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**MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND
WASTE DISCHARGE LICENSE**

FACT SHEET

Date: December 23, 2003

MEPDES PERMIT: #ME0101346
WASTE DISCHARGE LICENSE: #W002659-5L-C-R

NAME AND ADDRESS OF APPLICANT:

**Town of Mount Desert
P.O. Box 248
Northeast Harbor, Maine 04662**

COUNTY: Hancock

NAME AND ADDRESS WHERE DISCHARGE OCCURS:

Northeast Harbor Wastewater Treatment Facility (WWTF)
Sinclair Road
Northeast Harbor, Maine 04662

RECEIVING WATER / CLASSIFICATION: Atlantic Ocean / Class SB

COGNIZANT OFFICIAL AND TELEPHONE NUMBER: Mr. Jonathon Merchant
Chief Operator
(207) 276-5738

1. APPLICATION SUMMARY

Application: The applicant has applied for a renewal of Waste Discharge License (WDL) #W002659-59-B-R, which was issued on August 12, 1997 and expired on August 12, 2002. The WDL permitted the monthly average discharge of 0.330 million gallons per day (MGD) of secondary treated sanitary wastewater from the Town of Mount Desert's (MTD) publicly owned treatment works (POTW) in Northeast Harbor to the Atlantic Ocean, Class SB, in Mount Desert, Maine.

2. PERMIT SUMMARY

- a. Regulatory: On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (USEPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine. From this point forward, the program will be referenced as the Maine Pollutant Discharge Elimination System (MEPDES) permit program that will utilize a permit number of #ME0101346 as the primary reference number for MTD's MEPDES permit. NPDES permit #ME0101346, last issued by the USEPA on August 27, 1997, will be replaced by the final MEPDES permit upon issuance. Once replaced, all terms and conditions of the NPDES become null and void. This MEPDES permit authorizes the discharge from MTD's Northeast Harbor WWTF only and replaces previous Maine Waste Discharge Licenses. MTD has submitted individual renewal permit applications for the four other POTWs referenced above, which the Department will review separately.
- b. Terms and Conditions: **This permitting action is similar to the 8/12/97 licensing action in that it is:**
1. Carrying forward the monthly average discharge flow limitation of 0.33 MGD;
 2. Carrying forward the daily maximum reporting requirement for discharge flow;
 3. Carrying forward the monthly average, weekly average and daily maximum concentration and mass limits for biochemical oxygen demand (BOD₅) and total suspended solids (TSS); and
 4. Carrying forward the monthly average and daily maximum concentration limits for fecal coliform bacteria.

This permitting action is different than the 8/12/97 licensing action in that it is:

1. Establishing a requirement for a minimum of 85% removal of BOD₅ and TSS;
2. Eliminating the weekly average and daily maximum concentration reporting requirements for settleable solids;
3. Establishing a daily maximum concentration limit for settleable solids;
4. Revising the daily maximum concentration limit for total residual chlorine (TRC);
5. Revising the pH range limit; and
6. Establishing whole effluent toxicity and chemical-specific (priority pollutant) testing.

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2. PERMIT SUMMARY (cont'd)

- c. Facility History: This section provides a summary of significant licensing/permitting actions that have been completed for the Northeast Harbor WWTF.

August 22, 1991 – The USEPA issued NPDES permit #ME0101346 superseding previous NPDES permits issued for this facility on 3/28/85 and on 5/2/74. This permitting action administratively consolidated the discharges from MTD's Northeast Harbor facility and three other POTWs located in and operated by MTD (Somesville previously #ME0101362, Seal Harbor previously #ME0101354, and Otter Creek previously #ME0101338). Previously, the Northeast Harbor WWTF was permitted to discharge 0.330 MGD of secondary treated sanitary wastewater to the Atlantic Ocean. This permitting action, however, did not include numerical discharge flow limitations for any of the facilities; reporting of the monthly average and daily maximum discharge flow values was required.

August 12, 1997 – The Department issued WDL #W002659-59-B-R to MTD for the continued discharge of 0.330 MGD of treated sanitary wastewater from the Northeast Harbor WWTF to the Atlantic Ocean. This licensing action superseded WDL #W002659-45-A-R issued on 4/17/85, WDL #2659 issued on 2/28/79, and WDL #441 issued on 3/25/74 and expired on August 12, 2002.

August 27, 1997 – The USEPA issued NPDES permit #ME0101346 for the four facilities covered in the 8/22/91 NPDES permit #ME0101346, and for the first time, the Seal Harbor II WWTF (a 3,600 GPD sandfilter overboard discharge system with no previous NPDES permit number). This permit did not include numerical discharge flow limitations for any of the facilities, and it expired on March 3, 2002.

December 13, 2002 – The Town of Mount Desert submitted a General Application for renewal of WDL #W002659-59-B-R which was accepted for processing on December 16, 2002, and assigned WDL #W002659-5L-C-R.

November 6, 2003 – The Department's Bureau of Land and Water Quality, Division of Engineering, Compliance and Technical Assistance offered the MTD an Administrative Consent Agreement and Enforcement Order for violations of numeric discharge limitations that have occurred at the Northeast Harbor WWTF. The Administrative Consent Agreement and Enforcement Order was posted for a 30-day public hearing on December 4, 2003, and is scheduled to be presented to the Board of Environmental Protection on January 15, 2004 for final approval.

- d. Source Description: MTD operates the Northeast Harbor WWTF, which has been online since 1971, to provide secondary treatment of sanitary wastewater generated by approximately 2,700 summer and 900 winter residential and commercial customers in the Northeast Harbor village area of Mount Desert. There are no significant industrial users within the collection system, no combined sewer overflows and the facility is not authorized to receive any septage from outside sources.

2. PERMIT SUMMARY (cont'd)

The Northeast Harbor WWTF sewer collection system is approximately 7.25 miles in length and has four (4) pump stations, all with back-up power sources. MTD reported that sewer pipe materials consist primarily of PVC, vitrified clay, and asbestos cement with ductile and cast iron comprising only a small percentage of the total.

A map of the Mount Desert area showing the general location of the Northeast Harbor WWTF and outfall location is included as Fact Sheet Attachment A.

- e. Wastewater Treatment: The facility was upgraded in 1998 to accommodate increased flows from the original facility design. Upgrades, including new influent pumps, a new final clarifier and a new chlorine contact tank, were designed for an average daily flow of 0.300 MGD, a maximum sustained daily flow of 0.650 MGD and a peak hourly flow of 1.30 MGD.

Raw wastewater is conveyed to the facility in a 10-inch diameter force main and the flow is measured with a 6-inch magnetic flow transmitter installed on the force main. The flow is treated with sodium hydroxide (caustic soda) for pH adjustment and is then conveyed through a manual bar rack and/or mechanical grinder (comminutor) for influent screening before continuing to a wet well consisting of two 800-gallon basins. From there, the flow is pumped to one of two available 166,000-gallon aeration basins for extended diffused aeration. Only one aeration basin is online at any given time so that the other can be used for high flow management and/or aerobic treatment of sludge during winter months. Wastewater is then conveyed to a 45-foot diameter circular secondary clarifier with a volume of approximately 162,000 gallons, and then to a 13,500-gallon baffled chlorine contact chamber for seasonal disinfection using sodium hypochlorite and de-chlorination using sodium bisulfite. The contact chamber provides approximately 15 minutes of detention at the peak flow rate. Effluent flow is measured by a V-notch weir installed in the chlorine contact tank.

Treated effluent is conveyed to the Atlantic Ocean for discharge via a 16-inch diameter outfall pipe that extends 540 feet beyond the low water mark at a depth of approximately 5.6 feet during mean low water. The end of the pipe is fitted with seven 2-inch ports and a 6-inch outlet port to enhance mixing of the effluent with the receiving waters.

Sludge handling equipment at the facility includes a 1,100-gallon scum tank, a 43,500-gallon aerobic digester and two new 15-horsepower return sludge pumps. Scum from the secondary clarifier is skimmed to the scum tank and subsequently pumped to the aerobic digester for settling and decanting of supernatant back to the aeration tank. Sludge is no longer de-watered onsite; rather it is hauled to the Bar Harbor WWTF for de-watering and then to the Hawk Ridge Compost Facility in Unity, Maine for final disposal.

A schematic of the wastewater treatment process is included as Fact Sheet Attachment B.

3. CONDITIONS OF PERMIT

Maine law, 38 M.R.S.A. §414-A, requires that the effluent limitations prescribed for discharges, including, but not limited to, effluent toxicity, require application of best practicable treatment (BPT), be consistent with U.S. Clean Water Act, and ensure that the receiving waters attain the State water quality standards as described in Maine's Surface Water Classification System. In addition, 38 M.R.S.A. §420, and Department Rule Chapter 530.5, *Surface Water Toxics Control Program*, requires the regulation of toxic substances at the levels set forth for Federal Water Quality Criteria as published by the U.S. Environmental Protection Agency pursuant to the Clean Waters Act.

4. RECEIVING WATER QUALITY STANDARDS

Maine law, 38 M.R.S.A. §469(2) classifies the receiving waters at the point of discharge as Class SB waters. Further, 38 M.R.S.A. §465-B(2) describes the standards for Class SB waters.

5. RECEIVING WATER QUALITY CONDITIONS

The State of Maine 2002 Integrated Water Quality Monitoring and Assessment Report, prepared pursuant to Sections 303(d) and 305(b) of the Federal Water Pollution Control Act, lists the Atlantic Ocean at the point of discharge as "*Category 3: Estuarine And Marine Waters With Insufficient Data Or Information To Determine Attainment.*" Attainment in this context is in regard to the designated use of harvesting of shellfish. Currently, Maine Department of Marine Resources shellfish harvesting area #C44 is closed to the harvesting of shellfish due to insufficient (limited) ambient water quality data to meet the standards in the National Shellfish Sanitation Program. Therefore, the area remains closed. Compliance with the fecal coliform bacteria limits in this permitting action ensure that the discharge from the Northeast Harbor WWTF will not cause or contribute to the shellfish harvesting closure. The shellfish closure area is identified on the map included as Fact Sheet Attachment A.

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS

- a. Dilution Factors: Department regulation Chapter 530.5(D)(3)(b), *Surface Water Toxics Control Program*, states that, "for discharges to the ocean, dilution must be calculated as near-field or initial dilution, or that dilution available as the effluent plume rises from the point of discharge to its trapping level, at mean low water and slack tide for the acute exposure analysis, and at mean tide for the chronic exposure analysis using appropriate models determined by the Department such as MERGE or CORMIX." Based on the location and configuration of the outfall pipe, the Department has determined that the discharge from the MTD's Northeast Harbor wastewater treatment facility will be diluted by the following factors:

Acute = 11.7:1

Chronic = 72.5:1

Harmonic Mean⁽¹⁾ = 217.5:1

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Footnote:

1. The harmonic mean dilution factor is approximated by multiplying the chronic dilution factor by three (3). This multiplying factor is based on guidelines for estimation of human health dilution presented in the U.S. EPA publication, "*Technical Support Document for Water Quality-Based Toxics Control*" (Office of Water; EPA/505/2-90-001, page 88), and represents an estimation of harmonic mean flow on which human health dilutions are based in a riverine 7Q10 flow situation.
- b. Flow: The previous licensing action established a monthly average discharge flow limitation of 0.330 MGD and a reporting requirement for the daily maximum discharge flow values, which are both being carried forward in this permitting action. The facility was upgraded in 1998 to accommodate a maximum sustained daily flow of 0.650 MGD and a peak hourly flow of 1.30 MGD, although MTD has not requested an increase in the discharge flow limit.
- c. Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS): The previous licensing action established monthly average and weekly average BOD₅ & TSS concentration limits of 30 mg/L and 45 mg/L, respectively, that were based on secondary treatment requirements of the Clean Water Act of 1977 §301(b)(1)(B) as defined in 40 CFR 133.102 and Department rule Chapter 525(3)(III). The previous licensing action also established a daily maximum BOD₅ & TSS concentration limit of 50 mg/L based on a Department best professional judgement of best practicable treatment (BPT). All three concentration limits are being carried forward in this permitting action. The previous licensing action established monthly average, weekly average and daily maximum technology based mass limits derived using the monthly average discharge flow limitation of 0.330 MGD and applicable concentration limits, which are being carried forward in this permitting action.

This permitting action is also establishing a new requirement for a minimum of 85% removal of BOD₅ & TSS pursuant to Chapter 525(3)(III)(a)(3) and (b)(3) of the Department's rules.

This permitting action is carrying forward a minimum monitoring frequency of once per week for BOD₅ & TSS based on Department guidance for facilities with a monthly average flow between 0.1 and 0.5 MGD.

- d. Settleable Solids: The previous licensing action established a reporting requirement for the weekly average and daily maximum concentration values for settleable solids. This permitting action is eliminating the weekly average reporting requirement and is establishing a daily maximum concentration limit of 0.3 ml/L for settleable solids, which is considered by the Department as BPT for secondary treated wastewater. This permitting action is establishing a minimum monitoring frequency of three times per week based on a Department BPJ of the level of monitoring necessary to demonstrate compliance and for consistency with other monitoring requirements.

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

- e. Fecal coliform bacteria: The previous licensing action established monthly average and daily maximum concentration limits for fecal coliform bacteria of 15 colonies/100 ml and 50 colonies/100 ml, respectively, which are consistent with the National Shellfish Sanitation Program, and are being carried forward in this permitting action. This permitting action is carrying forward the minimum monitoring frequency of once per week based on Department guidance.
- f. Total Residual Chlorine (TRC): The previous licensing action established a daily maximum discharge limit of 0.1 mg/L for TRC. Limits on TRC are specified to ensure that ambient water quality standards are maintained and that BPT technology is being applied to the discharge. Department licensing/permitting actions impose the more stringent of either a water quality based or BPT based limit. End-of-pipe water quality based concentration thresholds may be calculated as follows:

Acute (A) Criterion	Chronic (C) Criterion	A & C Dilution Factors	Calculated	
			Acute Limit	Chronic Limit
0.013 mg/L	0.0075 mg/L	11.7:1 (A) 72.5:1 (C)	0.15 mg/L	0.54 mg/L

The Department has established a daily maximum BPT limitation of 1.0 mg/L for facilities that disinfect their effluent with elemental chlorine or chlorine-based compounds. For facilities that need to de-chlorinate the discharge to meet water quality based thresholds, the Department has established daily maximum and monthly average BPT limits of 0.3 mg/L and 0.1 mg/L, respectively. This facility must de-chlorinate the discharge to meet the calculated water quality based thresholds. Therefore, this permitting action is establishing the more stringent acute water quality based limit of 0.15 mg/L as a daily maximum limitation and the more stringent BPT based monthly average limitation of 0.1 mg/L. This permitting action is establishing a minimum monitoring frequency of once per day based on Department guidance. TRC limitations are seasonal and apply between May 15 and September 30 of each year.

- g. pH: The previous licensing action established a pH range limit of 6.0 – 8.5 standard units (SU), considered by the Department at the time as BPT for secondary treated wastewater. Pursuant to a new Department rule found at Chapter 525(3)(III)(c), the pH range limit is being revised to 6.0 – 9.0 SU, which is now considered BPT. This permitting action is establishing a minimum monitoring frequency of three times per week based on a Department BPJ of level of monitoring necessary to determine compliance and for consistency with other monitoring requirements.

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

- h. Whole Effluent Toxicity (WET) and Chemical-Specific Testing: Maine law, 38 M.R.S.A., Sections 414-A and 420, prohibit the discharge of effluents containing substances in amounts that would cause the surface waters of the State to contain toxic substances above levels set forth in Federal Water Quality Criteria as established by the USEPA. Department Rules, 06-096 CMR Chapter 530.5, *Surface Water Toxics Control Program*, set forth ambient water quality criteria (AWQC) for toxic pollutants and procedures necessary to control levels of toxic pollutants in surface waters.

Prior to the issuance of MTD's previous waste discharge license for the Northeast Harbor facility in 1997, the Department made a best professional judgement (BPJ) determination that the discharge from the Northeast Harbor WWTF had an effective dilution factor of at least 1000:1. The facility is licensed to discharge a maximum of 0.330 MGD, therefore it is not considered a major facility by the USEPA. Pursuant to Department Rule, 06-096 CMR Chapter 530.5(B)(7)(d)(iii), discharges from POTWs "*which are not classified by USEPA as major and which discharge to receiving waters with a dilution factor of at least 1000:1, provided that the POTW receives no process wastes from sources for which pretreatment standards have been promulgated by the USEPA*" are exempt from WET and chemical-specific testing. Therefore, MTD was not required in the previous licensing action to perform WET or chemical-specific testing at the Northeast Harbor WWTF based on these determinations.

However, the Department's Bureau of Land and Water Quality, Division of Environmental Assessment has since reviewed the outfall information for Northeast Harbor and determined that the chronic dilution factor associated with this discharge is 72.5:1. Therefore, WET and chemical-specific (priority pollutant) monitoring, as required by Chapter 530.5, are being established in this permitting action in order to fully characterize the effluent. WET monitoring is required to assess and protect against impacts upon water quality and designated uses caused by the aggregate effect of the discharge on specific aquatic organisms. Acute WET tests are performed on invertebrate species mysid shrimp (*Mysidopsis bahia*) and vertebrate species inland silverside (*Menidia beryllina*). Chronic WET tests are performed on sea urchin (*Arbacia punctulata*) and inland silverside. Chemical-specific, or "priority pollutant (PP)," monitoring is required to assess the levels of individual toxic pollutants in the discharge, comparing each pollutant to acute, chronic, and human health water quality criteria.

Pursuant to criteria established in Department Rule Chapter 530.5, the Northeast Harbor WWTF has been placed in the medium frequency category for WET testing as the facility has a chronic dilution factor greater than 20:1 but less than 100:1. The facility has been placed in the low frequency category for chemical-specific (priority pollutant) testing as the facility does not discharge industrial process wastewater, is permitted to discharge less than 1.0 MGD, receives no wastewater from sources for which pretreatment standards have been promulgated, is not required by the USEPA to adopt a pretreatment program and has no unresolved toxicity problems.

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Therefore, this permitting action is establishing:

- 1) **Surveillance level WET testing** beginning calendar year 2004, and lasting through 12 months prior to expiration (December 2007) at a minimum frequency of once per year (1/Year) in a different calendar quarter each year;
- 2) **Screening level WET testing** beginning 12 months prior to expiration of this permit (December 2007) and lasting through permit expiration (December 2008) at a minimum frequency of twice per year (2/Year) in a different calendar quarters; and
- 3) **Surveillance and screening level chemical-specific testing** beginning calendar year 2004, and lasting through permit expiration at a minimum frequency of once per year (1/Year) in a different calendar quarter each year.

7. DISCHARGE IMPACT ON RECEIVING WATER QUALITY

As permitted, the Department has determined the existing water uses will be maintained and protected and the discharge will not cause or contribute to the failure of the water body to meet standards for Class SB classification.

8. PUBLIC COMMENTS

Public notice of this application was made in the Bar Harbor Times newspaper on or about November 14, 2002. The Department receives public comments on an application until the date a final agency action is taken on the application. Those persons receiving copies of draft permits shall have at least 30 days in which to submit comments on the draft or to request a public hearing, pursuant to Chapter 522 of the Department's rules.

9. DEPARTMENT CONTACTS

Additional information concerning this permitting action may be obtained from, and written comments sent to:

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Division of Water Resource Regulation
Bureau of Land & Water Quality
Department of Environmental Protection
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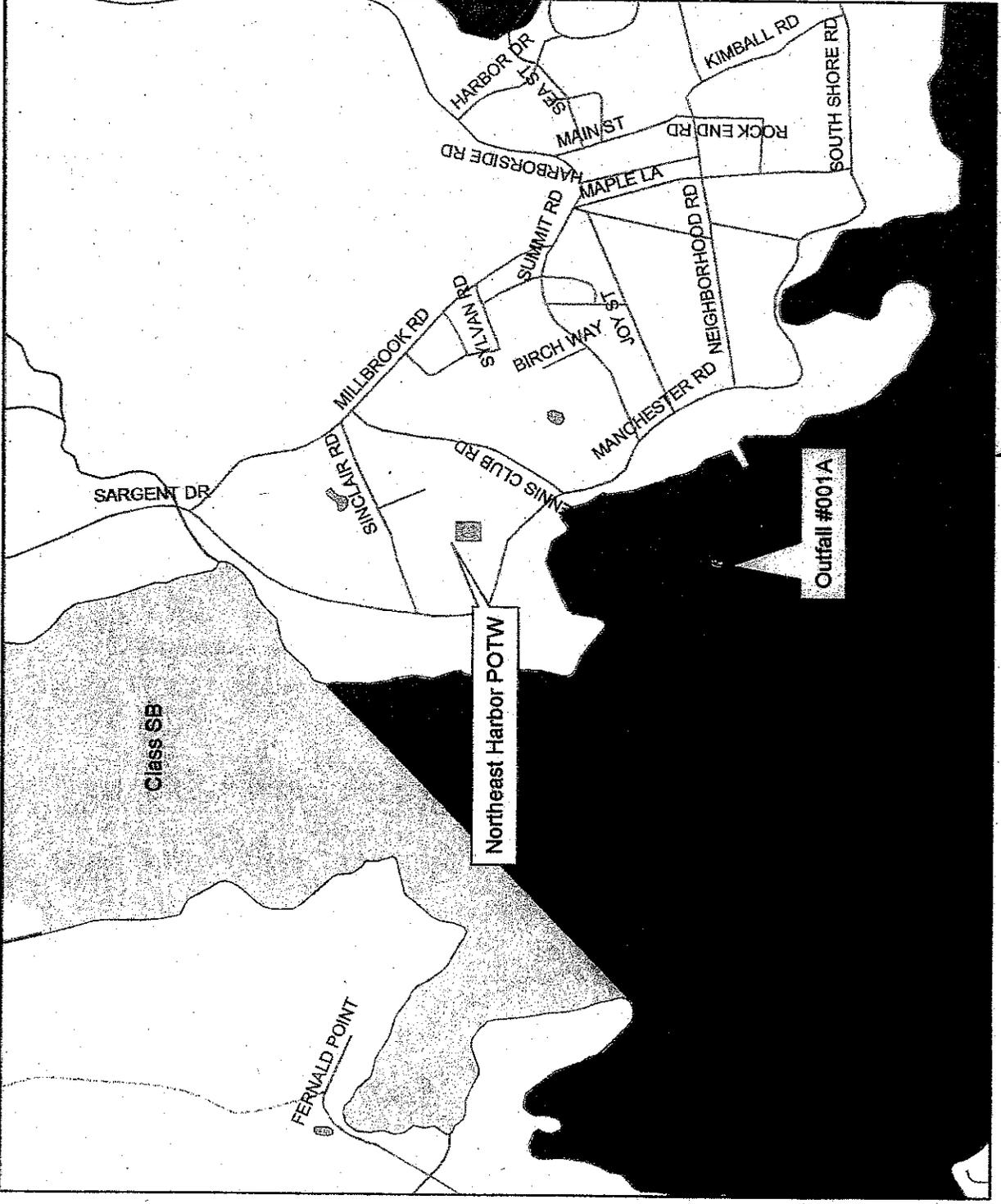
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#W002659-5L-C-R

10. RESPONSE TO COMMENTS

During the 30-day period beginning on November 17, 2003 and lasting through December 17, 2003, the Department solicited comments on the proposed draft MEPDES permit to be issued to the MTD for the Northeast Harbor WWTF. The Department did not receive significant comments during the public comment period; therefore, a Response to Comments was not prepared.

ATTACHMENT A



Legend

- Wastewater_Facilities
- Wastewater_Outfalls
- Shellfish Closure Areas**
 - Conditionally Restricted
 - Conditionally Approved
 - Restricted
 - Prohibited

Roads

- Park Road
- State aided
- State hwy
- Town Road - summer
- Town Road - winter
- Toll highway
- Town Road

Streams

- AA
- A
- B
- C

Ponds_and_Lakes

Coastal Class

- SA
- SB
- SC



Northeast Harbor, Maine

This map was created by:

Bill Hinkel

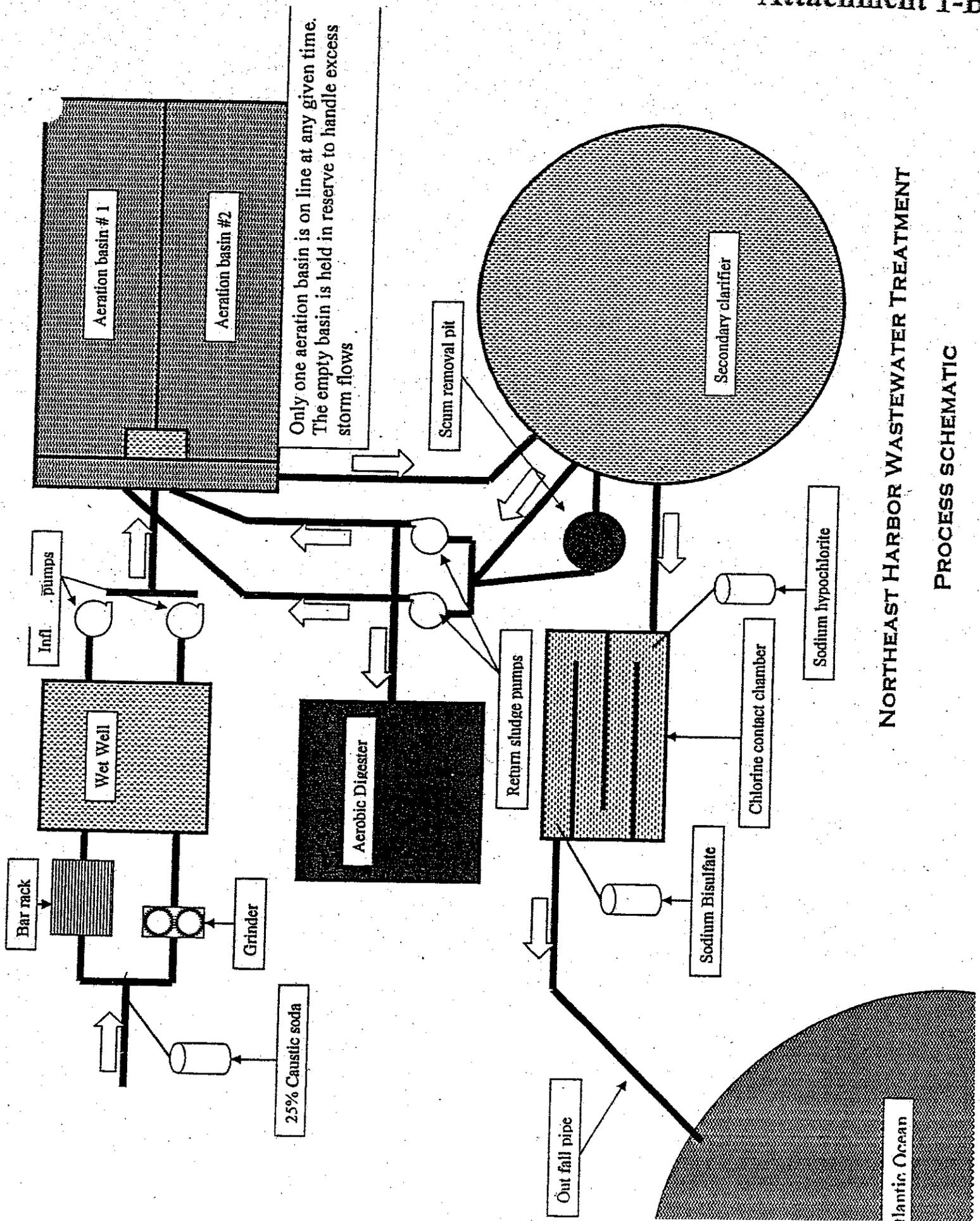
Division of Water Resource Regulation

Maine Department of Environmental Protection

December 22, 2003



ATTACHMENT B



NORTHEAST HARBOR WASTEWATER TREATMENT
PROCESS SCHEMATIC