UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

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

NPDES PERMIT NO.: **MA0101656**

NAME AND ADDRESS OF APPLICANT:

Sandwich Public Schools
16 Dewey Avenue
Sandwich, MA 02563

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Henry T. Wing Elementary School
Route 130, Water Street
Sandwich, MA 02563

RECEIVING WATER: **Dock Creek to Cape Cod Bay** (Cape Cod Watershed - MA96)

CLASSIFICATION: **SA**

I. PROPOSED ACTION

The above named applicant has applied to the U.S. Environmental Protection Agency for re-issuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge into the designated receiving water. The current permit expired on September 15, 1992. A timely re-application was submitted and the permit was administratively continued. This permit, after it becomes effective, will expire five years from the effective date.

II. TYPE OF FACILITY, AND DISCHARGE LOCATION

The facility is engaged in the collection and treatment of institutional wastewater. The discharge is from the Wastewater Treatment System. The effluent is discharged to Dock Creek, a tidal creek, tributary to Sandwich Harbor and Cape Cod Bay (See Attachment A).

The facility's discharge outfall is listed below:

Outfall	Description of Discharge	Outfall Location
001	Wastewater Treatment System Effluent	Dock Creek to Cape Cod Bay

III. DESCRIPTION OF THE DISCHARGE

A quantitative description of the effluent parameters based on recent discharge monitoring reports (DMRs) is shown on Attachment B of this fact sheet.

IV. LIMITATIONS AND CONDITIONS

The effluent limitations and monitoring requirements may be found in the draft NPDES permit.

V. PERMIT BASIS AND EXPLANATION OF EFFLUENT LIMITATION DERIVATION

A. PROCESS DESCRIPTION

The Henry T. Wing Elementary School facility provides wastewater treatment and disinfection. The wastewater treatment system is as follows (See Attachment C):

Wastewater from the school is discharged to a 14,400 gallon septic tank. Influent enters the septic tank at a baffle chamber. Influent samples are collected in the baffle chamber just before the influent enters the main chamber. According to DMRS, the average daily flow is approximately 4,800 gallons, as calculated from water records. Following the septic tank is a 1,270 gallon dosing chamber with twin alternating 4-inch siphons and two distribution boxes. The effluent then flows to a 9,600 square foot subsurface sand filter.

A second source ties into the sand filter bed from the Sandwich Community Schools Early Learning Center which are several mobile units located in the parking lot area adjacent to the Wing School fields on Beale Street. According to water records, flow to the Center was 500,000 gallons between June 25, 2000 to June 15, 2001. Calculated over a full year, the average daily flow is 1,370 gallons per day. Wastewater from the Early Learning Center flows into a 3,000 gallon septic tank, adjacent to the mobile units. Overflow from the septic then flows to the aforementioned sand filter.

The treated effluent from the sand filter then flows to a 898 gallon contact chamber where chlorine is added. Chlorine is dosed using an automated system set for school occupancy hours. The disinfected wastewater then flows through a pipe approximately 300 yards down gradient. There are three manhole covers located at the corner of the fenced playground of the Early Learning Center. One is the sampling access. In the manhole is a v-notched weir. Effluent samples are collected just upstream of the weir by dropping down plastic bottles. A 10-inch concrete conduit then runs further down grade across a parking area to a small tidal creek where it discharges to Dock Creek.

Solids are removed from the septic tanks every three years or as necessary and transported offsite to the Carver Septage Treatment Facility, North Carver, MA.

B. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. Overview of Federal and State Regulations

EPA is required to consider technology and water quality requirements when developing permit effluent limits. Technology based treatment requirements represent the minimum level of control that must be imposed under Sections 402 and 301(b) of the Act (see 40 CFR 125 Subpart A) to meet Best Practicable Control Technology Currently Available (BPT), Best Conventional Control Technology (BCT) for conventional pollutants and Best Available Technology Economically Achievable (BAT) for toxic pollutants.

EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve federal or state water quality standards.

Under Section 301(b)(1)(C) of the Clean Water Act (CWA), discharges are subject to effluent limitations based on Water Quality Standards. The Massachusetts Surface Water Quality Standards include the requirements for the regulation and control of toxic constituents and also require that EPA criteria established pursuant to Section 304(a) of the CWA shall be used unless site specific criteria are established. The State will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained or attained.

In the absence of technology-based guidelines, EPA is authorized to use Best Professional Judgement (BPJ) to establish effluent limitations, in accordance with Section 402 (a)(1) of the CWA and 40 CFR Section 125.3.

The permit must limit any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that caused, has reasonable potential to cause, or contributes to an excursion above any water quality criterion [40 CFR §122.44(d)]. An excursion occurs if the projected or actual instream concentrations exceed the applicable criterion. In determining reasonable potential, EPA considers existing controls on point and non-point sources of pollution, variability of the pollutant in the effluent, sensitivity of the species to toxicity and, where appropriate, the dilution of the effluent in the receiving water.

2. Water Quality Standards; Designated Uses; Outfall 001

The receiving water, Dock Creek, has been classified as Class SA in the Massachusetts Surface Water Quality Standards, 314 CMR 4.05(4)(a). The Massachusetts Surface Water Quality Standards describe Class SA waters as having the following uses: (1) excellent habitat for fish, other aquatic life and wildlife, (2) primary and secondary contact recreation, (3) suitable for shellfish harvesting without depuration (Open Shellfishing Areas), and (4) excellent aesthetic value.

Available Dilution

Water quality based limitations are established with the use of a calculated available dilution.

On March 2, 2001, a site visit was conducted by Michele Barden and David Pincumbe of EPA, along with Sandwich Public Schools representatives, Alex Moles, Contract Operator, Moles Environmental and Robert Dargis, on-site operator to tour the facility and locate the effluent discharge outfall. It was found that the discharge was into the headwaters of a small tidal creek. The visit was conducted during low tide and flow in the creek was absent with the exception of minimal standing water. The receiving water flow used to calculate effluent limits is therefore zero, resulting in a dilution factor of one.

OUTFALL 001 - CONVENTIONAL POLLUTANTS

Biological Oxygen Demand (BOD_5) - The Environmental Protection Agency has not developed effluent guidelines for this type of facility as provided for in the Clean Water Act (CWA). In the absence of national standards, technology based effluent limitations for BOD would be a monthly average of 30 mg/l and a weekly average of 45 mg/l based upon Best Professional Judgement (BPJ). However, given the absence of dilution, effluent limitations of 5 mg/l for the monthly average and 7 mg/l for the daily maximum are included in the draft permit based on water quality considerations.

Total Suspended Solids (TSS) - EPA has not developed effluent guidelines for this type of facility as provided for in the CWA. In the absence of national standards, technology based effluent limitations for TSS would be a monthly average of 30 mg/l and a weekly average of 45 mg/l based upon professional judgement. However, given the absence of dilution, effluent limitations of 10 mg/l for the monthly average and 15 mg/l for the daily maximum are included in the draft permit based on water quality considerations.

pH - The draft permit includes proposed pH limitations which are required by state water quality standards, and are at least as stringent as pH limitations set forth at 40 CFR 133.102(c). Class SA waters shall be in a range of 6.5 through 8.5 standard units and not more than 0.2 standard units outside of the normally occurring range. There shall be no change from background conditions that would impair any use assigned to this class.

Fecal Coliform Bacteria - The numerical limitations for fecal coliform are based on state certification requirements under Section 401(a)(1) of the CWA, as described in 40 CFR 124.53 and 124.55. These limitations are also in accordance with the Massachusetts Surface Water Quality Standards 314 CMR 4.05 (4)(a)4.a.

The limits on fecal coliform are changed from the previous permit to reflect the discharge into a Class SA water body. The proposed limits in the draft permit are 14/100 ml average monthly and 43/100 ml maximum daily. The monitoring frequency for fecal coliform is increased from one per month to one per week and must be collected concurrent with sampling for Total Residual Chlorine. Samples must be collected upstream of the weir in the chlorine contact chamber.

Settleable Solids - The monitoring requirements for settleable solids have been removed from this permit. They are no longer required as a condition for state certification under Section 403 of the CWA.

OUTFALL 001 - NON-CONVENTIONAL POLLUTANTS

Total Residual Chlorine (TRC) - Chlorine is a toxic chemical. DMRs show a variable chlorine residual ranging between 0 and 3.5 mg/l over a 24 month period with 5 excursions above the current permit limit of 1.5 mg/l.

The draft permit includes total residual chlorine limitations which are based on state water quality standards [Title 314 CMR 4.05(5)(e)]. Chlorine compounds produced by the chlorination of wastewater can be extremely toxic to aquatic life. The water quality standards for chlorine defined in the 1998 EPA National Recommended Water Quality Criteria for marine waters are 13 ug/l daily maximum and 7.5 ug/l monthly average in the receiving water. Given a dilution factor of 1, the total residual chlorine limitations have been set at 13 ug/l daily maximum and 7.5 ug/l monthly average. Sampling frequency has been increased to once per week and must be conducted

concurrent with the fecal coliform bacteria sampling. Samples must be collected at the chlorine contact chamber.

Total Residual Chlorine Limitations:

(acute criteria * dilution factor) = Acute (Maximum Daily)
(13 ug/l x 1)= 13 ug/l = 0.013 mg/l

(chronic criteria * dilution factor) = Chronic (Monthly Average)
(7.5 ug/l x 1) = 7.5 ug/l = 0.0075 mg/l

Total Ammonia Nitrogen, as N - Ammonia is a toxic pollutant which may be harmful to aquatic organisms. EPA is required to limit any pollutant that is or may be discharged at a level that caused, or has reasonable potential to cause, or contributes to an excursion above any water quality criterion [40 CFR 122.44(d)(1)(vi)]. The water quality standards for ammonia are referenced in the 1998 EPA National Recommended Water Quality Criteria and are defined in the 1998 Ambient Water Quality Criteria for Ammonia (Saltwater). Based on an average pH of 7.0 and maximum anticipated temperature of 25 degrees Celsius, the criteria for marine waters are 6 mg/l monthly average and 10 mg/l daily maximum. Based on water quality considerations, a monthly average effluent limit of 6 mg/l and a maximum daily limit of 10 mg/l are included in the draft permit.

Total Ammonia Limitations:

(acute criteria * dilution factor) = Acute (Maximum Daily)
(10 mg/l * 1) = 10 mg/l

(chronic criteria * dilution factor) = Chronic (Monthly Average)
(6 mg/l *1) = 6 mg/l

Copper - The draft permit includes a monthly monitoring requirement for copper based on the provisions of Section 308 of the Clean Water Act. Copper should be sampled as part of Whole Effluent Toxicity (WET) testing. If copper is determined to be a problem as a result of testing a limit for copper will be set in the future.

OUTFALL 001 - WHOLE EFFLUENT TOXICITY (WET)

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Massachusetts Surface Water Quality Standards include the following narrative statement and requires that EPA criteria established pursuant to Section 304(a)(1) of the CWA be used as guidance for interpretation of the following narrative criteria: All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.

National studies conducted by the EPA have demonstrated that domestic sources contribute toxic constituents. These constituents include metals, chlorinated solvents, aromatic hydrocarbons and others. The Region's current policy is to include toxicity testing requirements in all permits, while Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts.

Based on the potential for toxicity resulting from domestic sewage, and in accordance with EPA national and regional policy, the draft permit includes chronic and acute toxicity limitations and monitoring requirements. (See e.g. "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants", 50 Fed. Reg. 30,784 (July 24, 1985); see also, EPA's "Technical Support Document for Water Quality-Based Toxics Control", September, 1991.)

Pursuant to EPA Region I policy, a discharge having a dilution ratio of less than 20:1 requires both chronic and acute toxicity testing four times per year. The principal advantages of biological techniques are: (1) the effects of complex discharges of many known and unknown constituents can be measured only by biological analyses; (2) bioavailability of pollutants after discharge is best measured by toxicity testing including any synergistic effects of pollutants; and (3) pollutants for which there are inadequate chemical analytical methods or criteria can be addressed. Therefore, toxicity testing is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

The draft permit requires that the permittee conduct chronic and modified WET testing for the Outfall 001 effluent four times per year and that each test include the use of Arbacia, Mysid Shrimp and Silverside in accordance with EPA Region I protocol to be found in permit Attachment A.

As a condition of this permit, the testing requirements may be reduced if certain conditions are met. The permit provision anticipates that the permittee may wish to request a reduction in the WET testing. After four consecutive WET tests, demonstrating compliance with the permit limits for whole effluent toxicity, the permittee may submit a written request to the EPA seeking a review of toxicity test results. The EPA will review the test results and pertinent information to make a determination. The permittee is required to continue testing at the frequency and species specified in the permit until the permit is either formally modified or until the permittee receives a certified letter from the EPA indicating a change in the permit conditions.

VII. SLUDGE CONDITIONS

Section 405(d) of the CWA requires that EPA develop technical regulations regarding the use and disposal of sewage sludge. These regulations are found at 40 CFR part 503 and apply to any facility engaged in the treatment of domestic sewage. The CWA further requires that these conditions be implemented through permits.

The Henry T. Wing School disposes sludge at the Carver Septage Treatment Facility, North Carver, MA, approximately 5,000 gallons per year. The Henry T. Wing School generates approximately 0.30 dry metric tons annually.

An additional 3,000 gallons were pumped in 2001 as the result of the discovery of a septic tank for the Early Learning Center. This volume was also disposed at the Carver Septage Treatment Facility.

VIII. ANTI-BACKSLIDING

Anti-backsliding as defined at 40 CFR §122.44(l)(1) requires reissued permits to contain limitations as stringent or more stringent than those of the previous permit unless the circumstances allow application of one of the defined exceptions to this regulation. Anti-backsliding does not apply when changes to limits are based on new information not available at the time of the previous permit reissuance [40 CFR §122.44(l)(2)(i)(B)(1)] or when limits are changed as a result of material and substantial additions or alterations to the permitted facility which occurred after permit issuance which justify the application of less stringent limitations, as defined at 40 CFR § 122.44(l)(2)(i)(A).

IX. ANTIDEGRADATION

The Massachusetts Antidegradation Policy is found at Title 314 CMR 4.04. All existing uses of Dock Creek, Sandwich Harbor and Cape Cod Bay must be protected. This draft permit is being reissued with allowable discharge limits as or more stringent than the current permit with the exception of settleable solids, which has been eliminated from the permit because it does not have reasonable potential based on current data. There has been no change in the outfall location. The public is invited to participate in the antidegradation finding through the permit public notice procedure.

X. ESSENTIAL FISH HABITAT

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq.(1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat," 16 U.S.C. § 1855(b). The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity," 16 U.S.C. § 1802(10). "Adverse impact" means any impact which reduces the quality and/or quantity of EFH, 50 C.F.R. § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. Id.

Essential fish habitat is only designated for fish species for which federal Fisheries Management Plans exist. 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

EFH Species

The following is a list of the EFH species and applicable lifestage(s) for the area that includes Atlantic Ocean waters around Woods Hole, MA.

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Species	Eggs	Larvae	Juveniles	Adults
Atlantic cod *(Gadus morhua)*	X	X	X	X
haddock *(Melanogrammus aeglefinus)*	X	X		
pollock *(Pollachius virens)*		X	X	X
whiting *(Merluccius bilinearis)*	X	X	X	X

offshore hake *(Merluccius albidus)*				
red hake *(Urophycis chuss)*	X	X	X	X
white hake *(Urophycis tenuis)*	X	X	X	X
redfish *(Sebastes fasciatus)*	n/a			
witch flounder *(Glyptocephalus cynoglossus)*				
winter flounder *(Pleuronectes americanus)*	X	X	X	X
yellowtail flounder *(Pleuronectes ferruginea)*	X	X	X	X
windowpane flounder *(Scopthalmus aquosus)*	X	X	X	X
American plaice *(Hippoglossoides platessoides)*	X	X	X	X
ocean pout *(Macrozoarces americanus)*	X	X	X	X
Atlantic halibut *(Hippoglossus hippoglossus)*	X	X	X	X
Atlantic sea scallop *(Placopecten magellanicus)*	X	X	X	X
Atlantic sea herring *(Clupea harengus)*	X	X	X	X
monkfish *(Lophius americanus)*	X	X		
bluefish *(Pomatomus saltatrix)*			X	X
long finned squid *(Loligo pealei)*	n/a	n/a	X	X
short finned squid *(Illex illecebrosus)*	n/a	n/a	X	X
Atlantic butterfish *(Peprilus triacanthus)*	X	X	X	X
Atlantic mackerel *(Scomber scombrus)*	X	X	X	X
summer flounder *(Paralicthys dentatus)*				X
scup *(Stenotomus chrysops)*	n/a	n/a	X	X
black sea bass *(Centropristus striata)*	n/a		X	X
surf clam *(Spisula solidissima)*	n/a	n/a		
ocean quahog *(Artica islandica)*	n/a	n/a		
spiny dogfish *(Squalus acanthias)*	n/a	n/a	X	X
tilefish *(Lopholatilus chamaeleonticeps)*				

bluefin tuna *(Thunnus thynnus)*			X	X

Cape Cod Bay in the vicinity of Dock Creek and the Henry T. Wing Elementary School in Sandwich, MA is designated essential fish habitat (EFH) for 31 species of finfish and mollusks. Based on the amount and frequency of the discharge, as well as effluent limitations and other permit requirements identified in this Fact Sheet that are designed to be protective of all aquatic species, including those with designated EFH, EPA has determined that a formal EFH consultation with NMFS is not required because the proposed discharge will not adversely impact EFH.

XII. COASTAL ZONE MANAGEMENT (CZM) CONSISTENCY REVIEW

40CFR §122.49 (d) states: *The Coastal Zone Management Act, 16 U.S.C. 1451 et seq. section 307(c) of the Act and implementing regulations (15 CFR part 930) prohibit EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the proposed activity complies with the State Coastal Zone Management program, and the State or its designated agency concurs with the certification (or the Secretary of Commerce overrides the State's nonconcurrence).*

The discharge is within the defined CZM boundaries. The permittee has submitted a letter dated November 6, 2001 to the Massachusetts Coastal Zone Management Program stating their intention to abide by the CZM water quality and habitat policies. The CZM shall review the draft permit and it will only be issued after CZM certification.

XIII. STATE PERMIT CONDITIONS

The NPDES Permit is issued jointly by the U. S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection under federal and state law, respectively. As such, all the terms and conditions of the permit are, therefore, incorporated into and constitute a discharge permit issued by the MADEP Commissioner who designates signature authority to the Director of the Division of Watershed Management pursuant to M.G.L. Chap. 21, §43.

XIV. STATE CERTIFICATION REQUIREMENTS

The staff of the Massachusetts Department of Environmental Protection ("MADEP") has reviewed the draft permit. EPA has requested permit certification by the State pursuant to 40 CFR § 124.53 and expects that the draft permit will be certified.

XV. PUBLIC COMMENT PERIOD AND PROCEDURES FOR FINAL DECISION

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 their arguments in full by the close of the public comment period, to the U.S. EPA, Office of Ecosystem Protection, MA Unit, One Congress Street, Suite-1100, Boston, Massachusetts 02114. 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. Public hearings may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates a 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 a 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 service of notice of the Director's final permit decision, any interested person may submit an adjudicatory hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of $100 which must be mailed to the following address:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

The hearing request to the Commonwealth will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver.

The filing fee is not required if the appellant is a city, town (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority. The Department may waive the adjudicatory hearing filing fee for a permittee who shows that paying the fee will create an undue financial hardship. A permittee seeking a waiver must file, along with the hearing request, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

XVI. 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:

Michele Cobban Barden, Environmental Scientist
Office of Ecosystem Protection
U.S. Environmental Protection Agency
One Congress Street, Suite-1100 (CPE)
Boston, MA 02114-2023
Telephone: (617) 918-1539

Date

Linda M. Murphy, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

Attachments:

A: Map - Not available electronically
B: DMR Summary - Attached
C: Flow Chart - Not available electronically