MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

AND

MAINE WASTE DISCHARGE LICENSE

FACT SHEET

Date: **January 13, 2003**
Revised: **February 14, 2003**

PERMIT NUMBER: **ME0100986**

LICENSE NUMBER: **W000449-5L-F-R**

NAME AND ADDRESS OF APPLICANT:

Qgunquit Sewer District
School Street, P.O. Box 934
Ogunguit, ME. 03907

COUNTY: **York County**

NAME AND ADDRESS WHERE DISCHARGE(S) OCCUR(S):

School Street
Ogunguit, ME. 03907

RECEIVING WATER(S)/CLASSIFICATION: **Atlantic Ocean/Class SB**

COGNIZANT OFFICIAL AND TELEPHONE NUMBER: **Philip Pickering**
(207) 646-3271

1. APPLICATION SUMMARY

a. Application: The Ogunquit Sewer District (OSD) has made application to the Department to renew Waste Discharge License (WDL) #W000449-46-D-R which was issued on March 23, 1998 and is due to expire on March 23, 2003. The WDL approved the discharge of up to a monthly average flow of 1.28 million gallons per day (MGD) of secondary treated municipal waste water from a publicly owned treatment works to the Atlantic Ocean, Class SB, in Ogunquit, Maine.

2. PERMIT SUMMARY

a. Regulatory: On January 12, 2001, the Department received authorization from the U. S. Environmental Protection Agency (EPA) to administer the National Pollutant Discharge Elimination System (NPDES) permitting program in Maine. From this point forward, the program will be referenced as the Maine Pollutant Discharge Elimination System (MEPDES) permit program. NPDES permit #ME0100986 last issued on by the EPA on September 30, 1996, will be replaced upon issuance of a final MEPDES permit. Once replaced, all terms and conditions of the NPDES become null and void.

b. Permit Summary: This permitting action is similar to the 3/23/98 WDL action in that it is;

1. Carrying forward the monthly average flow limit of 1.28 MGD.

2. Carrying forward the monthly average, weekly average and daily maximum water technology based mass and concentration limits for biochemical oxygen demand (BOD_5) and total suspended solids (TSS).

3. Carrying forward the monthly average and daily maximum water quality based limits for fecal coliform bacteria and the requirement for year-round disinfection.

4. Carrying forward screening level whole effluent toxicity (WET) and chemical specific (priority pollutant) testing beginning 12-months prior to the expiration date of the permit.

This permitting action is different than the 3/23/98 WDL action in that it is;

5. Establishing a daily maximum best practicable treatment (BPT) limit of 0.3 ml/L for settleable solids and deleting the monthly average concentration reporting requirement.

6. Increasing the daily maximum BPT concentration limit for total residual chlorine from 0.1 mg/L to 0.3 mg/L and establishing a monthly average BPT concentration limit of 0.1 mg/L.

7. Eliminating annual surveillance level whole effluent toxicity (WET) and chemical specific (priority pollutant) testing.

8. Revising the daily maximum BPT pH range limit from 6.0 – 8.5 standard units to 6.0 – 9.0 standard units based on a new Department regulation.

9. Establishing a requirement to develop or update the wet weather flow management plan for the facility.

10. Establishing a requirement to maintain an up-to-date Operations and Maintenance Plan for the facility.

2. PERMIT SUMMARY (cont'd)

c. History:

September 30, 1991 – The EPA issued a renewal of NPDES permit #ME0100986 for a five-year term.

July 15, 1993 – The EPA issued a modification of NPDES permit #ME0100986. The modification reduce whole effluent toxicity testing from 1/Quarter to 1/Year and reduced the monitoring frequency for enterococci and fecal coliform bacteria from 1/Day to 3/Week between October 1st and March 31st.

April 2, 1996 - The OSD filed an application with the EPA to renew NPDES permit #ME0100986.

September 30, 1996 – The EPA issued a renewal of NPDES permit #ME0100986 for a five year term.

March 23, 1998 – The Department issued WDL #W000449-46-D-R for a five year term.

May 23, 2000 – The Department administratively modified the WDL for the OSD facility by establishing interim monthly average and daily maximum concentration limits for mercury.

February 21, 2003 – The OSD filed an application with the Department to renew WDL #W000449-46-D-R.

c. Source Description: The waste water treatment facility was originally constructed in 1963 and currently serves a population of approximately 1,400 users in the winter and up to 50,000 users during the summer months. The treatment facility receives sanitary waste waters generated by residential and commercial entities within the District's boundaries and does not have any industrial users contributing more than 10% of the flow or pollutant loading to the collection and or waste water treatment facility.

The sanitary sewer collection system consists of approximately eleven (11) miles of pipe with twelve (12) pump stations. Pumping station #2 has a stand-by generator with an automatic transfer switch. All pumping stations have manual power transfer switches for the use of the District's three (3) portable generators. All pumping stations are equipped with visual and audio alarms as well as radio communication to the treatment facility where two (redundant) telemetry notification systems are engaged. The collection system is completely separated from the storm water collection system and as a result there are no combined sewer overflow (CSO) points in the collection system. The facility is authorized to receive up to 3,000 gallons per day and 20,000 gallons per month of septage from local septage haulers. The facility maintains an up-to-date septage management that has reviewed and approved by the Department.

2. PERMIT SUMMARY (cont'd)

d. Waste Water Treatment: The facility provides a secondary level of treatment via an activated sludge system operated in an extended aeration mode from November through March of each year and in the conventional aeration mode from April through October of each year. The treatment process includes an influent flow meter, a bar screen, grit chamber, four aeration basins (totaling 532,000 gallons) with fine bubble diffused aeration, two secondary clarifiers (each 45 feet in diameter and 12 feet deep) and a serpentine chlorine contact tank with a volume of 66,000 gallons followed by a flow meter. Two of the aeration basins have been modified to incorporate selector technology that have created anoxic zones prior to aeration zones to alleviate operational problems with nitrification. The effluent is disinfected on a year-round basis with sodium hypochlorite and de-chlorinated with sodium bisulfite before discharge to the receiving waters. The waste water treatment facility is equipped with a 350-kilowatt generator that will enable the facility to maintain a secondary level of treatment in the event of a power outage. See Attachment A for a schematic of the waste water treatment facility. The treated effluent is conveyed to the Atlantic Ocean for discharge via a pipe measuring fourteen (14) inches in diameter extended offshore approximately 1,950 feet. The end of the pipe is fitted with a 3-port diffuser to enhance mixing of the treated effluent with the receiving water. The facility has been disinfecting the discharge on a year-round basis since 1997 due to the potential for the harvesting of surf clams. The Department has recently received a recommendation from the State's Department of Marine Resources to continue to disinfect on a year-round basis to protect a growing population of surfers in the winter months.

Sludge handling equipment at the facility includes three aerobic digestors with a total holding capacity of 320,000 gallons. The sludge is de-watered via a two-meter belt filter press and land applied during the summer months and composted in the winter months at a facility in Rochester, New Hampshire.

3. CONDITIONS OF PERMITS

Maine law, 38 M.R.S.A. Section 414-A, requires that the effluent limitations prescribed for discharges require application of best practicable treatment, be consistent with the 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, Maine law, 38 M.R.S.A., Section 420, and Department Regulation 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 Water Act.

4. RECEIVING WATER STANDARDS

Maine law 38 M.R.S.A., §469(8) classifies the Atlantic Ocean at the point of discharge as a Class SB waterway. Maine law, 38 M.R.S.A., §465-B(2) describes the standards for classification of Class SB waterways.

5. EXISTING WATER QUALITY CONDITIONS

The *2002 Integrated Water Quality Monitoring and Assessment Report* published by the Department pursuant to Section 305(b) of the Federal Water Pollution Control Act lists the Ogunquit River – Oqunquit and Moody Beaches as marine waters with insufficient data or information to determine attainment of water quality standards. Attainment in this context is in regard to the designated use of harvesting of shellfish. Currently, DMR shellfish harvesting areas #4 and #4A are 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 areas remain closed. Compliance with the fecal coliform bacteria limits in this permitting action ensure that the discharge from the OSD will not cause or contribute to the shellfish harvesting closure.

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS

a. Dilution Factors - Department Regulation Chapter 530.5, *Surface Water Toxics Control Program*, §D(3)(b) 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 level 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 at the full permitted flow of 1.28 MGD, the discharge from the OSD waste water treatment facility will be diluted by the following factors:

Acute = 50:1 Chronic = 102:1 Harmonic mean [(1)] = 306:1

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 USEPA 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 flow limitation of 1.28 MGD that is being carried forward in this permitting action as it remains representative of the monthly average design capacity of the facility.

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

c. Biochemical Oxygen Demand (BOD5) & Total Suspended Solids (TSS): - The previous licensing established monthly and weekly average BOD5 and 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 maximum daily BOD5 and TSS concentration limits of 50 mg/L were based on a Department best professional judgment of best practicable treatment (BPT). All three concentration limits are being carried forward in this permitting action. As for mass limitations, the previous licensing action established monthly average, weekly average and daily maximum technology based mass limitations that are being carried forward in this permitting action and are based on a monthly average limit of 1.28 MGD. The mass limits were derived as follows:

Monthly average: (1.28 MGD)(8.34)(30 mg/L) = 320 lbs/day
Weekly average: (1.28 MGD)(8.34)(45 mg/L) = 480 lbs/day
Daily Maximum: (1.28 MGD)(8.34) (50 mg/L) = 534 lbs/day

This permitting action also establishes a new requirement of 85% removal for BOD and TSS pursuant to Department rule Chapter 525(3)(III)(a&b)(3).

Monitoring frequencies for BOD and TSS of 3/week established in the previous licensing action are being carried forward in this permitting action and are based on Department policy for facilities with a monthly average flow greater than 1.0 MGD but less than 5.0 MGD.

d. Settleable Solids – The previous licensing established monthly average and daily maximum concentration "Report" only requirements. This permitting action is establishing a daily maximum concentration limit of 0.3 ml/L for settleable solids and is considered by the Department as BPT for secondary treated waste waters. This permitting action is eliminating the monthly average reporting requirement.

e. Fecal coliform bacteria – The previous licensing action established a year-round monthly average and daily maximum limits of 15 colonies/100 ml and 50 colonies/100 ml respectively, that are consistent with the National Shellfish Sanitation Program. The limits are being carried forward in this permitting action.

f. Total Residual Chlorine - The previous licensing action established a daily maximum BPT limit of 1.0 mg/L for the discharge. Limits on total residual chlorine (TRC) are specified to ensure that ambient water quality standards are maintained and that BPT technology is being applied to the discharge. Licensing/permitting actions by the Department impose the more stringent of water quality or technology based limits. End-of-pipe water quality based concentration thresholds may be calculated as follows:

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

Parameter	Acute Criteria	Chronic Criteria	Acute Dilution	Chronic Dilution	Acute Limit	Chronic Limit
Chlorine	13 ug/L	7.5 ug/L	50:1	102:1	0.65 mg/L	0.76 mg/L

Example calculation: Acute – 0.013 mg/L (50) = 0.65 mg/L

The Department has established a daily maximum best practicable treatment (BPT) limitation of 1.0 mg/L for facilities that disinfect their effluent with elemental chlorine or chlorine based compounds unless the calculated acute water quality based threshold is lower than 1.0 mg/L. For facilities that need to de-chlorinate the discharge to meet water quality based thresholds, the Department has established daily maximum and monthly average best practicable treatment limits of 0.3 mg/L and 0.1 mg/L respectively. Because the facility needs to de-chlorinate the discharge to meet the calculated water quality thresholds, this permitting action is establishing the daily maximum and monthly average BPT limitations of 0.3 mg/L and 0.1 mg/L respectively.

g. pH – The previous licensing action established a pH range limit of 6.0 – 8.5 standard units that were considered BPT. This permitting action is establishing a pH range limit of 6.0 –9.0 standard units pursuant to a new Department rule found at Chapter 525(3)(III)(c). The new limits are considered BPT.

h. Whole Effluent Toxicity (WET) and Chemical Specific Testing – Maine Law, 38 M.R.S.A., Sections 414-A and 420, prohibits the discharge of effluents containing substances in amounts which 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 U.S. EPA. 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.

WET and chemical specific (priority pollutant) monitoring, as required by Chapter 530.5, is included in order to fully characterize the effluent. The permit also provides for reconsideration of effluent limits and monitoring schedules after evaluation of toxicity testing results. The monitoring schedule includes consideration of results currently on file, the nature of the waste water, existing treatment and receiving water characteristics.

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.

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

Pursuant to criteria established in Department Rule Chapter 530.5, the OSD facility has been placed in the low frequency category for WET testing as the facility has a chronic dilution factor greater than 100:1 and in the high frequency category for chemical specific (priority pollutant) testing as the facility is permitted to discharge greater than 1.0 MGD. A recent review of OSD's data indicates that they have fulfilled the Chapter 530.5 testing requirements to date. See Attachment B of this Fact Sheet for a summary of the WET test results and Attachment C of this Fact Sheet for a summary of the chemical specific test dates.

Department Regulation Chapter 530.5 and Protocol E(1) of a document entitled *Maine Department of Environmental Protection, Toxicity Program Implementation Protocols*, dated July 1998, states that statistical evaluations shall be periodically performed on the most recent 60 months of WET and chemical specific data for a given facility to determine if water quality based limitations must be included in the permit for a facility.

Chapter 530.5 §C(2) states when a discharge "*...contains pollutants at levels that have a reasonable potential to cause or contribute to an ambient excursion in excess of a numeric or narrative water quality criterion, appropriate water quality based limits must be established in the permit upon issuance."*

Chapter 530.5 §C(3) also states that if data indicates that a discharge is causing an exceedance of applicable AWQC, then*:"(1) the Department must notify the licensee of the exceedance; (2) the licensee must submit a toxicity reduction evaluation (TRE) plan for review and approval within 30 days of receipt of notice and implement the TRE after Department approval; (3) the Department must modify the waste discharge license to specify effluent limits and monitoring requirements necessary to control the level of pollutant and meet receiving water classification* standards within 180 days of the Department's approval of the TRE."

On December 16, 2002, the Department conducted an evaluation on the aforementioned tests results in accordance with the statistical approach outlined in EPA's March 1991 document entitled *Technical Support Document (TSD) for Water Quality Based Toxics Control*, Chapter 3.3.2 and Maine Department of Environmental Protection Guidance, July 1998, entitled *Toxicity Program Implementation Protocols*.

The 12/16/02 statistical evaluation indicates that the discharge does not exceed or have a reasonable potential to exceed acute, chronic or human health ambient water quality criteria (AWQC) for the chemical specific parameters or the acute or chronic critical ambient water quality thresholds for any WET species tested to date. It is noted the discharge of mercury is being regulated by a separate licensing document that has established monthly average and daily maximum concentration limits of 19.3 ng/L and 29.0 ng/L respectively. The sampling frequency for mercury has been established as 4/Year.

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

Maine Department of Environmental Protection Guidance entitled *Toxicity Program Implementation Protocols,* July 1998, protocol #F(9) establishes the criteria for reduced surveillance level testing for publicly owned treatment works. The protocol states that for facilities with all dilution factors greater than 20:1 and no reasonable potential or exceedences of AWQC over a full five-year cycle may receive a reduction to one round of screening testing for the complete suite of chemical specific (priority pollutants) and acute and chronic WET tests for all required species and that all screening tests must be completed in the screening year. The screening year begins 12-months prior to the expiration date of the permit.

The Department has made the determination that the OSD qualifies for the chemical specific and WET testing reduction and therefore has made a best professional judgment to grant the OSD the reduction in chemical specific and WET testing to a screening level of testing. Screening level testing must be completed in the 12-month period prior to the expiration date of this permit. No surveillance level (1/Year) of testing is required in the interim. In accordance with protocol F(9), the permittee must annually submit to the Department, a written statement evaluating its current status for each of the four conditions listed in Department regulation, Chapter 530.5(B)(7)(c)(iii). See Special Condition L, *Chapter 530.5(B)(7)(c)(iii) Certification*, of this permit.

7. DISCHARGE IMPACT ON RECEIVING WATER QUALITY

As permitted, the Department has made a determination based on a best professional judgment that the existing water uses will be maintained and protected and the discharge will not cause or contribute to the failure of the waterbody to meet standards for Class SB classification.

8. PUBLIC COMMENTS

Public notice of this application was made in the local newspaper on or about February 13, 2002. The Department receives public comments on an application until the date a final agency action is taken on that 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 should be sent to:

Gregg Wood
Division of Water Resource Regulation
Bureau of Land and Water Quality
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017 Telephone (207) 287-3901

10. RESPONSE TO COMMENTS

During the period of January 13, 2003 through February 13, 2003, the Department solicited comments on the proposed draft Maine Pollutant Discharge Elimination System Permit to be issued to the Ogunquit Sewer District for the proposed discharge. The Department did not receive any comments that resulted in revisions to the permit. Therefore, no response to comments has been prepared.