
10B. Bis (2-Chloro-ethoxy) Methane (111-91-1)			X										
11B. Bis (2-Chloro-ethyl) Ether (111-44-4)			X										
12B. Bis (2-Chloroiso-propyl) Ether (102-60-1)			X										
13B. Bis (2-Ethyl-hexyl) Phthalate (117-81-7)			X										
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)			X										
15B. Butyl Benzyl Phthalate (85-68-7)			X										
16B. 2-Chloro-naphthalene (91-58-7)			X										
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)			X										
18B. Chrysene (218-01-9)			X										
19B. Dibenzo (a,h) Anthracene (53-70-3)			X										
20B. 1,2-Dichloro-benzene (95-50-1)			X										
21B. 1,3-Dichloro-benzene (541-73-1)			X										

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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)	
	a. TEST INCLUDED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE	
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)														
22B. 1,4-Dichlorobenzene (106-46-7)			X											
23B. 3,3'-Dichlorobenzidine (91-94-1)			X											
24B. Diethyl Phthalate (84-66-2)			X											
25B. Dimethyl Phthalate (131-11-3)			X											
26B. Di-N-Butyl Phthalate (84-74-2)			X											
27B. 2,4-Dinitrotoluene (121-14-2)			X											
28B. 2,6-Dinitrotoluene (606-20-2)			X											
29B. Di-N-Octyl Phthalate (117-84-0)			X											
30B. 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)			X											
31B. Fluoranthene (206-44-0)			X											
32B. Fluorene (86-73-7)			X											
33B. Hexachlorobenzene (118-74-1)			X											
34B. Hexachlorobutadiene (87-68-3)			X											
35B. Hexachlorocyclopentadiene (77-47-4)			X											
36B. Hexachloroethane (67-72-1)			X											
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)			X											
38B. Isophorone (78-59-1)			X											
39B. Naphthalene (91-20-3)			X											
40B. Nitrobenzene (98-95-3)			X											
41B. N-Nitrosodimethylamine (62-75-9)			X											
42B. N-Nitrosodi-N-Propylamine (621-64-7)			X											

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CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANAL. YSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
43B. N-Nitrosodiphenylamine (86-30-6)			X												
44B. Phenanthrene (85-01-8)			X												
45B. Pyrene (129-00-0)			X												
46B. 1,2,4-Trichlorobenzene (120-82-1)			X												
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)	NA														
2P. α-BHC (319-84-6)	NA														
3P. β-BHC (319-85-7)	NA														
4P. γ-BHC (58-89-9)	NA														
5P. δ-BHC (319-86-8)	NA														
6P. Chlordane (57-74-9)	NA														
7P. 4,4'-DDT (50-29-3)	NA														
8P. 4,4'-DDE (72-55-9)	NA														
9P. 4,4'-DDD (72-54-8)	NA														
10P. Dieldrin (60-57-1)	NA														
11P. α-Endosulfan (115-29-7)	NA														
12P. β-Endosulfan (115-29-7)	NA														
13P. Endosulfan Sulfate (1031-07-8)	NA														
14P. Endrin (72-20-8)	NA														
15P. Endrin Aldehyde (7421-93-4)	NA														
16P. Heptachlor (76-44-8)	NA														

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EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
NHD081257446	002

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OMB No. 2000-0059
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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)	
	a. TEST INCLUDED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE	
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS
GC/MS FRACTION – PESTICIDES (continued)														
17P. Heptachlor Epoxide (1024-57-3)	NA													
18P. PCB-1242 (53469-21-9)	NA													
19P. PCB-1254 (11097-69-1)	NA													
20P. PCB-1221 (11104-28-2)	NA													
21P. PCB-1232 (11141-16-5)	NA													
22P. PCB-1248 (12672-29-6)	NA													
23P. PCB-1260 (11096-82-5)	NA													
24P. PCB-1016 (12674-11-2)	NA													
25P. Toxaphene (8001-35-2)	NA													

Supplemental Information

Form 2C, II.A. Flows, Sources of Pollution, and Treatment Technologies

The following text should be read in conjunction with Figures 1, Facility location and Figure 2, Station Water Use.

Seabrook Station utilizes water from two major sources, the Atlantic Ocean and municipal wells from the Town of Seabrook. In addition, private wells developed onsite and north of the site along Brimmers Lane could be utilized to supply additional water needs should additional capacity be required. These flows and water uses are described in greater detail below. This water is used by Seabrook Station in the generation of electricity. The water is then discharged to the environment via three outfalls, two to the Atlantic Ocean (001, 003) and one to the Browns River (002).

OCEAN WATER FLOWS

OUTFALL 001

Ocean water is used for cooling equipment (service water), and condensing steam (circulating water). Water is taken into the Circulating Water System through three intake structures located approximately 7,000 feet offshore (Figure 1). From the intakes, cooling water flows through a 19-foot diameter tunnel to the on-site pump house. Approximately 714 mgd will be drawn through the system and utilized for both condenser cooling (677 mgd) and service water cooling (37 mgd). Water from this system will be discharged through the onsite Discharge Transition Structure (DTS), traveling through a 19-foot discharge tunnel to offshore multiport diffusers. All monitoring for this discharge takes place at the DTS.

Service water for auxiliary cooling is pumped to heat exchangers within the Station for component and Emergency Diesel Generator cooling. The service water mixes with the condenser cooling water prior to entering the discharge tunnel. The Circulating Water System becomes the transport for treated waste drains from the primary plant and treated floor drainage from the secondary plant.

Biofouling control is achieved through the use of continuous, low-level chlorination of the cooling water stream within both the Circulating Water and the Service Water Systems. Chlorine (sodium hypochlorite) is injected at the offshore intake structures and at additional locations within the Station as needed. A chlorine minimization program has been implemented to

determine the minimum level of chlorine discharge into the receiving water, while maintaining a suitable biofouling control of the intake cooling water system and condenser efficiency.

OUTFALL 003

In addition to chlorination, thermal backflushing of the intake tunnel may be employed to remove biofouling organisms attached to system components. This method will involve the reversal of the cooling water flow such that the intakes serve as the discharge (Outfall 003) and the discharge ports function as the intake (see Figure 1). Temperatures within the intake tunnel will be elevated to a maximum of 120°F for a maximum of two hours. The entire flow reversal and heat treatment cycle will occur over a six-hour period at a maximum flow rate of 471,000 gallons per minute. There will be no chlorination of the condenser cooling water during the thermal backflushing treatment.

FRESH WATER FLOWS

Fresh water is utilized to supply the needs of the Station potable water system, makeup water to the Auxiliary Cooling Towers, water needs to the Demineralization Water makeup system, and makeup to the Fire Protection System. Refer to Figure 2.

Fresh water utilized by the Station is derived from the Town of Seabrook municipal well system. Currently, an average of 110,000 gallons per day are obtained from the Town of Seabrook with a maximum of 320,000 gpd possible. In addition, provisions have been made to obtain water as needed for system makeup from wells owned by Public Service Company of New Hampshire. These wells are located on site and along Brimmers Lane in the Town of Hampton Falls, however, they are not currently connected to the potable water system and are unavailable for use. These will be activated as necessary should the demand for fresh water exceed the maximum allowed use from the municipal source. A maximum yield of approximately 500,000 gpd can be obtained from both the onsite wells and those located on Brimmers Lane. All flows will vary appreciably during station operation.

Demineralized Water

During Station operation, demineralized water is used to replace leakage losses from both the primary and secondary water cycles. There are four major effluent streams from the Demineralized Water Makeup System: demineralized regeneration effluent, Steam Generator Blowdown and related effluents, Primary Plant leakage, and Secondary Plant leakage.

The makeup flow to the primary plant is estimated at 6,000 gpd, but may vary to as much as 20,000 gpd during Station operation. The water leaving the system is collected within the Waste Test Tank and may be processed by a combination of filtration, evaporation, and demineralization. Treated water is recycled whenever possible. Treated liquid waste effluent will be discharged following monitoring, to the condenser cooling water effluent flow just prior to discharge through Outfall 001.

Regenerate chemicals for the water treatment plant demineralizers are neutralized before discharge to the Circulating Water System (Outfall 001). A 30,000 gallon neutralization tank has been installed to accommodate this system which is discharged via batch mode to the Circulating Water System. This neutralization tank may be discharged numerous times on a single day depending upon Station requirements.

Outfalls 022,023,024

Oil / Water Separator Vaults

The make up to the secondary (power generation) system constitutes the greatest need for demineralized water during Station operation. An estimated 68,000 gallons per day (maximum of 367,000 gpd) is needed. The portion of the flow that leaks or drains from the system is collected in floor drains and passed through oil/water separators prior to discharge. Each separator has been designed to discharge a maximum of 122,400 gpd. The average flows presented in Figure 2 represent those seen from these systems since the NPDES permit was issued in 1985. Data is not yet available to characterize operational flows from these systems. Each separator is designed to separate oil from drainage water.

The oil/water separators are arranged to process drainage piped from the following buildings and plant areas:

- Oil/Water Separator #1 (Outfall 022)- Emergency feedwater Pump House drainage, the Turbine Building sump, the Lube Oil Building sump, and the Lube Oil storage Room sump.

- Oil/Water Separator #2 (Outfall 023)- Diesel Generator Building sumps and the Auxiliary Boiler Room drainage.

- Oil/Water Separator #3 (Outfall 024)- Auxiliary Boiler Fuel Oil Storage Tank area, the Fire Pump House Day Tank area, and the Fire Pump House drainage trench.

The processed effluent is discharge to the Atlantic Ocean via the Circulating Water System Outfall 001 (vault #1), and to the Browns River via Outfall 002 (vaults #2 and #3).

Outfall 025

Steam Generator Blowdown

The Steam Generator Blowdown system is designed to remove dissolved impurities and suspended solids from the secondary side of the steam generators. This is accomplished by continuous blowdown of liquid from each of the four Steam Generators. The blowdown flow is processed to recover and recycle as much of this water as possible. Processing may involve evaporation, filtration and demineralization. The non-recycled effluent stream is then discharged to the Circulating Water System flow prior to discharge.

Outfall 025 receives purified liquid waste and neutralization effluent from the Steam Generator Blowdown recovery regeneration sump. Also monitored and reported through this outfall is the blowdown directly from the Steam Generators, Steam Generator blowdown distillate, effluent from the Recovery Test Tank, and discharges from the Waste Test Tank. Each is discharged via batch release to the Circulating Water System (Outfall 001). As operational data is not yet available for these systems to provide an accurate average value, the following maximum discharge capacities are provided:

Steam Generator Blowdown; 384,000 gpd
Steam Generator Blowdown Distillate; 50,000 gpd
Steam Generator Blowdown Recovery Sump; 28,000 gpd
Waste or Recovery Test Tank; 20,000 gpd

Outfall 026

Chemical Cleaning

Chemical cleaning wastes are processed onsite to improve the quality of discharge water prior to their release to the environment. Such wastes may include the nitric acid chemical cleaning of the sodium hypochlorite generation cells. A maximum of 1 million gallons per day may be discharged from this system depending upon station needs. All discharges will be made via batch mode through the Settling Basin, Outfall 002, or through the proposed Outfall 028 to Outfall 001.

Outfall 027

Auxiliary Cooling Tower

A mechanical draft cooling tower, installed as emergency backup to the Service Water System, has the capacity of removing 217-million BTU per hour. The tower is filled with approximately 4 million gallons of fresh water.

The cooling tower will also be utilized during thermal backflushing of the Circulating Water System. The flows shown are those related to the backflushing process. The atmospheric discharge of 360,000 gpd has been calculated for a 10-hour use period. Make up flow would refill the tower over an 18-day period. Salt water may be utilized as make up to the tower should a sufficient freshwater supply not be available. In such a case blowdown would be required to eliminate the higher concentration of solids within the tower. Blowdown of the cooling tower is expected to be performed on a once per month basis, discharging an average of 0.5 million gallons over a one-hour period.

Cooling tower blowdown, should it occur, will be made to the Circulating Water System (Outfall 001).

OUTFALL 021

Potable and Sanitary Wastes

Sanitary wastes are collected and processed at an onsite treatment facility. This facility employs primary treatment through the use of an activated sludge treatment, secondary treatment through the use of aerated lagoons, tertiary treatment through filtration, and subsequent chlorination of the final effluent. An average of 35,000 gpd are processed prior to discharge through the onsite Settling Basin to the Browns River at Outfall 002.

OUTFALL 002

Settling Basin

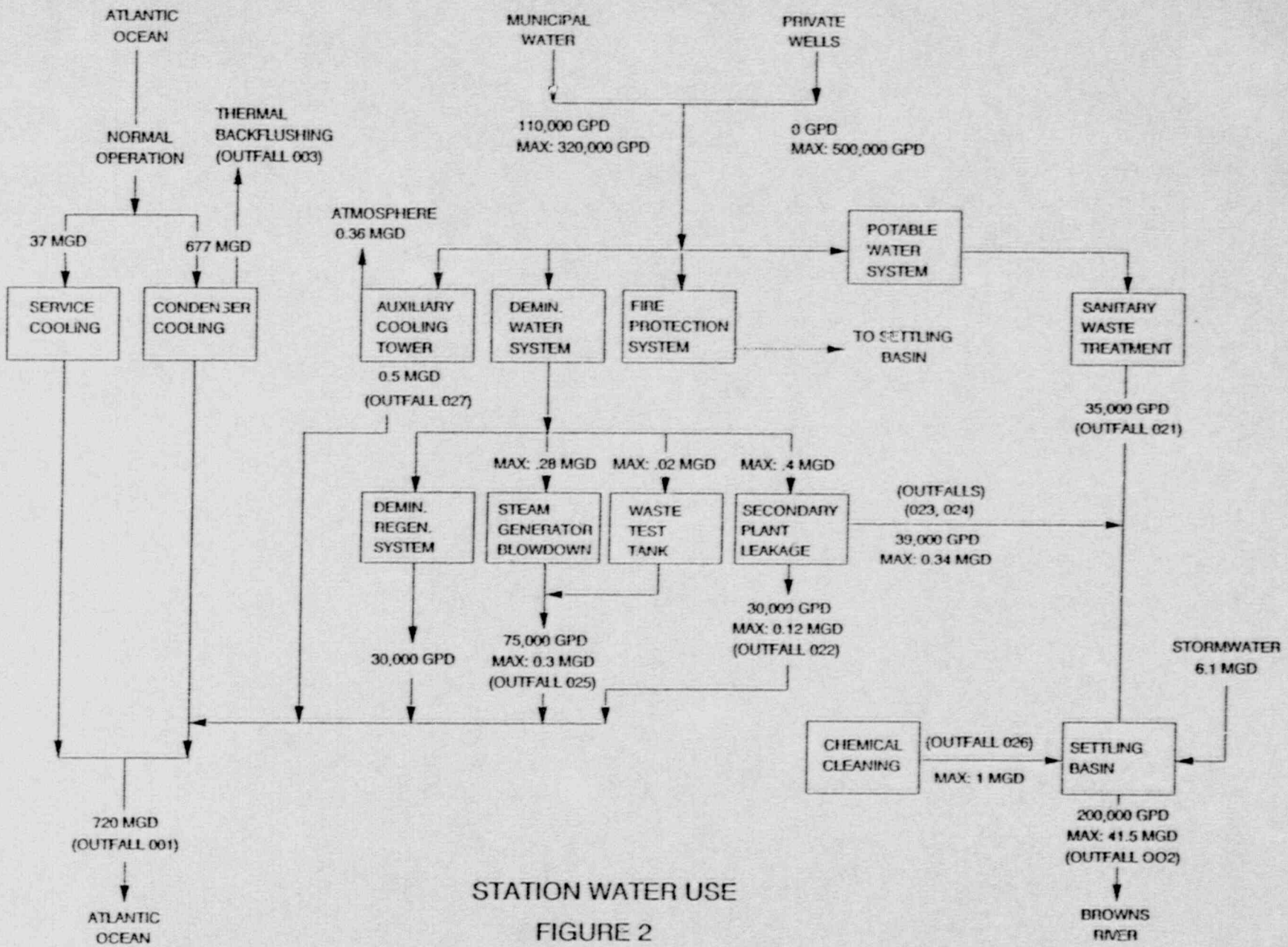
Outfall 002, the Settling Basin, has a capacity of approximately 2 million gallons. The principal influent is site stormwater. Other influents include the discharge from Outfalls 021, 023, 024, and 026. Water periodically flushed from portions of the Fire Protection System to the stormwater collection system may also be present. The combined effluent is controlled through

an adjustable weir and is discharged to the Browns River. In addition to the influents listed above, during periods when the Circulating Water System (Outfall 001) is not in operation, influent to the Settling Basin may also be received from Outfalls 022, 025, and 027.

Stormwater Runoff

Stormwater runoff as a result of rainfall onsite is controlled by catch basins, which discharge to the Settling Basin; catch basins located at the general office building, which discharge to the adjoining environment; or sheet flow, which is allowed to percolate into the ground. The estimated stormwater flow to the Settling Basin during the 2-year, 24-hour rainfall event is 6.1 MGD.

Station drainage areas are outlined in Figure 3. The area identified by the letter "A" flows to the Settling Basin. The area identified by the letter "B" flows to the environment adjacent to the General Office Building through catch basins. All other drainage is considered to be sheet flow to the adjacent environment.



STATION WATER USE

FIGURE 2

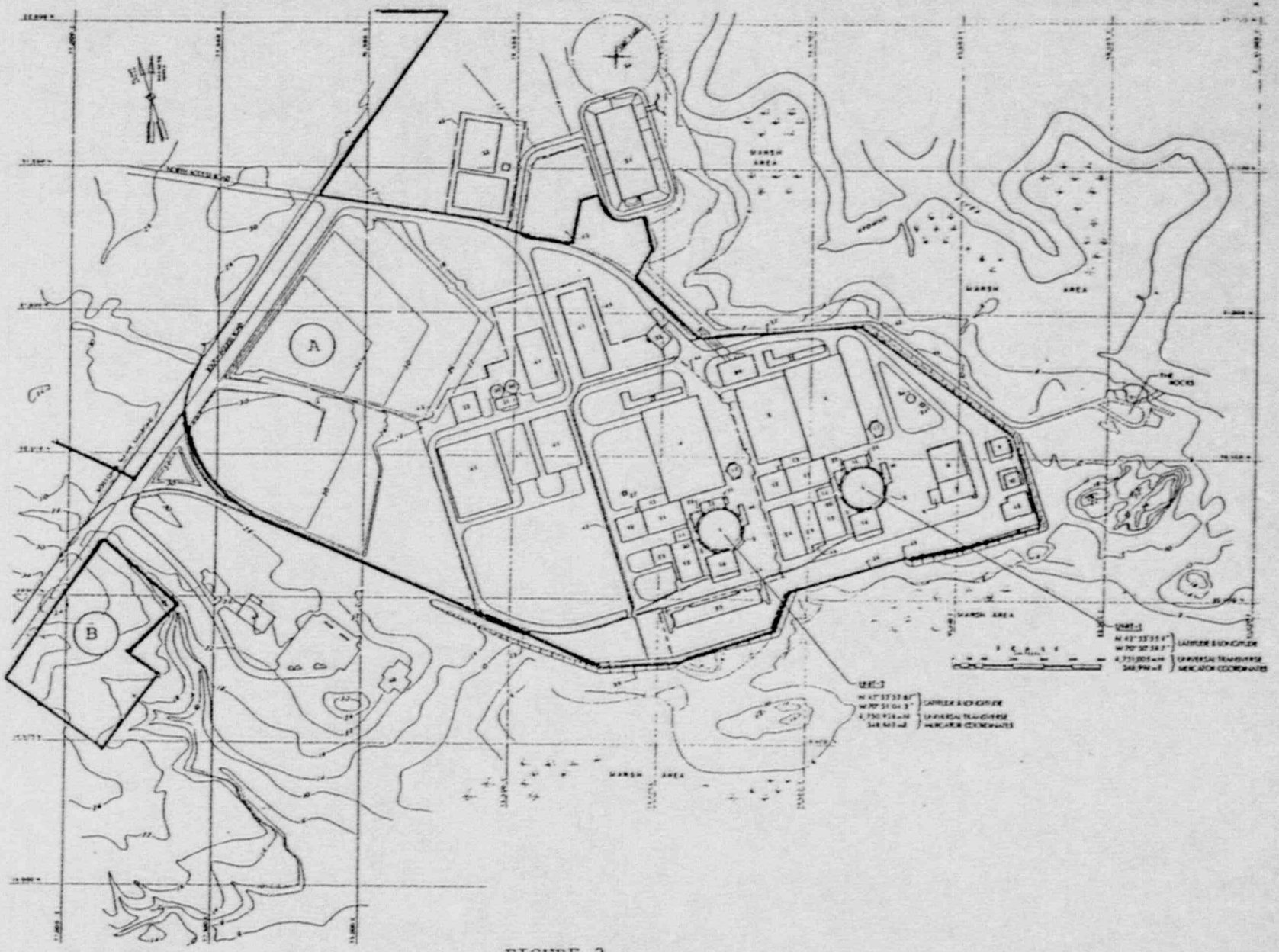


FIGURE 3

Supplemental Information

Seabrook Station, New Hampshire Yankee

EPA I.D. Number NHD081257446

Form 2C, V.D.

Additional Chemicals Believed Present

Hydrazine
Morpholine
Ammonium hydroxide
Lithium hydroxide
Hydrogen peroxide
Ethylene glycol
Propylene glycol

New Hampshire Yankee
February 21, 1990

ENCLOSURE 2 TO NYE-90014

PROPOSED CHANGES TO EFFLUENT LIMITATIONS
AND MONITORING REQUIREMENTS

PROPOSED CHANGES TO EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Within the following pages are the proposed changes to the Seabrook Station NPDES permit (No. NH0020338). Each affected page of the NPDES permit is duplicated, with the proposed changes highlighted along with the appropriate rationales. In addition, a new discharge point (Outfall 028), is being proposed to handle cleaning of the sodium hypochlorite generation system cells.

A summary of all changes is also given in the attached table.

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SETTLING BASIN LIMITATIONS (002)

PROPOSED VERSION

Part I.A

3. During the period beginning Tunnel Activation Date and lasting through Expiration Date, the permittee is authorized to discharge from outfall(s) serial number(s) 002*, stormwater runoff, construction runoff, treated sanitary waste, and secondary plant leakage.

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

Effluent Discharge	Discharge Limitations		Monitoring Requirements	
	Other Units (Specify) Avg. Monthly	Max. Daily	Measurement Frequency	Sample Type
Flow - M^3/Day (MGD)	---	41.5	Continuous	Daily Avg and Range
Total Suspended Solids, mg/l	30.0	100.0	Once Daily	Grab
Oil and Grease, mg/l	15	20	Weekly	Grab
Turbidity, NTU	---	25	Once Daily	Grab

* Discharge 002 may also contain cooling tower blowdown and treated demineralizer regenerants, if required for equipment maintenance, or at times when there is no flow in the discharge tunnel. The dates, duration, and reason for the diversion of any one or all of these streams from Discharge 001 to Discharge 002 shall be reported in the monthly Discharge Monitoring Report.

b. The pH shall not be less than 6.5 standard units, nor greater than 8.0 standard units, or 0.5 standard units above that which is naturally occurring at the intake source, whichever is greater, and shall be monitored weekly by a grab sample.

c. There shall be no discharge of floating solids or visible foam in other than trace amounts.

d. Samples taken in compliance with the monitoring requirements above shall be taken at the point of discharge into the Browns River.

e. Chemical discharges of hydrazine, ammonia, morpholine, hydrogen peroxide, ethylene glycol, and propylene glycol shall not be greater than 1 mg/l when present in the discharge.

Asterisk Footnote

In the existing permit, it is possible that the footnote indicated by an asterisk could be misinterpreted as applying only to secondary plant leakage. We believe that this was not the intent of the permit authors, and that moving the asterisk will make the applicability of the footnote clear.

Flow

The daily maximum flow rate is largely determined by the rain falling on the basin catchment area. Short of reducing the area or constructing large (and expensive) hold-up ponds, the volume of water entering the settling basin during storms is outside station control.

The average monthly flow rate is affected by the number of days discharges are made. Use of the moveable weir to prevent discharge on days that rainfall has muddied the basin will raise the average monthly flow since the flow will be averaged over fewer days. Efforts to limit such turbid discharges led to average monthly flow exceedances. It seems incongruous that attempts to limit exceedances of one type can be discouraged by the risk of exceedances of another type.

Chemical Discharges

As a course of normal operation, Seabrook Station discharges low concentrations of hydrazine, ammonia, morpholine, boron (as boric acid), lithium hydroxide, hydrogen peroxide, propylene glycol, and ethylene glycol into the Circulating Water System (001). These chemicals were not identified in the original permit application, but are used as normal chemical control agents in any nuclear power plant. These chemicals, released from Discharge Points (022) and (025), will have concentrations of 1.0 mg/l or less and may be released from Discharge Point (002) should the Circulating Water System not be available.

SEWAGE TREATMENT PLANT LIMITATIONS (021)

PROPOSED VERSION

Part I.A

4. During the period beginning Effective Date and lasting through Expiration Date, the permittee is authorized to discharge from outfall(s) serial number(s) 021 treated sanitary waste.

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

Effluent Characteristic	Discharge Limitations			Monitoring Requirements	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type
Flow - m/day (MGD)	(0.05)	---	---	Continuous	Daily Avg. and Range
BOD, mg/l	30	---	50	Weekly	24-Hour Composite
Total Suspended Solids, mg/l	30*	---	50*	Weekly	24-Hour Composite
Total Residual Chlorine, mg/l	---	---	5.0	Daily When in Use	Daily Avg. and Range
Oil and Grease	No visible sheen			Daily	Observation
Total Coliform, colonies/100 ml	70	---	70	Weekly	Grab
Settleable Solids, ml/l/hr	---	0.2	0.3	Daily	Grab

* These limitations apply during the months of November through April; the limitations will be 50 mg/l average monthly and 100 mg/l maximum daily during the months of May through October.

b. There shall be no measurable temperature increase.

c. The pH shall not be less than 6.5 standard units nor greater than 8.0 standard units, or 0.5 standard units above that which is naturally occurring at the intake source, whichever is greater, and shall be monitored weekly by a grab sample.

d. There shall be no discharge of floating solids or visible foam in other than trace amounts.

e. Samples taken in compliance with the monitoring requirements specified above shall be taken at any representative point prior to discharge into the primary settling basin.

BOD and TSS

The permit presently requires both daily maximum and weekly average limits for both BOD and TSS, however, at the specified sample frequency (weekly), the daily maximum is numerically equal to the weekly average. The requirement is not only redundant, but a single high result will always result in two exceedances rather than one, skewing the reporting of these parameters and the actions of the permittee. BOD and TSS, therefore, are better expressed by a maximum daily and average monthly limit.

Asterisk Footnote

The value of TSS is seasonally dependent. During warmer months (May through October), the growth of algae occurs. This is a natural phenomenon, which in turn elevates the levels of TSS. This has been recognized by New Hampshire regulators. The seasonal limits will not change the environmental effects because TSS increases during warmer months are a natural occurrence.

Total Residual Chlorine

Seabrook Station has experienced a number of chlorine spikes which station personnel have taken prompt action to minimize. The causes have been various - seasonal change, temperature change, instrument failure - with the spikes being short term and often little in excess of the limit. This situation is exacerbated by the station's need to maintain chlorine levels near the permit limit in order to control coliform, particularly in the summer when algae levels are high.

The sewage treatment plant discharges to the head of the settling basin. During normal operation, other than during and immediately following storms, the basin detention time is in the range of 20 to 40 days. It is unlikely that any chlorine residual would be detectable at the ultimate discharge into

the Browns River, regardless of the instantaneous chlorine concentration at the sewage treatment plant discharge.

Short-term spikes in chlorine concentration in the sewage treatment plant discharge will be rapidly averaged by the large volume of water in the settling basin. Even without the chlorine demand of this water, it is unlikely that chlorine could be detectable at the final discharge into the Browns River. For these reasons, the daily maximum chlorine limit is better expressed as daily average and range rather than as (instantaneous) daily maximum.

During and following storms, the basin detention time can fall to as low as three hours. However, the dilution factor under these circumstances would again render any residual undetectable.

Total Coliform

The units for this measurement in the existing permit are MPN per 100 ml. The permit does not require a particular coliform determination method to be used. The units could be misinterpreted to favor the MPN method over the membrane filter. This can be avoided by changing the units to counts per 100 ml or colonies per 100 ml.

The presence of a weekly average limit for coliform has the same effect described above for BOD and TSS - being redundant and doubling the exceedance rate when sampling at the specified rate because the weekly sample is also the weekly average. The monthly average, as well as the grab maximum, are better indicators for showing compliance.

Settleable Solids

The units for the settleable solids determination are ml/l/hr, rather than ml/l as specified within the permit. The technique for this analysis is specified in "Standard Methods for the Examination of Water and Waste Water," published by the American Public Health Association, 16th edition, 1985. The average weekly limit of 0.1 ml/l/hr is the lowest limit of detection and therefore values below this limit cannot be taken or reported. The average

value, thus, should be 0.2 ml/l/hr to allow for an average to be derived. This increase will not affect the impact of this discharge on the environment as it is through outfall 002.

COOLING TUNNEL DISCHARGE (001)

PROPOSED VERSION

Part I.A

5. During the period beginning Tunnel Activation Date and lasting through Expiration Date, the permittee is authorized to discharge from outfall(s) serial number(s) 001 condenser cooling water, service cooling water, liquid waste distillate, steam generator blowdown, cooling tower blowdown, demineralizer waste, and secondary plant leakage.

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

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Other Units (Specify) Avg. Monthly	Max. Daily	Measurement Frequency	Sample Type
Flow-M^3/day (MGD)	(720)	---	Hourly*	Daily Avg. and Range
Temperature Rise, ΔT, ^oF***	39	41	Hourly	Daily Avg. and Range
Temperature (Maximum), ^oF	---	---	Hourly	Daily Avg. and Range
Total Residual Oxidants	0.2 mg/1	0.2 mg/1	3/Day**	Daily Avg. and Range

---

* The flow rate may be estimated from pump capacity curves and operational hours.
** See Subparagraph "e" below.
*** Temperature rise is the difference between the discharge temperature and intake temperature.

b. The pH of the discharge shall not be less than 6.5 standard units, nor greater than 8.0 standard units, or 0.5 standard units above that which is naturally occurring at the intake source, whichever is greater.

c. There shall be no discharge of visible oil sheen, detergent-based foam, or floating solids in other than trace amounts except in cases of condenser leak seeking and sealing. In such cases, the use of a reasonable amount of biodegradable and nontoxic material may be used to the extent necessary to find and/or seal the condenser leak. Each month the permittee shall report the occasions wherein this material was used.

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h. Chemical discharges of hydrazine, ammonia, morpholine, boron, lithium hydroxide, hydrogen peroxide, ethylene glycol, and propylene glycol shall not be greater than 1 mg/1 when present in the discharge.

Flow

Seabrook Station was designed and built with a once-through cooling water system, with capacity to handle flow from two power plants. Accordingly, all environmental assessments (316a and 316b demonstrations) considered the impact of the flow through the Cooling Water System up to two-unit operation. The conclusions were that two-unit flow would have acceptable environmental impact.

The present flow limitation in the NPDES permit does not readily allow the normal operation of the Seabrook Station Cooling Water System. The flow limit was established for the anticipated design cooling water flow for one unit, taking the previous two-unit flow and cutting it in half. However, as presented in our submittal of November 6, 1986, NYE-89056, the flow should be increased to 720 MGD. This value accounts for the measured as-built flows for a single unit within a system capability originally designed for two unit operation, with consideration for performance during high tide.

Hence, this revision to increase flow to less than two-unit flow is justified. It will allow normal operation of the Seabrook Station Circulating Water System and have no detrimental environmental impact.

Foam

The current permit states that, "There shall be no discharge of visible oil sheen, foam, or floating solids in other than trace amounts ...." A modification to the wording to indicated detergent based foam qualifies the language to account for naturally occurring sea foam resulting from the circulation of seawater within the CWS.

Chemical Discharges

As a course of normal operation, Seabrook Station discharges low concentrations of hydrazine, ammonia, morpholine, boron (as boric acid), lithium hydroxide, hydrogen peroxide, propylene glycol, and ethylene glycol into the Circulating Water System (001). These chemicals were not identified in the original permit application, but are used as normal chemical control agents in any nuclear power plant. These chemicals, released from Discharge Points (022) and (025), will have concentrations of 1.0 mg/l or less following mixing within the discharge transition structure. The concentration of chemicals at the ocean surface following discharge through the multiport diffusers would be below 0.1 mg/l.

SECONDARY PLANT LEAKAGE (022, 023, 024)

PROPOSED VERSION

Part I.A

6. During the period beginning Tunnel Activation Date and lasting through Expiration Date, the permittee is authorized to discharge from outfall(s) serial number(s) 022 secondary plant leakage Vault #1, 023 secondary plant leakage, Vault #2, 024, secondary plant leakage, Vault #3.

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

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Other Units (Specify) Avg. Monthly	Max. Daily	Measurement Frequency	Sample Type
Flow - gpd	---	---	Monthly	Estimate
Oil and Grease, mg/l	15	20	Weekly When in Use	Grab
Total Suspended Solids, mg/l	30	100	Weekly When in Use	Grab

DELETED pH LIMIT

b. 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.

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pH

Secondary plant leakage into the oil/water separator vaults includes leakage from equipment whose water chemistry will be maintained with a pH at or above the current permit limit of 9.0. These vaults were designed and built to separate oils from secondary plant leakage prior to discharge. No mechanism to automatically monitor and adjust the pH of the effluents were planned or installed. Because of this, the vault(s) may occasionally be out of the allowable pH range of 6.0 to 9.0.

Each vault discharges to a designated NPDES discharge stream which is monitored for pH compliance prior to its discharge to the environment. Outfall 022 discharges upstream of Outfall 001 which is monitored routinely for pH, and Outfalls 023 and 024 discharge upstream of Outfall 002 which is also monitored for pH prior to discharge to the environment.

It is, therefore, requested that the pH monitoring limitation at each oil/water separator vault be eliminated from the permit. Established downstream pH monitoring locations ensure that applicable permit discharge limits are maintained, conforming to water quality standards.

STEAM GENERATOR BLOWDOWN (025)

PROPOSED VERSION

Part I.A

7. During the period beginning Effective Date and lasting through Expiration Date, the permittee is authorized to discharge from outfall(s) serial number(s) 025, distillate and neutralization waste from steam generator blowdown recovery regeneration sump.

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

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Other Units (Specify) Avg. Monthly	Max. Daily	Measurement* Frequency	Sample Type
Flow - gpd	300,000	---	Each Batch	Estimate
Oil and Grease, mg/l	15	20	Once Prior to Batch Discharge	Grab
Total Suspended Solids, mg/l	30	100	Once Prior to Batch Discharge	Grab
Radioactivity	(See Subparagraph "c" below)			

DELETED pH LIMIT

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

c. The concentrations of radionuclides shall not exceed those standards for such materials as appear in and are restricted by licenses from the Nuclear Regulatory Commission.

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* When discharge is continuous to 001, the requirements shall be daily for Flow, weekly for Oil and Grease, and weekly for Total Suspended Solids.

Flow

Steam Generator Blowdown (SGBD) is discharged to the 025 discharge line, which then discharges to the Circulating Water System (001). There are no listed permit requirements in 025 for either continuous or batch SGBD to circulating water. The permit requirement for 001 indicates that SGBD goes to 001. All other listed discharges to 001 have separate discharge limits except for SGBD.

It is possible that during plant operations as much as 280,000 gallons per day could be blown down from the steam generators to control chemistry parameters. In addition, an average of 20,000 gallons per day could be released from waste test tanks connected to 025. If SGBD is considered part of 025, this will exceed the limit of 60,000 gpd monthly average for 025. Accordingly, the limit on 025 should be increased to 300,000 gpd monthly average to accommodate this possibility. Currently, SGBD is analyzed weekly for all 025 discharge requirements.

Asterisk Footnote

During continuous blowdown of the Steam Generators, monitoring should be conducted on a daily basis for flow and on a weekly basis for oil and grease and total suspended solids, rather than on an each batch basis. This modification would allow for a regulated sample frequency during periods of extended release.

pH

The value for pH should be eliminated. Normal steam generator pH ranges from 8.8-9.2 units or as high as 9.6 to minimize corrosion and sludge buildup. There will, however, be no environmental consequence because there is a downstream monitoring point for pH, which ensures that applicable water quality standards are met.

AUXILIARY COOLING TOWER BLOWDOWN (027)

PROPOSED VERSION

Part I.A

9. During the period beginning Effective Date and lasting through Expiration Date, the permittee is authorized to discharge from outfall(s) serial number(s) 027, auxiliary cooling tower blowdown.

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

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Other Units (Specify) Avg. Monthly	Max. Daily	Measurement Frequency	Sample Type
Flow - gpd	---	---	Daily*	Estimate

DELETED CHROMIUM AND ZINC LIMITS

Free Available** Chlorine, mg/l	0.2	0.5	Daily*	Grab

* Sample frequency is once daily when auxiliary cooling tower discharges blowdown.

** None of the 126 priority pollutants shall be used for cooling tower maintenance. Sodium silicate may be utilized as an anti-scalant.

b. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units.

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.

Asterisk Footnotes

The present NPDES permit requirement to sample the cooling tower water should be limited to those occasions when blowdown is released from the cooling tower to the circulating water discharge (001). Typically, the cooling tower operates in a closed cycle mode, with no blowdown to the environment. Since there is no environmental impact when operating in this closed cycle mode, sampling should be limited to those times only when there is a release of blowdown to the Circulating Water System (001).

The water treatment program for the tower, at this time, uses chlorine. It does not include chemical compounds of chromium or zinc for maintenance of tower water quality nor is the tower constructed of these materials. For these reasons, the NPDES permit should be modified to eliminate reference to chromium and zinc compounds. Sodium silicate is added to the permit to reflect its use as an anti-scalant.

Total Chromium, Total Zinc

The present NPDES permit sets limitations for both total chromium and zinc for the auxiliary cooling tower. As originally envisioned, these chemicals were to be utilized for water treatment. Neither chromium nor zinc, however, will be utilized. Instead, sodium silicate will be employed for scale control. As a result, permit limitations are no longer applicable.

BACKFLUSHING OPERATION (003)

PROPOSED VERSION

Part I.A

10. During the period beginning Tunnel Activation Date and lasting through Expiration Date, the permittee is authorized to discharge from outfall(s) serial number(s) 003, backflushing operation for biofouling control of the Intake Water System.*

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

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Other Units (Specify) Avg. Monthly	Max. Daily	Measurement Frequency	Sample Type
Flow - gpm	471,000		When in Use	Estimate**
Temperature, °F		120	Continuous When in Use	Average and Range

* In the backflushing operation, the diffuser serves as the intake and the intake structure is the discharge point.

** Flow rate may be estimated from pump curves and operational hours.

b. The pH shall not be less than 6.0 standard units nor greater than 8.5 standard units.

c. There shall be no discharge of oil, a visible oil sheen, detergent-based foam, or floating solids in other than trace amounts.

d. The continuous backflushing flow at high temperature (120°F maximum) shall not be longer than a duration of two hours. The total backflushing cycle may not exceed six hours. The thermal plume which arises from the backflushing operation shall have minimum impingement upon the inner and outer sunk rocks, in accordance with Paragraph I.A.1.n(1). The permittee shall submit the proposed operational procedures to the Regional Administrator and the Executive Director for approval within 30 days of the effective date of this permit that will specify the weather conditions, tidal conditions, and any other hydrodynamic factors that would ensure that the backflushing thermal plume will have minimum impact upon the inner and outer sunk rocks.

e. The permittee shall not conduct more than four backflushing cycles per calendar year unless prior approval is obtained from the Regional Administrator and the Executive Director.

f. There will be no chlorination operations during the thermal backflushing process except for safety-related functions (i.e., Service Water System chlorination).

g. The permittee shall include in the monthly submittal of the Discharge Monitoring Report each time Discharge 003 is used giving the date and duration of each backflushing operation.

Flow

As presented within our submittal of November 6, 1989, NYE-89056; and as discussed for Outfall 001 flow, the present flow limitation was established for the anticipated design cooling water flow for one unit, taking the previous two-unit flow and cutting it in half. As a result, the present flow limit will be exceeded when all three pumps are in operation. This modification is therefore required to effectively perform the backflushing operation utilizing three as-built pumps.

Foam

The current permit states that, "There shall be no discharge of visible oil sheen, foam, or floating solids in other than trace amounts ...." A modification to the wording to indicated detergent based foam qualifies the language to account for naturally occurring sea foam resulting from the circulation of seawater within the CWS.

NEW DISCHARGE - ACID CLEANING OF CHLORINATION CELLS (028)

PROPOSED VERSION

Part I.A

11. During the period beginning Effective Date and lasting through Expiration Date, the permittee is authorized to discharge from outfall(s) serial number(s) 028, chemical cleaning wastes from the acid cleaning of chlorination cells.*

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

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Other Units (Specify) Avg. Monthly	Max Daily	Measurement Frequency	Sample Type
Flow - gpd	---	1,000	Each Batch	Estimate
TSS (mg/1)	30	100	Each Batch	Grab

b. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units.

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

* Discharge is made directly to the Circulating Water System (001) discharge transition structure.

Acid Cleaning of Chlorine Cells

At present, discharge Point 026 (chemical cleaning basin) is used to report all acid cleaning activities that are discharged to the environment. However, at the time of the permit application, it was envisioned that the flows from Point 026 would be primarily those resulting from the alkaline phosphate cleaning of ferrous plant equipment during the construction phase. This is reflected in the effluent limitations for that discharge point.

Use of the chlorination plant results in the deposition of salts from seawater, particularly during operation at low water temperatures. Acid cleaning, therefore, is required routinely to remove those salts from the electrolysis cells. Iron is also precipitated from the seawater, though to a much more limited extent. The acid cleaning removes these deposits. A significant number of exceedances resulted from this effect during 1986 because reporting was from Point 026.

The discharge will not contain oil or grease since the plant cells and pipework do not contain such materials, nor are they present in the cleaning or neutralizing agents. The same applies to the other 026 chemical limitations. Permit restrictions on these effluents should, therefore, not be imposed.

Chlorination plant acid cleaning will be routine with specific effluent characteristics. A new discharge point is, therefore, warranted. The only permit restrictions needed are for flow, TSS, and pH. All discharges will be made directly to the Circulating Water System (001), Discharge Transition Structure.

NPDES PERMIT PROPOSED MODIFICATIONS

Section (Discharge)	Page	Existing Version	Proposed Version	Reason/Comment
IA3 (002)	10	Number(s) 002 . . . and secondary plant leakage.*	Number(s) 002* . . . and secondary plant leakage.	Clarifies that 002 may also contain cooling tower blowdown, not just secondary plant leakage.
IA3.a (002)	10	Avg. Mon. / Max. Daily Flow (mgd) 1.0 / 41.5	Avg. Mon. / Max. Daily Flow (mgd) -- / 41.5	Flow rate is largely determined by rainfall, which is outside station control.
IA3.e (002)	10	--	Add parameter limit of 1.0 mg/l for Hydrazine, Ammonia, Morpholine, Boron, Lithium Hydroxide, Hydrogen Peroxide, Ethylene Glycol, and Propylene Glycol.	Operational chemicals, will facilitate administrative control.
IA4.a (021)	11	Avg Weekly BOD, mg/l 45 TSS, mg/l 45	Delete Delete plus * footnote	Redundant. Sample frequency is weekly; consequently, daily maximum and weekly average limits are one in the same. Include footnote to set seasonal TSS limits.
		Total Residual Chlorine (Sample Type): Grab	Total Residual Chlorine (Sample Type): Daily Average and Range	Chlorine plant operation can produce short-term spikes; average and range better define actual chlorine output.
		Total Coliform, MPN/100 ml	Total Coliform, Colonies/100 ml	Proposed units are for membrane filter method, which is most commonly used in state.

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NPDES PERMIT PROPOSED MODIFICATIONS

Section (Discharge)	Page	Existing Version	Proposed Version	Reason/Comment
IA4.a (021) (Continued)	11	Total Coliform, Avg. Mon. -- Avg. Weekly 70	Avg. Mon. 70 Avg. Weekly --	Redundant, same as BOD and TSS.
		Settleable Solids ml/l Avg. Weekly 0.1	Settleable Solids ml/l/hr Avg. Weekly 0.2	Limit of detection 0.1; therefore, NPDES permit value of 0.2 would allow for averaging of daily measurements. Change in units from ml/l to ml/l/hr.
Application		Discharge (021) is presently to settling basin, but company has made statement will discharge to CW System.	Discharge directly to Browns River.	Piping not available.
IA5.a (001)	12	Avg. Mon. Max. Daily Flow (mgd) (594) --	Avg Mon. Max. Daily Flow (mgd) (720) --	Pumps design limit above limit established within permit.
IA5.c (001)	12	Foam	Detergent based foam.	To account for the natural foaming characteristics of seawater.

NPDES PERMIT PROPOSED MODIFICATIONS

Section (Discharge)	Page	Existing Version	Proposed Version	Reason/Comment
IA5.h (001) (Continued)	14	--	Add parameter limit of 1.0 mg/l for Hydrazine, Ammonia, Morpholine, Boron, Lithium Hydroxide, Hydrogen Peroxide, Propylene Glycol, and Ethylene Glycol.	Operational chemicals will facilitate administrative control.
IA6.b (022, 023, 024)	15	pH ... not less than 6.0 nor greater than 9.0 standard units.	delete	Vaults designed with no ability to neutralize; pH is monitored downstream to ensure environmental compliance.
IA7.a (025)	16	Avg. Mon. / Max. Daily	Avg. Mon. / Max. Daily	Increase to include possible increased SGBD from seawater leak in condenser.
		Flow (gpd) 60,000 --	Flow (gpd) 300,000 --	
		Measurement frequency	Measurement frequency*	Modified measurement frequencies to account for continuous blowdown of the Steam Generator.
IA7.b (025)	16	pH ... not less than 6.0 nor greater than 9.0 standard units.	delete	pH is monitored downstream prior to discharge to ensure environmental compliance.

NPDES PERMIT PROPOSED MODIFICATIONS

Section (Discharge)	Page	Existing Version	Proposed Version	Reason/Comment
IA9.a (027)	18	Avg. Mon. / Max. Daily		
		Total Chromium mg/l** 0.2 0.2	delete	Compounds will not be utilized within the cooling tower as originally planned. Sodium silicate may be utilized.
		Total Zinc mg/l** 1.0 1.0	delete	
		* Sample frequency is ... when tower is in operation.	* Sample frequency is ... when tower discharges blowdown.	Unnecessarily restrictive; discharge occurs only during blowdown, which is when testing should be done.
		** None of the 126 priority pollutants ... used ... except chromium and zinc ...	** None of the 126 priority pollutants ... used .... Sodium silicate may be utilized as an anti-scalant.	Water treatment program does not use chromium or zinc. Sodium silicate identified as anti-scalant compound.
IA10.a	19	Avg. Mon. / Max. Daily	Avg. Mon. / Max. Daily	
		Flow - 400,000 gpm --	Flow - 471,000 gpm --	Pumps design limit above limit established within permit.
IA10.c	1=	Foam.	Detergent-based foam.	To account for the natural foaming characteristics of seawater.

NPDES PERMIT PROPOSED MODIFICATIONS

Section (Discharge)	Page	Existing Version	Proposed Version	Reason/Comment
Addition IA.11 (028)	New		New discharge point (028) Avg. Mon. / Max. Daily Flow (gpd) -- / -- TSS (mg/1) 30 / 100 Measurement frequency is once prior to each discharge; sample type is grab.	Create new discharge point (028) for acid cleaning of chlorination cells. Presently, have to transport waste to chemical cleaning basins (026). Discharge Point (028) to discharge directly to Discharge Transition Structure (001).

New Hampshire Yankee
February 21, 1990

Enclosure 2 to NYN-90044

EPA Letter to NHY, dated January 18, 1990

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

January 18, 1990

Ted C. Feigenbaum
Senior Vice President and
Chief Operating Officer
New Hampshire Yankee Division
Public Service Company of New Hampshire
P. O. Box 300
Seabrook, New Hampshire 03874

Re: Seabrook Station NPDES Permit Modifications
Permit No. NH 0020338

Dear Mr. Feigenbaum

Your letter of November 6, 1989, has been received and reviewed with the New Hampshire Department of Environmental Services concerning your request for modifying the referenced permit. This permit will expire on July 5, 1990.

Discharge 001:

EPA and the State are in concurrence with your letter that there will be no discernible impact upon the environment by the anticipated circulating cooling water flow rate of 720 MGD. It is recognized that this flow rate exceeds the maximum permitted flow rate of 594 MGD although well below the maximum flow rate of 1,187 MGD which had been approved for two-unit operation. The rationale for this determination is presented in Attachment I.

Discharges 022, 023, and 024:

It is agreed that the natural buffering capacity of the diluent streams (Discharges 001 and 002) for the three internal streams (Discharges 022, 023, and 024) will insure that the receiving waters will be environmentally protected even though the internal streams may exceed the pH requirements of the receiving waters. The pH limitations for these three internal streams can be deleted without jeopardy. Further, Discharges 001 and 002 (combinations of various internal streams) have pH limitations that recognize and limit the pH prior to discharge into the receiving waters. The experimental data justifying this conclusion is given in Attachment I.

Determination

It has been determined that since these two modifications are of minor technical nature they will not jeopardize the environment

when Seabrook Station begins full operation. These modifications, therefore, will be incorporated into the next modification or reissuance of the station permit. EPA regulation 40 CFR 122.62 (a)(16) allows EPA to modify the existing permit in order to accommodate this type of new information when it is presented to the Regional Adminstrator.

As a cautionary note, the existing permit limits for Discharges 001, 022, 023, and 024 are still in effect until the permit has been formally modified or reissued to include these requested changes.

Should you have any questions, please contact T. E. Landry of this office at 617-565-3508.

Sincerely,

Edward K. McSweeney

Edward K. McSweeney, Chief
Wastewater Management Branch

cc: EPA Compliance, Attn: Steve Silva
EPA Permits Processing, Attn: Veronica Harrington
NH DES, Attn: George Berlandi
NH DES, Attn: Charles Thoits

ATTACHMENT I

1. Discharge 001.

Paragraph I.A.1.m of the referenced permit defines the source documentation establishing the circulating cooling water effluent limitations. These documents established under the worst case basis that a flow rate of 1,187 MGD (at minimum flow conditions during low tide) and a discharge of 39 °F above ambient (at maximum temperature discharge conditions) would not significantly impact the offshore receiving waters.

When the operational conditions for one-unit operation in the current permit were developed, the 1,187 MGD was divided in half since only one unit was to be completed or 594 MGD. Actual pump tests showed flow rates that exceeded this value. In retrospect, the value of 594 MGD as the maximum flow rate was found to be in error for three distinctly different reasons:

a. The original 2-unit flow rate was based on low flow at low tide conditions and it did not include the higher flow rate that would be induced by the increased Net Position Suction Head of high tides.

b. With all other parameters the same, the flow rate for one unit is more than one-half of a two-unit operation because flowing water friction within the tunnel is reduced by more that than one-half; thereby, producing a greater flow rate for the same pumping equipment.

c. The motor/pump sets were found, during station tests, to have a greater pumping capacity than originally designed.

Therefore, the combination of these three effects will produce a maximum flow rate of about 720 MGD. This value is above the permitted value of 594 MGD but well below the originally approved value of 1,187 MGD.

The heat load imposed upon the receiving waters is exactly one-half of the two-unit heat load previously evaluated and approved. Since the heat load remains unchanged, the maximum temperature of the discharge during the high flow conditions will be reduced by a factor of 594/720 or 82.5% of the low flow discharge temperature.

2. Discharges 022, 023, and 024.

During station test operations and during review of operational

procedures, three internal streams (Discharges 022, 023 and 024) were found to exceed the pH limitations imposed by the NPDES Permit limitations and the pH Water Quality values for the receiving marine water environment.

In each case, these streams are combined with several other internal fresh water and salt water streams before being released through Discharge 001 to the Atlantic Ocean and through Discharge 002 to the Browns River. Both of these streams have Water Quality pH limitations that have to be met before being released.

The central question is: "Can the pH requirements for the internal streams be deleted and still insure that the human health and the aquatic community will be protected?" The objective is to take advantage of the large buffering capacity of marine waters in the system to naturally neutralize the three streams prior to discharge from Discharges 001 and 002.

The buffering capacity of the several internal streams and of salt water itself is very great. This buffering capacity was verified by 4 simple laboratory experiments. The pH of two 100 ml samples of fresh water was changed from 6.7 pH to 11.0 and 2.0 respectively. The pH of two 100 ml samples of salt water were changed from 7.7 to 11.0 and 2.0 respectively. Salt water was then added to each of the four samples through a titration burette recording the changing pH values. The end-results are as follows:

	Sample	Titrant
a.	100 ml fresh @ pH = 11.0	65 ml marine resulting pH = 8.9
b.	100 ml fresh @ pH = 2.0	800 ml marine resulting pH = 6.7
c.	100 ml marine @ pH = 11.0	6,000 ml marine resulting pH = 8.5
d.	100 ml marine @ pH = 2.0	800 ml marine resulting pH = 6.7

Therefore, it is practicable to remove the pH limits from the three fresh water internal streams (Discharges 022, 023, and 024) based upon these data since Discharges 001 and 002 contain salt water components and have pH limitations before release into the receiving waters. The pH of the internal streams will be neutralized within the plant system before the discharge mixes with the receiving waters. The very large salt water dilutional ratios for the discharges into the ocean (Discharge 001) and into the Browns River (Discharge 002) further insures rapid and complete neutralization for protection of human health and of the aquatic community.