STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI
GOVERNOR

DAWN R. GALLAGHER
COMMISSIONER

Raymond Robidoux, Superintendent
Ellsworth Pollution Control Facility
P.O. Box 586
Ellsworth, Maine 04605

June 11, 2004

RE: Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0100889
Maine Waste Discharge License Application #W002529-5L-C-R
Final Permit/License
Water Street Pollution Control Facility

Dear Mr. Robidoux:

Enclosed please find a copy of your **final** MEPDES permit and Maine WDL which was approved by the Department of Environmental Protection. Please read the permit/license and its attached conditions carefully. You must follow the conditions in the order to satisfy the requirements of law. Any discharge not receiving adequate treatment is in violation of State Law and is subject to enforcement action.

Any interested person aggrieved by a Department determination made pursuant to applicable regulations, may appeal the decision following the procedures described in the attached DEP FACT SHEET entitled "*Appealing a Commissioner's Licensing Decision.*"

We would like to make you aware of the fact that your monthly Discharge Monitoring Reports (DMR) may not reflect the revisions in this permitting action for several months. However, you are required to report applicable test results for parameters required by this permitting action that do not appear on the DMR. Please see the attached April 2003 O&M Newsletter article regarding this matter.

If you have any questions regarding the matter, please feel free to call me at 287-7693.

Sincerely,

Gregg Wood
Division of Water Resource Regulation
Bureau of Land and Water Quality

Enc.
cc: Clarissa Trasko, DEP/EMRO
Ted Lavery, USEPA

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
(207) 764-0477 FAX: (207) 764-1507

web site: www.state.me.us/dep

printed on recycled paper

DMR Lag

(reprinted from April 2003 O&M Newsletter)

When the Department renews discharge permits, the parameter limits may change or parameters may be added or deleted. In some cases, it is merely the replacement of the federally issued NPDES permit with a state-issued MEPDES permit that results in different limits. When the new permit is finalized, a copy of the permit is passed to our data entry staff for coding into EPA's Permits Compliance System (PCS) database. PCS was developed in the 1970's and is not user-friendly. Entering or changing parameters can take weeks or even months. This can create a lag between the time your new permit becomes effective and the new permit limits appearing on your DMRs. If you are faced with this, it can create three different situations that have to be dealt with in different ways.

1. If the parameter was included on previous DMRs, but only the limit was changed, there will be a space for the data. Please go ahead and enter it. When the changes are made to PCS, the program will have the data and compare it to the new limit.

2. When a parameter is eliminated from monitoring in your new permit, but there is a delay in changing the DMR, you will have a space on the DMR that needs to be filled. For a parameter that has been eliminated, please enter the space on the DMR for that parameter only with "NODI-9" (No Discharge Indicator Code #9). This code means monitoring is conditional or not required this monitoring period.

3. When your new permit includes parameters for which monitoring was not previously required, and coding has not caught up on the DMRs, there will not be any space on the DMR identified for those parameters. In that case, please fill out an extra sheet of paper with the facility name and permit number, along with all of the information normally required for each parameter (parameter code, data, frequency of analysis, sample type, and number of exceedances). Each data point should be identified as monthly average, weekly average, daily max, etc. and the units of measurement such as mg/L or lb/day. Staple the extra sheet to the DMR so that the extra data stays with the DMR form. Our data entry staff cannot enter the data for the new parameters until the PCS coding catches up. When the PCS coding does catch up, our data entry staff will have the data right at hand to do the entry without having to take the extra time to seek it from your inspector or from you.

   EPA is planning significant improvements for the PCS system that will be implemented in the next few years. These improvements should allow us to issue modified permits and DMRs concurrently. Until then we appreciate your assistance and patience in this effort.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE HOUSE STATION 17 AUGUSTA, MAINE 04333

DEPARTMENT ORDER

IN THE MATTER OF

CITY OF ELLSWORTH	)	MAINE POLLUTANT DISCHARGE
ELLSWORTH, HANCOCK COUNTY, ME.	)	ELIMINATION SYSTEM PERMIT
PUBLICLY OWNED TREATMENT WORKS	)	AND
ME0100889	)	WASTE DISCHARGE LICENSE
W002529-5L-C-R **APPROVAL**	)	**RENEWAL**

Pursuant to the provisions of the Federal Water Pollution Control Act, Title 33 USC, Section 1251, et. seq., and Maine Law 38 M.R.S.A., Section 414-A et. seq., and all applicable regulations, the Department of Environmental Protection (Department hereinafter) has considered the application of the CITY OF ELLSWORTH (City hereinafter), with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

APPLICATION SUMMARY

The City has filed an application with the Department for a renewal of Waste Discharge License #W002529-5L-B-R that was issued by the Department on July 7, 1999 and is due to expire on June 7, 2004. The WDL authorized the discharge of up to a monthly average flow of 0.85 MGD of secondary treated waste waters to the Union River, Class SB, in Ellsworth, Maine.

On January 12, 2001, the State of Maine received authorization from the U.S. Environmental Protection Agency (EPA) to administer the National Pollutant Discharge Elimination System (NPDES) permitting program in Maine. As a result, the Department is hereby issuing a combination Maine Pollutant Discharge Elimination System (MEPDES) permit #ME0100889/Maine Waste Discharge License (WDL) #W002529-5L-C-R for the discharge from the City's Water Street waste water treatment facility. The NPDES permit last issued by the EPA on August 22, 1997 will be replaced by the MEPDES permit/WDL upon issuance. Once replaced all terms and conditions of the NPDES permit are null and void.

PERMIT SUMMARY

This permitting action is **similar** to the 7/7/99 WDL in that it is carrying forward:

1. The monthly average flow limitation of 0.85 MGD.

2. The monthly average, weekly average and daily maximum technology based concentration limits for biochemical oxygen demand (BOD_5) and total suspended solids (TSS). This permit is also carrying forward the monthly average, weekly average and daily maximum mass limits for BOD and TSS but establishing them as only being applicable during the summer months (June 1 – September 30) of each year.

PERMIT SUMMARY (cont'd)

3. The daily maximum technology based concentration limit for settleable solids.

4. The monthly average and daily maximum water quality based concentration limits for fecal coliform bacteria.

5. The surveillance and screening level whole effluent toxicity (WET) and chemical specific (priority pollutant) testing.

6. A daily maximum water quality based mass and concentration limits for total cyanide.

This permitting action is **different** than the 7/7/99 WDL action in that it is;

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. Establishing less stringent monthly average and weekly average technology based mass limits for BOD and TSS for the non-summer season (October 1 – May 31) of each year.

9. Establishing a technology based minimum requirement of 85% removal for BOD5 and TSS.

10. Modifying the disinfection season from May 10th – September 30th of each year to May 15th – September 30th of each year.

11. Modifying the monitoring frequency for settleable solids and pH from 1/Day to 5/Week.

12. Establishing a water quality based daily maximum concentration limit for total residual chlorine (TRC) and a technology based monthly average limit for TRC.

13. Establishing a seasonal (June – September) monitoring requirement for total nitrogen.

14. Establishing a daily maximum mass and concentration limits for total copper.

15. Increasing the acute, chronic and harmonic mean dilution factors associated with the discharge.

16. Eliminating the chronic no observed effect level (C-NOEL) limit for the sea urchin.

17. Requiring the permittee to develop and periodically update and maintain a Wet Weather Flow Management Plan and Operation and Maintenance (O&M) Plan.

CONCLUSIONS

BASED on the findings in the attached proposed draft Fact Sheet dated April 28, 2004 (revised May 26, 2004) and subject to the Conditions listed below, the Department makes the following CONCLUSIONS:

1. The discharge, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below such classification.

2. The discharge, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification which the Department expects to adopt in accordance with state law.

3. The provisions of the State's antidegradation policy, 38 M.R.S.A., Section 464(4)(F), will be met, in that:

   (a) Existing in-stream water uses and the level of water quality necessary to protect and maintain those existing uses will be maintained and protected;

   (b) Where high quality waters of the State constitute an outstanding national resource, that water quality will be maintained and protected;

   (c) The standards of classification of the receiving water body are met or, where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;

   (d) Where the actual quality of any classified receiving water body exceeds the minimum standards of the next highest classification, that higher water quality will be maintained and protected; and

   (e) Where a discharge will result in lowering the existing quality of any water body, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.

4. The discharge will be subject to effluent limitations that require application of best practicable treatment.

ACTION

THEREFORE, the Department APPROVES the above noted application of the CITY OF ELLSWORTH to discharge up to a monthly average flow of 0.85 MGD of secondary treated waste waters to the Union River, Class SB, in Ellsworth, Maine. The waste waters discharged from the facility will be SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations including:

1. "Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits," revised July 1, 2002, copy attached.

2. The attached Special Conditions, including effluent limitations and monitoring requirements.

3. The term of this permit is five (5) years from the date of signature.

DONE AND DATED AT AUGUSTA, MAINE, THIS 28TH DAY OF MAY, 2004.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____ for
Dawn Gallagher, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application April 22, 2004.

Date of application acceptance April 22, 2004.

FILED
JUN - 1 2004
BOARD OF ENVIRONMENTAL PROT.
STATE OF MAINE

Date filed with Board of Environmental Protection _____

This order prepared by GREGG WOOD, BUREAU OF LAND AND WATER QUALITY

SPECIAL CONDITIONS
A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning the effective date of the permit and lasting through permit expiration, the permittee is authorized to discharge secondary treated sanitary waste waters from **OUTFALL #001** to the Union River. Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations						Minimum Monitoring Requirements	
	Monthly Average lb/day	Weekly Average lb/day	Daily Maximum lb/day	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Flow [50050]	---	---	---	0.85 MGD [03]	---	Report MGD[03]	Continuous [99/99]	Recorder [RC]
Biochemical Oxygen Demand (BOD) [00310] *(June 1 – September 30)* *(October 1 – May 31)*	163 #/day 213 #/day [26]	244 #/day 319 #/day [26]	354 #/day 354 #/day [26]	30 mg/L 30 mg/L [19]	45 mg/L 45 mg/L [19]	50 mg/L 50 mg/L [19]	2/Week 2/Week [02/07]	Composite Composite [24]
BOD % Removal(1) [81010]	---	---	---	≥85%	---	---	1/Month [01/30]	Calculate [CA]
Total Suspended Solids (TSS) [00530] *(June 1 – September 30)* *(October 1 – May 31)*	163 #/day 213 #/day [26]	244 #/day 319 #/day [26]	354 #/day 354 #/day [26]	30 mg/L 30 mg/L [19]	45 mg/L 45 mg/L [19]	50 mg/L 50 mg/L [19]	2/Week 2/Week [02/07]	Composite Composite [24]
TSS % Removal(1) [81011]	---	---	---	≥85%	---	---	1/Month [01/30]	Calculate [CA]
Settleable Solids [00545]	---	---	---	---	---	0.3 ml/L [25]	5/Week [05/07]	Grab [GR]
Fecal Coliform Bacteria(2) [31616]	---	---	---	15/100 ml(3) [13]	---	50/100 ml [13]	2/Week [02/07]	Grab [GR]
Total Nitrogen [0060] *(June 1- September 30)*	---	---	Report #/day	---	---	Report mg/L[19]	1/Month [01/30]	Grab [GR]
Total Residual Chlorine(4) [50060]	---	---	---	0.1 mg/L [19]	---	0.18 mg/L [19]	1/Day [01/01]	Grab [GR]
pH (Std. Unit) [00400]	---	---	---	---	---	6.0 – 9.0 SU [12]	5/Week [05/07]	Grab [GR]

SPECIAL CONDITIONS

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

Effluent Characteristic	Discharge Limitations						Minimum Monitoring Requirements	
	Monthly Average lb/day	Weekly Average lb/day	Daily Maximum lb/day	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Copper (Total) [01042]	---	---	0.29 #/day [26]	---	---	62 ug/L [28]	1/Year [01/YR]	Composite [24]
Cyanide (Total) [00720]	---	---	0.099 #/day [26]	---	---	21 ug/L [28]	1/Year [01/YR]	Composite [24]

SURVEILLANCE LEVEL - **Beginning upon issuance of the permit and lasting through twelve months prior to permit expiration.**

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Whole Effluent Toxicity(5)						
Acute – NOEL						
Mysidopsis bahia [TDM3E] *(Mysid Shrimp)*	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
Menidia beryllina [TDM6B] *(Inland Silverside)*	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
Chronic – NOEL *Menidia beryllina* [TBP6B] *(Inland Silverside)*	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
Arbacia punctulata [TBH3A] *(Sea urchin)*	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
Chemical Specific(6) [50008]	---	---	---	Report ug/L [28]	1/Year [01/YR]	Composite/Grab [24]

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS – OUTFALL #001 (cont'd)

SCREENING LEVEL **- Beginning twelve months prior to permit expiration.**

Effluent Characteristic	Discharge Limitations				Monitoring Requirements	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Whole Effluent Toxicity(5)						
Acute – NOEL						
Mysidopsis bahia [TDM3E] *(Mysid Shrimp)*	---	---	---	Report % [23]	2/Year [02/YR]	Composite [24]
Menidia beryllina [TDM6B] *(Inland Silverside)*	---	---	---	Report % [23]	2/Year [02/YR]	Composite [24]
Chronic – NOEL						
Menidia beryllina [TBP6B] *(Inland Silverside)*	---	---	---	Report % [23]	2/Year [02/YR]	Composite [24]
Arbacia punctulata [TBH3A] *(Sea urchin)*	---	---	---	Report % [23]	2/Year [02/YR]	Composite [24]
Chemical Specific (6) [50008]	---	---	---	Report ug/L [28]	1/Year [01/YR]	Composite/Grab [24]

SPECIAL CONDITIONS

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

Footnotes:

Sampling – Composite and grab sampling of the treatment plant effluent for compliance with this permit shall be conducted after the last treatment process, (including the chlorine contact chamber and dechlorination) on a year-round basis. Any change in sampling location must be approved by the Department in writing. Sampling and analysis must be conducted in accordance with; a) methods approved by 40 Code of Federal Regulations (CFR) Part 136, b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136, or c) as otherwise specified by the Department. Samples that are sent out for analysis shall be analyzed by a laboratory certified by the State of Maine's Department of Human Services.

1. **Percent Removal** - The treatment facility shall maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand for all flows receiving secondary treatment. The percent removal shall be calculated based on influent and effluent concentration values. The percent removal shall be waived when the monthly average influent concentration is less than 200 mg/L. For instances when this occurs, the facility shall report "NODI-9" on the monthly Discharge Monitoring Report.

2. **Fecal coliform bacteria** – Limitations and monitoring requirements are seasonal and apply between May 15th and September 30th of each year. The Department reserves the right to require disinfection on a year-round basis to protect the health and welfare of the public.

3. **Fecal coliform bacteria -** This is a geometric mean limitation and results shall be reported as such.

4. **Total Residual Chlorine (TRC)** - Shall be tested using Amperometric Titration or the DPD Spectrophotometric Method. The EPA approved methods are found in Standard Methods for the Examination of Water and WasteWater, (Most current edition), Method 4500-CL-E and Method 4500-CL-G or U.S.E.P.A. Manual of Methods of Analysis of Water and Wastes.

SPECIAL CONDITIONS

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

Footnotes:

5. **Whole effluent toxicity (WET) testing** - Definitive WET testing is a multi-concentration testing event (a minimum of five dilutions bracketing the critical acute and chronic dilutions of 7.1% and 2.7% respectively), 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.

   Beginning upon issuance of the permit and lasting through twelve months prior to the expiration date of the permit, the permittee shall conduct surveillance level WET testing at a frequency of 1/Year. The permittee shall conduct a WET test in a different calendar quarter each year such that a test is conducted in each of the four calendar quarters during the first four years of the term of the permit. Acute tests shall be conducted on the mysid shrimp (*Mysidopsis bahia*) and the inland silverside (*Menidia beryllina*). Chronic tests shall be conducted on the inland silverside (*Menidia berrylina*) and on the sea urchin (*Arbacia punctulata*). Results shall be reported to the Department within 30 days of the permittee receiving the test results from the laboratory conducting the testing.

   Beginning twelve months prior to the expiration date of the permit, the permittee shall conduct screening level WET testing at a frequency of 2/Year (two different calendar quarters). Acute tests shall be conducted on the mysid shrimp (*Mysidopsis bahia*) and the inland silverside (*Menidia berrylina*). Chronic tests shall be conducted on the inland silverside (*Menidia berrylina*) and on the sea urchin (*Arbacia punctulata*). Results shall be reported to the Department within 30 days of the permittee receiving the test results from the laboratory conducting the testing.

   The permittee is also required to analyze the effluent for the parameters specified in the analytic chemistry on the form in Attachment A of this permit every time a WET test is performed.

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

   b. Methods for Measuring the Acute Toxicity of Effluent and Receiving Waters to Freshwater and Marine Organisms, Third Edition, October 2002, EPA-821-R-02-012.

SPECIAL CONDITIONS

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

Footnotes:

6. **Chemical specific** testing pursuant to Department rule Chapter 530.5 are those parameters listed by the USEPA pursuant to Section 307(a) of the Clean Water Act and published a 40 CFR Part 122, Appendix D, Tables II and III.

   Beginning upon issuance of the permit and lasting through the expiration date of the permit surveillance and screening level chemical specific testing shall be conducted at a frequency of once per year. Chemical specific testing shall be conducted on samples collected at the same time as those collected for whole effluent toxicity tests where applicable, such that a chemical specific test is conducted in a different calendar quarter each year such that a test is conducted in each of the four calendar quarters during the term of the permit.

   Chemical specific testing shall be conducted using methods that permit detection of a pollutant at existing levels in the effluent or that achieve minimum reporting levels of detection as specified by the Department. Results shall be submitted to the Department within thirty (30) days of the permittee receiving the data report from the laboratory conducting the testing. Results shall be reported to the Department within 30 days of receiving the results from the contract laboratory. **For the purposes of Discharge Monitoring Report (DMR) reporting, enter a "1" for yes, testing done this monitoring period or "NODI-9," monitoring not required this period.**

   All mercury sampling shall be conducted in accordance with EPA's "clean sampling techniques" found in EPA Method 1669, Sampling Ambient Water For Trace Metals At EPA Water Quality Criteria Levels. All mercury analysis shall be conducted in accordance with EPA Method 1631, Determination of Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Fluorescence Spectrometry.

SPECIAL CONDITIONS

B. NARRATIVE EFFLUENT LIMITATIONS

1. The effluent shall not contain a visible oil sheen, foam or floating solids at any time which would impair the usages designated by the classification of the receiving waters.

2. The effluent shall not contain materials in concentrations or combinations which are hazardous or toxic to aquatic life, or which would impair the usages designated by the classification of the receiving waters.

3. The discharges shall not cause visible discoloration or turbidity in the receiving waters which would impair the usages designated by the classification of the receiving waters.

4. Notwithstanding specific conditions of this permit the effluent must not lower the quality of any classified body of water below such classification, or lower the existing quality of any body of water if the existing quality is higher than the classification.

C. DISINFECTION

If chlorination is used as a means of disinfection, an approved chlorine contact tank providing the proper detention time consistent with good engineering practice must be utilized, followed by a dechlorination system if the Total Residual Chlorine (TRC) cannot be met by dissipation in the detention tank. The total residual chlorine in the effluent shall at no time cause any demonstrable harm to aquatic life in the receiving waters. The dose of chlorine applied shall be sufficient to leave a TRC concentration that will effectively reduce bacteria to levels below those specified in Special Condition A, *"Effluent Limitations and Monitoring Requirements"*, above.

D. TREATMENT PLANT OPERATOR

The treatment facility must be operated by a person holding a minimum of a **Grade III**, certificate pursuant to Title 32 M.R.S.A., Section 4171 et seq. All proposed contracts for facility operation by any person must be approved by the Department before the permittee may engage the services of the contract operator.

E. LIMITATIONS FOR INDUSTRIAL USERS

Pollutants introduced into the waste water collection and treatment system by a non-domestic source (user) shall not pass through or interfere with the operation of the treatment system.

SPECIAL CONDITIONS

F. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from Outfall 001. Discharges of waste water from any other point source are not authorized under this permit, but shall be reported in accordance with Standard Condition B(5) (*Bypass*) of this permit.

G. MONITORING AND REPORTING

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report (DMR) forms provided by the Department and **postmarked on or before the thirteenth (13th) day of the month or hand-delivered to a Department Regional Office such that the DMR's are received by the Department on or before the fifteenth (15th) day of the month** following the completed reporting period. A signed copy of the DMR and all other reports required herein shall be submitted to the following address:

Department of Environmental Protection
Eastern Maine Regional Office
Bureau of Land and Water Quality
Division of Compliance, Engineering & Technical Assistance
106 Hogan Road
Bangor, Maine 04110

H. NOTIFICATION REQUIREMENT

In accordance with Standard Condition D, the permittee shall notify the Department of the following.

1. Any introduction of pollutants into the waste water collection and treatment system from an indirect discharger in a primary industrial category discharging process waste water; and

2. Any substantial change in the volume or character of pollutants being introduced into the waste water collection and treatment system by a source introducing pollutants into the system at the time of permit issuance. For the purposes of this section, notice regarding substantial change shall include information on:

   (a) the quality and quantity of waste water introduced to the waste water collection and treatment system; and

   (b) any anticipated impact caused by the change in the quantity or quality of the waste water to be discharged from the treatment system.

SPECIAL CONDITIONS

I. DISPOSAL OF SEPTAGE WASTE IN WASTE WATER TREATMENT FACILITY

During the effective period of this permit, the permittee is not authorized to receive or introduce septage into the waste water treatment facility or solids handling system without written authorization from the Department.

J. WET WEATHER FLOW MANAGEMENT PLAN

The treatment facility staff shall have a current written Wet Weather Management Plan to direct the staff on how to operate the facility effectively during periods of high flow. The Department acknowledges that the existing collection system may deliver flows in excess of the monthly average design capacity of the treatment plant during periods of high infiltration and rainfall.

On or before September 1, 2004, ***(PCS Event 06799),*** the permittee shall submit a written comprehensive Wet Weather Flow Management Plan to the Department for review and approval. The plan shall include operating procedures for a range of intensities, address solids handling procedures (including septic waste and other high strength wastes if applicable) and provide written operating and maintenance procedures during the events. The permittee shall review their plan annually and record any necessary changes to keep the plan up to date.

K. OPERATION & MAINTENANCE (O&M) PLAN

On or before December 31, 2004, ***(PCS Event 24599),*** the permittee shall submit a written comprehensive Operation & Maintenance (O&M) Plan to the Department for review and approval. The plan shall provide a systematic approach by which the permittee shall at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit.

By December 31 of each year, or within 90 days of any process changes or minor equipment upgrades, the permittee shall evaluate and modify the O&M Plan including site plan(s) and schematic(s) for the waste water treatment facility to ensure that it is up-to-date. The O&M Plan shall be kept on-site at all times and made available to Department and EPA personnel upon request.

Within 90 days of completion of new and or substantial upgrades of the waste water treatment facility, the permittee shall submit the updated O&M Plan to their Department inspector for review and comment.

SPECIAL CONDITIONS

L. REOPENING OF PERMIT FOR MODIFICATIONS

Upon evaluation of the tests results or monitoring requirements specified in Special Conditions of this permitting action, new site specific information, or any other pertinent test results or information obtained during the term of this permit, the Department may, at anytime and with notice to the permittee, modify this permit to; 1) include effluent limits necessary to control specific pollutants or whole effluent toxicity where there is a reasonable potential that the effluent may cause water quality criteria to be exceeded, (2) require additional effluent and or ambient water quality monitoring if results on file are inconclusive; or (3) change monitoring requirements or limitations based on new information.

ATTACHMENT A

MARINE WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

Facility _____ DEP License No _____ NPDES permit No _____

Contact person _____ Telephone No _____

Date initially sampled _____ (mm/dd/yy) Date tested _____ (mm/dd/yy) Chlorinated? _____

Test type screening _____ surveillance _____ Dechlorinated? _____

Test required by: DEP/EPA _____

Results % effluent

	Mysid shrimp	sea urchin	silverside
LC50			
A-NOEL			
C-NOEL			

Receiving Water Concentration

A-NOEL	
C-NOEL	

Data summary

	Mysid shrimp	sea urchin	silver side		
	% survival	% fertilized	% survival		final wt (mg)
QC standard	A>90	>70	A>90	C>80	>0.50
lab control					
receiving water contrl					
conc. 1 (%)					
conc. 2 (%)					
conc. 3 (%)					
conc. 4 (%)					
conc. 5 (%)					
conc. 6 (%)					
stat test used					

place * next to values statistically different from controls

Reference toxicant

	Mysid shrimp	sea urchin	silver side	
	LC50/A-NOEL	C-NOEL	LC50/A-NOEL	C-NOEL
toxicant /date				
limits (mg/l)				
results (mg/l)				

Salinity Adjustment

brine	
sea salt	
other	

Comments _____

Laboratory Conducting Tests. To the best of my knowledge this information is true, accurate, and complete

signature _____ company _____

printed name _____ address _____

tel. no. _____

Report analytical chemistry on reverse side.

ANALYTICAL CHEMISTRY RESULTS
MARINE WATERS

Date collected _____ mm/dd/yy

Date analyzed _____ mm/dd/yy

Lab ID No. _____

Analyte	Report Units	Results receiving water	Results effluent	Detection level	Method
Ammonia nitrogen	µg/L			µg/L	
Salinity	ppt			ppt	
Total residual oxidants	mg/L			mg/L	
Total organic carbon	mg/L			mg/L	
Total solids	mg/L			mg/L	
Total suspended solids	mg/L			mg/L	
Total aluminum	µg/L			µg/L	
Total cadmium	µg/L			µg/L	
Total chromium	µg/L			µg/L	
Total copper	µg/L			µg/L	
Total lead	µg/L			µg/L	
Total nickel	µg/L			µg/L	
Total zinc	µg/L			µg/L	
other (pH)	S.U.			S.U.	
other ( )					

Comments

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Laboratory conducting test. To the best of my knowledge this information is true, accurate, and complete

signature _____ lab name _____

printed name _____ address _____

tel. no. _____

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

AND

MAINE WASTE DISCHARGE LICENSE

FACT SHEET

Date: **April 28, 2004**
Revised: **May 26, 2004**

PERMIT NUMBER: **ME0100889**
LICENSE NUMBER: **W002529-5L-C-R**

NAME AND ADDRESS OF APPLICANT:

City of Ellsworth
P.O. Box 586, 33 Water Street
Ellsworth, Maine 04605

COUNTY: **Hancock**

NAME AND ADDRESS WHERE DISCHARGE OCCURS:

33 Water Street
Ellsworth, Maine

RECEIVING WATER AND CLASSIFICATION: **Union River, Class SB**

COGNIZANT OFFICIAL AND TELEPHONE NUMBER: **Mr. Raymond Robidoux, Superintendent (207) 667-7315**

1. APPLICATION SUMMARY

Application: The City has filed an application with the Department for a renewal of Waste Discharge License #W002529-5L-B-R that was issued by the Department on July 7, 1999 and is due to expire on July 7, 2004. The WDL authorized the discharge of up to a monthly average flow of 0.85 MGD of secondary treated waste waters to the Union River, Class SB, in Ellsworth, Maine.

2. PERMIT SUMMARY

a. Regulatory - On January 12, 2001, the Department received authorization from U.S. Environmental Protection Agency (EPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine. From this point forward, the program will be referred as the Maine Pollutant Discharge Elimination System (MEPDES) permit program and permit #ME0100889 (same as the NPDES permit number) will be utilized as the primary reference number for the MEPDES permit. The NPDES permit last issued by the EPA on August 22, 1997 will be superseded by the MEPDES permit upon issuance. Once superseded, all terms and conditions of the NPDES permit are null and void.

b. Summary of Terms and Conditions: This permitting action is **similar** to the 7/7/99 WDL in that it is carrying forward:

1. The monthly average flow limitation of 0.85 MGD.

2. The monthly average, weekly average and daily maximum technology based concentration limits for biochemical oxygen demand (BOD_5) and total suspended solids (TSS). This permit is also carrying forward the monthly average, weekly average and daily maximum mass limits for BOD and TSS but establishing them as only being applicable during the summer months (June 1 – September 30) of each year.

3. The daily maximum technology based concentration limit for settleable solids.

4. The monthly average and daily maximum water quality based concentration limits for fecal coliform bacteria.

5. The surveillance and screening level whole effluent toxicity (WET) and chemical specific (priority pollutant) testing.

6. A daily maximum water quality based mass and concentration limits for total cyanide.

This permitting action is **different** than the 7/7/99 WDL action in that it is;

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. Establishing less stringent monthly average and weekly average technology based mass limits for BOD and TSS for the non-summer season (October 1 – May 31) of each year.

9. Establishing a technology based minimum requirement of 85% removal for BOD5 and TSS.

2. PERMIT SUMMARY (cont'd)

10. Modifying the disinfection season from May 10th – September 30th of each year to May 15th – September 30th of each year.

11. Modifying the monitoring frequency for settleable solids and pH from 1/Day to 5/Week.

12. Establishing a water quality based daily maximum concentration limit for total residual chlorine (TRC) and a technology based monthly average limit for TRC.

13. Establishing a seasonal (June – September) monitoring requirement for total nitrogen.

14. Establishing a daily maximum mass and concentration limits for total copper.

15. Increasing the acute, chronic and harmonic mean dilution factors associated with the discharge.

16. Eliminating the chronic no observed effect level (C-NOEL) limit for the sea urchin.

17. Requiring the permittee to develop and periodically update and maintain a Wet Weather Flow Management Plan and Operation and Maintenance (O&M) Plan.

c. History: The most current and relevant regulatory actions include the following:

July 11, 1990 - The Department issued WDL #W002529-46-B-R for the discharge of up to 0.65 MGD of treated municipal waste from the waste water treatment facility to the Union River, Class SB, in Ellsworth. The term of the WDL was five years.

August 22, 1997 - The U.S. EPA issued NPDES permit #ME0100889 for a five-year term.

November 3, 1997 - The Department administratively modified WDL #W002529-46-B-R by increasing the daily maximum fecal coliform bacteria limitation from 15 colonies/100 ml to 50 colonies/100 ml. The limits are based on the Water Classification Program criteria for the receiving waters (including standards in the National Shellfish Sanitation Program) and requires application of the best practicable treatment technology.

July 7, 1999 – The Department issued WDL W002529-5L-B-R for the discharge of 0.85 MGD of treated municipal waste from the waste water treatment facility to the Union River, Class SB, in Ellsworth. The term of the WDL was five years.

2. PERMIT SUMMARY (cont'd)

August 21, 2000 – The Department administratively modified the 7/7/99 WDL by establishing interim average and maximum limits for the discharge of mercury.

April 22, 2004 – The City submitted a timely application to the Department to renew the WDL for the discharge from the waste water treatment facility.

d. Source Description: The waste water treatment facility receives sanitary waste waters from a population of approximately 1,300 residential and commercial users within the City of Ellsworth. The collection system is a separated system approximately 14 miles in length with four (4) pump stations. All four of the pump stations have on-site back-up power. The collection system also has a siphon that conveys a portion of the waste waters under the Union River to the Water Street pump station. There are no significant industrial sources contributing waste waters to the treatment facility. There are no combined sewer overflows in the collection system and the facility is not authorized to receive septage from local septage haulers. See Attachment A of this Fact Sheet for a location map.

e. Waste Water Treatment – Waste water from the sewer system enters the influent chamber where two lift screw pumps convey flow to the bar rack. After the bar rack, flow enters a grit chamber for grit removal. There are two rotating screens that are currently not used but remain as backup for a grinder. From the grinder flow passes to two rectangular clarifiers. Flow is measured by a parshall flume prior to entering a wet well where waste water flow are pumped to five rotating biocontactors (RBC) for biological treatment. After the RBCs, the flow is conveyed to a circular secondary clarifier measuring 40 feet in diameter. The secondary treated waste waters are then disinfected with sodium hypochlorite in a chlorine contact chamber followed by dechlorination with sodium bisulfite. A sonic meter is used for flow pacing of the chlorination/dechlorination chemicals. After dechlorination, flow is discharged to the Union River via a ductile iron pipe measuring 12 inches in diameter that extends 65 feet out into the receiving water with 13 feet of water over the crown of the pipe at high tide and 3 feet over the crown of the pipe at mean low tide. The influent sampler is located after the screw pumps and the effluent sampler is located after the chlorine contact chamber, the last treatment process in the system.

It is noted that in December of calendar year 2001, it was discovered that a manhole just prior to the waste water entering the waste water treatment facility has an emergency overflow opening. As a result, during wet weather events and or times of the year when ground water levels are high, the collection system can not convey all the raw sanitary waste water and inflow/infiltration (I/I) waters into the treatment facility and the excess is discharge untreated through the emergency overflow. The Department has requested the City of Ellsworth to investigate the causes and extent of the problem in an effort to develop a cost effective action plan to eliminate the overflows. These actions are being required through separate correspondence between the Department and the City.

2. PERMIT SUMMARY (cont'd)

Solids from this facility are conveyed to an anaerobic digestion system. Anaerobic sludge is dewatered using a one-meter Komline Sanderson filter press. Polymer is added for thickening. Approximately, 350 cubic yards of dewatered sludge is composted annually at Soil Preparations in Plymouth. The City maintains a reed bed system as an alternative to sludge composting. During the warmer months, approximately, 5,000 gallons per month of liquid sludge is conveyed to the reed bed system.

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, 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 QUALITY STANDARDS:

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

5. RECEIVING WATER QUALITY CONDITIONS:

Table Category 3 entitled, *Estuarine and Marine Water With Insufficient Data or Information to Determine Attainment*, in a document entitled, State of Maine Department of Environmental Protection, 2002 Integrated Water Quality Monitoring and Assessment Report, published by the Department lists the Union River Bay, Patten Bay & the Union River in Ellsworth, Surry and Trenton area (DMR area #40) Class SB, with insufficient data to determine attainment. Attainment in this context is in regard to the designated use of harvesting of shellfish. Currently, DMR shellfish harvesting area #40 is closed to the harvesting of shellfish due to insufficient (limited) ambient water quality data to meet the standards in the National Shellfish Sanitation Program. Therefore, areas #40 remains closed. Compliance with the fecal coliform bacteria limits in this permitting action ensures that the Ellsworth waste water treatment facility will not cause or contribute to the shellfish harvesting closure.

6. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

a. Flow: The previous licensing action established a monthly average flow limitation of 0.85 MGD that is being carried forward in this permitting action as it remains representative of the monthly average design capacity of the facility. It is noted the flow limitation established in licensing actions in the early 1990's was 0.65 MGD. The 7/7/99 licensing action increased the flow limitation to 0.85 MGD based on the fact the City installed the secondary clarifier in 1995 which in turn increased the hydraulic capacity of the waste water treatment facility.

b. Dilution Factors - Department Regulation Chapter 530.5, *Surface Water Toxics Control Program*, §D(3)(b)(ii) states that for discharges to estuaries, dilution must be calculated using a method determined by the Department to be appropriate for the site conditions. Where freshwater river flow is dominant and instantaneous mixing across the width can be assumed, dilution must be calculated as in subsection D(3)(a). Where tidal flow is dominant or incomplete mixing is assumed, dilution must be calculated as in subsection D(3)(b)(i). Where appropriate, other methods such as dye studies or water quality methods may be used.

Chapter 530.5 §D(3)(b)(i) 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 0.85 MGD, the discharge from the Ellsworth waste water treatment facility will be diluted by the following factors:

Acute = 14.0:1 Chronic = 37.0:1 Harmonic mean [1] = 111:1

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.

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 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 and is consistent with all permitting actions for publicly owned treatment works (POTWs). All three concentration limits are being carried forward in this permitting action.

As for mass limitations, the previous licensing action established daily maximum mass limitations that are being carried forward in this permitting action and are based on a monthly average flow of 0.85 MGD. The mass limits were derived as follows:

Daily maximum: (0.85 MGD)(8.34)(50 mg/L) = 354 lbs/day

For monthly average and weekly average mass limitations, the previous licensing action established limitations based on the applicable BPT concentration limits and a flow of 0.65 MGD, which was the flow limitation for the facility prior to the addition of the secondary clarifier in 1995. The mass limits were derived as follows:

Monthly average: (0.65 MGD)(8.34)(30 mg/L) = 163 lbs/day
Weekly average: (0.65 MGD)(8.34)(45 mg/L) = 244 lbs/day

The Department did not grant the proportional increase in the monthly average and weekly average mass limits to the increase in flow in the 7/7/99 licensing action. The 7/7/99 WDL contained the following text as justification:

This licensing action has granted an increase in the daily maximum mass limits for BOD and TSS based on an increase in the flow limit from 0.65 MGD to 0.85 MGD. However, the monthly and weekly average mass limits for said parameters were not granted at the time of this licensing action as the Department had limited ambient water quality data for this estuary. The Department intends to conduct instream sampling on the Union River within the five year term of this license to determine the assimilative capacity of the receiving water. Should instream sampling indicate that the receiving water has sufficient capacity to assimilate the increases in monthly and weekly average mass loadings, this license will be modified or renewed to incorporate the increase in loadings. Should instream sampling indicate non-attainment of the standards for the assigned classification of the river, discharge sources in the watershed may be subject to more stringent limitations and/or monitoring requirements.

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

As of the date of this permitting action, the Department has not conducted ambient water quality sampling on the Union River (nor is it scheduled) to determine if sufficient assimilative capacity is available to attenuate the increase in BOD and TSS loadings. The Department was being conservative in its approach not to grant the increase but has reconsidered its position given receiving waters are most at risk of adverse effects of discharges during the months of June through September and less at risk during the period October through May. The summer months pose the greatest risk due to higher temperatures, greater biological active, low flushing/exchange rates etc.

A review of the BOD data submitted to the Department via monthly Discharge Monitoring Reports (DMRs) indicates the facility experiences violations of the monthly average BOD mass limit during the spring and fall of the year when prolonged wet weather events occur. Being that impacts from the discharge on the receiving water are minimal at these times of the year, the Department is granting the increase in monthly average and weekly average technology based mass loadings for BOD and TSS between October 1st and May 31st. The limits were derived as follows:

Monthly average: (0.85 MGD)(8.34)(30 mg/L) = 213 lbs/day
Weekly average: (0.85 MGD)(8.34)(45 mg/L) = 319 lbs/day

For the summer months (June 1 – September 30th) the Department is carrying forward the more stringent monthly average and weekly average mass limitations (163 lbs/day and 244 lbs/day respectively) for both BOD and TSS until ambient water quality monitoring is conducted to determine whether there is sufficient assimilative capacity to attenuate the additional loading.

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 2/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 0.5 MGD but less than 1.0 MGD.

d. Settleable Solids – The previous licensing established a daily maximum concentration limit of 0.3 ml/L for settleable solids that is being carried forward in this permitting action and is considered a Department best professional judgment of BPT for secondary treated waste waters.

e. Fecal coliform bacteria – The previous licensing action established a seasonal 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. The limits are in effect in on a year-round basis to protect shellfish harvesting areas in the estuary.

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

f. Total Residual Chlorine: Limits on total residual chlorine are specified to ensure attainment of the in-stream water quality criteria for chlorine and that 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 maximum technology based limitation of 0.1 mg/L and a monthly average water quality based limit of 0.24 mg/L. End-of-pipe water quality based thresholds for TRC may calculated as follows:

Acute (A) Criterion	Chronic (C) Criterion	A & C Dil. Factors	Calculated Acute Limit	Chronic Limit
0.013 mg/L	0.0075 mg/L	14.0:1, 37.0:1	0.18 mg/L	0.28 mg/L

Example calculation: Acute (0.013 mg/L)(14.0) = 0.18 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 BPT limits of 0.3 mg/L and 0.1 mg/L respectively. In the case of the Ellsworth, the acute water quality based threshold of 0.18 mg/L calculated above is lower than the BPT limit of 0.3 mg/L, thus the water quality based limit of 0.18 mg/L is being established as daily maximum limit. As for monthly average, the calculated chronic water quality based threshold of 0.28 mg/L is higher than the BPT limit of 0.1 mg/L, thus the technology based limit of 0.1 mg/L is imposed.

g. Total Nitrogen – This permitting action is establishing a 1/Month seasonal (June – September) monitoring requirement for total nitrogen in an effort to evaluate nutrient loadings to Blue Hill Bay. The State's Department of Marine Resources and Friends of Blue Hill Bay have expressed concern with the potential impacts to water quality in the bay from a number of point source discharges of organic and nutrients to the bay such as municipal waste water treatment facilities and finfish aquaculture facilities. To determine what if any impact these point sources may be having on the bay, an additional effluent monitoring requirement for total nitrogen is being established for the term of this permit.

h. 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 limits are considered BPT.

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

i. 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.

Pursuant to criteria established in Department Rule Chapter 530.5, the facility has been placed in the medium frequency category for WET testing as the facility has a chronic dilution factor greater than 20:1 but less than 100:1 and in the low frequency category for chemical specific (priority pollutant) testing as the facility does not meet the criteria for the medium or high category of testing. A recent review of Ellsworth'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 dates chemical specific tests were conducted.

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.*"

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

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."*

It is noted, the previous licensing action established a water quality based C-NOEL limitation of 2.7 % (mathematical inverse of the chronic dilution factor of 37.0:1) for the sea urchin as a statistical evaluation at the time of issuance of the 7/7/99 WDL indicated the discharge had a reasonable potential to exceed the critical ambient water quality threshold.

On April 28, 2004, the Department conducted an evaluation on the most 60 months of WET test 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 4/28/04 evaluation indicates the discharge has not exceeded or have a reasonable potential to exceed the critical A-NOEL or C-NOEL thresholds associated with WET testing.

The Department establishes monitoring frequencies in permits for WET species that exceed or have a reasonable potential to exceed critical water quality thresholds based on the timing, severity and frequency of the results of concern. Based on the evaluation of the data cited above, this permitting action is establishing a surveillance level (1/Year) reporting and monitoring frequency for each species for the first four years of the permit. Pursuant to Chapter 530.5, beginning twelve months prior to the expiration date of the permit, the permittee must revert back to a screening level of testing (2/Year) in two different calendar quarters.

Chemical Specific testing

The 4/28/04 statistical evaluation indicates the discharge from the permittee's waste water treatment facility has:

- 1 result for copper (22 ug/L on 9/2/02) that has a RP to exceed the acute AWQC of 2.9 ug/L.
- 1 result for cyanide (9.0 ug/L on 3/7/01) that has a RP to exceed the acute AWQC of 1.0 ug/L.

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

Therefore, pursuant to Chapter 530.5§C(2), applicable daily maximum limitations for copper and cyanide have been established in this permit. See Attachment C of this Fact Sheet for test results evaluated.

This permitting action establishes daily maximum limits for copper and cyanide based on the following calculations:

Acute:

Parameter	Acute[1] Criterion	Acute Dilution Factor	Calculated EOP[2] Acute Con.	Month Avg. Mass Limit
Copper	2.9 ug/L	14.0:1	41 ug/L	0.29 lbs/day
Cyanide	1.0 ug/L	14.0:1	14 ug/L	0.099 lbs/day

Example Calculation:

$$\text{Copper - } \frac{(2.9\ \text{ug/L})(14.0)(8.34)(0.85\ \text{MGD})}{1000\ \text{ug/mg}} = 0.29\ \text{lbs/day}$$

Footnotes:

(1) Based on EPA's 1986 ambient water quality criteria (AWQC).
(2) End-of-pipe.

Concentration limits in this permitting action are based on Department rule Chapter 523, §6(f)(2) which states that pollutants limited in terms of mass additionally may be limited in terms of other units of measurement and the permit shall require the permittee to comply with both limitations.

In addition, *EPA's Technical Support Document For Water Quality Based Toxics Control*, March 1991, Chapter 5, Section 5.7, recommends that permit limits for both mass and concentration be specified for effluents discharging into waters with less than 100 fold dilution to ensure attainment of water quality standards. As not to penalize facilities for operating at flows less than permitted design flow of the waste water plant, the Department has increased the calculated concentration limit by a factor of 1.5. This represents an effluent concentration that is achievable through proper operation and maintenance of the treatment plant. Therefore, end-of-pipe concentration limits are as follows:

Parameter	Calculated EOP Concentration	Daily Max. Conc. Limit
Copper	41 ug/L	62 ug/L
Cyanide	14 ug/L	21 ug/L

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

As with WET testing, the Department establishes monitoring frequencies in permits for chemical specific parameters that exceed or have a reasonable potential to exceed acute, chronic or human health AWQC based on the timing, severity and frequency of the results of concern. Due to the fact that there is only one data point for each parameter (n=8 for copper and n=13 for cyanide – See Attachment C of this Fact Sheet)) that has a reasonable potential to exceed the acute AWQC, the Department is establishing a 1/Year monitoring frequency for each parameter. This is equivalent to a surveillance level of testing.

As for the remaining chemical specific parameters tested to date, none of the test results in the 60-month evaluation period exceed or have a reasonable potential to exceed applicable acute, chronic or human health AWQC. Therefore, this permitting action is establishing a surveillance level and screening level (1/Year) reporting and monitoring frequency for the term of the permit.

It is noted the interim average and maximum limits of 32.9 ng/L and 49.3 ng/L and monitoring requirements for mercury were established for the permittee in an administrative modification of the WDL on August 21, 2000. The limits and monitoring requirements are not being incorporated into this permitting document but remain in effect and enforceable.

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 Ellsworth American newspaper on or about April 22, 2004. 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) 287-7693
E-mail: gregg.wood@maine.gov

10. RESPONSE TO COMMENTS

During the period from April 28, 2004 through issuance of the permit, the Department solicited comments from the permittee, state and federal agencies and interested parties on the proposed draft permit to be issued for the City of Ellsworth's discharge. The Department received verbal comments from the State's Department of Marine Resources (DMR) and Friends of Blue Hill Bay (FBHB) on May 18, 2004, and written comments from the permittee in a letter dated May 11, 2004. Responses to the comments received are as follows:

DMR & FBHB

Comment #1: Both the DMR and FBHB expressed concern about the existing and future water quality in Blue Hill Bay. Independent ambient water quality sampling conducted by both parties indicates the bay has a sluggish flushing rate, poor current circulation patterns and strong stratification in July and August. As a result, monitoring of organic and nutrient loadings to the bay from point sources is necessary to help parties better understand the potential impacts to water quality and determine whether said sources are causing or contributing to documented seasonal dissolved oxygen depressions and algae blooms in the bay.

Response #1: The Department has modified the draft permit by establishing a 1/Month monitoring requirement for total nitrogen between June 1 and September 30 of each year. Organic loading is already being limited and monitored via biochemical oxygen demand (BOD5).

10. RESPONSE TO COMMENTS (cont'd)

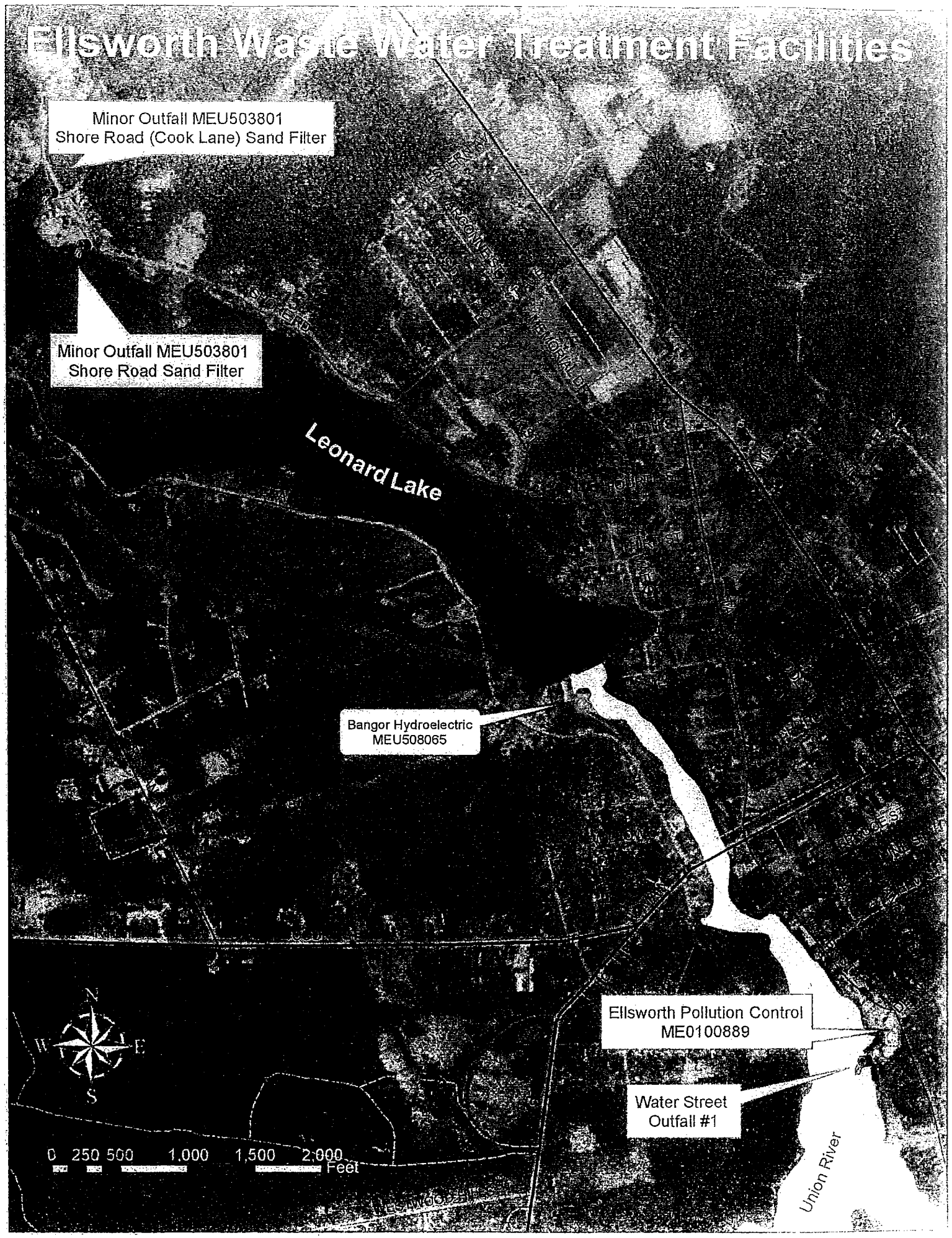
City of Ellsworth

Comment #2: The City of Ellsworth questioned why the permit limitations for total suspended solids (TSS) did not mirror the seasonal limitations established for BOD in light of the fact that the Fact Sheet of the permit indicates seasonal limitations were being granted for both BOD and TSS.

Response #2: The Fact Sheet of the permit is correct in that the intent was to establish seasonal limitations both BOD and TSS. Special Condition A, *Effluent Limitations And Monitoring Requirements*, (page 5 of the permit) has been modified accordingly.

ATTACHMENT A

Ellsworth Waste Water Treatment Facilities



ATTACHMENT B

ELLSWORTH
UNION RIVER

Flow: 0.9 MGD
Chronic dilution: 37.0:1
Acute dilution: 14.0:1

Species	Test	Test Result %	Sample Date
MYSID SHRIMP	LC50	>100	12/20/1992
SILVER SIDE	LC50	>100	12/20/1992
MYSID SHRIMP	LC50	>100	03/18/1993
SILVER SIDE	LC50	>100	03/18/1993
MYSID SHRIMP	LC50	45.7	07/05/1993
SILVER SIDE	LC50	80.61	07/05/1993
MYSID SHRIMP	LC50	>100	09/01/1993
SILVER SIDE	LC50	>100	09/01/1993
MYSID SHRIMP	LC50	>100	12/07/1993
SILVER SIDE	LC50	>100	12/07/1993
MYSID SHRIMP	LC50	>100	07/12/1994
SILVER SIDE	LC50	>100	07/12/1994
MYSID SHRIMP	LC50	>100	09/25/1994
SILVER SIDE	LC50	>100	09/25/1994
MYSID SHRIMP	A_NOEL	100	03/06/1995
MYSID SHRIMP	LC50	>100	03/06/1995
SILVER SIDE	A_NOEL	100	03/06/1995
SILVER SIDE	LC50	>100	03/06/1995
MYSID SHRIMP	A_NOEL	100	07/24/1995
MYSID SHRIMP	LC50	>100	07/24/1995
SILVER SIDE	A_NOEL	100	07/24/1995
SILVER SIDE	LC50	>100	07/24/1995
MYSID SHRIMP	A_NOEL	100	09/27/1995
MYSID SHRIMP	LC50	>100	09/27/1995
SILVER SIDE	A_NOEL	100	09/27/1995
SILVER SIDE	LC50	>100	09/27/1995
MYSID SHRIMP	A_NOEL	100	12/27/1995
MYSID SHRIMP	LC50	>100	12/27/1995
SILVER SIDE	A_NOEL	50	12/27/1995
SILVER SIDE	LC50	89.1	12/27/1995
MYSID SHRIMP	A_NOEL	100	03/05/1996
MYSID SHRIMP	LC50	>100	03/05/1996
SILVER SIDE	A_NOEL	16.9	03/05/1996
SILVER SIDE	LC50	>100	03/05/1996
MYSID SHRIMP	A_NOEL	25	07/23/1996
MYSID SHRIMP	LC50	>100	07/23/1996
SILVER SIDE	A_NOEL	100	07/23/1996
SILVER SIDE	LC50	>100	07/23/1996
MYSID SHRIMP	A_NOEL	20	09/17/1996
MYSID SHRIMP	LC50	>100	09/17/1996
SILVER SIDE	A_NOEL	100	09/17/1996

Species	Test	Test Result %	Sample Date
SILVER SIDE	LC50	>100	09/17/1996
MYSID SHRIMP	A_NOEL	100	12/02/1996
MYSID SHRIMP	LC50	>100	12/02/1996
SILVER SIDE	A_NOEL	100	12/02/1996
SILVER SIDE	LC50	>100	12/02/1996
MYSID SHRIMP	A_NOEL	80	03/10/1997
MYSID SHRIMP	LC50	>100	03/10/1997
SILVER SIDE	A_NOEL	100	03/10/1997
SILVER SIDE	LC50	>100	03/10/1997
MYSID SHRIMP	A_NOEL	100	07/21/1997
MYSID SHRIMP	LC50	>100	07/21/1997
SILVER SIDE	A_NOEL	55.	07/21/1997
SILVER SIDE	LC50	70.7	07/21/1997
MYSID SHRIMP	A_NOEL	>100	12/15/1997
MYSID SHRIMP	LC50	>100	12/15/1997
SILVER SIDE	A_NOEL	>100	12/15/1997
SILVER SIDE	LC50	>100	12/15/1997
MYSID SHRIMP	A_NOEL	100	06/07/1998
MYSID SHRIMP	LC50	>100	06/07/1998
SEA URCHIN	C_NOEL	<3.3	06/07/1998
SILVER SIDE	A_NOEL	75	06/07/1998
SILVER SIDE	C_NOEL	100	06/07/1998
SILVER SIDE	LC50	>100	06/07/1998
SEA URCHIN	C_NOEL	50	04/26/1999
MYSID SHRIMP	A_NOEL	66.7	05/31/1999
MYSID SHRIMP	LC50	>100	05/31/1999
SEA URCHIN	C_NOEL	10	05/31/1999
SILVER SIDE	A_NOEL	100	05/31/1999
SILVER SIDE	C_NOEL	100	05/31/1999
SILVER SIDE	LC50	>100	05/31/1999
MYSID SHRIMP	A_NOEL	100	04/09/2000
MYSID SHRIMP	LC50	>100	04/09/2000
SEA URCHIN	C_NOEL	100	04/09/2000
SILVER SIDE	A_NOEL	100	04/09/2000
SILVER SIDE	C_NOEL	50	04/09/2000
SILVER SIDE	LC50	>100	04/09/2000
SEA URCHIN	C_NOEL	100	12/26/2000
MYSID SHRIMP	A_NOEL	100	04/16/2001
MYSID SHRIMP	LC50	>100	04/16/2001
SEA URCHIN	C_NOEL	100	04/16/2001
SILVER SIDE	A_NOEL	100	04/16/2001

Species	Test	Test Result %	Sample Date
SILVER SIDE	C_NOEL	50	04/16/2001
SILVER SIDE	LC50	>100	04/16/2001
SEA URCHIN	C_NOEL	100	09/24/2001
MYSID SHRIMP	A_NOEL	100	04/07/2002
MYSID SHRIMP	LC50	>100	04/07/2002
SEA URCHIN	C_NOEL	100	04/07/2002
SILVER SIDE	A_NOEL	100	04/07/2002
SILVER SIDE	C_NOEL	100	04/07/2002
SILVER SIDE	LC50	>100	04/07/2002
SEA URCHIN	C_NOEL	100	09/02/2002
MYSID SHRIMP	A_NOEL	100	03/30/2003
MYSID SHRIMP	LC50	>100	03/30/2003
SEA URCHIN	C_NOEL	100	03/30/2003
SILVER SIDE	A_NOEL	100	03/30/2003
SILVER SIDE	C_NOEL	100	03/30/2003
SILVER SIDE	LC50	>100	03/30/2003
MYSID SHRIMP	A_NOEL	75	10/26/2003
MYSID SHRIMP	LC50	>100	10/26/2003
SEA URCHIN	C_NOEL	100	10/26/2003
SILVER SIDE	A_NOEL	63.6	10/26/2003
SILVER SIDE	C_NOEL	50	10/26/2003
SILVER SIDE	LC50	>100	10/26/2003

ATTACHMENT C

Sample Date: 05/31/1999
Plant flows provided

Total Tests:	132	mon.(MGD)= 0.580
Missing Compounds:	0	day(MGD)= 0.438
Tests With High DL:	0	

M = 0 V = 0 A = 0
BN = 0 P = 0 other = 0

Sample Date: 04/09/2000
Plant flows provided

Total Tests:	132	mon.(MGD)= 0.835
Missing Compounds:	0	day(MGD)= 0.721
Tests With High DL:	0	

M = 0 V = 0 A = 0
BN = 0 P = 0 other = 0

Sample Date: 04/16/2001
Plant flows not provided

Total Tests:	131
Missing Compounds:	1
Tests With High DL:	0

M = 0 V = 0 A = 0
BN = 0 P = 0 other = 0

Sample Date: 04/07/2002
Plant flows provided

Total Tests:	131	mon.(MGD)= 0.860
Missing Compounds:	1	day(MGD)= 0.789
Tests With High DL:	0	

M = 0 V = 0 A = 0
BN = 0 P = 0 other = 0

Sample Date: 03/30/2003
Plant flows provided

Total Tests:	130	mon.(MGD)= 0.917
Missing Compounds:	2	day(MGD)= 2.162
Tests With High DL:	0	

M = 0 V = 0 A = 0
BN = 0 P = 0 other = 0

PP Data for "Hits" Only

ELLSWORTH
UNION RIVER

ARSENIC
MDL = 5 ug/l

	Conc, ug/l	MDL	Sample Date	Date Entered
	1.000000	OK	04/07/2002	06/13/2002
	2.000000	OK	03/30/2003	09/05/2003
<	1.000000	OK	04/16/2001	06/14/2001
<	1.000000	OK	04/09/2000	05/30/2000
<	5.000000	OK	05/31/1999	07/26/1999

CYANIDE
MDL = 5 ug/l

	Conc, ug/l	MDL	Sample Date	Date Entered
	2.000000	OK	04/16/2001	06/14/2001
	3.000000	OK	04/09/2000	05/30/2000
	4.000000	OK	07/16/2001	09/12/2001
	5.000000	OK	09/20/2000	12/11/2000
	9.000000	OK	03/07/2001	05/07/2001
<	2.000000	OK	04/07/2002	06/13/2002
<	5.000000	OK	08/27/2002	11/04/2002
<	5.000000	OK	11/13/2001	03/04/2002
<	5.000000	OK	07/16/2003	08/28/2003
<	5.000000	OK	11/06/2000	01/09/2001
<	5.000000	OK	03/16/2000	04/26/2000
<	5.000000	OK	05/31/1999	07/26/1999
<	5.000000	OK	06/25/2002	08/12/2002