MAINE WASTE DISCHARGE LICENSE

FACT SHEET

Date: **April 4, 2003**

PERMIT NUMBER: **ME0100803**
LICENSE NUMBER: **W002680-5L-E-R**

NAME AND ADDRESS OF APPLICANT:

Town of Millinocket
197 Penobscot Avenue
Millinocket, Maine 04462

COUNTY: **Penobscot County**

NAME AND ADDRESS WHERE DISCHARGE OCCURS:

Outer Medway Road
Millinocket, Maine 04462

RECEIVING WATER/CLASSIFICATION: **West Branch of the Penobscot River/Class C**

COGNIZANT OFFICIAL AND TELEPHONE NUMBER: **Mr. James Charette**
(207) 723-7040
jimchar1@prexar.com

1. APPLICATION SUMMARY

Application: The applicant has applied to the Department for renewal of Department Waste Discharge License (WDL) #W002680-46-D-R which was issued on April 30, 1997 and expired on April 30, 2002. The 4/30/97 WDL authorized the discharge of up to a monthly average flow of 2.33 million gallons per day (MGD) of secondary treated sanitary waste waters to the West Branch of the Penobscot River, Class C, in Millinocket, Maine.

2. LICENSE MODIFICATIONS REQUESTED

The licensee has requested monitoring frequency reductions for biochemical oxygen demand, total suspended solids and *E. coli* bacteria (3/week to 2/week), and total residual chlorine (1/day to 5/week).

3. LICENSE SUMMARY

a. Regulatory - On January 12, 2001, the Department received authorization from EPA to administer the National Pollutant Discharge Elimination System (NPDES) permitting program in Maine except in certain areas of the State. The Penobscot Indian Nation have raised objections to EPA authorizing the State to adminster the program on the main stem and the tributaries of the Penobscot River north of Indian Island in Old Town. The discharge from the Town of Millinocket to the West Branch of the Penobscot River falls within the disputed area, therefore, the State of Maine does not have authorization to issue a MEPDES program for the Town of Millinocket. As result, the State of Maine is issuing a WDL for the town's discharge pursuant to State law.

b. License Limitations and Monitoring Requirements: **This licensing action is similar to the 4/30/97 WDL action in that it is**;

1. Carrying forward the monthly average flow limit of 2.33 MGD.

2. Carrying forward the monthly average, weekly average and daily maximum 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 concentration limits for *E. coli* bacteria.

4. Carrying forward the daily maximum technology based concentration limit for total residual chlorine.

5. Carrying forward the screening level monitoring requirements for whole effluent toxicity (WET) testing and chemical specific testing

This licensing action is different than the 4/17/97 WDL action in that it is;

6. Establishing a requirement for achieving a minimum of 85% removal for BOD5 and TSS.

7. 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.

8. Eliminating surveillance level monitoring requirements for WET testing and chemical specific testing.

3. LICENSE SUMMARY (cont'd)

9. Establishing a seasonal 1/Week monitoring requirement for total phosphorus.

10. Reducing the monitoring frequency for BOD5, TSS, and E. coli bacteria from 3/Week to 2/Week.

11. Establishing a provision for the reduction of total residual chlorine from 1/Day to 5/Week provided the facility installs a mechanism to monitoring and track TRC levels on the the two days of the week no personnel are present at the waste water treatment facility.

12. Establishing a requirement to develop or update the Wet Weather Management Plan for the facility.

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

c. History – The most current relevant licensing/permitting or other actions include the following:

June 26, 1992 - The U.S. Environmental Protection Agency (EPA) issued National Pollutant Discharge Elimination System (NPDES) permit #ME0100803 for a five-year term.

February 21, 1997 - The Town of Millinocket submitted an application to the EPA for renewal of NPDES permit #ME0100803.

March 20, 1997 - The EPA informed the Town of Millinocket that their application for re-issuance of NPDES permit was deemed complete and accepted for processing. The EPA has not acted on the application as of the date of this licensing action.

April 30, 1997 - The Department issued WDL #W002680-46-D-R for a five-year term.

December 19, 2001 – The Town of Millinocket submitted a timely application to the Department to renew the WDL for the waste water treatment facility.

d. Source Description: The waste water treatment facility receives sanitary waste water flows from a population of approximately 5,200 residential and commercial users within the Town of Millinocket. The waste water treatment facility is currently licensed to accept up to 2,000 gpd of septage. The town has an up-to-date septage management for the facility as required by Department regulation Chapter 555, that has been reviewed and approved by the Department.

3. LICENSE SUMMARY (cont'd)

The town owns and maintains a sewer collection system that is approximately 36 miles in length and is 100% separated. The collection system has five (5) pump stations (one dedicated to a public school), all with emergency power provisions and audio/visual alarm systems.

e. Waste Water Treatment: The waste water treatment facility provides for a secondary level of treatment via three aerated facultative lagoons each with fine bubble diffused aeration (Pond #2 upgraded in 1999 and Pond #1 upgraded in 2001) that can be operated in series or parallel. The three lagoons have a total surface area of 13.1 acres, a total volume of 33.2 million gallons and provides for a detention time of up to 28 days. The effluent from the final lagoon is disinfected by sodium hypochlorite and discharged to the West Branch of the Penobscot River via a reinforced concrete pipe measuring 36 inches in diameter that outlets on the north bank of the river. See Attachment A of this Fact Sheet for a schematic of the waste water treatment facility.

4. CONDITIONS OF LICENSES

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.

5. RECEIVING WATER STANDARDS

Maine law, 38 M.R.S.A., Section 467(7)(C)(1)(f) indicates that the West Branch of the Penobscot River at the point of discharge is classified as a Class C waterway. Maine law, 38 M.R.S.A., Section 465(4) describes standards for classification of Class C waters.

6. RECEIVING WATER CONDITIONS

The *2002 Integrated Water Quality Monitoring and Assessment Report*, published by the Department lists a 4.3-mile Class C segment of the West Branch of the Penobscot River in a table entitled, *Category 2: Rivers And Streams Attaining Some Designated Uses, Insufficient Information For Other Uses*. In addition, a 0.5 mile Class C segment of the back waters of the Dolby impoundment is listed on a table entitled *Category 4-C: Rivers and Streams With Impairment Not Caused By A Pollutant*.

6. RECEIVING WATER CONDITIONS (cont'd)

In the summers of 1997 and 2001, the Department conducted ambient water quality sampling on a 103-mile segment of the Penobscot River from Millinocket to Bucksport. In reports entitled *Penobscot River Modeling Report, Final, June 2000*, and *Penobscot River Data Report May 2002*, prepared by the Department indicate there are sections of non-attatinment of dissolved oxygen standards in portions of the Class B sections of the river. The segment of the Penobscot River of concern regarding this licensing action is between the confluence of the Mattawamkeag River and the Penobscot River downstream to point one-mile above the West Enfield Dam. Dissolved oxygen standards are not being attained with the treatment plant flows and loadings at actual levels of performance rather than at full licensed/permitted flows and loadings. The Department is scheduled to perform a comprehensive evaluation of the data collected and calibrate an existing model of the river in calendar year 2003. If the evaluation and modeling runs determine that at full licensed discharge limits, the Town of Millinocket's discharge is causing or contributing to the non-attainment, this license will be re-opened per Special Condition M, *Reopening of License For Modifications*, to impose more stringent limitations to meet water quality standards.

7. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

a. Flow: The monthly average flow limitation of 2.33 MGD in the previous licensing action is being carried forward in this licensing action and is representative of the monthly average design flow for the waste water treatment facility.

b. Dilution Factors - The Department established applicable dilution factors for the discharge in accordance with freshwater protocols established in Department Rule Chapter 530.5, *Surface Water Toxics Control Program*, October 1994. With a WDL flow limit of 2.33 MGD, the dilution factors are as follows:

Modified Acute[(1)] = 500 cfs $\Rightarrow \frac{(500 \text{ cfs})(0.6464) + (2.33 \text{ MGD})}{(2.33 \text{ MGD})} = 140{:}1$

Acute: 1Q10 = 2,000 cfs $\Rightarrow \frac{(2{,}000 \text{ cfs})(0.6464) + (2.33 \text{ MGD})}{(2.33 \text{ MGD})} = 556{:}1$

Chronic: 7Q10 =2,219cfs $\Rightarrow \frac{(2{,}219 \text{ cfs})(0.6464) + (2.33 \text{ MGD})}{(2.33 \text{ MGD})} = 617{:}1$

Harmonic Mean: = 2,364 cfs $\Rightarrow \frac{(2{,}364 \text{ cfs})(0.6464) + (2.33 \text{ MGD})}{(2.33 \text{ MGD})} = 657{:}1$

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

Footnotes: (1) Chapter 530.5 (D)(4)(a) states that analyses using numeric acute criteria for aquatic life must be based on 1/4 of the 1Q10 stream design flow to prevent substantial acute toxicity within any mixing zone. The 1Q10 is the lowest one day flow over a ten-year recurrence interval. The regulation goes on to say that where it can be demonstrated that a discharge achieves rapid and complete mixing with the receiving water by way of an efficient diffuser or other effective method, analyses may use a greater
proportion of the stream design, up to including all of it. The Department has made the determination that the discharge does not receive rapid and complete mixing with the receiving water, therefore, the default stream flow of ¼ of the 1Q10 is applicable in acute statistical evaluations pursuant to Chapter 530.5.

c. Biochemical Oxygen Demand (BOD5) & Total Suspended Solids (TSS): - The previous licensing established monthly and weekly average BOD5 and TSS best practicable treatment (BPT) 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 BPT. All three concentration limits are being carried forward in this licensing action.

As for mass limitations, the previous licensing action established monthly average and weekly average limitations based on a monthly average limit of 2.33 MGD that are being carried forward in this licensing action. The limitations were calculated as follows:

Monthly average: (2.33 MGD)(8.34)(30 mg/L) = 583 lbs/day
Weekly average: (2.33 MGD)(8.34)(45 mg/L) = 874 lbs/day
Weekly average: (2.33 MGD)(8.34)(50 mg/L) = 972 lbs/day

This licensing action also establishes a new requirement of 85% removal for BOD5 and TSS pursuant to Department rule Chapter 525(3)(III)(a&b)(3). Compliance with the percent removal rate will be based on a twelve-month rolling average.

Monitoring frequencies for BOD and TSS have been reduced from 3/Week to 2/Week at the request of the licensee. A review of the Permit Compliance System (PCS) data for the facility indicates the facility has not violated any of the NPDES permit or state license limits for BOD and TSS since issuance of the previous permitting/ licensing actions. The Department has also reviewed the inspection reports for the previous five-year period and has taken the position the facility has been, and continues to be, operated and maintained as designed. As a result, the Department is granting the monitoring frequency reduction.

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

d. *E. coli* bacteria – The previous licensing action established seasonal monthly average and daily maximum limits of 142 colonies/100 ml and 949 colonies/100 ml, respectively, that are being carried forward in this licensing action. The limits are based on the State of Maine Water Classification Program as established in Maine law, 38 M.R.S.A, §465(3).

As with BOD and TSS the licensee has requested a reduction in the monitoring frequency from 3/Week to 2/Week. For the same reasons cited for BOD and TSS, the Department is granting the reduction.

e. 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:

Parameter	Acute Criteria	Chronic Criteria	Acute Dilution	Chronic Dilution	Acute Limit	Chronic Limit
Chlorine	19 ug/L	11 ug/L	140:1	617:1	2.7 mg/L	6.8 mg/L

Example calculation: Acute – 0.019 mg/L (140) = 2.7 mg/L

In the case of the Millinocket facility, the calculated acute water quality based threshold is higher than 1.0 mg/l, thus the BPT limit of 1.0 mg/L is imposed as a daily maximum limit.

The licensee has requested a reduction in the monitoring frequency for TRC from 1/Day to 5/Week. The Department is amenable to the request provided the licensee installs a mechanism by which TRC levels are monitored and tracked during the two days of the week no personnel are at the treatment facility. The licensee has agreed to install such a mechanism. Once the installation is complete, the licensee shall request the reduction in writing once again. If the Department deems the installation satisfactory, the Department will administratively modify the license via a letter pursuant to Special Condition M, *Reopening the License For Modifications*, of the license.

f. pH Range- The previous licensing action established a pH range limitation of 6.0 - 8.5 standard units. The limits were based on Maine Board of Environmental Protection Policy regarding the certification of NPDES permits and were considered best practicable treatment limitations. This licensing action is expanding the range limit from 6.0 – 8.5 to 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.

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

g. Total Phosphorus – This licensing action is establishing a 1/Week monitoring requirement for total phosphorus during the summer months (June – September). The information collected will assist the Department in its on-going modeling efforts to determine the assimilative capacity for total phosphorus on the main stem of the West Branch of the Penobscot River.

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 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) testing, as required by Chapter 530.5, is included in order to fully characterize the effluent. This license 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 and chronic WET tests are performed on invertebrate and vertebrate species. Chemical specific, or "priority pollutant (PP)," testing 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.

The Chapter 530.5 regulation places the Millinocket facility in the low frequency category for WET testing as the facility does not meet the criteria established for inclusion in the medium or high categories. As for chemical specific testing, the regulation places the Millinocket facility in the high frequency category as the facility has a licensed flow of greater than 1.0 MGD.

A recent review of Millinocket'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 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 license.

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

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 exceedence of applicable AWQC, then*:"(1) the Department must notify the licensee of the exceedence; (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 February 7, 2003, 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 results of the 2/7/03 WET evaluation indicates the discharge from the Millinocket facility does not exceed or have a reasonable potential to exceed the critical acute or chronic ambient water quality thresholds for any of the WET species tested in the 60-month evaluation period. In addition, the statistical evaluation indicates the discharge does not exceed or have a reasonable potential to exceed acute, chronic or human health ambient water quality criteria (AWQC) established in state law and Department regulations.
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 license.

The Department has made the determination that the Town of Millinocket qualifies for the chemical specific and WET testing reduction and therefore has made a best professional judgment to grant the Town of Millinocket 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 license. No

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

surveillance level (1/Year) of testing is required in the interim. In accordance with protocol F(9), the licensee 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 Special Condition L, *Chapter 530.5(B)(7)(c)(iii) Certification*, of this license.

8. DISCHARGE IMPACT ON RECEIVING WATER QUALITY

The effluent limitations in this license are equal to or more stringent than the limits in the previous license and/or effective NPDES permit with the exception of the pH range limitation. The Department has made a best professional judgment determination that as licensed, the discharge will not cause or contribute the failure of the receiving water to meet the standards of its ascribed classification and the designated uses of the river will continue to be maintained and protected. If future modeling runs determine that at full licensed discharge limits, the Town of Millinocket's discharge is causing or contributing to the non-attainment, this permit will be re-opened per Special Condition M, *Reopening of License For Modifications*, to impose more stringent limitations to meet water quality standards.

9. PUBLIC COMMENTS

Public notice of this application was made in The Katahdin Times newspaper on or about December 18, 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 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.

10. DEPARTMENT CONTACTS

Additional information concerning this licensing 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) 287-7685

11. RESPONSE TO COMMENTS

During the period of April 4, 2003 through May 5, 2003, the Department solicited comments on the proposed draft Waste Discharge License to be issued for the discharge cited in this license. The Department did not receive any comments and therefore no response to comments has been prepared.