STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI
GOVERNOR

DAVID P. LITTELL
COMMISSIONER

September 29, 2006

Ms. Linda Pagels
City Manager, City of Calais
P.O. Box 413
Calais, Maine 04619

RE: Maine Waste Discharge License (WDL) Application #W002751-5L-G-R
Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0100129
Final Permit/License

Dear Ms. Pagels:

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.*"

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

Sincerely,

Gregg Wood
Division of Quality Management
Bureau of Land and Water Quality

Enc.
cc: Tanya Hovell, DEP/EMRO
Sandy Lao, USEPA

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

DEPARTMENT ORDER

IN THE MATTER OF

CITY OF CALAIS	)	MAINE POLLUTANT DISCHARGE
CALAIS, WASHINGTON COUNTY, MAINE	)	ELIMINATION SYSTEM PERMIT
PUBLICLY OWNED TREATMENT WORKS	)	AND
ME0100129	)	WASTE DISCHARGE LICENSE
W002751-5L-G-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 applicable regulations, the Department of Environmental Protection (the Department hereinafter) has considered the application of the CITY OF CALAIS (City hereinafter), with its supportive data, agency review comments, and other related material on file and finds the following facts:

APPLICATION SUMMARY

The City has filed a timely and complete application with the Department for renewal of Department Waste Discharge License (WDL) #W002751-5L-E-R which was last issued by the Department on July 13, 1999, and expired on July 13, 2004. The 7/13/99 WDL authorized the discharge of up to a monthly average flow of 1.5 million gallons per day (MGD) of secondary treated sanitary waste waters and an unspecified quantity of excess combined sanitary and storm water receiving primary treatment only (and seasonal disinfection) from a municipal waste water treatment facility to the St. Croix River, Class SC, in Calais, Maine.

On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (EPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine. From that point forward, the program has been referred to as the Maine Pollutant Discharge Elimination System (MEPDES) permit program and permit #ME0100129 (same as NPDES permit number) will be utilized as the primary reference number for the Calais waste water treatment facility. The NPDES permit last issued by the EPA on September 30, 1997 (expired on September 30, 2002) will be replaced upon issuance of a final MEPDES permit. Once replaced, all terms and conditions of the NPDES permit are null and void.

MODIFICATIONS REQUESTED

1. An increase in the quantity of septage the facility is authorized to receive. The permittee has requested an increase from 2,000 gallons per day (gpd) to 4,000 gpd.

2. Designate four pump stations and a bypass structure location prior to the headworks of the plant as permitted combined sewer overflow (CSO) outfalls.

PERMIT SUMMARY

This permitting action is <u>similar</u> to the 7/13/99 WDL action in that it is;

<u>Secondary Treated Waste Waters</u>:

1. Carrying forward the monthly average flow limit of 1.5 MGD.

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

3. Carrying forward the reporting requirement for the daily maximum mass for BOD_5 and TSS.

4. Carrying forward the monthly average (geometric mean) and daily maximum water quality based limits for fecal coliform bacteria.

5. Carrying forward the daily maximum technology based concentration limit for settleable solids.

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

7. Carrying forward whole effluent toxicity (WET) and chemical specific (analytical chemistry and priority pollutant) testing but modifying the terms and conditions of the testing requirements based on new rules for said testing that were promulgated by the Department in November 2005. As a point of clarification, WET and chemical specific testing is only required in the 12-month period prior to the expiration date of the permit.

<u>CSO-Related Bypasses of Secondary Treatment</u>- (For the purposes of this permitting action, this term refers to structures and or processes at the waster water treatment facility that provide equivalent to primary treatment and disinfection of waste waters that bypass the biological treatment portion of the facility in an effort to mitigate the discharge of untreated combined sanitary waste waters and storm water from the five CSOs listed in Special Condition K of this permit).

8. Carrying forward monthly average and or daily maximum reporting requirement for mass and concentration for flow, surface overflow rates, number of discharge days per month and percent removal for BOD5 and TSS.

9. Carrying forward the daily maximum technology based limits for fecal coliform bacteria and total residual chlorine.

PERMIT SUMMARY (cont'd)

This permitting action is <u>different</u> than the 7/13/99 WDL action in that it is;

Secondary Treated Waste Waters:

10. Eliminating the 1/Year surveillance level WET and chemical specific testing.

11. Revising the disinfection season from May 10th – September 30th to May 15th – September 30th to be consistent with state law.

12. Revising the daily maximum technology based pH range limit from 6.0 – 8.5 standard units to 6.0 – 9.0 standard units based on a more current Department regulation.

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

CSO Related Bypasses of Secondary Treatment:

14. Establishing a peak hourly flow rate of 1,042 gpm (1.5 MGD) as the trigger flow for the use of the CSO related bypass of the secondary treatmet system located at the treatment plant. The trigger flow of 1.5 MGD is in effect upon issuance of the permit and lasts through December 31, 2007. Thereafter, the trigger flow is increased to 1,250 gpd (1.8 MGD).

15. Revising the disinfection season from May 10th – September 30th to May 15th – September 30th.

16. Revising the pH range limitation from 6.0 –8.5 standard units to 6.0 – 9.0 standard units.

17. Eliminating the monthly average technology based limits for fecal coliform bacteria and pH.

General

18. Requiring the permittee to maintain an up-to-date Operations and Maintenance (O&M) Plan and Wet Weather Management Plan.

19. Increasing the quantity of septage the facility is authorized to receive and introduce into the treatment process or solids handling facility from 2,000 gpd to 4,000 gpd.

20. Permitting the discharge from and requiring monitoring of five combined sewer overflow (CSO) outfalls. Four of the CSOs are at pump stations and one CSO is located just prior to the headworks of the waste water treatment facility.

21. Authorizing receipt of sludge from outside entities for processing at the waste water treatment facility.

CONCLUSIONS

BASED on the findings in the attached Fact Sheet dated July 28, 2006, and subject to the Conditions listed below, the Department makes the following CONCLUSIONS:

Secondary treatment and CSO Related Bypasses of Secondary Treatment:

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 MRSA 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 discharges [including the five (5) combined sewer overflows (CSOs)] will be subject to effluent limitations that require application of best practicable treatment.

ACTION

THEREFORE, the Department APPROVES the application of the CITY OF CALAIS, to discharge up to a monthly average flow of 1.5 million gallons per day (MGD) of secondary treated sanitary waste waters, an unspecified quantity of excess combined sanitary and storm water receiving primary treatment only (and seasonal disinfection) from a municipal waste water treatment facility and an unspecified quantity of untreated combined sanitary and storm water from five (5) combined sewer overflow (CSO) outfalls in Calais. The discharges shall be subject to the attached conditions and all applicable standards and regulations:

1. "*Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits*," revised July 2, 2002, copy attached.

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

3. This permit expires five (5) years from the date of signature below.

DONE AND DATED AT AUGUSTA, MAINE, THIS 29TH DAY OF September, 2006.

COMMISSIONER OF ENVIRONMENTAL PROTECTION

BY: _____ for
David P. Littell, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application January 16, 2004.

Date of application acceptance January 16, 2004.

FILED
OCT - 2 2006
BOARD OF ENVIRONMENTAL PROT.
STATE OF MAINE

Date filed with Board of Environmental Protection _____

This Order prepared by GREGG WOOD, BUREAU OF LAND & WATER QUALITY

W27515LF 9/28/06

SPECIAL CONDITIONS
A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge secondary treated waste waters to the St. Croix River. Such treated waste water discharges shall be limited and monitored by the permittee as specified below.

SECONDARY TREATED WASTE WATERS - OUTFALL #001 (Final outfall)

Effluent Characteristic	Discharge Limitations						Minimum Monitoring Requirements	
	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Flow *[50050]*	1.5 MGD *[03]*	---	Report (MGD)	---	---	---	Continuous *[99/99]*	Recorder *[RC]*
Biochemical Oxygen Demand (BOD_5) *[00310]*	375 lbs/Day *[26]*	563 lbs/Day *[26]*	Report lbs/Day *[26]*	30 mg/L *[19]*	45 mg/L *[19]*	50 mg/L *[19]*	2/Week *[02/07]*	24 Hr. Composite *[24]*
BOD_5 % Removal (1) *[81010]*	---	---	---	85% *[23]*	---	---	1/Month *[01/30]*	Calculate *[CA]*
Total Suspended Solids (TSS *[00530]*	375 lbs/Day *[26]*	563 lbs/Day *[26]*	Report lbs/Day *[26]*	30 mg/L *[19]*	45 mg/L *[19]*	50 mg/L *[19]*	2/Week *[02/07]*	24 Hr. Composite *[24]*
TSS % Removal (1) *[81011]*	---	---	---	85% *[23]*	---	---	1/Month *[01/30]*	Calculate *[CA]*
Settleable Solids *[00545]*	---	---	---	---	---	0.3 ml/L *[25]*	1/Day *[01/01]*	Grab *[GR]*
Fecal Coliform Bacteria (2) *(May 15 – September 30)* *[31616]*	---	---	---	15/100 ml (3) *[13]*	---	50/100 ml *[13]*	2/Week *[02/07]*	Grab *[GR]*
Total Residual Chlorine *[50060]*	---	---	---	---	---	1.0 mg/L *[19]*	1/Day (4) *[01/01]*	Grab *[GR]*
pH (Std. Units) *[00400]*	---	---	---	---	---	6.0-9.0 *[12]*	1/Day *[01/01]*	Grab *[GR]*

The italicized numeric values in brackets in the table above and the tables that follow are not limitations but are code numbers used by Department personnel to code Discharge Monitoring Reports (DMR's).

SPECIAL CONDITIONS

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

SECONDARY TREATED WASTE WATERS - OUTFALL #001 (Final outfall)

SCREENING LEVEL TESTING – Beginning twelve months prior to permit expiration and lasting through permit expiration and every five years therefter.

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]
Chronic – NOEL						
Arbacia punctulata [TBH3A] *(Sea urchin)*	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
Analytical chemistry[6] [51168]	---	---	---	Report ug/L [28]	1/Quarter [01/90]	Composite/Grab [24]
Priority Pollutant[7] [50008]	---	---	---	Report ug/L [28]	1/Year [01/YR]	Composite/Grab [24]

SPECIAL CONDITIONS

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

2. The permittee is authorized to bypass secondary treatment under certain conditions. **Beginning upon permit issuance and lasting through December 31, 2007**, such CSO related bypasses of secondary treatment may only occur in response to wet weather events when the influent to the waste water treatment facility exceeds a flow rate of **1,042 gallons per minute (1.5 MGD)** for 60 minutes (peak hourly flow) **or** in accordance with the most current approved Wet Weather Flow Management Plan. **Beginning January 1, 2008**, said bypasses may only occur in response to wet weather events when the influent to the waste water treatment facility exceeds a flow rate of **1,250 gallons per minute (1.8 MGD)** for 60 minutes (peak hourly flow) **or** in accordance with the most current approved Wet Weather Flow Management Plan. Approval of said bypass will be reviewed and may be modified or terminated pursuant to Special Condition N, *Reopening of Permit For Modification*, if there is a substantial change in the volume or character of pollutants in the collection/treatment system, if new information regarding CSO management becomes available or if necessary for implementation of an approved CSO Master Plan. Bypasses shall be monitored and reported as specified below.

PRIMARY TREATED WASTE WATERS - OUTFALL #002

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow, MGD *[50050]*	Report (Total MGD) *[03]*	Report (MGD) *[03]*	---	---	Continuous *[99/99]*	Recorder *[RC]*
Surface Loading Rate(8) *[50997]*	---	Report (gpd/sf) *[07]*	---	---	1/Discharge Day(9) *[01/DS]*	Calculate *[CA]*
Overflow Use, Occurrences(10) *[74062]*	---	---	Report (# of days) *[93]*	---	1/Discharge Day(9) *[01/DS]*	Record Total *[RT]*
BOD5 *[00310]*	---	---	---	Report mg/L *[19]*	1/Discharge Day(9) *[01/DS]*	Composite
BOD5 % Removal(11) *[81010]*	---	---	Report (%) *[23]*	---	1/Discharge Day(9) *[01/DS]*	Calculate *[24]*
TSS *[00530]*	---	---	---	Report mg/L *[19]*	1/Discharge Day(9) *[01/DS]*	Composite
TSS % Removal(11) *[81011]*	---	---	Report (%) *[23]*	---	1/Discharge Day(9) *[01/DS]*	Calculate *[24]*
Fecal Coliform Bacteria(2) *[31616]* *(May 15 – September 30)*	---	---	---	200/100 ml *[13]*	1/Discharge Day(9) *[01/DS]*	Grab(12) *[GR]*
Total Residual Chlorine *[50060]*	---	---	---	1.0 mg/L *[19]*	1/Discharge Day(9) *[01/DS]*	Grab(12) *[GR]*

SPECIAL CONDITIONS

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

Footnotes:

Sampling Locations: Any change in sampling location(s) specified below must be reviewed and approved by the Department in writing.

Influent sampling for BOD_5 and TSS shall be sampled after the influent parshall flume but before grit removal.

Effluent receiving secondary treatment (Outfall #001)- Samples for all parameters shall be collected after the dedicated chlorination chamber on a year-round basis.

Effluent receiving primary treatment (Outfall #002) shall be sampled after the dedicated chlorination chamber on a year-round basis.

Sampling –Sampling and analysis must be conducted in accordance with; a) methods approved in 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** – Secondary treated waste waters shall maintain a minimum of 85 percent removal of both BOD_5 and TSS. The percent removal shall be based on a monthly average calculation using influent and effluent concentrations. 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 (DMR).

2. **Fecal coliform bacteria** - Limits are seasonal and apply between May 15th and September 30th of each calendar 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** – The monthly average limitation is a geometric mean limitation and shall be calculated and reported as such.

4. **Total residual chlorine (TRC)** – Limitations and monitoring requirements for TRC are applicable any time elemental chlorine or chlorine based compounds are being utilized to disinfect the discharge(s).

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 dilution of 1.2 % and 0.3 % 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.

   Screening level testing - Beginning 12 months prior to permit expiration and lasting through permit expiration and every five years thereafter, the permittee shall conduct screening level WET testing at a minimum frequency of once per year (1/Year). Acute tests shall be conducted on the mysid shrimp (Mysidopsis bahia) and chronic tests shall be conducted on the sea urchin (Arbacia punctulata). It is noted pursuant to Department rule Chapter 530, *Surface Water Toxics Control Program,* surveillance level WET testing is being waived for the first four years of the term of the permit.

   The permittee is also required to analyze the effluent for the parameters specified in the analytical chemistry on the form in Attachment A of this permit each time a WET test is performed. WET test results must be submitted to the Department not later than the next Discharge Monitoring Report (DMR) required by the permit, provided, however, that the permittee may review the toxicity reports for up to 10 business days of their availability before submitting them. The permittee shall evaluate test results being submitted and identify to the Department possible exceedences of the critical acute and chronic water quality thresholds of 1.2% and 0.3%, respectively.

   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. **Analytical chemistry** – Refers to a suite of chemical tests that include ammonia nitrogen (as N), total aluminum, total arsenic, total cadmium, total chromium, total copper, total cyanide, total lead, total nickel, total silver, total zinc and total residual chlorine.

   Screening level testing - Beginning 12 months prior to permit expiration and lasting through permit expiration and every five years thereafter, the permittee shall conduct screening level analytical chemistry testing at a minimum frequency of once per calendar quarter (1/Quarter). It is noted Chapter 530 does not require routine surveillance level priority pollutant testing in the first four years of the term of this permit.

   Analytical chemistry 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. See Attachment A of this permit for a list of the Department's reporting limits.

   Test results must be submitted to the Department not later than the next Discharge Monitoring Report (DMR) required by the permit, provided, however, that the permittee may review the analytical chemistry reports for up to 10 business days of their availability before submitting them. The permittee shall evaluate test results being submitted and identify to the Department, possible exceedences of the acute, chronic or human health ambient water quality criteria (AWQC) as established in Department rule, Chapter 584, *Surface Water Quality Criteria For Toxic Pollutants*. For the purposes of DMR reporting, enter a "1" for yes, testing done this monitoring period or "NODI-9" monitoring not required this period.

7. **Priority pollutant testing** – Priority pollutants are those parameters listed by Department rule, Chapter 525, Section 4(IV).

   Screening level testing - Beginning 12 months prior to permit expiration and lasting through permit expiration and every five years thereafter, the permittee shall conduct screening level priority pollutant testing at a minimum frequency of once per year (1/Year). It is noted Chapter 530 does not require routine surveillance level priority pollutant testing in the first four years of the term of this permit.

   Priority pollutant testing shall be conducted on samples collected at the same time as those collected for whole effluent toxicity tests, when applicable. Priority pollutant 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. See Attachment A of this permit for a list of the Department's

SPECIAL CONDITIONS

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

Footnotes:

reporting limits. Test results must be submitted to the Department not later than the next Discharge Monitoring Report (DMR) required by the permit, provided, however, that the permittee may review the priority pollutant reports for up to 10 business days of their availability before submitting them. The permittee shall evaluate test results being submitted and identify to the Department, possible exceedences of the acute, chronic or human health AWQC as established in Chapter 584. For the purposes of DMR reporting, enter a "1" for yes, testing done this monitoring period or "NODI-9" monitoring not required this period.

All mercury sampling required by this permit or required to determine compliance with interim limitations established pursuant to Department rule Chapter 519, 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.

8. **Surface Overflow Rate** – For the purposes of this permitting action is defined as the average hourly rate per overflow occurrence in a discharge day. The permittee should provide this information to establish data on the effectiveness of peak flows receiving primary treatment only.

9. **Discharge Day** - A discharge day is defined as a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling.

10. **Overflow occurrence** – An overflow occurrence is defined as the period of time between initiation of flow from the primary bypass and cessation of the discharge from the primary bypass. Overflow occurrences are reported in discharge days.

    Multiple intermittent overflow occurrences in one discharge day are reported as one overflow occurrence and are sampled according to the measurement frequency specified. One composite sample for BOD5 and TSS shall be collected per discharge day and shall be of flow proportioned from each intermittent overflow during that 24-hour period. Only one grab sample for fecal coliform bacteria and total residual chlorine is required to be collected per discharge day.

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

Footnotes:

For overflow occurrences exceeding one day in duration, sampling shall be performed each day of the event according to the measurement frequency specified. For example, if an overflow occurs for all or part of three discharge days, the permittee shall take three composite samples for BOD and TSS, initiating samples at the start of the overflow and each subsequent discharge day thereafter and terminating samples at the end of the discharge day or the end of the overflow occurrence. Samples shall be flow proportioned.

11. **BOD_5 and TSS Removal** – Composite samples for BOD5 and TSS are not required to be collected when Outfall #002 (CSO related bypasses of secondary treatment) is active for a single continuous discharge event lasting less than 60 minutes or during intermittent discharge events over a course of a 24-hour period lasting less than 120 minutes. The permittee shall analyze both the influent (plant influent value) and effluent from the dedicated chlorine contact chamber for said bypass related flows for BOD and TSS. Report percent (%) removals on the monthly Discharge Monitoring Report (DMR). As an attachment to the DMR, the permittee shall report the individual BOD and TSS test results used to calculate the percent removal rates reported.

12. **Grab Sample** – Grab samples for fecal coliform bacteria and total residual chlorine are not required to be collected when Outfall #002 is active for a single continuous discharge event lasting less than 60 minutes or during intermittent discharge events over a course of a 24-hour period lasting less than 120 minutes and sampling is only required if said event(s) occur between the hours of 7:00 AM – 4:00 PM during the normal work week (Monday through Friday, holidays excluded).

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.

SPECIAL CONDITIONS

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 TRC 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 waste water treatment facility must be operated under the direction of a person holding a minimum of a **Grade III** certificate [or Maine Professional Engineer (PE) 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.

F. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge to surface waterbodies in accordance with the terms and conditions of this permit and only from Outfall 001 and five (5) combined sewer overflow outfalls listed in Special Condition L, *Combined Sewer Overflows*, of this permit. 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.

SPECIAL CONDITIONS

G. 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 (increase or decrease) 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.

H. WET WEATHER FLOW MANAGEMENT PLAN

The treatment facility staff shall maintain and adhere to a Wet Weather Management Plan approved by the Department 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. The plan shall include operating procedures for a range of intensities, seasonal variations, address solids handling procedures (including septic waste and other high strength wastes if applicable) and provide written operating and maintenance procedures during the events.

Within 90 days of completion of new and or substantial upgrades of the waste water treatment facility, the permittee shall submit an updated Wet Weather Flow Management Plan to their Department inspector for review and comment. **The permittee shall review their plan annually** and record any necessary changes to keep the plan up-to-date.

SPECIAL CONDITIONS

I. OPERATION & MAINTENANCE (O&M) PLAN

This facility shall have a current written comprehensive Operation & Maintenance (O&M) Plan. 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 as needed, 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.

J. DISPOSAL OF SEPTAGE WASTE IN WASTE WATER TREATMENT FACILITY

During the effective period of this permit, the permittee is authorized to **receive** and **introduce** into the solids handling or the treatment plant process up to a maximum of **4,000 gallons per day** of septage, subject to the following terms and conditions:

1. This approval is limited to methods and plans described in the application and supporting documents. Any variations are subject to review and approval prior to implementation.

2. At no time shall the addition of septage cause or contribute to effluent quality violations. If such conditions do exist, the introduction of septage into the treatment process or solids handling stream shall be suspended until effluent quality can be maintained.

3. The permittee shall maintain records which shall include, at a minimum, the following by date: volume of septage received, source of the septage (name of municipality), the hauler transporting the septage, the dates and volume of septage added to the waste water treatment influent and test results.

4. The addition of septage into the treatment process or solids handling stream shall not cause the treatment facilities design capacity to be exceeded. If, for any reason, the treatment process or solids handling facilities become overloaded, introduction of septage into the treatment process or solids handling stream shall be reduced or terminated in order to eliminate the overload condition.

SPECIAL CONDITIONS

J. DISPOSAL OF SEPTAGE WASTE IN WASTE WATER TREATMENT FACILITY

3. Septage known to be harmful to the treatment processes shall not be accepted. Wastes which contain heavy metals, toxic chemicals, extreme pH, flammable or corrosive materials in concentrations harmful to the treatment operation shall be refused.

4. Holding tank waste water shall not be recorded as septage but should be reported in the treatment facility's influent flow.

7. During wet weather flows, no septage shall be added to any part of the treatment process or solids handling facilities.

K. COMBINED SEWER OVERFLOWS (CSO's)

Pursuant to Chapter 570 of Department Rules, *Combined Sewer Overflow Abatement,* the permittee is authorized to discharge from the following locations of combined sewer overflows (CSO's) (stormwater and sanitary wastewater) subject to the conditions and requirements herein.

1. CSO locations

Outfall No./Name	Outfall Location	Receiving Water and Class
003 Headworks	Treatment Plant	St. Croix River, Class SC
004 Steamboat Street PS	Steamboat Street	St. Croix River, Class SC
005 Union Street PS	Union Street	St. Croix River, Class SC
006 King Street PS	King Street	St. Croix River, Class SC
007 South Street PS	South Street	St. Croix River, Class SC

To determine quantity from the "outfalls" listed above, the permittee shall install electronic flow estimation systems to record frequency, duration and quantity of flow discharged. An electronic device utilized to measure levels in the wet well and measure duration of the overflow is an acceptable methodology for determining quantity.

2. Prohibited Discharges

a) The discharge of dry weather flows is prohibited. All such discharges shall be reported to the Department in accordance with Standard Condition D (1) of this permit.

b) No discharge shall occur as a result of mechanical failure, improper design or inadequate operation or maintenance.

c) No discharges shall occur at flow rates below the maximum design capacities of the wastewater treatment facility, pumping stations or sewerage system.

SPECIAL CONDITIONS

K. COMBINED SEWER OVERFLOWS (CSO's)

3. Narrative Effluent Limitations

   a) The effluent shall not contain a visible oil sheen, settled substances, foam, or floating solids at any time that impair the characteristics and designated uses ascribed to the classification of the receiving waters.

   b) The effluent shall not contain materials in concentrations or combinations that are hazardous or toxic to aquatic life; or which would impair the usage designated by the classification of the receiving waters.

   c) The discharge shall not impart color, turbidity, toxicity, radioactivity or other properties that cause the receiving waters to be unsuitable for the designated uses and other characteristics ascribed to their class.

4. CSO Master Plan (see Sections 2 & 3 of Chapter 570 Department Rules)

   On or before June 1, 2007, ***(PCS Code 04599)*** the permittee shall, excepting for circumstances beyond Calais' control, complete replacement of the South Street pump station in accordance with a Department approved plan and schedule.

   On or before August 1, 2007, ***(PCS Code 04599)*** the permittee shall, excepting for circumstances beyond Calais' control, complete restoration of the treatment plant CSO and installation of the new bank outfall.

   On or before June 1, 2011, ***(PCS Code 06699)*** the permittee shall submit an updated CSO Master Plan to the Department for review and approval.

   Upon approval of the Master Plan, the permittee shall abide by the approved schedule. The Department reserves the right to reopen this permit (pursuant to Standard Condition N, *Reopening of Permit For Modifications*) to incorporate a scope of work and schedule for projects once the CSO Master Plan has been reviewed and approved by the Department.

   To modify the dates specified above, the permittee must file an application with the Department to formally modify this permit.

SPECIAL CONDITIONS

K. COMBINED SEWER OVERFLOWS (CSO's)

5. Nine Minimum Controls (NMC) (see Section 5 Chapter 570 of Department Rules) Work performed on the Nine Minimum Controls during the year shall be included in the annual CSO Progress Report (see below).

6. CSO Compliance Monitoring Program (see Section 6 Chapter 570 of Department Rules) The permittee shall conduct flow monitoring according to an approved *Compliance Monitoring Program* on all CSO points, as part of the CSO Master Plan. Annual flow volumes for all CSO locations shall be determined by actual flow monitoring, or by estimation using a model such as EPA's Storm Water Management Model (SWMM). Results shall be submitted annually as part of the annual *CSO Progress Report* (see below), and shall include annual precipitation, CSO volumes (actual or estimated) and any block test data required. Any abnormalities during CSO monitoring shall also be reported. The results shall be reported on the Department form *"CSO Activity and Volumes"* (Attachment B of this permit) or similar format and submitted to the Department on diskette.

   CSO control projects that have been completed shall be monitored for volume and frequency of overflow to determine the effectiveness of the project toward CSO abatement. This requirement shall not apply to those areas where complete separation has been completed and CSO outfalls have been eliminated.

7. Additions of New Wastewater (see Section 8 Chapter 570 of Department Rules)

   Chapter 570 Section 8 lists requirements relating to any proposed addition of wastewater to the combined sewer system. Documentation of the new wastewater additions to the system and associated mitigating measures shall be included in the annual *CSO Progress Report* (see below). Reports must contain the volumes and characteristics of the wastewater added or authorized for addition and descriptions of the sewer system improvements and estimated effectiveness. Any sewer extensions upstream of a CSO must be reviewed and approved by the Department prior to their connection to the collection system. A *Sewer Extension/Addition Reporting Form* (available from the Department upon request) shall be completed and submitted to the Department along with plans and specifications of the proposed extension/addition.

SPECIAL CONDITIONS

K. COMBINED SEWER OVERFLOWS (CSO's)

8. Annual CSO Progress Reports (see Section 7 of Chapter 570 of Department Rules) **By March 1** of each year ***(PCS Code 11099)***, the permittee shall submit CSO Progress Reports covering the previous calendar year (January 1 to December 31). The CSO Progress Report shall include, but is not necessarily limited to, the following topics as further described in Chapter 570: CSO abatement projects, schedule comparison, progress on inflow sources, costs, flow monitoring results, CSO activity and volumes, nine minimum controls update, sewer extensions, and new commercial or industrial flows.

   The CSO Progress Reports shall be completed on a standard form entitled *"Annual CSO Progress Report"*, furnished by the Department, and submitted in electronic form, if possible, to the following address:

   CSO Coordinator
   Department of Environmental Protection
   Bureau of Land and Water Quality
   Division of Water Quality Management
   17 State House Station, Augusta, Maine 04333
   e-mail: CSOCoordinator@maine.gov

9. Signs

   If not already installed, the permittee shall install and maintain an identification sign at each CSO location as notification to the public that intermittent discharges of untreated sanitary wastewater occur. The sign must be located at or near the outfall and be easily readable by the public. The sign shall be a minimum of 12" x 18" in size with white lettering against a green background and shall contain the following information:

   CITY OF CALAIS
   WET WEATHER
   SEWAGE DISCHARGE
   CSO # AND NAME

10. Definitions

    For the purposes of this permitting action, the following terms are defined as follows:

    a. Combined Sewer Overflow - a discharge of excess waste water from a municipal or quasi-municipal sewerage system that conveys both sanitary wastes and storm water in a single pipe system and that is in direct response to a storm event or snowmelt.
    b. Dry Weather Flows - flow in a sewerage system that occurs as a result of non-storm events or are caused solely by ground water infiltration.
    c. Wet Weather Flows - flow in a sewerage system that occurs as a direct result of a storm event, or snowmelt in combination with dry weather flows.

SPECIAL CONDITIONS

L. CHAPTER 530(2)(D)(4) CERTIFICATION

On or before December 31 of each year *[PCS code 95799]* the permittee is required to file a statement with the Department describing the following.

1. Changes in the number or types of non-domestic wastes contributed directly or indirectly to the wastewater treatment works that may increase the toxicity of the discharge;

2. Changes in the operation of the treatment works that may increase the toxicity of the discharge; and

3. Changes in industrial manufacturing processes contributing wastewater to the treatment works that may increase the toxicity of the discharge.

Further, the Department may require that annual WET, analytical chemistry and or priority pollutant testing be re-instituted if it determines that there have been changes in the character of the discharge or if annual certifications described above are not submitted.

M. 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 Department assigned inspector (unless otherwise specified by the Department) at the following addresses:

Department of Environmental Protection
Eastern Maine Regional Office
Bureau of Land and Water Quality
Division of Water Quality Management
106 Hogan Road
Bangor, Maine 04401

SPECIAL CONDITIONS

M. MONITORING AND REPORTING

Additional monthly reporting requires submitting (in electronic version preferably) a *DEP-49-CSO Form For Use With Non-Dedicated CSO Primary Clarifiers"* (See Attachment C of this permit) to:

CSO Coordinator
Department of Environmental Protection
Bureau of Land & Water Quality
Division of Water Quality Management
17 State House Station
Augusta, Maine 04333
e-mail: CSOCoordinator@maine .gov

N. 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 or ambient water quality monitoring if results on file are inconclusive; or (3) change monitoring requirements or limitations based on new information.

O. SEVERABILITY

In the event that any provision, or part thereof, of this permit is declared to be unlawful by a reviewing court, the remainder of the permit shall remain in full force and effect, and shall be construed and enforced in all aspects as if such unlawful provision, or part thereof, had been omitted, unless otherwise ordered by the court.

ATTACHMENT A

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
WHOLE EFFLUENT TOXICITY REPORT
MARINE WATERS

Facility Name _____ MEPDES Permit # _____

Facility Representative _____ Signature _____

By signing this form, I attest that to the best of my knowledge that the information provided is true, accurate, and complete.

Facility Telephone # _____ Date Collected _____ Date Tested _____

mm/dd/yy mm/dd/yy

Chlorinated? _____ Dechlorinated? _____

Results % effluent

	mysid shrimp	sea urchin
A-NOEL		
C-NOEL		

Effluent Limitations

A-NOEL	
C-NOEL	

Data summary

	mysid shrimp	sea urchin
	% survival	% fertilized
QC standard	>90	>80
lab control		
receiving water control		
conc. 1 (%)		
conc. 2 (%)		
conc. 3 (%)		
conc. 4 (%)		
conc. 5 (%)		
conc. 6 (%)		
stat test used		

place * next to values statistically different from controls

Salinity Adjustment

brine	
sea salt	
other	

Reference toxicant mysid shrimp sea urchin

	A-NOEL	C-NOEL
toxicant / date		
limits (mg/L)		
results (mg/L)		

Comments _____

Laboratory conducting test

Company Name _____ Company Rep. Name (Printed) _____

Mailing Address _____ Company Rep. Signature _____

City, State, ZIP _____ Company Telephone # _____

Report WET chemistry on DEP Form "WET and Analytical Chemistry Results - Marine Waters, December 2005."

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
WET AND ANALYTICAL CHEMISTRY RESULTS
MARINE WATERS

Facility Name _____ MEPDES Permit # _____

Facility Representative _____ Signature _____

By signing this form, I attest to the best of my knowledge that the information provided is true, accurate and complete.

Date Collected _____ mm/dd/yy

Date Analyzed _____ mm/dd/yy

Lab ID No. _____

Actual Daily Discharge Flow _____ MGD

Monthly Average Discharge Flow _____ MGD

	Analyte	Report Units	Receiving Water Results	Effluent Results	Reporting Level	Method
Analytes Required for Analytical Chemistry	Ammonia nitrogen	µg/L	*		µg/L	
	Total aluminum	µg/L	*		µg/L	
	Total arsenic	µg/L	*		µg/L	
	Total cadmium	µg/L	*		µg/L	
	Total chromium	µg/L	*		µg/L	
	Total copper	µg/L	*		µg/L	
	Total cyanide	µg/L	*		µg/L	
	Total lead	µg/L	*		µg/L	
	Total nickel	µg/L	*		µg/L	
	Total silver	µg/L	*		µg/L	
	Total zinc	µg/L	*		µg/L	
	Total residual chlorine **	mg/L			mg/L	
Additional Analytes Required For WET Chemistry	Total organic carbon	mg/L			mg/L	
	Total solids	mg/L			mg/L	
	Total suspended solids	mg/L			mg/L	
	Salinity	ppt			ppt	
	pH **	S.U.	*		S.U.	

* The receiving water chemistry tests are optional. However, samples of the receiving water should be preserved and saved for the duration of the WET test. In the event of questions about the receiving water's possible effect on the WET results, chemistry tests should then be conducted.

** WET laboratories may conduct these tests on composite samples as part of their procedures.

Comments _____

Laboratory conducting test

Company Name _____ Company Rep. Name (Printed) _____

Mailing Address _____ Company Rep. Signature _____

City, State, ZIP _____ Company Telephone # _____

Maine Department of Environmental Protection
WET and Chemical Specific Data Report Form
This form is for reporting laboratory data and facility information. Official compliance reviews will be done by DEP.

Facility Name _____ **MEPDES #** _____ **Pipe #** _____ **Facility Representative Signature** _____
To the best of my knowledge this information is true, accurate and complete.

Licensed Flow (MGD)	
Acute dilution factor	
Chronic dilution factor	
Human health dilution factor	
Criteria type: M(arine) or F(resh)	

Flow for Day (MGD)[1] _____ **Flow Avg. for Month (MGD)[2]** _____

Date Sample Collected _____ **Date Sample Analyzed** _____

Laboratory Address _____ Telephone _____

Lab Contact _____ Lab ID # _____

ERROR WARNING ! Essential facility information is missing. Please check required entries in bold above.

	WHOLE EFFLUENT TOXICITY		Effluent Limits, %			Receiving Water or Ambient	Effluent Concentration (ug/L or as noted) WET Result, % Do not enter % sign	Reporting Limit Check	Possible Exceedence [7]		
			Acute	Chronic					Acute	Chronic	
	Trout - Acute										
	Trout - Chronic										
	Water Flea - Acute										
	Water Flea - Chronic										
	WET CHEMISTRY										
	pH (S.U.)										
	Specific Conductance (umhos)										
	Total Organic Carbon (mg/L)										
	Total Solids (mg/L)										
	Total Suspended Solids (mg/L)										
	Alkalinity (mg/L)										
	Total Hardness (mg/L)										
	Total Magnesium (mg/L)										
	Total Calcium (mg/L)										
	ANALYTICAL CHEMISTRY [3]										
		Reporting Limit	Effluent Limits, ug/L Acute[6]	Chronic[6]	Health[6]			Reporting Limit Check	Possible Exceedence [7] Acute	Chronic	Health
	TOTAL RESIDUAL CHLORINE (mg/L)	0.05									
	AMMONIA	NA									
M	ALUMINUM	NA									
M	ARSENIC	5									
M	CADMIUM	1									
M	CHROMIUM	10									
M	COPPER	3									
M	CYANIDE	5									
M	LEAD	3									
M	NICKEL	5									
M	SILVER	1									
M	ZINC	5									

Maine Department of Environmental Protection
WET and Chemical Specific Data Report Form

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	PRIORITY POLLUTANTS [4]		Effluent Limits					Reporting Limit Check	Possible Exceedence [7]		
		Reporting Limit	Acute[6]	Chronic[6]	Health[6]				Acute	Chronic	Health
M	ANTIMONY	5									
M	BERYLLIUM	2									
M	MERCURY[4]	0.2									
M	SELENIUM	5									
M	THALLIUM	4									
A	2,4,6-TRICHLOROPHENOL	3									
A	2,4-DICHLOROPHENOL	5									
A	2,4-DIMETHYLPHENOL	5									
A	2,4-DINITROPHENOL	45									
A	2-CHLOROPHENOL	5									
A	2-NITROPHENOL	5									
A	4,6 DINITRO-O-CRESOL (2-Methyl-4,6-dinitrophenol)	25									
A	4-NITROPHENOL	20									
A	P-CHLORO-M-CRESOL (3-methyl-4-chlorophenol)+B80	5									
A	PENTACHLOROPHENOL	20									
A	PHENOL	5									
BN	1,2,4-TRICHLOROBENZENE	5									
BN	1,2-(O)DICHLOROBENZENE	5									
BN	1,2-DIPHENYLHYDRAZINE	10									
BN	1,3-(M)DICHLOROBENZENE	5									
BN	1,4-(P)DICHLOROBENZENE	5									
BN	2,4-DINITROTOLUENE	6									
BN	2,6-DINITROTOLUENE	5									
BN	2-CHLORONAPHTHALENE	5									
BN	3,3'-DICHLOROBENZIDINE	16.5									
BN	3,4-BENZO(B)FLUORANTHENE	5									
BN	4-BROMOPHENYLPHENYL ETHER	2									
BN	4-CHLOROPHENYL PHENYL ETHER	5									
BN	ACENAPHTHENE	5									
BN	ACENAPHTHYLENE	5									
BN	ANTHRACENE	5									
BN	BENZIDINE	45									
BN	BENZO(A)ANTHRACENE	8									
BN	BENZO(A)PYRENE	3									
BN	BENZO(G,H,I)PERYLENE	5									
BN	BENZO(K)FLUORANTHENE	3									
BN	BIS(2-CHLOROETHOXY)METHANE	5									
BN	BIS(2-CHLOROETHYL)ETHER	6									
BN	BIS(2-CHLOROISOPROPYL)ETHER	6									
BN	BIS(2-ETHYLHEXYL)PHTHALATE	3									
BN	BUTYLBENZYL PHTHALATE	5									
BN	CHRYSENE	3									
BN	DI-N-BUTYL PHTHALATE	5									
BN	DI-N-OCTYL PHTHALATE	5									
BN	DIBENZO(A,H)ANTHRACENE	5									
BN	DIETHYL PHTHALATE	5									
BN	DIMETHYL PHTHALATE	5									

Maine Department of Environmental Protection
WET and Chemical Specific Data Report Form
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BN	FLUORANTHENE	5									
BN	FLUORENE	5									
BN	HEXACHLOROBENZENE	2									
BN	HEXACHLOROBUTADIENE	1									
BN	HEXACHLOROCYCLOPENTADIENE	10									
BN	HEXACHLOROETHANE	2									
BN	INDENO(1,2,3-CD)PYRENE	5									
BN	ISOPHORONE	5									
BN	N-NITROSODI-N-PROPYLAMINE	10									
BN	N-NITROSODIMETHYLAMINE	1									
BN	N-NITROSODIPHENYLAMINE	5									
BN	NAPHTHALENE	5									
BN	NITROBENZENE	5									
BN	PHENANTHRENE	5									
BN	PYRENE	5									
P	4,4'-DDD	0.05									
P	4,4'-DDE	0.05									
P	4,4'-DDT	0.05									
P	A-BHC	0.2									
P	A-ENDOSULFAN	0.05									
P	ALDRIN	0.15									
P	B-BHC	0.05									
P	B-ENDOSULFAN	0.05									
P	CHLORDANE	0.1									
P	D-BHC	0.05									
P	DIELDRIN	0.05									
P	ENDOSULFAN SULFATE	0.1									
P	ENDRIN	0.05									
P	ENDRIN ALDEHYDE	0.05									
P	G-BHC	0.15									
P	HEPTACHLOR	0.15									
P	HEPTACHLOR EPOXIDE	0.1									
P	PCB-1016	0.3									
P	PCB-1221	0.3									
P	PCB-1232	0.3									
P	PCB-1242	0.3									
P	PCB-1248	0.3									
P	PCB-1254	0.3									
P	PCB-1260	0.2									
P	TOXAPHENE	1									
V	1,1,1-TRICHLOROETHANE	5									
V	1,1,2,2-TETRACHLOROETHANE	7									
V	1,1,2-TRICHLOROETHANE	5									
V	1,1-DICHLOROETHANE	5									
V	1,1-DICHLOROETHYLENE (1,1-dichloroethene)	3									
V	1,2-DICHLOROETHANE	3									
V	1,2-DICHLOROPROPANE	6									
V	1,2-TRANS-DICHLOROETHYLENE (1,2-trans-dichloroethene)	5									
V	1,3-DICHLOROPROPYLENE (1,3-dichloropropene)	5									
V	2-CHLOROETHYLVINYL ETHER	20									

Maine Department of Environmental Protection
WET and Chemical Specific Data Report Form
This form is for reporting laboratory data and facility information. Official compliance reviews will be done by DEP.

V	ACROLEIN	NA										
V	ACRYLONITRILE	NA										
V	BENZENE	5										
V	BROMOFORM	5										
V	CARBON TETRACHLORIDE	5										
V	CHLOROBENZENE	6										
V	CHLORODIBROMOMETHANE	3										
V	CHLOROETHANE	5										
V	CHLOROFORM	5										
V	DICHLOROBROMOMETHANE	3										
V	ETHYLBENZENE	10										
V	METHYL BROMIDE (Bromomethane)	5										
V	METHYL CHLORIDE (Chloromethane)	5										
V	METHYLENE CHLORIDE	5										
V	TETRACHLOROETHYLENE (Perchloroethylene or Tetrachloroethene)	5										
V	TOLUENE	5										
V	TRICHLOROETHYLENE (Trichloroethene)	3										
V	VINYL CHLORIDE	5										

Notes:

(1) Flow average for day pertains to WET/PP composite sample day.

(2) Flow average for month is for month in which WET/PP sample was taken.

(3) Analytical chemistry parameters must be done as part of the WET test chemistry.

(4) Priority Pollutants should be reported in micrograms per liter (ug/L).

(5) Mercury is often reported in nanograms per liter (ng/L) by the contract laboratory, so be sure to convert to micrograms per liter on this spreadsheet.

(6) Effluent Limits are calculated based on dilution factor, background allocation (10%) and water quality reserves (15% - to allow for new or changed discharges or non-point sources).

(7) Possible Exceedence determinations are done for a single sample only on a mass basis using the actual pounds discharged. This analysis does not consider watershed wide allocations for fresh water discharges.

ATTACHMENT B

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
CSO ACTIVITY AND VOLUMES

MUNICIPALITY OR DISTRICT	MEPDES / NPDES PERMIT NO.
REPORTING YEAR	SIGNED BY:
YEARLY TOTAL PRECIPITATION INCHES	DATE:

CSO EVENT NO.	START DATE OF STORM	PRECIP. DATA		FLOW DATA (GALLONS PER DAY) OR BLOCK ACTIVITY("1")							
		TOTAL INCHES	MAX. HR. INCHES	LOCATION: NUMBER:	LOCATION: NUMBER:	LOCATION: NUMBER:	LOCATION: NUMBER:	LOCATION: NUMBER:	LOCATION: NUMBER:	EVENT OVERFLOW GALLONS	EVENT DURATION HRS
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
	TOTALS										

Note 1: Flow data should be listed as gallons per day. Storms lasting more than one day should show total flow for each day.

Note 2: Block activity should be shown as a "1" if the block floated away.

ATTACHMENT C

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND
MAINE WASTE DISCHARGE LICENSE

FACT SHEET

Date: **July 28, 2006**

PERMIT NUMBER: **ME0100129**
LICENSE NUMBER: **W002751-5L-G-R**

NAME AND ADDRESS OF APPLICANT:

City of Calais
Calais City Hall
P.O. Box413
Calais, Maine 04619

COUNTY: **Washington County**

NAME AND ADDRESS WHERE DISCHARGE OCCURS:

City of Calais Waste Water Treatment Facility
Elm Street
Calais, Maine 04619

RECEIVING WATER/CLASSIFICATION: **St. Croix River/Class SC**

COGNIZANT OFFICIAL AND TELEPHONE NUMBER: **Ms. Linda Pagels**
City Manager
(207) 454-2521

1. APPLICATION SUMMARY

a. Application: The City of Calais (City hereinafter) has filed a timely and complete application to the Department to renew Department Waste Discharge License (WDL) #W002751-5L-E-R which was last issued on July 13, 1999, and expired on July 13, 2004. The 7/13/99 WDL authorized the discharge of up to a monthly average flow of 1.5 million gallons per day (MGD) of secondary treated sanitary waste waters and an unspecified quantity of excess combined sanitary and storm water receiving primary treatment only (and disinfection) from a municipal waste water treatment facility to the St. Croix River, Class SC, in Calais, Maine. See Attachment A of this Fact Sheet for a location map.

1. APPLICATION SUMMARY (cont'd)

b. Modifications requested – The City has requested the following modifications to the permit:

1. An increase in the quantity of septage the facility is authorized to receive. The permittee has requested an increase from 2,000 gallons per day (gpd) to 4,000 gpd.

2. Designate four pump stations and a bypass structure located prior to the headworks of the plant as permitted combined sewer overflow (CSO) outfalls.

c. Source Description: The facility located on Elm Street has been treating domestic, light industrial, and commercial waste waters generated in the City of Calais since 1969. See Attachment A of this Fact Sheet for a location map. The facility serves a population of approximately 3,500 people. The City has indicated there are no significant industrial users (SIUs) currently contributing waste waters to the treatment facility for which pretreatment of their waste waters is required. As a result, the City is not required to adopt a formal pretreatment program developed in accordance with Department rule Chapter 528, *Pretreatment Program.*

The facility is being authorized to receive and treat up to 4,000 gallons per day (gpd) of septage. This quantity has been increased from 2,000 gpd authorized in the previous licensing action. The permittee has submitted an updated septage management plan pursuant to Department regulation, Chapter 555, *The Addition of Septage Into Waste Water Treatment Facilities*, as an exhibit to the 1/16/04 application for renewal of the WDL. The updated septage management plan has been reviewed and approved by the Department as part of this permit renewal. See Special Condition J of this permit.

In addition to receiving septage, the Calais waste water treatment facility has historically received sludge generated at the Passamaquoddy Indian's Pleasant Point waste water treatment located in Perry, Maine. The quantity of sludge received is not considered to be septage for the purposes of record keeping. Volumes/quantities of septage and sludge received at the facility are tracked independently. The sludge is introduced into Calais' solids handling facility where it is co-mingled with sludge generated by the Calais facility. The dewatered sludge is transported to a composting facility permitted by the Department for further processing.

The City's sewer collection system is approximately 15 miles in length and is approximately 25% combined and 75% separated with ten (10) pump stations. In March of calendar year 2004, the City of Calais completed electrical upgrades at all ten pump stations. The upgrades included providing new electrical services, new control panels, emergency back-up power and alarm telemetry. The City of Calais has recently re-constructed three major pump stations; Union Street, King Street and Steamboat Street.

1. APPLICATION SUMMARY (cont'd)

The collection system does not currently have sufficient capacity to transport the volume of inflow and infiltration (I&I) water experienced during periods of rainfall and snow melt. This permit authorizes the discharge of an unspecified quantity of untreated sanitary/storm water from five (5) combined sewer overflows (CSOs), outfalls associated with the collection system and are listed in Special Condition K, *Combined Sewer Overflows (CSO),* of this permitting action. On August 31, 2006, the City submitted a CSO Master Plan to the Department and documented implementation of the Nine Minimum Controls specified in EPA's National CSO Policy. The master plan assesses a full range of abatement alternatives, taking into consideration technical, environmental, and economic factors. It shall also provide for on-going compliance monitoring to be done during implementation of recommended abatement measures. The Master Plan is currently being reviewed by the Department. The scope of work and schedule to complete said scope has not been approved by the Department as of the date of this permitting action. Once approval is granted, this permit may be reopened pursuant to Special Condition N, *Reopening of Permit For Modifications*, of this permit to incorporate project milestones or dates for completion of projects.

d. Waste Water Treatment: The City of Calais operates a conventional biological waste water treatment facility that was constructed in 1969 to process sewage from the urban areas of the community. The treatment plant removes pollutants from the influent waste water prior to being discharged into the St. Croix River. This is accomplished by a series of unit processes that progressively treat the waste water as it flows through the plant. The plant's original unit processes were augmented by an upgrade to the facility in 1990.

Attachment B of this Fact Sheet contains a schematic presentation of the treatment plant's unit processes. The original 1969 plant design included an inlet overflow structure and gate to restrict peak flows into the plant to just under the facility's hydraulic capacity. This was sealed off during the 1990 upgrade. However, given the history of washouts and flooding of the treatment facility during wet weather events, the City proposed to re-open the overflow and permit it as a CSO. Flows that are successfully conveyed to the treatment plant proceed through a headworks area containing a bar screen to remove debris that might damage downstream equipment. A grinder was upgraded in 1990, but removed in 2004. Flows are next measured in a Parshall flume structure and then sent to a grit removal system where sand and gravel are separated from the water. Waste water flows are then collected in a wet well and pumped outside to the treatment process reactors. The entire headworks area of the plant was rebuilt in 1990 as part of an effort to pass greater peak flow volumes through the facility in an apparent attempt to eliminate bypasses at the inlet gate.

1. APPLICATION SUMMARY (cont'd)

All flows that reach the facility currently receive treatment in two primary clarifiers which act as settling reactors to remove pollutants that can be removed from the wastewater by gravity sedimentation. Raw sludge from these reactors is conveyed to a gravity thickener and held until sludge processing operations are initiated. The primary clarifiers were originally installed in 1969 as final clarifiers to remove pollutants from the effluent after the aeration basins. As part of the 1990 upgrade, these reactors were converted into primary sedimentation clarifiers to remove settleable raw pollutants prior to the aeration basins. The gravity sludge thickener was added at that time as well. The purpose of this change was to allow peak flows to receive primary sedimentation along with seasonal chlorination in the storm bypass tank without washing out the downstream secondary biological processes.

Flows from the primary clarifiers next pass through a splitter box and weir gate area which is intended to limit the flow volumes that can enter the secondary treatment system. While this system has never appeared to work well, its intent was to restrict flows into the aeration basins to only 1.5 MGD and to allow occasional peak flows above that amount to be discharged to the river after seasonal disinfection. A separate chlorine contact reactor is used to chlorinate peak flows which, according to plant records, occur at a rate of less than once per month and only after high precipitation events.

Normal levels of plant flow less than 1.5 MGD leave the primary clarifiers and receive biological treatment in the plant's aeration basins. Three-75,000 gallon reactors with mechanical surface aerators are intended to provide an environment where microorganisms can grow in the presence of dissolved oxygen levels of at least 1.0 to 2.0 ppm (parts per million). Under optimal steady-state conditions, the objective of the biological treatment process is to grow a mass of microbes with a population in proportion to the mass of pollutants entering the reactors. Under balanced conditions, the microbes will incorporate the waterborne pollutants into their cells and leave clean water in the bulk effluent outside of their cells.

Flows next proceed to two final clarifiers where the microbes are held under quiescent conditions and allowed to settle to the bottom of the reactors. The present final clarifiers were added to the plant in 1990 to replace the original reactors which were converted to primary settling basins. The settled microbes, referred to as activated sludge, can be transferred back to the aeration basins to treat additional wastewater through the use of two return sludge pumps. In order to keep the system in balance, excess microbes must occasionally be removed from the process to maintain a steady-state population. This is accomplished by the use of a waste sludge pump that transfers excess activated sludge to a 15,000 gallon storage tank. When this vessel is full, sludge is removed from the tank. It is first dewatered on a belt filter press to reduce its volume prior to being trucked to a

1. APPLICATION SUMMARY (cont'd)

composting facility permitted by the Department. It is noted the Calais facility accepts waste activate sludge from the Passamaquoddy Indian's Pleasant Point waste water treatment facility located in Perry, Maine. The volumes of septage and sludge received at the facility are tracked independently.

Treated effluent from the final clarifiers is processed in a new chlorine contact reactor that was added in 1990. The effluent is disinfected with sodium hypochlorite prior to its discharge to the St. Croix River. The plant's normal secondary treated effluent flows up to 1.5 MGD are discharged to the St. Croix River via a single outfall measuring 15 inches in diameter. Occasional peak stormwater flows receiving primary treatment only (CSO related bypass of secondary treatment) in excess of 1.5 MGD (upon permit issuance and lasting through 12/31/07, then 1.8 MGD thereafter) are going to be discharged to the St. Croix River via a single outfall pipe measuring 18 inches in diameter. The pipe for Outfall #001 was extended from the shore out to the river channel during the 1990 upgrade to improve dilution and mixing because the previous outfall was considered a bank outfall. Once the new outfall was installed, the facility experienced surcharging during high tide events due to improper hydraulic sizing of the outfall.

It is noted Outfall #003 (CSO located just prior to the headworks of treatment plant) will discharge to the St. Croix River via two new outfalls pipes each measuring 18 inches in diameter. Installation of the new outfalls is scheduled for August 1, 2007.

The City of Calais has contracted with a local engineer firm and recently completed a comprehensive waste water infrastructure facilities plan (entitled Wastewater Infrastructure Facilities Evaluation, June 2004) to address deficiences in design and operational issues associated with the collection sytems and the waste water treatment facility. The final scope of work, schedule and financing of proposed improvements has not been finalized as of the date of this permitting action.

2. PERMIT SUMMARY

a. Regulatory: On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (EPA) to administer the National Pollutant Discharge Elimination System (NPDES) permitting program in Maine. From that point forward, the program has been referred to as the MEPDES permit program. NPDES permit #ME0100129 last issued by the EPA on September 30, 1997 and expired on September 30, 2002, will be replaced upon issuance of a final MEPDES permit. Once replaced, all terms and conditions of the NPDES are null and void.

2. PERMIT SUMMARY (cont'd)

b. Permit Summary: **This permitting action is similar to the 7/13/99 WDL action in that it is;**

Secondary Treated Waste Waters:

1. Carrying forward the monthly average flow limit of 1.5 MGD.

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

3. Carrying forward the reporting requirement for the daily maximum mass loadings for BOD_5 and TSS.

4. Carrying forward the monthly average (geometric mean) and daily maximum water quality based limits for fecal coliform bacteria.

5. Carrying forward the daily maximum technology based concentration limit for settleable solids.

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

7. Carrying forward whole effluent toxicity (WET) and chemical specific (analytical chemistry and priority pollutant) testing requirements but modifying the terms and conditions of the testing requirements based on new rules for said testing that were promulgated by the Department in November 2005.

CSO Related Bypasses of SecondaryTtreatment: - (For the purposes of this permitting action, this term refers to structures and or processes at the waster water treatment facility that provide equivalent to primary treatment and disinfection of waste waters that bypass the biological treatment portion of the facility in an effort to mitigate the discharge of untreated combined sanitary waste waters and storm water from the five CSOs listed in Special Condition L of this permit)

8. Carrying forward monthly average and or daily maximum reporting requirement for mass and concentration for flow, surface overflow rates, number of discharge days per month and percent removal for BOD5 and TSS.

9. Carrying forward the daily maximum technology based limits for fecal coliform bacteria and total residual chlorine.

2. PERMIT SUMMARY (cont'd)

CSO Related Bypasses of Secondary Treatment:

This permitting action is different than the 7/13/99 WDL action in that it is;

Secondary Treated Waste Waters:

10. Eliminating the 1/Year surveillance level WET and chemical specific testing.

11. Revising the disinfection season from May 10th – September 30th to May 15th – September 30th to be consistent with state law.

12. Revising the daily maximum technology based pH range limit from 6.0 – 8.5 standard units to 6.0 – 9.0 standard units based on a more current Department regulation.

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

14. Establishing a peak hourly flow rate of 1,042 gpm (1.5 MGD) as the trigger flow for the use of the CSO related bypass of the secondary treatmet system located at the treatment plant. The trigger flow of 1.5 MGD is in effect upon issuance of the permit and lasts through December 31, 2007. Thereafter, the trigger flow is increased to 1,250 gpd (1.8 MGD).

15. Revising the disinfection season from May 10th – September 30th to May 15th – September 30th.

16. Revising the pH range limitation from 6.0 –8.5 standard units to 6.0 – 9.0 standard units.

17. Eliminating the monthly average technology based limits for fecal coliform bacteria and pH.

General

18. Requiring the permittee to maintain an up-to-date Operations and Maintenance (O&M) Plan and Wet Weather Management Plan.

19. Increasing the quantity of septage the facility is authorized to receive and introduce into the treatment process or solids handling facility from 2,000 gpd to 4,000 gpd.

20. Permitting the discharge from and requiring monitoring of five combined sewer overflow (CSO) outfalls. Four of the CSOs are at pump stations and one CSO is located just prior to the headworks of the waste water treatment facility.

2. PERMIT SUMMARY (cont'd)

21. Authorizing receipt of sludge from outside entities for processing at the waste water treatment facility.

c. History – The most current relevant regulatory actions include:

September 30, 1997 – The EPA issued NPDES permit renewal #ME0100129 for a five-year term.

July 13, 1999 - The Department issued WDL #W002751-5L-E-R for a five-year term.

May 23, 2000 – The Department administratively modified the 7/13/99 WDL by establishing interim mean and maximum technology based concentration limitations of 16.7 ng/L and 25.1 ng/L, respectively.

January 16, 2004 – The City of Calais submitted a timely and complete application to the Department to renew the 7/13/99 WDL.

June 20, 2004 – The City of Calais' consulting engineer submitted a final document entitled, *Waste Water Infrastructure Facilities Evaluation*, to the Department. The report recommends significant structural and operational improvements for the treatment plant and collection system.

April 10, 2006 – The Department issued a modification of the 7/13/99 WDL by incorporating the WET and chemical specific testing requirements of a new Department rule, Chapter 530, *Surface Water Toxics Control Program.*

August 31, 2006 – The City of Calais submitted a document entitled, Sewer System Master Plan For CSO Abatement, City of Calais, August 2006 to the Department for review and approval. It is noted the Master Plan has not been approved by the Department as of the date of this permitting action.

September 2006 – The Board of Environmental Protection approved a Consent Agreement between the State of Maine and the City of Calais for violations of its waste discharge license.

3. CONDITIONS OF PERMITS

Maine law, 38 M.R.S.A. Section 414-A, requires that the effluent limitations prescribed for discharges, including, but not limited to, effluent toxicity, require application of best practicable treatment (BPT), be consistent with the U.S. Clean Water Act, and ensure that the receiving waters attain the State water quality standards as described in Maine's Surface Water Classification System. In addition, 38 M.R.S.A., Section 420 and Department rule 06-096 CMR Chapter 530, *Surface Water Toxics Control Program,* require the regulation of toxic substances not to exceed levels set forth in Department rule 06-096 CMR Chapter 584, *Surface Water Quality Criteria for Toxic Pollutants*, and that ensure safe levels for the discharge of toxic pollutants such that existing and designated uses of surface waters are maintained and protected.

4. RECEIVING WATER QUALITY STANDARDS

Maine law, 38 M.R.S.A., Article 4-A §469(7)(B) classifies the St. Croix River at and below the discharge from the Calais waste water treatment facility as a Class SC waterway. Maine law, 38 M.R.S.A., Article 4-A, §465-A(3) describes the classification standards for Class SC waters.

5. RECEIVING WATER CONDITIONS

A document entitled, *The State of Maine, Department of Environmental Protection, 2004 Integrated Water Quality Monitoring and Assessment Report,* published by the Department indicates the St. Croix River at and below the discharge from the Calais waste water treatment facility is attaining standards of its assigned classification.

6. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Secondary Treated Effluent:

a. Flow: The monthly average flow limitation of 1.5 MGD in the previous licensing action is being carried forward in this permitting action and has been demonstrated that this flow is representative of the flow that can be consistently treated via the secondary treatment processes of the treatment plant for periods of up to a week or more. It is noted the permittee has indicated in their application for permit renewal that historic design specifications for the waste water treatment capacity are 0.71 MGD as a monthly average, 0.87 MGD as a daily maximum and 1.5 MGD as an instantaneous peak flow. This permitting action is establishing tiered peak hourly trigger flows of 1.5 MGD (upon issuance of the permit and lasts through December 31, 2007) and 1.8 MGD (secondary clarifier capacity being the limiting factor) thereafter, as the flows in which the permittee is authorized to bypass the secondary treatment process. Waste water bypassing the secondary treatment process will receive primary treatment and seasonal disinfection and discharged to the St. Croix River via a separate outfall pipe than the secondary treated waste waters.

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

Secondary Treated Effluent:

b. Dilution Factors - Department Regulation Chapter 530, *Surface Water Toxics Control Program*, November 2005, §4(A) states that for discharges to where tidal flow is dominant, 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 §4(B) Where appropriate, other methods such as dye studies or water quality methods may be used.

The Department has made the determination that at the point of discharge, freshwater river flow is dominant and has therefore calculated the dilution factors for the facility based on a monthly average flow limitation of 1.5 MGD as follows:

¼Acute[(1)]: 1Q10 = 194 cfs $\Rightarrow \frac{(194 \text{ cfs})(0.6464) + (1.5 \text{ MGD})}{(1.5 \text{ MGD})} = 84{:}1$

Acute: 1Q10 = 775 cfs[(2)] $\Rightarrow \frac{(775 \text{ cfs})(0.6464) + (1.5 \text{ MGD})}{(1.5 \text{ MGD})} = 335{:}1$

Chronic: 7Q10 =775 cfs[(2)] $\Rightarrow \frac{(775 \text{ cfs})(0.6464) + (1.5 \text{ MGD})}{(1.5 \text{ MGD})} = 335{:}1$

Harmonic Mean: = 1,928 cfs $\Rightarrow \frac{(1{,}928 \text{ cfs})(0.6464) + (1.5 \text{ MGD})}{(1.5 \text{ MGD})} = 832{:}1$

Footnotes

(1) Chapter 530, §(4)(B)(1) states that analyses using numerical 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 and to ensure a zone of passage of at least 3/4 of the cross-sectional area of any stream as required by Chapter 581. 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 flow, up to and including all of it, as long as the required zone of passage is maintained. Based on information provided by the City as to the configuration, location and observed hydraulic issues associated with the outfall pipe, 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.

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

Secondary Treated Effluent:

(2) The 1Q10 and 7Q10 are based on a minimum flow of 750 cfs being maintained at the Domtar mill in Baileyville, approximately 10 miles upstream plus the drainage area between the mill and the discharge from the Calais waste water treatment facility.

c. Biochemical Oxygen Demand (BOD5) & Total Suspended Solids (TSS): - The previous licensing action established monthly and weekly average BOD5 and TSS best practicable treatment (BPT) concentration limits of 30 mg/L and 45 mg/L respectively, that are based on secondary treatment requirements in 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 permitting action.

As for mass limitations, the previous licensing action established monthly average and weekly average limitations based on a monthly average limit of 1.5 MGD that are being carried forward in this permitting action. The limitations were calculated as follows:

Monthly average: (1.5 MGD)(8.34)(30 mg/L) = 375 lbs/day
Weekly average: (1.5 MGD)(8.34)(45 mg/L) = 563 lbs/day

No daily maximum mass limitations (report only) for BOD5 or TSS were established in the previous licensing or this permitting action as doing so may discourage the City from treating as much waste water as possible through the secondary treatment system during wet weather events.

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).

The monitoring frequency of 2/Week in the previous licensing action is being carried forward in the permitting action and is based on a long standing Department guidance for facilities permitted to discharge between 1.5 MGD and 5.0 MGD.

d. Settleable Solids – The previous licensing action 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.

The previous licensing action established a monitoring frequency of 5/Week which is being increased to 1/Day in the permitting action.

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

Secondary Treated Effluent:

e. Fecal coliform bacteria – The previous licensing action established a seasonal (May 10th – September 30th) 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 but the disinfection season is being revised to the time frame of May 15th – September 30th to be consistent with the time frame in Maine law, 38 MRSA, Article 4-A, §465-A(3).

The monitoring frequency of 2/Week in the previous licensing action is being carried forward in the permitting action and is based on a long standing Department guidance for facilities permitted to discharge between 1.5 MGD and 5.0 MGD.

f. Total Residual Chlorine - The previous licensing action established a daily maximum technology based 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. The Department imposes the more stringent of the water quality or technology based limits in permitting actions. Because the discharge is to a receiving water that is subject to both freshwater and marine organisms, the more stringent of AWQC (marine waters) for TRC is being applied. 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	0.013 mg/L	0.0075 mg/L	84:1	335.1:1	1.1 mg/L	2.5 mg/L

Example calculation: Acute – 0.013 mg/L (84) = 1.1 mg/L

The Department has established a daily maximum 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. In the case of Calais, both the acute and chronic water quality based thresholds are greater than 1.0 mg/L, therefore, the daily maximum BPT limit of 1.0 mg/L is being imposed.

The monitoring frequency of 1/Day in the previous licensing action is being carried forward in the permitting action and is based on a long standing Department guidance for facilities permitted to discharge between 1.5 MGD and 5.0 MGD.

g. 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 BPT limitations. This permitting action is expanding the range limit from 6.0 – 8.5 to 6.0 –9.0

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

Secondary Treated Effluent:

standard units pursuant to a more current Department rule found at Chapter 525(3)(III)(c). The new limits are considered BPT.

The monitoring frequency of 1/Day in the previous licensing action is being carried forward in the permitting action and is based on a long standing Department guidance for facilities permitted to discharge between 1.5 MGD and 5.0 MGD.

h. Mercury: Pursuant to Maine law, 38 M.R.S.A. §420 and Department rule, 06-096 CMR Chapter 519, *Interim Effluent Limitations and Controls for the Discharge of Mercury*, the Department issued a *Notice of Interim Limits for the Discharge of Mercury* to the permittee on May 23, 2000, thereby administratively modifying WDL # W002751-5L-E-R by establishing interim monthly average and daily maximum effluent concentration limits of 16.7 parts per trillion (ppt) and 25.1 ppt, respectively, and a minimum monitoring frequency requirement of four tests per year for mercury. The interim mercury limits were scheduled to expire on October 1, 2001. However, effective

June 15, 2001, the Maine Legislature enacted Maine law, 38 M.R.S.A. §413, sub-§11 specifying that interim mercury limits and monitoring requirements remain in effect. It is noted that the mercury effluent limitations have not been incorporated into Special Condition A, *Effluent Limitations And Monitoring Requirements*, of this permit as the limits and monitoring frequencies are regulated separately through Maine law, 38 M.R.S.A. §413 and Department rule Chapter 519. The interim mercury limits remain in effect and enforceable and modifications to the limits and/or monitoring frequencies will be formalized outside of this permitting document pursuant to Maine law, 38 M.R.S.A. §413 and Department rule Chapter 519.

i. Whole Effluent Toxicity (WET) & Chemical-Specific Testing: Maine law, 38 M.R.S.A., Sections 414-A and 420, prohibit the discharge of effluents containing substances in amounts that 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 USEPA. Department Rules, 06-096 CMR Chapter 530, *Surface Water Toxics Control Program*, and Chapter 584, *Surface Water Quality Criteria for Toxic Pollutants* set forth ambient water quality criteria (AWQC) for toxic pollutants and procedures necessary to control levels of toxic pollutants in surface waters.

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

Secondary Treated Effluent

WET, priority pollutant and analytical chemistry testing, as required by Chapter 530, is included in this permit in order to fully characterize the effluent. This 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 wastewater, 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. Priority pollutant and analytical chemistry testing is required to assess the levels of individual toxic pollutants in the discharge, comparing each pollutant to acute, chronic, and human health AWQC as established in Chapter 584.

Chapter 530 establishes four categories of testing requirements based predominately on the chronic dilution factor. The categories are as follows:

Level I – chronic dilution factor of <20:1.
Level II – chronic dilution factor of ≥20:1 but <100:1.
Level III – chronic dilution factor ≥100:1 but <500:1 or >500:1 and Q ≥1.0 MGD
Level IV – chronic dilution >500:1 and Q ≤1.0 MGD

Department rule Chapter 530 (2)(D) specifies the criteria to be used in determining the minimum monitoring frequency requirements for WET, priority pollutant and analytical chemistry testing. Based on the Chapter 530 criteria, the permittee's facility falls into the Level III frequency category as the facility has a chronic dilution factor ≥100:1 but <500:1. Chapter 530(2)(D)(1) specifies that surveillance and screening level testing requirements are as follows:

Screening level testing

Level	WET Testing	Priority pollutant testing	Analytical chemistry
III	1 per year	1 per year	4 per year

Surveillance level testing

Level	WET Testing	Priority pollutant testing	Analytical chemistry
III	1 per year	None required	1 per year

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

Secondary Treated Effluent

A review of the data on file with the Department for the City indicates that to date, they have fulfilled the WET and chemical-specific testing requirements of the former Chapter 530.5. See Attachment C of this Fact Sheet for a summary of the WET test results and Attachment D of this Fact Sheet for a summary of the chemical-specific test dates.

WET test evaluation

Chapter 530 §(3)(E) states "*For effluent monitoring data and the variability of the pollutant in the effluent, the Department shall apply the statistical approach in Section 3.3.2 and Table 3-2 of USEPA's "Technical Support Document for Water Quality-Based Toxics Control" (USEPA Publication 505/2-90-001, March, 1991, EPA, Office of Water, Washington, D.C.) to data to determine whether water-quality based effluent limits must be included in a waste discharge license. Where it is determined through this approach that a discharge contains pollutants or WET at levels that have a reasonable potential to cause or contribute to an exceedence of water quality criteria, appropriate water quality-based limits must be established in any licensing action.*"

On July 27, 2006, the Department conducted a statistical evaluation on the most recent 60 months of WET test results on file with the Department in accordance with the statistical approach cited above. The statistical evaluation indicates the discharge from the permittee's waste water treatment facility does not exceed or have a reasonable potential to exceed the critical acute (1.2%) or chronic (0.30%) water quality thresholds for any of the WET species tested to date. Therefore, no numeric limitations for any WET species tested to date are being established in this permitting action. It is noted, the critical water quality thresholds expressed in percent (%) were derived as the mathematical inverse of the applicable dilution factors.

As for testing frequencies Chapter 530(2)(D)(3)(b) states in part that for Level III facilities "*... may be waived from conducting surveillance testing for individual WET species or chemicals provided that testing in the preceding 60 months does not indicate any reasonable potential for exceedence as calculated pursuant to section 3(E)*". Based on the results of the 7/27/06 statistical evaluation, the permittee qualifies for the testing waiver. Therefore, this permit action establishes a screening level WET testing requirements as follows:

Beginning 12 months prior to permit expiration and every five years thereafter

Level	WET Testing
III	1 per year

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

Secondary Treated Effluent

Chapter 530 (2)(D) states:

(4) All dischargers having waived or reduced testing must file statements with the Department on or before December 31 of each year describing the following.

(a) Changes in the number or types of non-domestic wastes contributed directly or indirectly to the wastewater treatment works that may increase the toxicity of the discharge;
(b) Changes in the operation of the treatment works that may increase the toxicity of the discharge; and
(c) Changes in industrial manufacturing processes contributing wastewater to the treatment works that may increase the toxicity of the discharge.

Special Condition L, *Chapter 530 (2)(D)(4) Certification,* of this permitting action requires the permitee to file an annual certification with the Department.

It is noted however that if future WET testing results indicates the discharge exceeds critical water quality thresholds this permit will be reopened pursuant to Special Condition N, *Reopening of Permit For Modification*, of this permit to establish applicable limitations and monitoring requirements.

Chemical specific testing evaluation

Chapter 530 §3 states, "*In determining if effluent limits are required, the Department shall consider all information on file and effluent testing conducted during the preceding 60 months. However, testing done in the performance of a Toxicity Reduction Evaluation (TRE) approved by the Department may be excluded from such evaluations.*"

Chapter 530 §4(C), states "*The background concentration of specific chemicals must be included in all calculations using the following procedures. The Department may publish and periodically update a list of default background concentrations for specific pollutants on a regional, watershed or statewide basis. In doing so, the Department shall use data collected from reference sites that are measured at points not significantly affected by point and non-point discharges and best calculated to accurately represent ambient water quality conditions." The Department shall use the same general methods as those in section 4(D) to determine background concentrations. For pollutants not listed by the Department, an assumed concentration of 10% of the applicable water quality criteria must be used in calculations.* The Department has very limited information on the background levels of metals in the water column of the St. Croix River. Therefore, a default background concentration of 10% of the applicable water quality criteria is being used in the calculations of this permitting action.

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

Secondary Treated Effluent

Chapter 530 4(E), states "*In allocating assimilative capacity for toxic pollutants, the Department shall hold a portion of the total capacity in an unallocated reserve to allow for new or changed discharges and non-point source contributions. The unallocated reserve must be reviewed and restored as necessary at intervals of not more than five years. The water quality reserve must be not less than 15% of the total assimilative quantity*". Therefore, the Department is reserving 15% of the applicable water quality criteria in the calculations of this permitting action.

Chapter 530 §(3)(E) states "*... that a discharge contains pollutants or WET at levels that have a reasonable potential to cause or contribute to an exceedence of water quality criteria, appropriate water quality-based limits must be established in any licensing action.*

As with WET test results, on July 27, 2006, the Department conducted a statistical evaluation on the most recent 60 months of chemical specific test results on file with the Department in accordance with the statistical approach outlined in Chapter 530. The statistical evaluation indicates there are no parameters that exceed or have a reasonable potential to exceed the acute, chronic or human health AWQC.

As for testing frequencies, Chapter 530(2)(D)(3)(b) states in part that for Level III facilities "*... may be waived from conducting surveillance testing for individual WET species or chemicals provided that testing in the preceding 60 months does not indicate any reasonable potential for exceedence as calculated pursuant to section 3(E)*". Based on the results of the 7/27/06 statistical evaluation, the permittee qualifies for the testing waiver. Therefore, this permit action establishes a screening level analytical chemistry and priority pollutant testing requirements as follows:

Beginning 12 months prior permit expiration and lasting through permit expiration and every five years thereafter

Level	Priority pollutant testing	Analytical chemistry
III	1 per year	4 per year

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

Secondary Treated Effluent

Chapter 530 (2)(D) states:

(4) All dischargers having waived or reduced testing must file statements with the Department on or before December 31 of each year describing the following.

(a) Changes in the number or types of non-domestic wastes contributed directly or indirectly to the wastewater treatment works that may increase the toxicity of the discharge;

(b) Changes in the operation of the treatment works that may increase the toxicity of the discharge; and

(c) Changes in industrial manufacturing processes contributing wastewater to the treatment works that may increase the toxicity of the discharge.

As with WET testing, Special Condition L, *Chapter 530 (2)(D)(4) Certification*, of this permitting action requires the permitee to file an annual certification with the Department.

j. Septage – The previous licensing action authorized the permittee to accept and treat up to 2,000 gpd of septage from local septage haulers. The permittee has requested to increase the limit to 4,000 gpd. Department rule Chapter 555, *Addition of Septage To Waste Water Treatment Facilities*, limits the quantity of septage treated at a facility to 1% of the design capacity of treatment facility. With a design capacity of 1.5 MGD, 4,000 gpd only represents 0.3% of said capacity. The permittee has submitted an up-to-date Septage Management Plan as an exhibit to its 2004 application for permit renewal. The Department has reviewed and approved said plan and determined that under normal operating conditions, the addition of 4,000 gpd of septage to the facility will not cause or contribute to upset conditions of the treatment process.

Primary Treated Effluent & Combined Sewer Overflows

The applicant maintains a combined sewer system from which wet weather overflows have been documented. To address and control these events, the permittee has prepared a Master Plan (Long Term Control Plan) and implemented the EPA's Nine Minimum Controls for its sewer systems and consider various control options. See Special Condition L, *Combined Sewer Overflows (CSO's)* of this permit. The plan must addresses all of the relevant considerations contained in EPA's CSO Policy, section II.C. See Federal Register, April 19, 1994. One element of the applicant's Master Plan is to maximize existing infrastructure to covey as much excess wet weather flow to the treatment facility as practicable. However, due to the nature and volume of wet weather flows, it is not possible to

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

provide secondary treatment for all flows that can be conveyed to the treatment plant site. Attempting to do so would cause upsets and damage to the secondary treatment process. Expansion of the secondary system would not be practicable since the facilities would be too large to effectively treat normal dry weather flows.

Given these circumstances, and consistent with EPA's April 19, 1994, CSO Policy, Section II.C.7, the Department has determined that primary treatment and seasonal disinfection is an appropriate means of best practicable treatment (BPT) for CSO related bypass (of secondary treatment) flows received at the treatment plant. A review of the design of the existing secondary system and past operational records indicates that the current secondary treatment can be provided for flows up to a peak hourly flow of 1.5 MGD. With the completion of the CSO/outfall piping project scheduled for December 31, 2007, the peak hourly flow for the secondary treatment system will be increased to 1.8 MGD. Special Condition A(2), *Effluent Limitations and Monitoring Requirements*, automatically increases the trigger flow for the CSO related bypass to 1.8 MGD as of January 1, 2008. However, to assure that the secondary treatment capacity is fully utilized, the permit contains a requirement for a Wet Weather Flow Management Plan that will be update periodically. Flows delivered to the treatment facility site in excess of that which can be given secondary treatment will receive primary treatment using the existing primary clarifiers and disinfection using sodium hypochlorite to achieve a daily maximum BPT limit of 1.0 mg/L. Since the flow receiving primary treatment will likely be dilute under wet weather conditions and the fact the primary clarifiers are being loaded beyond normal surface overflow rates, traditional removal rates for primary treatment are not likely to be consistently achieved. Accordingly, the permit requires monitoring and reporting for BOD and TSS along with surface overflow rate.

Bacterial contamination is the most direct water quality risk from wet weather discharge events and the permit contains limits for fecal coliform bacteria and total residual chlorine for those times of the year when disinfection is required to meet water quality standards. Since the primary effluent is somewhat more difficult to disinfect due to a higher organic content and flow variations, the use of a daily maximum of 50 col/100mL for fecal coliform bacteria as in the secondary effluent would be inappropriate. Using best professional judgement, the Department is establishing a fecal coliform effluent concentration of 200 col/100mL. Given the available dilution, this value is protective of receiving water quality. The total residual chlorine limit is established using the same considerations as for the secondary effluent, see Section 6(f) of the Fact Sheet.

7. DISCHARGE IMPACT ON RECEIVING WATER QUALITY

The Department acknowledges that the elimination of the four (4) CSO's in the collection system and the one CSO at the treatment plant (prior to the headworks) are costly long term projects. As the City's sewer collection system is upgraded and maintained in accordance with the most current abatement schedule in the City's future CSO Master Plan and Nine Minimum Controls, there should be reductions in the frequency and volume of CSO activities and in the waste water receiving primary treatment only at the treatment plant over time. The Department expects these reductions to show an improvement in the ambient water quality of the St. Croix River and other receiving waters impacted by CSO discharges. Based on information to date, the Department of Environmental Protection has determined the existing water uses will be maintained and protected provided the permittee complies with the terms and condition established herein.

With the exception of the pH range limitations, the effluent limitations in this permit are equal to or more stringent than the limits in the previous license and/or effective NPDES permit.

8. PUBLIC COMMENTS

Public notice of this application was made in the local newspaper on or about January 14, 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 Quality Management
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 July 28, 2006 through issuance of this permit, the Department solicited comments from state and federal agencies as well as parties that expressed interest in the proposed draft permit for the City of Calais' waste water treatment facility. The Department received written comments from the permittee in a letter dated August 28, 2006. Comments received cited a number minor typographical type errors and recommendations to clarify the intent of certain language throughout the permit. None of the comments or revisions to the permit resulted in any substantive changes to the final permit. Therefore, no Response to Comments has been prepared.

ATTACHMENT A

ATTACHMENT B