MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
and
MAINE WASTE DISCHARGE LICENSE

FACT SHEET

Date: February 13, 2003
Revised: March 25, 2003

PERMIT NUMBER: #**ME0100668**
LICENSE NUMBER: #**W002643-5L-D-R**

NAME AND MAILING ADDRESS OF APPLICANT:	**Town of Thomaston** **P.O. Box 299** **Thomaston** **ME 04861**
COUNTY:	**Knox County**
NAME AND ADDRESS OF FACILITY:	**Thomaston Pollution Control Facility** **33 Clark Street** **Thomaston, ME**
RECEIVING WATER/ CLASSIFICATION:	**Groundwater - Class GW-A** **St. George River - Class SB**
COGNIZANT OFFICIAL and TELEPHONE NUMBER:	**John Fancy** **P.O. Box 299** **Thomaston, ME 04861** **(207) 354-2136** **thompcd@midcoast.com**

1. APPLICATION SUMMARY

a. Application: The applicant has applied for a renewal of Waste Discharge License (WDL) #W002643-46-B-R, which was issued on August 26, 1996 and expired on August 26, 2001. The WDL authorized the disposal of treated sanitary waste water by discharge to the St. George River in Thomaston, Maine and for disposal via a surface waste water disposal system (hereafter referred to as spray irrigation).

1. APPLICATION SUMMARY (cont'd)

The previous license authorized the discharge of 0.46 million gallons per day (MGD) of treated sanitary waste water to the St. George River until the completion of the new treatment lagoons but no later than March 31, 1998. After completion of the new treatment lagoons or after March 31, 1998 whichever came first, Thomaston was authorized to discharge 0.9 MGD of treated waste water to the St. George River during the months of January, February, and March of each year and to spray irrigate 0.65 MGD of waste water on land during the period April 15 through October 31 each year.

On January 12, 2001 the Department received authorization from the United States Environmental Protection Agency (EPA) to administer the National Pollutant Discharge Elimination System (NPDES) program in Maine. From this point forward the program will be referenced as the Maine Pollutant Discharge Elimination System (MEPDES) program and MEPDES permit numbers will be utilized as the primary facility reference. Discharges to surface waters require a MEPDES permit whereas waste water disposal by spray-irrigation is licensed pursuant to the provisions of Maine Law 38 M.R.S.A., Section 413 et seq., and applicable Department regulations. This permit/license renewal authorizes the discharge of treated waste water to the St. George River during the months of January, February and March and for the disposal of treated waste water via a spray irrigation system during the period of April 15 through November 15 of each year. Therefore this document will be referenced as a permit/license and the applicant will be referred to as the permittee/licensee. Section titles will be followed by one of the following subtitles; "SURFACE WATER DISPOSAL", "SPRAY IRRIGATION" or "GENERAL" where "GENERAL" refers to both surface water disposal and spray irrigation.

A. SURFACE WATER DISPOSAL

By this renewal, the Department is carrying forward the existing:

(1) Flow limit of 0.9 MGD to the St. George River during January, February and March,

(2) Monthly average, weekly average and daily maximum concentration limits and mass limits for biochemical oxygen demand (BOD_5) and total suspended solids (TSS),

(3) Daily maximum limit of 0.3 ml/L for settleable solids,

(4) Monthly average and daily maximum limits for fecal coliform bacteria, and

(5) The daily maximum limit for total residual chlorine.

This renewal is different from the previous licensing action in that it is:

(1) Establishing percent removal limits for BOD_5 and TSS,

1. APPLICATION SUMMARY (cont'd)

A. SURFACE WATER DISPOSAL

(2) Eliminating the monthly average monitoring requirement for settleable solids,

(3) Revising the limits for pH from 6 to 8.5 standard units (su) to 6.0 to 9.0 su, and

(4) Reducing monitoring frequency for Whole Effluent and Chemical Specific Toxicity testing.

B. SPRAY IRRIGATION

The most significant spray-irrigation conditions imposed by this permitting/licensing action include:

(1) Carrying forward BOD_5 and TSS lagoon effluent limits of 100 mg/L,

(2) Reducing the BOD_5 and TSS lagoon effluent monitoring frequency from once per week to once per month to be consistent with the monitoring requirements for similar facilities now licensed by the Department,

(3) Establishing lagoon effluent nitrate-nitrogen and pH monitoring to be consistent with the monitoring requirements for similar facilities now licensed by the Department,

(4) Establishing a spray irrigation rate for the entire spray site of 54,305 gallons per acre per day (equivalent to two inches per day) and 81,457 gallons per acre per week (equivalent to three inches week),

(5) Revising limitations and monitoring requirements for the spray-irrigation fields and ground water monitoring along with certain operational constraints in order to provide consistency across similar facilities now licensed by the Department,

(6) Requiring routine ground water monitoring for the following: depth to water level below land surface, nitrate-nitrogen, chloride, specific conductance, temperature, pH, and total suspended solids twice per year and arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc once per five years to be consistent with permits being issued for other municipal spray irrigation disposal systems (The previous WDL required routine spray field ground water monitoring for the following: ground water level, nitrate-nitrogen, chloride, conductivity, temperature, and fecal coliform bacteria.),

(7) Requiring routine lagoon underdrain monitoring for flow rate, specific conductance, and temperature at a frequency of three per year to be consistent with permits being issued for other municipal spray irrigation disposal systems (The previous WDL

1. APPLICATION SUMMARY (cont'd)

required routine lagoon underdrain monitoring for flow rate, conductivity, temperature and fecal coliform bacteria.),

(8) Establishing a soils monitoring program for the spray-irrigation site that is consistent with soils monitoring for similar facilities now licensed by the Department,

(9) Requiring the submission of a *Spray Irrigation Performance Report* as an exhibit to the application for the next license renewal,

(10) Requiring the permittee/licensee to maintain an up-to-date *Operations & Maintenance (O&M) Plan*,

(11) Extending the spray season from the period April 15 through October 31, to April 15 through November 15 of each year,

(12) Requiring the installation of certain signage around the perimeter of the lagoon and spray irrigation site, and

(13) Reducing the lagoon effluent monitoring frequency during the spray irrigation season from 1/week to 1/month and eliminating the lagoon liquid level monitoring.

b. History: In 1990 Thomaston initiated a wastewater system improvement program. In 1991, Thomaston began a sewer replacement program and by the end of 1997 had replaced approximately 36,500 linear feet of gravity sewer pipe and associated services to each building, and installed five new pump stations with approximately 7,100 liner feet of force main pipe. Through this effort Thomaston eliminated all CSOs and the corresponding discharge of untreated wastewater to the St. George River. On December 17, 1997, the new wastewater treatment facility went on line replacing the old treatment system that had been operating since prior to 1970.

Recent relevant licensing and other actions include the following:

1990	-	Thomaston initiated a Wastewater System Improvement Program.
1991	-	Thomaston began a sewer replacement program to reduce the amount of stormwater and groundwater flows in the sanitary collection system.
August 26, 1996	-	The Department of Environmental Protection (DEP) issued WDL which expired August 26, 2001. The WDL regulated both the surface discharge to the St. George River and the new spray irrigation system.
October 21, 1996	-	The DEP issued a Section 401 Water Quality Certification of a draft NPDES permit issued by the USEPA.

March 12, 1997	-	The EPA issued NPDES permit #ME0100668 for the discharge of secondary treated waste water to the St. George River.

December 17, 1997 - The new wastewater treatment facility went on line

c. Source Description: The Thomaston wastewater collection and treatment facility serves approximately 2,500 people, some commercial users and no industrial users. The collection system consists of 13 miles of pipe, 5 pump stations and no CSO's. Thomaston previously received sewerage from the Maine State Prison, but the prison population has been moved to the recently constructed prison in the Town of Warren and the Thomaston State Prison has been demolished. Up to 3,000 gallons of leachate from the St. George transfer station is discharged annually into the Ship Street pump station where it is pumped to the treatment lagoons.

d. Waste Water Treatment: The municipal sewer collection system delivers the sewerage to the Ship Street pump station by gravity. The Ship Street pump station consists of a mechanical bar screen and an auxiliary manual bar screen, two influent pumps and a flow meter. Effluent from the Ship Street pump station is pumped to the treatment lagoons. The treatment system consists of three aerated facultative treatment lagoons with a total capacity of 21 million gallons and a storage lagoon with a maximum liquid level depth of 20 feet and a capacity of 36 million gallons. Aeration is provided to the treatment lagoons via three blowers, air distribution piping, and 98 fine-bubble tubular membrane diffuser assemblies. The lagoons were designed for an average daily influent flow of 427,000 gallons per day (GPD) and an influent BOD_5 of 885 lbs/day. At an influent rate of 427,000 GPD, the 36 million gallon storage lagoon provides for 84 days of storage.

e. Waste Water Disposal: During the months of January, February and March, the effluent from the lagoons is disinfected with sodium hypochlorite and flows by gravity through 7,100 liner feet of pipe to the St. George River where it is discharged via the outfall pipe at the former treatment plant.

During the period April 15 through October 31 of each year, Thomaston is authorized to dispose of waste water by spray irrigation on approximately 52 acres of a 300-acre site consisting of 5 spray irrigation fields of approximately 10 acres each. The effluent is land applied by a spray irrigation system consisting of two 75-horsepower pumps, approximately 26,000 linear feet of distribution piping, and 130 ± spray nozzles. Each spray nozzle is capable of delivering a 150-foot diameter spray pattern. The effluent is applied to one field at a time with each field being used one day each week. The waste water is applied at a maximum rate of 3 inches per week per site.

1. APPLICATION SUMMARY (cont'd)

Slow rate land irrigation treatment is an environmentally sound and appropriate technology for best practicable treatment and disposal of sanitary wastewater. The soils and vegetation within the irrigation area will provide adequate filtration and absorption to preserve the integrity of the soil, and both the surface and groundwater quality in the area.

2. CONDITIONS OF THE PERMIT/LICENSE

Maine law, 38 M.R.S.A. Section 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 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, 38M.R.S.A., Section 420, and the Department Regulation Chapter 530.5, *Surface Water Toxics Control Program* requires the regulation of toxic substances at the levels set fourth for Federal Water Quality Criteria as published by the U.S. EPA pursuant to the Clean Water Act.

3. RECEIVING WATER QUALITY STANDARDS

A. (SURFACE WATER DISPOSAL)

Maine law, 38 M.R.S.A. § 469. *Classification of estuarine and marine waters* classifies the St. George River at the point of Thomaston's waste discharge as Class SB waters. Maine Law, 38 M.R.S.A. § 465-B.2. states that Class SB waters shall be of such quality that they are suitable for the designated uses of recreation in and on the water, fishing, aquaculture, propagation and harvesting of shellfish, industrial process and cooling water supply, hydroelectric power generation and navigation and as habitat for other estuarine and marine life. The habitat shall be characterized as unimpaired. Discharges to Class SB waters shall not cause adverse impact to estuarine and marine life in that the receiving waters shall be of sufficient quality to support all estuarine and marine species indigenous to the receiving water without detrimental changes in the resident biological community. There shall be no new discharge to Class SB waters which would cause closure of open shellfish areas by the Department of Marine Resources.

B. (SPRAY IRRIGATION DISPOSAL)

Maine law, 38 M.R.S.A § 470 classifies the groundwater at the point of discharge as Class GW-A receiving waters. Maine law, 38 M.R.S.A., §465-C describes the standards for Class GW-A waters as the highest classification of groundwater and shall be of such quality that it can be used for public water supplies. These waters shall be free of radioactive matter or any matter that imparts color, turbidity, taste or odor which would impair the usage of these waters, other than occurring from natural phenomena.

4. RECEIVING WATER QUALITY CONDITIONS

The entire Maine coast is in partial support of its designated use due to fish consumption advisories. A human health consumption advisory has existed since 1992 coast wide against the consumption of lobster tomalley due to toxics. No evidence of elevated levels of toxic contaminants was found in lobster meat. Mercury and PCBs have been detected in striped bass and bluefish caught in coastal and intertidal waters of Maine. Because these two fish are becoming popular recreational fisheries, advisories for sport caught striped bass and bluefish have been issued since 1996. Mercury is being regulated under Department rule Chapter 519 separate from this permitting action.

According to the 2002 Integrated Water Quality Monitoring and Assessment Report prepared by the Department pursuant to Sections 305(b) and 303(d) of the Federal Water Pollution Control Act, the receiving waters of the St. George River at the point of discharge are attaining the standards of its classification other than the fish consumption advisories noted above and the shellfish harvesting closure in the area of the outfall. DMR has traditionally closed shellfish harvesting areas in the vicinity of outfall pipes when field data on bacteria counts in the immediate area is insufficient, inconclusive or exceeds standards set in the National Shellfish Sanitation Program of the U.S. Department of Health and Human Services. DMR does not have sufficient field data at this time to open the area to shellfish harvesting. However, compliance with the fecal coliform bacteria limits in this permitting action ensure that the discharge will not cause or contribute to the shellfish harvesting closure.

5. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. (SURFACE WATER DISPOSAL)

a. Flow: The monthly average flow limitations of 0.9 MGD for surface water discharge and 0.65 MGD for spray irrigation disposal in the previous licensing action are being carried forward in this permitting action. These flows are considered representative of the monthly average design discharge flows of the disposal facilities. The continuous monitoring requirement for flow is consistent with Department required monitoring frequencies for publicly operated treatment works (POTWs).

Dilution Factors: (for discharge to surface waters) Department Rule 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.

Using outfall/diffuser configuration (8 inch outfall pipe with diffusers) information, the facility design flow of 0.90 MGD (monthly average) and in-stream mixing characteristics determined from modeling and/or field investigation, dilution factors are as follows.

Acute = 109:1 Chronic = 219:1 Harmonic mean [(1)] = 657:1

[(1)] The harmonic mean dilution factor is approximated by multiplying the chronic dilution factor by three.

b. Biochemical Oxygen Demand (BOD): The previous licensing action established monthly average and weekly average concentration limits of 30 mg/L and 45 mg/L respectively. These limits were based on secondary treatment requirements in the Federal Water Pollution Control Act (Clean Water Act) of 1977 §301(b)(1)(B), federal regulation found at 40 CFR Part 133.102 and Department rule Chapter 525 (3)(III). The previous license also established a
daily maximum concentration limit of 50 mg/L and is based on a Department best practicable treatment requirement common to all WDL's for publicly owned treatment works permitted by the Department. The monthly average, weekly average and daily maximum mass limits in the
previous licensing action are being carried forward in this permitting action and are based on a flow limitation of 0.90 MGD and the applicable concentration limits and are consistent with Department requirements for all POTWS. The monitoring frequency of twice per week is consistent with required BOD monitoring frequencies for POTWS discharging 0.5 to 1.5 MGD. This permitting action also establishes a new requirement of 85% removal for BOD5 and TSS pursuant to Department rule Chapter 525(3)(III)(a&b)(3). The percent removal shall be based on monthly average concentration values. The percent removal shall be waived when the monthly average influent concentration is less than 200 mg/L.

BOD5 and TSS mass loading calculations at 0.90 MGD are as follows:

Monthly average = (30 mg/L) (0.90 MGD) (8.34) = 225 lbs/day
Weekly average = (45 mg/L) (0.90 MGD) (8.34) = 338 lbs/day
Daily Maximum = (50 mg/L) (0.90 MGD) (8.34) = 375 lbs/day

c. Settleable Solids: The previous licensing action required monitoring and reporting of the weekly average and daily maximum settleable solids. The Department has since reconsidered
the monitoring requirements for settleable solids and has concluded that the weekly average reporting requirement is unnecessary and that a daily maximum limit of 0.3 ml/L provides sufficient information necessary to assess whether the treatment facility is providing best practicable treatment (BPT). Therefore, this permitting action is deleting the weekly monitoring requirement and retaining the daily maximum limit of 0.3 ml/L

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

A. (SURFACE WATER DISPOSAL)

consistent with monitoring requirements for all POTWS. The monitoring frequency for settleable solids of once per day is consistent with Department monitoring requirements for all POTWS.

d. Fecal Coliform Bacteria: The monthly average and daily maximum limits of 15 colonies/100 ml and 50 colonies/100 ml respectively and twice per week monitoring are being carried forward from the previous licensing action. The twice per week monitoring frequency is based on Department guidelines for facilities discharging between 0.5 and 1.5 MGD and are consistent with the National Shellfish Sanitation program. The fecal coliform monitoring requirements are in effect during the period January 1 through March 31 of each year when Thomaston is authorized to discharge to the St. George River and are required due to the presence of potential shellfish harvesting.

e. Total Residual Chlorine: Limits on total residual chlorine (TRC) are specified to ensure attainment of the in-stream water quality criteria for levels of chlorine and that best practicable treatment (BPT) technology is utilized to abate the discharge of chlorine. Permits issued by this Department impose the more stringent of the calculated water quality based or BPT based limits. The previous licensing action established a daily limit of 1.0 mg/L during the period between January 1 and March 31 and established a once/day monitoring frequency requirement. The once per day monitoring requirement is consistent with Department monitoring guidance for POTWS discharging 0.5 to 1.5 MGD. With dilution factors as determined above, water quality based thresholds for TRC may be calculated as follows:

Criterion (mg/L)		Dilution Factors		Calculated Limit (mg/L)	
Acute (A)	Chronic C	Acute	Chronic	Acute	Chronic
0.013	0.0075	109:1	219:1	1.42	1.64

Because the water quality limit for total chlorine residual (TRC) is greater than the Department's BPT limit, the BPT limit for TRC of 1.0 mg/L in the previous license is carried forward in this permit.

In a letter dated January 15, 2003, the applicant stated that the facility discharged two months during the previous year. During that period, 18 tests for fecal coliform bacteria in the effluent before disinfection were conducted with only one sample having a positive count. That sample had a count of 10 colonies per 100 milliliters. Therefore this permit will only require disinfection of the effluent being discharged to the river when a coliform bacteria sample has a count of 15 colonies per 100 milliliters (15 col/100 ml) or greater. If at any time during discharge to the river, a coliform bacteria sample has a count of 15 col/100 ml or greater , this permit will require the resumption of disinfection for the remainder of the period of river discharge which is January 1 through March 31.

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

A. (SURFACE WATER DISPOSAL)

f. pH (for discharge to surface waters): The previous licensing action established a pH range limitation of 6.0 - 8.5 standard units. Department Rule Chapter 525.3(III)(c) specifies a pH range limitation of 6.0 - 9.0 S.U., which is being established in this permitting action and is considered a best practicable treatment limitation. The monitoring frequency of once per day for pH is being carried forward from the previous license and is consistent with Department guidance for all POTWs.

g. Whole Effluent Toxicity (WET) & Chemical Specific Testing: Maine Law, 38 M.R.S.A., Section 414-A and 420, prohibits the discharge of effluent 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. Accordingly, the applicant is subject to effluent monitoring requirements of the Department Regulation, 06-096 CMR, Chapter 530. 5 "Surface Water Toxics Control Program" which sets forth ambient water quality criteria for toxic pollutants in surface waters. The Department's database for WET and chemical specific test results indicates that since Thomaston's new waste water treatment facility went online at the end of 1997, Thomaston has performed five acute only (LC50 and/or A-NOEL) WET tests for the EPA and five chronic no observed effect level (C-NOEL) WET tests for the Department and five chemical specific tests. (See Attachment A of this Fact Sheet for a summary of the WET test results and Attachment B of the Fact Sheet for a summary of the chemical specific test dates).

Department Rule 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 WDL for a facility. On December 16, 2002, the Department conducted a statistical 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 12/16/2002 statistical evaluation indicated that the discharge did not exceed or have a reasonable potential to exceed acute or chronic ambient water quality criteria (AWQC) for any of the species tested as of that date. As for chemical specific parameters, the evaluation also indicated there were no exceedences or reasonable potential to exceed acute, chronic or human health AWQC.

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

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

A. (SURFACE WATER DISPOSAL)

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. Protocol F(9) also states that facilities that have recorded reasonable potential to exceed AWQC may receive reduced testing for parameters not related to the reasonable potential.

The Department has made the determination that Thomaston qualifies for the testing reduction cited above and therefore has made a best professional judgment to grant Thomaston the reduction in both WET and chemical specific testing to a screening level of testing. See Attachment A for a summary of WET test results and Attachment B for a summary of chemical specific test results. This testing reduction results in a frequency of **1/Year for WET and chemical specific testing during the 12 months prior to permit expiration**. The screening level testing should be completed prior to permit expiration so that the results may be submitted with or before the renewal application submittal. No surveillance level of testing is required in the interim. In accordance with protocol F(9), the permittee must submit to the Department on an annual basis, 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 "I. Special Conditions D." of this permit.

Definitive WET testing is a multi-concentration testing event (a minimum of five dilutions), which provides a point estimate of toxicity in terms of No Observed Effect Level, commonly referred to as NOEL or NOEC. A-NOEL is defined as the acute no observed effect level with survival as the end point. C-NOEL is defined as the chronic no observed effect level with survival, reproduction and growth as the end points. Each screening level test and surveillance level test shall consist of a WET test and a chemical specific test. Each WET test shall be conducted using three species. Acute WET tests are performed on the invertebrate species mysid shrimp (*Mysidopsis bahia*) and on the veretbrate species Inland silverside (*Menidia beryllina*). Chronic WET tests are performed on the sea urchin (*Arbacia punctulata*) and on the Inland silverside.

All WET test and chemical specific test results shall be reported to the Department within 30 days of receiving the test results from the laboratory conducting the testing/analysis. Toxicity tests must be conducted by an experienced laboratory approved by the Department.

The laboratory must follow procedures as described in the following U.S.E.P.A. methods manuals:

a. Methods for Measuring Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, (Third Edition), October 2002, EPA 821-R-02-012.

b. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Fifth Edition, October 2002, EPA-821-R-02-014.

h. Priority Pollutants: Priority pollutants are those listed by the USEPA pursuant to Section 307(a) of the Clean Water Act and published in 40 CFR Part 122, Appendix D, Tables II and III. Priority pollutant testing shall be conducted on samples collected at the same time as those collected for the whole effluent toxicity tests using methods that permit detection of a pollutant at existing levels in the effluent or that achieve minimum levels of detection as specified by the Department.

B. (SPRAY IRRIGATION)

a. Monitoring Parameters:

Biochemical Oxygen Demand (BOD_5): Monitoring for BOD yields an indication of the condition of the waste water being applied, of excessive loading of organic material and the effectiveness of the spray-irrigation treatment process.

Total Suspended Solids (TSS): Monitoring for the storage lagoon TSS yields an indication of the condition of the waste water being applied and TSS monitoring in the ground water yields an indication of the integrity of the monitoring wells.

Nitrate-nitrogen: Nitrate-nitrogen compounds are by-products of the biological breakdown of ammonia and are inherent in domestic like sanitary waste water. Because nitrate-nitrogen is weakly absorbed by soil, it functions as a reliable indicator of contamination from waste-disposal sites. Elevated levels of nitrate-nitrogen in the drinking water supply are of human health concern. The limit of 10 mg/L is a National Primary Drinking Water standard.

Specific Conductance, Temperature and pH: Specific conductance, temperature and pH are considered to be "field" parameters meaning that they are measured directly in the field via instrumentation and does not require laboratory analysis. They are considered surveillance level monitoring parameters that are used as early-warning indicators of potential ground water contamination.

Chlorides: Chlorides are another early warning indicator of potential ground water contamination by waste water. This permit has monitoring with report only. The National Secondary Drinking Water standard is 250 mg/L

b. Design Flow: The daily average design flow of the treatment plant is 0.427 MGD. This permit authorizes the discharge of 0.9 MGD of secondary treated wastewater from the storage lagoon to the St. George River during the months of January through March and

for disposal of 0.054 MGD per acre per day and 0.081 MGD per acre per week of treated waste water from the storage lagoon via spray irrigation.

c. Lagoon Effluent: Monitoring parameters includes Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), Nitrate-Nitrogen, and pH. Monitoring for these parameters yields an indication of the effectiveness of the lagoon treatment process and the condition of the waste water being applied. Daily maximum limits of 100 mg/L for BOD and TSS are the Department's best practicable treatment (BPT) requirements for municipal spray irrigation disposal systems. A monitoring frequency of once per month during May through October of each year for BOD and TSS is consistent with the Department's monitoring requirements for municipal spray irrigation disposal systems. The report only once per month monitoring requirement for nitrate-nitrogen and pH is consistent with Department guidance for municipal spray irrigation disposal systems. The monitoring requirement for specific metals in the storage lagoon effluent once during the licensing period in the twelve-month period prior to the expiration date of the license is consistent with Department guidance for municipal spray irrigation disposal systems.

d. Spray Irrigation Application Rates: The previous license authorized the application of waste water at rates not exceeding 0.3 inches per hour and 3 inches per week. The previous license specified that during the first two years of operation the licensee would apply waste water to the northern most spray field, area #5 which is approximately 10 acres in size, at a rate approximating 0.3 inches per hour and 3 inches per week to determine optimal loading rates. The licensee was required to submit annual reports describing the results of the operation of the area and monitoring for evaluation to determine if the optimal loading rate needed to be adjusted.

In his review of the year 2000 annual water quality monitoring report provided in accordance with the WDL issued August 26, 1996 and the approved monitoring plan revised March 22, 1999, a Department geologist concluded that the site is capable of accepting these loading rates provided that operations, management, and monitoring of the site are continued in the same detailed manner as has been done. Therefore, the weekly maximum application rate of 81,415 gallons per acre per week (3.0 inches/week) is being carried forward in this permit/license and is applicable to all five spray fields. A dailymaximum application rate of 54,305 gallons per acre per day (2 inches per day) is being established in this permit/license based on best professional judgement (BPJ) and in consultation with the applicant. The spray application limits are established as a margin of safety against hydraulically overloading the spray fields and are based on the treatment capabilities of the in-situ soils. Regardless of the calculated rate, the system operator shall monitor each waste application to verify adequate infiltration of the waste into the soil and an irrigation cycle must be stopped if runoff occurs outside of the boundaries of the designated spray areas. Once per month, consistent with monitoring requirements for municipal spray irrigation licenses being issued by the Department, the permittee/licensee is required to report the total flow for the month.

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

B. (SPRAY IRRIGATION)

e. Monitoring Wells and Lagoon Under Drain Monitoring: Since installation of the spray irrigation facilities and monitoring sites, Thomaston has been monitoring 10 deep wells, 9 shallow wells and the lagoon monitoring drain. In concurrence with a Department geologist's review of the monitoring results and to be consistent with the monitoring

requirements of the recently developed spray irrigation license template, the following spray field monitoring wells and underdrain monitoring wells have been suspended. Monitoring of 4 deep ground water wells (002CD, 002ED, 002FD, 002HD) and 2 shallow ground water wells (002ES, 002IS) is being suspended until other information or monitoring data suggest that the monitoring should be resumed. The monitoring of the 5 lagoon monitoring wells 003BS, 003BD, 003CD, 003DS, and 003DD is being suspended until such time that the under drain monitoring results indicate a potential leak in the lagoon liner.

In the tables below, the "Plan #" is the monitoring well designation used by Thomaston whereas the "DMR #" refers to the number used on the DMRs to identify the monitoring wells. The DMR numbering system utilizes only four characters.

SPRAY FIELD MONITORING WELLS			
Plan #	DMR #	Monitor	Location
002BD	02BD	Yes	About 200 feet southwest of spray head 1-2-6
002BS	02BS	Yes	
002CD	02CD	suspended	About 150 feet west of spray head 1-6-4
002DD	02DD	Yes	About 150 feet west of spray head 3-2-6
002DS	02DS	Yes	
002ED	02ED	suspended	About 200 feet southwest of spray head 4-1-5
002ES	02ES	suspended	
002FD	02FD	suspended	About 150 feet west of spray head 4-3-8
002GD	02GD	Yes	About 250 feet west of spray head 5-2-5
002GS	02GS	Yes	
002HD	02HD	suspended	About 150 feet east of spray head 3-4-1
002HS	02HS	Yes	
002ID	02ID	Yes	About 150 feet east of spray head 5-4-1
002IS	02IS	suspended	

LAGOON UNDERDRAIN MONITORING			
Monitoring Point #	DMR #	Monitor	Location
003A	03A	Yes	North of the northwest corner of the storage lagoon

IREMENTS (conƀd).....

B. (SPRAY IRRIGATION)

LAGOON MONITORING WELLS			
Well #	DMR #	Monitor	Location
003BS	03BS	suspended	West of storage lagoon
003BD	03BD	suspended	
003CD	03CD	suspended	South of aerated lagoon #2
003DS	03DS	suspended	Northeast of aerated lagoon #1

003DD	03DD	suspended	

All lagoon monitoring wells and all ground water monitoring wells that do not have monitoring requirements in this permit/license shall be maintained in operable condition for possible future monitoring.

f. Ground water Monitoring: Monitoring parameters include depth to water level below land surface, nitrate-nitrogen, total chloride, specific conductance, temperature, pH, and total suspended solids (TSS). Ground water sampling shall be conducted in May and October of each calendar year. Testing for metals is required once during the licensing period, in the twelve-month period prior to expiration date of the license. The monitoring requirements and monitoring frequencies for ground water monitoring are consistent with Department guidance for municipal spray irrigation disposal systems.

g. Underdrain Monitoring: Underdrain monitoring is required for early detection of leaks within the treatment lagoon liners. Monitoring frequency has been established at a frequency of three times per year in July, August and September of each calendar year. The underdrain monitoring point has been designated UD#1 and will be monitored for flow, specific conductance and temperature. The monitoring requirements and monitoring frequencies for underdrain monitoring are consistent with Department guidance for municipal spray irrigation disposal systems.

6. SYSTEM CALIBRATION (SPRAY IRRIGATION)

Discharge rates, application rates, and uniformity of application, change over time as equipment gets older and components wear or if the system is operated differently from the assumed design. Operating below design pressure greatly reduces the coverage diameter and application uniformity (resulting in increased ponding). For these reasons, the licensee should field calibrate their equipment on a regular basis to ensure proper application and uniformity, and when operating conditions are changed from the assumed design. Calibration involves collecting and measuring flow at several locations in the application area (typically a grid pattern of containers with uniform diameters). Rain gauges work best because they already have a graduated scale from which to read the application amount without having to perform additional calculations.

7. DISCHARGE IMPACT ON RECEIVING WATER QUALITY

A. (DISCHARGE TO SURFACE WATERS)

As licensed, 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 St. George River to meet the standards for Class SB classification.

B. (SPRAY IRRIGATION)

As licensed, the Department has determined the existing ground water uses in the vicinity of the spray irrigation area will be maintained and protected and the discharge will not cause or contribute to the failure of the ground water to meet standards for Class GW-A classification.

8. PUBLIC COMMENTS

(GENERAL)

Public notice of this application was made in the Courier~Gazette newspaper on or about June 19, 2001. 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 licenses 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:

(GENERAL)

Additional information concerning this licensing action may be obtained from and written comments should be sent to:

Charles Brown
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) 287-7685

10. RESPONSE TO COMMENTS

(GENERAL)

During the period of February 14, 2003 through March17, 2003, the Department solicited comments on the proposed draft Maine Waste Discharge Permit/License to be issued to the Town of Thomaston for the proposed discharge. The Town of Thomaston did submit written comments to the Department in a letter dated February 24, 2003. The Department has prepared the following:

Comment #1: On page 6 of 26, the sample type for the BOD and TSS tests is a 24-hr. composite. Since Thomaston has a large lagoon with a minimum of 60 days holding after treatment and before discharge; a grab sample and a composite sample are the same thing. Can the 24-hr. composite be changed to grab?

Response #1: Consistent with Department policy regarding lagoon sampling for BOD and TSS for all municipalities with automatic composite samplers, the Department is requiring the Town of Thomaston to collect composite samples for BOD and TSS.

Comment #2: On page 7 of 26, the measurement frequency for the WET tests is shown as 1/year but on the next page it indicates that testing will be required only once in the year before license renewal. Should the 1/year be 1/5 years?

Response #2: The 1/year has been changed to 1/5 years to reflect the frequency for screening level monitoring.

Comment #3: On page 8 of 26, under section A it states that “all sampling except for total residual chlorine (TRC) is conducted at a sample port in the pump room”. We currently collect the fecal sample at the sample port at the river bank, not in the pump room. We would like approval to use either the pump room or the river bank port for the fecal sample.

Response #3: The fecal coliform sample shall be collected at the sample port at the river bank to more accurately characterize the level of coliform bacteria actually being discharged to the river.