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

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

NPDES PERMIT NO.: NH0001465

NAME AND ADDRESS OF APPLICANT:

Public Service of New Hampshire
1000 Elm Street, P.O. Box 330
Manchester, NH 03105

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Merrimack Station
River Road
Bow, New Hampshire 03301

RECEIVING WATER: Merrimack River

CLASSIFICATION: B

I. Proposed Action, Type of Facility, and Discharge Location.

The above named applicant has applied to the U.S. Environmental Protection Agency for the reissuance of its NPDES permit to discharge into the designated receiving water. The facility is engaged in electric-power generation and distribution. The discharge consists of once-through cooling water, operational plant wastewater, process water, intake-dredgings de-watering water, and stormwater runoff. The facility discharges into the Merrimack River, a class B waterway, at a point: latitude 43^0 08′ 15", longitude 71^0 28′ 15". The location of the discharges are shown on Attachment A.

II. Description of Discharge.

A quantitative description of the discharge in terms of significant effluent parameters based on data presented in the application and/or discharge monitoring reports is shown on Attachment B. A water flow chart for the discharges from the facility is presented on Attachment C.

III. Limitations and Conditions.

The effluent limitations of the draft permit, the monitoring requirements, and any implementation schedules (if required) may be found on Attachment F.

IV. Permit Basis and Explanation of Effluent Limitation Derivation.

Public Service of New Hampshire, Merrimack Station is engaged in the operation of a fossil-fueled steam-power plant (SIC 4911) for the purpose of generating and transmitting electrical energy (530 MW). Two units (480 MW total) are coal-fired, steam-driven, electric generators. Coal fly-ash and slag are produced as byproducts. The remaining two units (50 MW total) are combustion turbines, fired with No. 1 fuel oil.

To avoid confusion with outfall designations in the text of this Fact Sheet, the reader should frequently refer to the following table for the appropriate descriptions:

Outfall Number	Description in Current Permit	Description in Draft Permit
001	NE (non existent)	MK-1 Condenser Outlet
002	NE	MK-2 Condenser Outlet
003	Cooling Canal Discharge	Cooling Canal Discharge
003A	Ash Settling Pond Discharge-Normal Operation	Ash Settling Pond Discharge-Normal Operation
003B	Ash Settling Pond Discharge-Chemical Cleaning	Ash Settling Pond Discharge-Chemical Cleaning
004	Runoff from East Coal Pile	Composite of 5 Sources of Washwater & Fire Protection Overflow
005	NE	Sump-water
006	NE	Stormwater

The current permit lists four (4) regulated outfalls. Five (5)-new internal and direct discharges are identified and regulated in the draft permit. Three of these new discharges (Outfalls 004, 005, & 006) are listed in the permittee' application as Outfalls XXX and YYY. Outfall 004, listed in the current permit

as runoff from the East Coal Pile has been discontinued. In the draft permit, Outfall 004 now designates a composite of wash-water from the MK-1 and MK-2 travelling screens, sump-water from the MK-1 and MK-2 screenhouse floor sumps, roof drain from the MK-2 screenhouse, and overflow from the Fire Protection Pump. There are five (5) separate-pipe discharges in the case of Outfall 004. The outfalls, which are generally minor in nature, represent non-process wastestreams and are all located in the immediate vicinity of the screenhouses. The discharges are river water and represent essentially "zero"-additional pollutant loading to the receiving water. The significant portion of these discharges - screen wash-water and fire protection pump overflow - represents once-through pumped river water.

Outfall 005 represents sump-water from the maintenance sumps of the MK-1 & MK-2 screenhouses. The four maintenance sump pumps are only activated during annual outages to drain a defined pit area to permit pump maintenance. The permittee estimates the annual daily average flow to be approximately 100 GPD. The maintenance pumps discharge river water via four pipes and the operational pumps remove any groundwater and river water leakage similar to a basement sump.

Outfall 006 represents stormwater discharge from the Southeast Yard Drain. The North Yard drain is currently being capped off. In addition, the South Yard drain and MK-2 roof drain have been rerouted to the wastewater treatment facility.

Two new internal outfall designations (Outfalls 001 & 002) are being regulated in the draft permit. Outfalls 001 and 002 are the discharges from the MK-1 and MK-2 condensers, respectively.

There are also two (2) discharges from a settling lagoon which is used to de-water silt removed from the cooling water intake area. This land disposal of dredged materials is permitted by the NHDES Wetlands Board and the Department of the Army, Corps of Engineers under the CWA, Section 404. This type of discharge is explicitly excluded from the NPDES permit program, see 40 CFR Part 122.3(b). This discharge, however, must satisfy New Hampshire Water Quality Standards.

Total average flow for the facility through the cooling canal is approximately 265 MGD. This value includes 9 MGD from the ash settling pond. Cooling canal discharges include: non-contact cooling water, operational plant wastewater, process water, wash-water, and stormwater runoff, including coal pile runoff.

The Clean Water Act establishes the national objective "to restore and maintain the chemical and biological integrity of the Nation's waters." The Act requires the Administrator of the EPA

to establish effluent limitations which set forth the degree of reduction attainable through the application of best practicable control technology currently available (BPT), best conventional pollutant control technology (BCT), and best available technology economically achievable (BAT) (Section 301 and 304) for those industries for which national effluent guidelines have been promulgated. The Act also requires EPA to obtain state certification that water quality standards will be satisfied. Regulations governing state certification are set forth in 40 CFR 124.53 and 124.55.

The New Hampshire Department of Environmental Services (NHDES) is recommending that the permittee investigate options of isolating the slag (ash) settling pond from the neighboring wetlands. The NHDES wants to insure that the slag settling pond can be operated without interference from surface waters, and to allow the slag settling pond to continue to function as part of the wastewater treatment facility, separate from the waters of the State of New Hampshire. Accordingly, the necessary conditions associated with the planning and actual construction of the facilities necessary to segregate the slag settling pond from the neighboring wetlands are specified in the draft permit.

The effluent limitations presented in the draft permit for total suspended solids (TSS) are based on the Steam Electric Power Plant Guidelines (40 CFR 423) as promulgated on November 19, 1982 (47 Fed. Reg. 52290).

The permittee is requesting EPA to establish "net credit" limits for iron at the discharge of the slag pond weir (Outfalls 003A and 003B). To support their request, the permittee has demonstrated (see Attachment D) that the iron background in the Merrimack River varies from a low of 0.2 mg/l to a high of 1.1 mg/l for the past two (2) years (01/26/89 to 02/25/91). During this same time period the average iron concentration was 0.5 mg/l. As discussed in the federal regulations at 40 CFR Part 122.45, in certain cases, "net" limitations can be used to reflect credit for pollutants in the discharger's intake water. According to 40 CFR Part 122.45 (g)(1)(ii), technology-based limitations or standards can be adjusted to reflect credit for pollutants in the permittee's intake water if: the permittee demonstrates that the control system - in this case, caustic metal hydroxide precipitation - it uses to meet applicable technology-based limitations and standards would if properly installed and operated, meet the limitations and standards in the absence of pollutants in the intake water. The concentration limits for iron in the effluent limitations guidelines (ELGs) are based upon the use of hydroxide-precipitation technology, which is the standard metals removal technology that forms the basis for virtually all of EPA's BAT metals limitations for metal-bearing wastestreams. The effluent limits for total iron based on the ELGs are 1.0 mg/l, average monthly and 1.0 mg/l, daily

maximum; respectively. These concentration limits can be achieved through hydroxide precipitation, independent of the source of the pollutant. In this case, iron is present in the intake/receiving waters as well as the slag settling pond discharge during chemical cleaning operations. EPA concludes that the iron (whether from intake water or chemical cleaning operations) in the slag pond discharge can be treated using hydroxide precipitation to levels set forth in the regulations. Accordingly, the draft permit limits for iron are based on the ELGs with no credit provisions for iron background in the Merrimack River.

Also the permittee is requesting that copper monitoring be eliminated from routine discharges at the slag pond weir (Outfall 003A), since the copper level is never above 0.1 mg/l. The permittee has demonstrated (see Attachment E) that the concentration of copper at the weir discharge has been consistently below 0.1 mg/l for the past two years (01/26/89 to 02/25/91). The limits for total copper in the current permit are: 0.2 mg/l, average monthly and 0.2 mg/l, daily maximum. These limits are based on old water quality criteria. Since copper-bearing metals are discharged into the ash pond during chemical cleaning, there is a possibility that copper retained in the pond may be released at times other than chemical cleaning periods. This can occur by re-suspension of copper in the sediments or through conditions of low pH (acid rain, for example) where copper in the sediment has the potential to go back into solution. EPA feels that the monthly monitoring requirements of routine discharges in the current permit are necessary to insure that water quality requirements are maintained. Accordingly, effluent limits for total copper in the draft permit are based on New Hampshire State Water Quality standards. Moreover, it should be noted that the aquatic water quality criteria (WQC) for copper are hardness dependent. The values in the current permit are based on a hardness of 50 mg/l, as $CaCO_3$. NHDES recently submitted harness data (from 1989 to 1990) to EPA for the Merrimack River in the vicinity of Hooksett, NH. These data indicate the average hardness of the river to be approximately 20 mg/l. In addition, the Water Quality Standards (WQS) for the State have been recently revised (April, 1990) to account for a reservation of 10 percent of a river's assimilative capacity. Hence, using a 7Q10-low flow of 420 MGD, hardness-corrected values of 3.9 ug/l and 3.0 ug/l for the acute and chronic WQC respectively, for copper, and 10 percent reserve of the river; one calculates the acute and chronic aquatic life protection-effluent limits for copper as: 77.2 ug/l, daily maximum, and 126 ug/l average monthly, respectively. Since the acute limit is more stringent, it is specified as the effluent limit in the draft permit.

The pH and oil and grease limitations have been established based on either effluent limitation guidelines (ELGs) or state

certification requirements, where applicable. The effluent limitations for the discharges given in Attachment F (Draft Permit) are designed to maintain the Merrimack River as a Class B waterway in accordance with State requirements.

The current permit has an interim concentration limit for total residual chlorine (TRC) of 0.1 mg/l at the condenser outlets. As a requirement of the current permit, PSNH studied the persistence of chlorine in the cooling canal. The purpose of this study was to determine a TRC concentration which can exist at the condenser outlets and be in compliance with the water quality-based limitation of 0.036 mg/l at the cooling canal discharge (Outfall 003).

The results of this study which were communicated to EPA (communication: Harvey (PSNH) to McSweeney (EPA) dated 5/26/86), indicate that chlorine dissipates rapidly in the cooling canal. For example, an average concentration of 0.428 mg/l at the condenser outlets yielded a level of 0.01 mg/l at the discharge to the river. These data were collected while the power spray modules were turned off. This represents a worst-case scenario in terms of chlorine dissipation. Obviously, chlorine dissipation in the canal would increase if the power spray modules were functional. Based on these values, the chlorine dissipation factor in the cooling canal is approximately 42 to 1 (0.428/0.01). For comparison purposes, the chlorine dissipation factor in the current permit is calculated at approximately 2.8 to 1.

The TRC limits at the condenser outlets (Outfalls 001 & 002) presented in the draft permit are based on the ELGs. The guidelines state that total residual chlorine (TRC) may not be discharged from any single generating unit for more than two hours per day. The quantity of TRC discharged in once through cooling water for each discharge point shall not exceed a maximum concentration of 0.2 mg/l. Simultaneous multi-unit chlorination is not permitted at this facility.

To ensure that the level of TRC in the discharge does not adversely impact aquatic life in the Merrimack, a water quality-based effluent limitations of 0.035 mg/l, daily maximum at the cooling canal discharge is included in the draft permit. This limit is more stringent than the corresponding limit in the current permit, because unlike the current permit the limit in the draft permit accounts for the reservation of 10 percent of the river's assimilative capacity (WQS), and the assumption of homogeneous mixing, where all the discharge and all the receiving water/available dilution are instantaneously mixed is made in the water quality- calculations. Also, since multi-unit chlorination is not allowed and the permittee requests the operational flexibility of chlorinating with only one unit on line, the TRC limit was determined based on the worst-case scenario of only

one unit, Unit 2, being on line and chlorinated.

As previously mentioned, the dissipation factor in the cooling canal is 42:1. With a daily maximum limit of 0.2 mg/l TRC at the condenser outlet, the expected concentration level of chlorine at the canal discharge (considering single-unit chlorination) would be about 0.005 mg/l, well below the minimum detection limit (MDL) of 0.05 mg/l for TRC. Although it is recognized that the decay of TRC in the cooling canal is significant, the permittee is legally responsible, however, to comply with the TRC limits at Outfall 003. For compliance, a result of non-detect or a value of .050 mg/l will be considered in compliance with the permit limits. Values greater than 0.050 mg/l will be considered in non-compliance.

The impingement monitoring requirements in the current permit have been modified in the draft permit in accordance with the permittee's request (see correspondence: Fierra(EPA) to Harvey(PSNH), dated September 23, 1987). Moreover, some of the text in Part I.A.10.a. (impingement monitoring) and Part I.A.10.b. (entrainmemt monitoring) has been modified according to the joint recommendations of the New Hampshire Fish and Game Department and the Water Supply and Pollution Control Division (see correspondence: Andrews(NHDES) to Prodany(EPA), dated August 26, 1991). In addition, the 40^{0}F temperature limit which initiates the requirement to place the temperature and dissolved oxygen monitoring equipment into the river has been modified to 50^{0}F for purposes of equipment reliability and employee safety.

Effluent limitations and requirements for storm water discharges (Outfall 006) have been established by either the EPA or the State.

EPA has determined that the proposed permit limitations satisfy all the technology requirements of the Clean Water Act, including the 1984 BAT requirements for toxic pollutants and BCT for conventional pollutants. Review of the toxic pollutant portion of the NPDES permit application indicates that no organic pollutants were detected, significantly, above detection limits.

The monitoring program in the permit specifies routine sampling and analysis which will provide continuous general information on the reliability and effectiveness of the installed pollution abatement equipment. The effluent monitoring requirements have been established to yield data representative of the discharges under authority of Section 308 (a) of the Clean Water Act, according to regulations set forth at 40 C.F.R. 122.41(j), 122.48, 122.41(j)(4)(5), and 122.44(i).

SECTION 316 A and B of THE CWA

Section 316 (a) of the Clean Water Act (CWA) addresses the thermal component of any effluent discharge. EPA has not developed best practicable control technology currently available (BPT) for thermal discharge from point sources. However, EPA assumes that if thermal limits satisfying BPT were developed in accordance with Section 301 (b)(1)(A) of the CWA, they would be more stringent than what would be proposed by the NPDES Permit applicant. This is based upon the premise that the water quality criteria developed by EPA or by individual water quality standards developed by states would be the limiting factor in the development of the NPDES Permit. It should also be noted that thermal discharges (heat) are not subject to the technology standards required by Best Conventional Pollutant Control Technology Economically Achievable since heat is not considered to be a toxic pollutant or a conventional pollutant as defined by the CWA and outlined in 40 CFR 401.15 and 401.16.

Section 316(a) of the CWA gives the Administrator of the EPA the authority to impose alternative effluent limitations for the control of the thermal component of any discharge. However, the owner or operator of the point source must demonstrate to the satisfaction of the Administrator that existing effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced indigenous community of shellfish, fish, and wildlife in and on the receiving water.

Similarly, Section 316 (b) of the CWA gives the Administrator of the EPA the authority to determine if the location, design, construction, and capacity of the cooling water intake structures reflect BPT for minimizing adverse environment impact.

The authority of these two sections of the CWA has been delegated to the Regional Administrators or their designees in accordance with regulatory procedures outlined under 40 CFR 125.

The original ELGs for Steam Electric Power Plants (40 CFR 423) promulgated on October 8, 1974, 39 Federal Register (FR) 196 Pages 36186-36207, state in the preamble...

> "In order to avoid the additional costs of conversion of older units to closed-cycle cooling to the maximum degree consistent with the protection of the environment, the Agency has expanded the (thermal) exemption based upon age. No unit placed into operation before January 1, 1970, will be required to meet the limitations on the discharge of heat".

Based upon this exemption, the formal 316 (a) and (b) demonstrations were not required. However, during the late 1960's and early 1970's, the State did require a detailed study

by the permittee of the impact of the facility upon the local aquatic environment and to make recommendations for changes that minimize injurious effects on the local indigenous ecological community. As a result of this study which was basically equivalent to the later Clean Water Act 316 Demonstration, the permittee installed the power spray modules (PSM) to cool the once-through cooling water discharge to an acceptable discharge temperature.

At that time, the decision was made that the local indigenous fish had been protected and that the decision on the anadromous-fish protection would be delayed until their presence became imminent. EPA accepted these results and determinations because all the older permits have always contained a paragraph requiring the review on the plant discharge characteristics when the shad, herring, and salmon were to return.

Subsequent studies in 1978, indicated that there was a low entrainment and impingement at this site. Further, about 600 shad were taken from the Holyoke area on the Connecticut River and released in the Hooksett Pool. A limited number was radio-tagged. The results were not conclusive, since four tagged shad descended the river, and four tagged shad ascended the river beyond the plant site. From this, it was assumed that the thermal plume was not a total blockage for this specific experiment.

During the period from 1986 through 1989, PSNH - Merrimack Station provided ecological data suggestive of 316 (a) and (b) requirements which showed that the proposed thermal effluent limitations and design of the intake structure would protect aquatic life in and on the Merrimack River at the vicinity of Merrimack Station.

In the 1989 - 1990 Annual Report (Executive Summary) the permittee states, "It is important to note that the record established in 16 years of ecological studies and environmental monitoring at Merrimack Station demonstrates that the cooling water discharge has not adversely impacted the indigenous community of aquatic life in the river. Dissolved oxygen levels have rarely fallen below the State of New Hampshire Class B water quality standard at either Station S-0 or the downstream areas of Hooksett Pond. pH levels reflect ambient conditions and, along with temperature readings, closely track historical trends. Unaffected passageways below the thermal plume have been documented and shown to be sufficient for fish migration."

In 1985 and 1986, EPA reviewed fish impingement data for Merrimack Station and determined that the circulating water intake structure employs the best technology available for minimizing adverse environmental impact. The present design shall be reviewed for conformity to regulations pursuant to

Section 316 (b) when such are promulgated.

At the same time, the Regional Administrator granted a 316 (a) variance based upon the previous hydrological and biological studies and upon the absence of detectable environmental impact upon the local indigenous fish during the operating history of the station. It is to be noted that neither the State nor EPA are aware of any fish kills associated with the thermal plume within the discharge canal or in the main stream of the river itself, since the station began operation.

In their current reapplication for a NPDES Permit, along with a review of their annual reports (Environmental Monitoring Program), PSNH -Merrimack Station has demonstrated to EPA that since the last reissuance of their NPDES Permit:

a. There has been no significant changes to the design or to the operation of the station and, in particular, no changes to the circulating cooling water system.

b. There have been no significant changes in the hydrology or in the biology of the Merrimack River at the vicinity of Merrimack Station and surrounding waters.

c. There have been no fish kills or any other observable environmental impact on the river due to the addition of artificially-heated discharge water. However, in a private communication with the NHDES, it was revealed that there was a fish kill within the cooling canal on May 17, 1989 caused by operator error in releasing chlorine.

Therefore, the Regional Administrator has determined that a 316 (a) variance could be granted and that for the design of the intake structure, 316 (b) satisfies the best technology available requirements for the local indigenous ecological community. Further, the proposed draft permit effluent limitations and special conditions imposed relative to the thermal component and intake structures, assure satisfaction of the New Hampshire Water Quality Standards for the Merrimack River.

With the advent of the anadromous fish return, the requirements addressed in Sections 316 (a) and (b) must be reconsidered, since the requirements of the Atlantic Salmon are, in general, more sensitive than the riverine bass, sun fish, etc. A technical advisory committee (TAC) will be formed of the active biologists of the following regulatory agencies which have responsibility for the aquatic community in the Merrimack River:

U.S. Environmental Protection Agency (Lexington Lab)
U.S. Fish and Wildlife Service
New Hampshire Fish and Game Department
NHDES Water Supply and Pollution Control Division (NHWS&PC)

The objective of forming the TAC is to provide EPA, the combined biological experience of the aforementioned agencies which are responsible for various biological aspects of the Merrimack River. The TAC will be responsible for assisting the permittee in developing a study program, evaluating the resulting data, reviewing program conclusions, and approving/rejecting the proposed remediation by the permittee. Only the biological representatives of each agency will vote on the various aspects of this study program. The permit writer for the EPA will serve as the acting chairperson until the TAC elects a chairperson in formal session. Non-voting representatives of the EPA-Water Quality Branch, the EPA thermal plume specialists, the NHWS&PC-permit section, the permittee, and the permittee's consultant(s) will be invited to attend these formal sessions and participate in the discussions.

The remaining general and special conditions of the permit are based on the NPDES regulations, 40 CFR Parts 122 though 125, and consist primarily of management requirements common to all permits.

V. State Certification Requirements.

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of the New Hampshire Department of Environmental Services has reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State and expects that the draft permit will be certified.

VI. Comment Period, Hearing Requests, and Procedures for Final Decisions.

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for the arguments in full by the close of the public comment period, to the U.S. EPA, Compliance Branch, JFK Federal Building, Boston, Massachusetts 02203. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public

notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision any interested person may submit a request for a formal hearing to reconsider or contest the final decision. Requests for formal hearings must satisfy the requirements of 40 CFR 124.74, 48 Fed. Reg. 14279-14280 (April 1, 1983).

VII. EPA Contact.

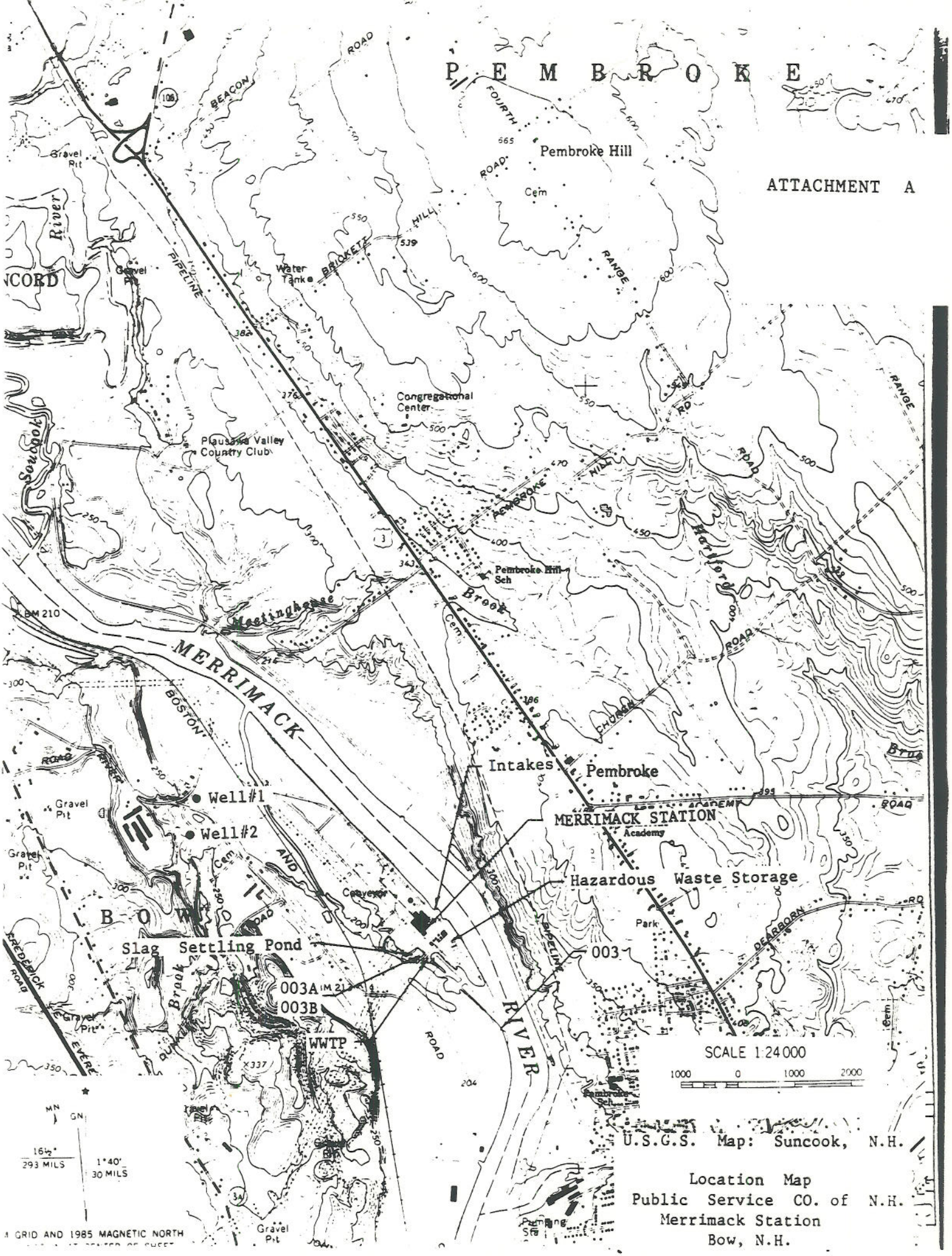
Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Nicholas Prodany
Wastewater Management Section (NH-VT-RI)
Wastewater Management Branch (WMN-368)
U.S. Environmental Protection Agency
John F. Kennedy Federal Building
Boston, Massachusetts 02203
Telephone: (617)565-3587

12-5-91
Date

David A. Fierra, Director
Water Management Division
Environmental Protection Agency

ATTACHMENT A



ATTACHMENT B

AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE

DESCRIPTION OF DISCHARGE:

The values presented in this Attachment are based on data reported in DMR's for the period of September 30, 1989 to September 30, 1990, the 1988-89 Annual Report, and Application Data.

DISCHARGE 003:

MK-1 Condenser cooling water
MK-2 Condensed cooling water
West Yard Drain

AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE

Parameter	Average	Maximum
Flow (MGD)	225	257
Winter Temperature, ^{0} C	13.1	14.6
Summer Temperature, ^{0} C	31.8	33.8
Total Residual Chlorine, mg/l	---	<0.1
Oil & Grease, mg/l	---	<5.0*
pH, su	6.5*	7.8*

Winter temperatures based on the months of December '88, January '89, and February '89 (Data: 1988-89 Annual Report)

Summer temperatures based on the months of June '88, July '88, and August '88 (Data: 1988-89 Annual Report).

* Based on Application data.

DESCRIPTION OF DISCHARGE:

DISCHARGE 003A:

Routine ash settling pond discharge including: slag tank overflow, boiler drains, ash sluice, west coal yard runoff, stormwater, slag sluice water blowdown, demineralizer reagent wastes, floor and equipment drains, and miscellaneous chemical drains.

AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE

Parameter	Average	Maximum
Flow (MGD)	4.6	6.0
TSS, mg/l	3.6	3.6
Total Copper, mg/l	---	<0.1
Total Iron, mg/l	0.85	0.85
Total Lead, mg/l	---	0.006**
Oil & Grease, mg/l	---	<5.0*
pH, su	3.4*	8.9*

* Based on application data.

** State compliance sampling data.

DESCRIPTION OF DISCHARGE: Based on Application Data

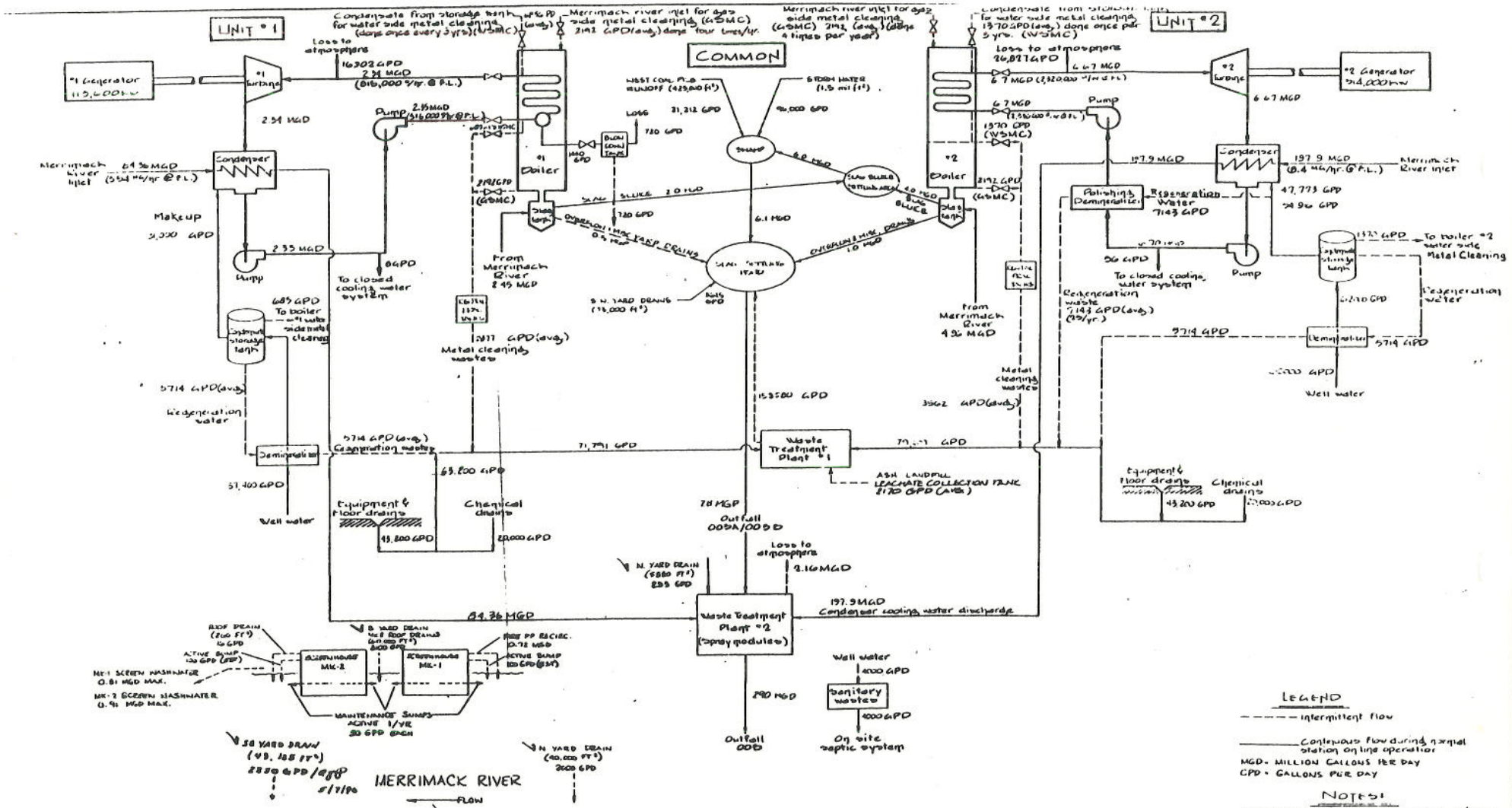
DISCHARGE 003B:

Non-routine ash settling pond discharge including gas-side and water-side metal cleaning wastes.

AVERAGE EFFLUENT CHARACTERISTICS AT POINT OF DISCHARGE

Parameter	Average	Maximum
Flow (MGD)	9.0	19.1
TSS, mg/l	---	<10
Total Copper, mg/l	---	<0.01
Total Iron, mg/l	---	0.82
Oil & Grease, mg/l	---	<5.0
Ph, su	6.2	6.8

ATTACHMENT C



LEGEND

- - - - - Intermittent flow

——— Continuous flow during normal station on line operation

MGD = MILLION GALLONS PER DAY

GPD = GALLONS PER DAY

NOTES:

STORMWATER FLOWS BASED ON ANNUAL RAINFALL OF 36.48" WITH A RUNOFF COEFFICIENT OF 0.5 (EXCEPT ROOF DRAINS, SUMP AND SLAG POND WHICH HAVE 100% RUNOFF COEFFICIENT)

SCHEMATIC OF WATER FLOW
PUBLIC SERVICE CO. OF N. H.
MERRIMACK STATION
BOW - MERRIMACK COUNTY, NEW HAMPSHIRE

PUBLIC SERVICE CO OF NEW HAMPSHIRE ENGINEERING DIVISION
SCALE: None DATE: 10 Oct 90
MK-M-1235

Merrimack Station

ATTACHMENT D

IRON , mg/l

DATE COLLECTED	river
01/26/89	0.3
02/28/89	0.3
03/24/89	0.3
04/25/89	0.5
05/22/89	0.4
06/21/89	0.5
07/24/89	0.4
08/24/89	0.4
09/18/89	0.3
10/16/89	0.6
11/29/89	0.2
12/20/89	0.4
01/16/90	0.3
02/21/90	0.4
03/21/90	0.9
04/25/90	0.3
05/17/90	0.5
06/25/90	0.9
07/30/90	
08/23/90	0.8
09/24/90	0.3
10/29/90	0.4
11/26/90	1.1
01/28/91	0.3
02/25/91	0.2
min	0.2
max	1.1
avg	0.5

Merrimack Station

ATTACHMENT E

COPPER, mg/l

DATE COLLECTED	weir
01/26/89	<0.1
02/28/89	<0.1
03/24/89	<0.1
04/25/89	<0.1
05/22/89	<0.1
06/21/89	<0.1
07/24/89	<0.1
08/24/89	<0.1
09/18/89	<0.1
10/16/89	<0.1
11/29/89	<0.1
12/20/89	<0.1
01/16/90	<0.1
02/21/90	<0.1
03/21/90	<0.1
04/25/90	0.000
05/17/90	0.000
06/25/90	0.002
07/30/90	0.000
08/23/90	0.000
09/24/90	0.004
10/29/90	0.000
11/26/90	0.000
01/28/91	0.006
02/25/91	0.003