STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI
GOVERNOR

DAWN R. GALLAGHER
COMMISSIONER

Jay Beaudoin
Environmental Superintendent
Domtar Maine Corporation
144 Main Street
Baileyville, ME. 04694

June 1, 2005

RE: Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0001872
Maine Waste Discharge License (WDL) Application #W002766-5N-E-R
Final Permit/License

Dear Jay:

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

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

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

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

Sincerely,

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

Enc.
cc: Tanya Hovell, DEP/EMRO
David Webster, USEPA

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DMR Lag

(reprinted from April 2003 O&M Newsletter)

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

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

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

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

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

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

DEPARTMENT ORDER

IN THE MATTER OF

DOMTAR MAINE CORPORATION BAILEYVILLE, WASHINGTON COUNTY, ME. PULP & PAPER MANUFACTURING FACILITY ME0001872 W002766-5N-E-R **APPROVAL**	)))))	MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT AND WASTE DISCHARGE LICENSE **RENEWAL**

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

APPLICATION SUMMARY

Domtar has filed an application with the Department to renew State Waste Discharge License (WDL) #W002766-44-C-R that was issued on May 17, 1996, in the name of the Georgia Pacific Corporation (GPC). The WDL expired on May 17, 2001. It is noted Domtar purchased GPC's mill in Baileyville in August of calendar year 2001. All licenses, permits, certifications, registrations and pending applications with the Department in the name of the GPC were formally transferred from the GPC to Domtar on June 19, 2001. The Domtar mill in Baileyville, Maine is an integrated mill manufacturing bleached kraft pulp and uncoated paper. The mill typically processes hardwood with periodic runs of softwood species. Domtar has applied to the Department for the issuance of a combination Maine Pollutant Discharge Elimination System (MEPDES) permit and WDL to discharge up to a daily maximum of 40 million gallons per day (MGD) of treated process waters, landfill leachate and other miscellaneous waste waters associated with the pulp and papermaking process, and up to a daily maximum of 5.6 MGD of non-contact cooling waters and some storm water runoff from two other outfalls to the St. Croix River. Domtar also maintains a multi-sector permit from the EPA for storm water outfalls associated with wood and log storage facilities and other associated adjunct facilities. The mill produced an average of 366 tons per day (TPD) of fine uncoated paper and 1,415 tons/day of unbleached kraft pulp (including market) for the period calendar years 1999 – 2001 inclusively. Pulp production is currently less than the mill's maximum production level of 1,600 tons/day due to current market conditions. For the purposes of this permitting action, the 1999-2001 values are considered representative of normal production and are therefore being used to derive applicable production based limitations.

PERMIT SUMMARY

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) program in Maine. From this point forward, the program will be referred to as the MEPDES program and the Department will utilize a permit number of #ME0001872 (same as the NPDES permit) as the primary reference number for Domtar's MEPDES permit. It is noted that the effective NPDES permits issued by the EPA on February 24, 1987, and September 30, 1993, (excepting stayed conditions of appeal) will be replaced by the MEPDES permit upon issuance and all terms and conditions of the former NPDES permits and related appeals will be null and void.

This permit is significantly different than the effective NPDES permit issued by the EPA in 1987 and the effective WDL issued by the State of Maine in 1996 (subsequently modified on August 18, 1998) due to new regulations promulgated by EPA in April of 1998 for the pulp and paper industry. The new regulation may be found at 40 Code of Federal Regulation (CFR) Part 430 and is often referred to as the "Cluster Rule."

This permit is carrying forward the following terms and conditions from WDL #W002766-44-C-R dated May 18, 1996 and or WDL Modification #W002766-44-D-M dated August 18, 1999:

1. The daily maximum flow limits for Outfalls #001, #002 and #003.

2. The seasonal daily maximum and monthly average water quality based mass limits for biochemical oxygen demand (BOD_5) and the year-round daily maximum and monthly average water quality based mass limits for total suspended solids (TSS) for Outfall #001.

3. The daily maximum temperature limits for Outfalls #001, #002 and #003, weekly average and daily maximum thermal load limitations for the three outfalls collectively, and the thermal mixing zone established in Department Order WDL #W002766-51-A-N, dated March 4, 1996.

4. The technology based pH range limitations for Outfalls #001, #002 and #003.

5. The quarterly average technology based color limit of 150 lbs/ton of unbleached pulp produced for Outfall #001.

6. The daily maximum technology based concentration limit of <10 pg/L for 2,3,7,8 TCDD (dioxin) and 2,3,7,8 TCDF (furan) at the end of the bleach plant, Outfall #100 & #200, internal waste streams for the mill.

7. The annual testing requirement for whole effluent toxicity (WET) and chemical specific (priority pollutant) for Outfall #001.

PERMIT SUMMARY (cont'd)

This permit is different from WDL #W002766-44-C-R dated May 18, 1996 and or WDL Modification WDL #W002766-44-D-M dated August 18, 1999 in that it:

8. Establishes monthly average and daily maximum technology based mass limits for adsorbable organic halogens (AOX) for Outfall #001.

9. Establishes a monthly average and daily maximum mass reporting requirement for chemical oxygen demand (COD) for Outfall #001.

10. Establishes monthly average and or daily maximum water quality mass and concentration limits for arsenic, cadmium, copper, cyanide, lead, silver and zinc for Outfall #001 and a schedule of compliance for the limits associated with arsenic and zinc.

11. Establishes an acute and chronic no observed effect level (A-NOEL, C-NOEL) for the water flea (*Ceriodaphnia dubia*).

12. Requires the submission of a toxicity reduction evaluation (TRE) for cadmium, zinc and the water flea (*Ceriodaphnia dubia*).

13. Establishes daily maximum technology based concentration limits for 12 chlorinated phenolic compounds for the bleach plant, Outfall #100 & #200.

14. Establishes monthly average and daily maximum technology based mass limits for chloroform for the bleach plant, Outfall #100 & #200 collectively.

15. Reduces the monitoring for dioxin and furan for the bleach from 1/Month to 1/Year provided the permittee provides the Department with an annual certification that there have not been any changes in the bleaching sequence/plant that would lead to the formation of dioxin/furan compounds.

16. Requires the permittee to develop, implement, and periodically update a Best Management Practices (BMP) plan for the mill operations.

17. Requires the permittee to maintain an up-to-date Operations and Maintenance (O&M) plan for the waste water treatment facility.

18. Establishes more stringent weekly average and daily maximum thermal load limitations for the three outfalls (collectively) based on updated thermal load discharge information.

CONCLUSIONS

BASED on the findings in the attached Fact Sheet dated January 21, 2005, (revised on March 25, 2005 and May 31, 2005) and subject to the Conditions listed below, the Department makes the following CONCLUSIONS:

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

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

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

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

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

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

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

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

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

ACTION

THEREFORE, the Department APPROVES the above noted application of the DOMTAR MAINE CORPORATION, to discharge treated process waste water, treated sanitary waste waters, treated landfill leachate, treated residuals storage pads leachate, treated storm water, non-contact cooling waters and other miscellaneous waste waters associated with the kraft pulp and papermaking process and related operations to St. Croix River, Class C, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations including:

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

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

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

DONE AND DATED AT AUGUSTA, MAINE, THIS 31ST DAY OF May, 2005.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAWN GALLAGHER, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application May 16, 2001.

Date of application acceptance May 30, 2001.

FILED
JUN 2 2005
BOARD OF ENVIRONMENTAL PROT.
STATE OF MAINE

Date filed with Board of Environmental Protection _____

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

W27665ne 5/31/05

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning with the effective date of this permit and lasting through permit expiration, the permittee is authorized to discharge secondary treated waste waters from **Outfall #001,** bleach plant effluent (internal waste streams) from **Outfall #100 & #200**, condensate, cooling waters (and where applicable, storm water) from **Outfalls #002 & #003**, and a total thermal load from **Outfall #00T** (administrative) to the St. Croix River. Such discharges shall be limited and monitored by the permittee as specified below. The italicized numeric values in brackets in the table below and the tables that follow are not limitations but are code numbers used by Department personnel to code Discharge Monitoring Reports (DMR's).

OUTFALL #001 – Secondary treated waste waters

Effluent Characteristic	Discharge Limitations					Minimum Monitoring Requirements	
	Monthly 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 (MGD) *[50050]*	Report MGD *[03]*	40 MGD *[03]*	---	---	---	Continuous *[99/99]*	Recorder*[RC]*
BOD_5 *[00310]*							
June 1 – Sept. 30	8,400 #/day	17,000 #/day	---	---	---	3/Week	Composite
June 1 – Sept. 30	---	12,400 #/day(1)	---	---	---	3/Week	Composite
Oct 1 – May 31	12,000 #/day *[26]*	17,000 #/day *[26]*	---	---	---	3/Week *[03/07]*	Composite *[24]*
TSS *[00530]*							
Year-round	18,600 #/day *[26]*	31,000 #/day *[26]*	---	---	---	1/Day *[01/01*	Composite *[24]*
Temperature *[00011]*							
June 1 – Sept. 30	---	---	---	---	100°F *[15]*	1/Day *[01/01]*	Measure *[MS]*
Oct. 1 – May 31	---	---	---	---	Report °F *[15]*	1/Week *[01/07]*	Measure *[MS]*
Adsorbable Organic Halogen(2) (AOX) *[03594]*	1,763 #/day *[26]*	2,691 #/day *[26]*	---	---	---	3/Week *[03/07]*	Composite *[24]*
Chemical Oxygen Demand(COD) *[81017]*	Report (#/day) *[26]*	Report (#/day) *[26]*	---	---	---	1/Day *[01/01]*	Composite *[24]*
pH (Std. Unit) *[00400]*	---	---	---	---	5.0 – 9.0 SU(3) *[12]*	1/Day *[01/01]*	Grab *[GR]*

SPECIAL CONDITIONS

OUTFALL #001 – Secondary treated waste waters (cont'd)

Effluent Characteristic	Discharge Limitations					Minimum Monitoring Requirements	
	Monthly 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 B as specified
Color *[00084]*	150 lbs/ton[4] *[42]*	---	---	---	---	3/Week *[03/07]*	Calculate *[CA]*
Arsenic (Total)[5] *[01002]* *Through December31, 2007*	Report #/day *[26]*	---	Report ug/L *[28]*	---	---	1/Quarter *[01/90]*	Composite *[24]*
Arsenic (Total)[6] *[01002]* *Beginning January 1, 2008*	0.17 #/day *[26]*	---	0.78 ug/L *[28]*	---	---	1/Quarter *[01/90]*	Composite *[24]*
Cadmium (Total) *[01027]*	1.3 #/day *[26]*	0.64 #/day *[26]*	5.8 ug/L *[28]*	---	2.9 ug/L *[28]*	1/Quarter *[01/90]*	Composite *[24]*
Copper (Total) *[01042]*	---	3.9 #/day *[26]*	---	---	18 ug/L *[28]*	1/Quarter *[01/90]*	Composite *[24]*
Cyanide (Total) *[00720]*	21 #/day *[26]*	22 #/day *[26]*	94 ug/L *[28]*	---	99 ug/L *[28]*	1/Year *[01/YR]*	Grab *[GR]*
Lead (Total) *[01051]*	1.6 #/day *[26]*	---	7.4 ug/L *[28]*	---	---	1/Quarter *[01/90]*	Composite *[24]*
Silver (Total) *[01077]*	---	0.25 #/day *[26]*	---	---	1.1 ug/L *[28]*	1/Year *[01/YR]*	Composite *[24]*
Zinc (Total)[7] *[01092]* *Through December 31, 2007*	---	Report #/day *[26]*	---	---	135 ug/L *[28]*	1/Month *[01/30]*	Composite *[24]*
Zinc (Total) *[01092]* *Beginning January 1, 2008*	---	30 #/day *[26]*	---	---	135 ug/L *[28]*	1/Month *[01/30]*	Composite *[24]*

SPECIAL CONDITIONS

OUTFALL #001- Secondary treated waste waters (cont'd)

SURVEILLANCE LEVEL TESTING – Beginning upon issuance of this permit and lasting through 12 months prior to permit expiration.

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average as specified	Daily Maximum as specified	Monthly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Whole Effluent Toxicity (WET) [8]						
A-NOEL						
Ceriodaphnia dubia [TDA3B]	---	---	---	33 % [23]	1/Quarter [01/90]	Grab [24]
Pimephales promelas [TDA6C]	----	---	---	Report % [23]	1/Year [01/YR]	Grab [24]
C-NOEL						
Ceriodaphnia dubia [TBP3B]	---	---	---	8.3 % [23	1/Quarter [01/90]	Grab [24]
Pimephales promelas [TBP6C]	---	---	---	Report % [23]	1/Year [01/YR]	Grab [24]
Chemical Specific[9]	---	---	---	Report ug/L[28]	1/Year [01/YR]	Composite/ Grab [24/GR]

SCREENING LEVEL TESTING – Beginning 12 months prior to the expiration date of the permit.

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average as specified	Daily Maximum as specified	Monthly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Whole Effluent Toxicity (WET) [8]						
A-NOEL						
Ceriodaphnia dubia [TDA3B]	---	---	---	33 % [23]	1/Quarter [01/90]	Grab [24]
Salvelinus fontinalis [TDA6F]	---	---	---	Report % [23]	2/Year [02/YR]	Grab [24]
Pimephales promelas [TDA6C]	---	---	---	Report % [23]	2/Year [02/YR]	Grab [24]
C-NOEL						
Ceriodaphnia dubia [TBP3B]	---	---	---	8.3 % [23]	1/Quarter [01/90]	Grab [24]
Salvelinus fontinalis [TBQ6F]	---	---	---	Report % [23]	2/Year [02/YR]	Grab [24]
Pimephales promelas [TBP6C]	---	---	---	Report % [23]	2/Year [02/YR]	Grab [24]
Chemical Specific[9]	---	---	---	Report ug/L[28]	1/Quarter [01/90]	Composite Grab[24/GR]

OUTFALL #100 (Bleach Plant) Acid Sewer

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average as specified	Daily Maximum as specified	Monthly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample TypeB as specified
Flow [50050]	Report MGD [03]	Report MGD [03]	---	---	Continuous [99/99]	Recorder [RC]
2,3,7,8 TCDD (Dioxin) (10) [34675]	---	---	---	<10 pg/L (11) [3L]	1/Year [01/YR]	Composite [24]
2,3,7,8 TCDF (Furan) (10) [38691]	---	---	---	<10 pg/L (11) [3L]	1/Year [01/YR]	Composite [24]
Trichlorosyringol (12) [73054]	---	---	---	<2.5 ug/L (11) [28]	1/Month [01/30]	Composite [24]
3,4,5-Trichlorocatechol (12) [73037]	---	---	---	<5.0 ug/L (11) [28]	1/Month [01/30]	Composite [24]
3,4,,6- Trichlorocatechol (12) [51024]	---	---	---	<5.0 ug/L (11) [28]	1/Month [01/30]	Composite [24]
3,4,5-Trichloroguaiacol (12) [61024]	---	---	---	<2.5 ug/L (11) [28]	1/Month [01/30]	Composite [24]
3,4,6-Trichloroguaiacol (12) [51022]	---	---	---	<2.5 ug/L (11) [28]	1/Month [01/30]	Composite [24]
4,5,6-Trichloroguaiacol (12) [73088]	---	---	---	<2.5 ug/L (11) [28]	1/Month [01/30]	Composite [24]
2,4,5-Trichlorophenol (12) [61023]	---	---	---	<2.5 ug/L (11) [28]	1/Month [01/30]	Composite [24]
2,4,6-Trichlorophenol (12) [34621]	---	---	---	<2.5 ug/L (11) [28]	1/Month [01/30]	Composite [24]
Tetrachlorocatechol (12) [79850]	---	---	---	<5.0 ug/L (11) [28]	1/Month [01/30]	Composite [24]
Tetrachloroguaiacol (12) [73047]	---	---	---	<5.0 ug/L (11) [28]	1/Month [01/30]	Composite [24]
2,3,4,6-Tetrachlorophenol (12) [77770]	---	---	---	<2.5 ug/L (11) [28]	1/Month [01/30]	Composite [24]
Pentachlorophenol (12) [39032]	---	---	---	<5.0 ug/L (11) [28]	1/Month [01/30]	Composite [24]
Chloroform (13) [32106]	11.7 #/day	19.6 #/day	---	---	1/Week [01/07]	Grab [24]

OUTFALL #200 (Bleach Plant) Alkaline Sewer

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average as specified	Daily Maximum as specified	Monthly Average as specified	Daily Maximum as specified	Measurement Frequency As specified	Sample TypeB as specified
Flow [50050]	Report MGD [03]	Report MGD [03]	---	---	Continuous [99/99]	Recorder [RC]
2,3,7,8 TCDD (Dioxin) (10) [34675]	---	---	---	<10 pg/L(11) [3L]	1/Year [01/YR]	Composite [24]
2,3,7,8 TCDF (Furan) (10) [38691]	---	---	---	<10 pg/L(11) [3L]	1/Year [01/YR]	Composite [24]
Trichlorosyringol(12) [73054]	---	---	---	<2.5 ug/L(11) [28]	1/Month [01/30]	Composite [24]
3,4,5-Trichlorocatechol(12) [73037]	---	---	---	<5.0 ug/L(11) [28]	1/Month [01/30]	Composite [24]
3,4,,6- Trichlorocatechol(12) [51024]	---	---	---	<5.0 ug/L(11) [28]	1/Month [01/30]	Composite [24]
3,4,5-Trichloroguaiacol(12) [61024]	---	---	---	<2.5 ug/L(11) [28]	1/Month [01/30]	Composite [24]
3,4,6-Trichloroguaiacol(12) [51022]	---	---	---	<2.5 ug/L(11) [28]	1/Month [01/30]	Composite [24]
4,5,6-Trichloroguaiacol(12) [73088]	---	---	---	<2.5 ug/L(11) [28]	1/Month [01/30]	Composite [24]
2,4,5-Trichlorophenol(12) [61023]	---	---	---	<2.5 ug/L(11) [28]	1/Month [01/30]	Composite [24]
2,4,6-Trichlorophenol(12) [34621]	---	---	---	<2.5 ug/L(11) [28]	1/Month [01/30]	Composite [24]
Tetrachlorocatechol(12) [79850]	---	---	---	<5.0 ug/L(11) [28]	1/Month [01/30]	Composite [24]
Tetrachloroguaiacol(12) [73047]	---	---	---	<5.0 ug/L(11) [28]	1/Month [01/30]	Composite [24]
2,3,4,6-Tetrachlorophenol(12) [77770]	---	---	---	<2.5 ug/L(11) [28]	1/Month [01/30]	Composite [24]
Pentachlorophenol(12) [39032]	---	---	---	<5.0 ug/L(11) [28]	1/Month [01/30]	Composite [24]
Chloroform(13) [32106]	11.7 #/day	19.6 #/day	---	---	1/Week [01/07]	Grab [24]

SPECIAL CONDITIONS

OUTFALL #002 – Condensate, cooling waters and storm water

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average as specified	Daily Maximum as specified	Monthly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Flow [50050]						
June 1 – Sept. 30	2.0 MGD [03]	Report MGD [03]	---	---	1/Day [01/01]	Measure [MS]
Oct 1 – May 31	2.0 MGD [03]	Report MGD [03]	---	---	1/Week [01/07]	Measure [MS]
Temperature [00011]						
June 1 – Sept. 30	---	---	---	95°F [15]	1/Day [01/01]	Measure [MS]
Oct 1 – May 31	---	---	---	95°F [15]	1/Week [01/07]	Measure [MS]
pH (Standard Units) [00400]	---	---	---	5.0 – 9.0 SU(3) [12]	1/Day [01/01]	Grab [GR]

OUTFALL #003 – Condensate, cooling waters and storm water

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average as specified	Daily Maximum as specified	Monthly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Flow [50050]	3.6 MGD [03]	Report MGD [03]	---	---	1/Discharge Day [01/DD]	Measure [MS]
Temperature [00011]	---	---	---	95°F [15]	1/Discharge Day [01/DD]	Measure [MS]
pH (Standard Units) [00400]	---	---	---	5.0 – 9.0 SU(3) [12]	1/Discharge Day [01/DD]	Grab [GR]

SPECIAL CONDITIONS

OUTFALL #00T – Total thermal load calculated from Outfalls #001, #002 and #003

Effluent Characteristic	Discharge Limitations					Minimum Monitoring Requirements	
	Monthly 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
Thermal Discharge *June 1 – Sept. 30* *[00017]*	---	---	---	8.00 EE9[1,2] BTUs/Day *[34]*	9.20 EE9[1] BTUs/Day *[34]*	1/Day *[01/01]*	Calculate *[CA]*

Footnotes:

(a) 8.00 EE9 and 9.20 EE9 represent 8.00×10^9 and 9.2×10^9 BTUs/day. See Special Condition I of this permit for the equation to calculate the thermal loading.

(b) The weekly average limitation of 8.00×10^9 BTU's/Day is a weekly rolling average limitation.

SPECIAL CONDITIONS

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

Outfalls #001, #002, #100 & #200

Footnotes:

Effluent sampling for Outfall #001 and Outfall #002 shall be sampled for all parameters after the respective parshall flumes on a year-round basis. Any change in sampling location(s) must be reviewed and approved by the Department in writing.

Sampling – Sampling and analysis for compliance with all parameters in this permit must be conducted in accordance with; a) methods approved by 40 Code of Federal Regulations (CFR) Part 136, b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136, or c) as otherwise specified by the Department. Samples that are sent out for analysis shall be analyzed by a laboratory certified by the State of Maine's Department of Human Services.

(1) **BOD_5 - Between June 1 and September 30 of each year**, the daily maximum mass limitation is reduced to 12,400 lbs/day when the St. Croix River flow falls below 750 cfs as documented by the U.S.G.S. gauging station below the Domtar mill dam.

(2) **AOX** - The analytical method to be used to determine adsorbable organic halogens shall be EPA Method 1650 for which a ML (Minimum Level) of 20 ug/l shall be attained. The ML is defined as the level at which the analytical system gives recognizable signals and an acceptable calibration point. The mass discharged shall be based on air-dried metric tons of brown stock entering the bleach plant at or just prior to the stage where chlorine or chlorine based compounds are first added.

(3) **pH** - For Outfall #001, criteria found at Department rule Chapter 525 (4)(VIII)(A) (1&2) regarding pH limitations under continuous monitoring is applicable to these discharges when continuous monitoring is utilized.

For Outfalls 002 and 003, specified pH sample type is a grab but the permittee has the option of installing and utilizing continuous monitoring if desired. If continuous monitoring is used the criteria specified for Outfall #001 above is applicable. Effluent composite sampling may be time based 75 ml aliquot sampling at a minimum of 96, 15-minute intervals over each individual 24-hour period. The pH of the effluent shall not be more than 0.5 standard units outside the background (precipitation/ambient receiving water) pH.

SPECIAL CONDITIONS

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

Footnotes:

Outfalls #001, #002, #100 & #200

(4) **Color** – The limitation is a calendar quarterly average limitation. Quarterly results shall reported in the monthly DMR's for the months of March, June, September and December of each calendar year. The permittee shall monitor the true color (at a pH of 7.6 S.U.) in the effluent from Outfall #001 at a minimum of three (3) times per week. See Special Condition H of this permit for reporting requirements. The calculated mass discharged, expressed as lbs/ton of unbleached pulp produced entering the bleach plant at or just prior to the stage where chlorine or chlorine based compounds are first added. A color pollution unit is equivalent to a platinum cobalt color unit as described in NCASI Technical Document #253. A pound of color is defined as the number of color pollution units multiplied by the volume of effluent discharged in million gallons per day multiplied by 8.34.

(5) **Arsenic – Beginning the effective date of the permit and lasting through December 31, 2007**, the permittee shall conduct 1/Quarter testing for arsenic and report the monthly average mass and concentration limits on the applicable DMR's.

(6) **Arsenic - Beginning January 1, 2008**, the permittee will be limited to mass and concentration limits of 0.17 lbs/day and 0.78 ug/L respectively. The Department's current "Reporting Limit (RL) " for arsenic is 5 ug/L. For the purposes of reporting test results for arsenic on the monthly DMR, the following format shall be adhered to:

Detectable results: All detectable analytical test results shall be reported to the Department including results which are detected below the RL. If the concentration result is at or above RL, the concentration and corresponding mass shall be reported at those levels. It is noted the DMR will be coded and printed with a value of 5 ug/L such that detectable concentrations reported below the RL but above 0.78 ug/L will not be recorded as violations. Because the Department does not consider detectable values below the RL as scientifically defensible, mass values shall be reported as <0.17 lbs/day.

Non-detectable results: If the analytical test result is below the RL, the concentration result shall be reported as <X where X is the detection level achieved by the laboratory for that test. Because a mass cannot be calculated with a less than value, report <0.17 lbs/day on the DMR.

SPECIAL CONDITIONS

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

Footnotes:

Outfalls #001, #002, #100 & #200

(7) **Zinc – Beginning the effective date of the permit and lasting through December 31, 2007**, the permittee shall be limited to a daily maximum concentration limit of 135 ug/L and is required to report the daily maximum mass discharged. **Beginning January 1, 2008**, the daily maximum mass limit of 30 lbs/day becomes effective while the daily maximum concentration limit of 135 ug/L remains in effect.

(8) **WET** - Definitive WET testing is a multi-concentration testing event (a minimum of five dilutions set at levels to bracket the acute and chronic critical water quality threshold dilution factors of 33% and 8.3 % respectively), which provides a point estimate of toxicity in terms of No Observed Effect Level (or concentration), commonly referred to as NOEL or NOEC. A-NOEL is defined as the acute no observed effect level with survival as the end point. C-NOEL is defined as the chronic no observed effect level with survival, reproduction and growth as the end points.

Beginning upon issuance of the permit and lasting through 12 months prior to permit expiration, the permittee shall initiate WET testing at a frequency of 1/Quarter (calendar quarter) on the water flea (*Ceriodaphnia dubia*) and the 1/Year (different calendar quarter each year) on the fathead minnow (*Pimephales promelas*). Results shall be reported to the Department within 30 days of the permittee receiving the test results from the laboratory conducting the testing. Invalid or problematic test results shall be identified in the submittal.

Beginning 12 months prior to the expiration date of the permit, the permittee shall initiate screening level WET tests at a frequency of 1/Quarter (four consecutive calendar quarters). Testing shall be conducted on the water flea (*Ceriodaphnia dubia*) and the fathead minnow (*Pimephales promelas*) in two of the four calendar quarters and conducted on the water flea (*Ceriodaphnia dubia*) and the brook trout (*Salvelinus fontinalis*) in the remaining two of the four calendar quarters. Results shall be reported to the Department within 30 days of the permittee receiving the test results from the laboratory conducting the testing. Invalid or problematic test results shall be identified in the submittal.

SPECIAL CONDITIONS

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

Outfalls #001, #002, #100 & #200

Footnotes:

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 Freshwater Organisms, Fourth Edition, October 2002, EPA-821-R-02-013.

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

The permittee is also required to analyze the effluent for the parameters specified in the analytic chemistry on the form in Attachment A of this permit each time a WET test is performed for compliance with this permit. Analytical chemistry is not required for WET tests conducted for a toxicity identification evaluation (TIE), toxicity reduction evaluation (TRE) or for other investigative purposes.

(9) **Priority Pollutants** (chemical specific testing under Department Rule Chapter 530.5) are those listed by the USEPA pursuant to Section 307(a) of the Clean Water Act and published in 40 CFR Part 122, Appendix D, Tables II and III.

Beginning upon issuance of the permit and lasting through 12 months prior to permit expiration, surveillance level chemical specific testing shall be conducted at a frequency of once per year. Surveillance level tests shall be conducted in a different calendar quarter of each year such that a test is conducted in each of the four calendar quarters during the first four years of the term of the permit. **Beginning 12 months prior to the expiration date of the permit**, screening level chemical specific testing shall be conducted at a frequency of four per year (four consecutive calendar quarters). Chemical specific testing shall be conducted on samples collected at the same time as those collected for surveillance or screening level whole effluent toxicity tests, where applicable. Chemical specific testing shall be conducted using methods that permit detection of a pollutant at existing levels in the effluent or that achieve minimum reporting levels of detection as specified by the Department. Results shall be reported to the Department within 30 days of the permittee receiving the test results from the laboratory conducting the testing. Invalid or problematic test results shall be identified in the submittal. For the purposes of DMR reporting, enter a "NODI-9" for *no testing done this monitoring period* or "1" for *yes, testing done this monitoring period.*

SPECIAL CONDITIONS

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

Outfalls #001, #002, #100 & #200
Footnotes:

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

(10) **2,3,7,8 TCDD (Dioxin) & 2,3,7,8 TCDF (Furan)** – The analytical method to be used to determine the concentrations of dioxin and furan shall be EPA Method 1613, Revision B. See Special Condition O, *Dioxin/Furan Certification* of this permit for annual certification requirements.

(11) **Minimum Levels (ML's)** - The limitations established in this permitting action for dioxin, furan and the 12 chlorinated phenolic compounds are equivalent to the ML's established for EPA Methods 1613 and 1653 respectively. Compliance will be based on the ML's as listed in Special Condition A of this permit. For the purposes of reporting test results on the monthly DMR, the following format shall be adhered to:

Detectable results - All detectable analytical test results shall be reported to the Department including results which are detected below the respective ML.

Non-detectable results - If the analytical test result is below the respective ML, the concentration result shall be reported as <X where X is the detection level achieved by the laboratory for each respective parameter.

(12) **12 Chlorinated phenolic compounds** - The analytical method to be used to determine the concentrations of these compounds shall be EPA Method 1653.

(13) **Chloroform – The monthly average and daily maximum mass limits apply to the two bleach lines collectively.** The preferred analytical method to be used for chloroform is EPA Method 1624B for which a ML of 20 ug/l shall be attained. Other approved EPA methods are 601 and 624, and Standard Method 6210B and 6230B. The permittee must collect separate grab samples from the acid and alkaline bleach plant filtrates for chloroform analysis. Samples to be analyzed for chloroform may be taken over a period not to exceed 32 hours where a minimum of six (6) grab samples are collected, each grab sample being at least three (3) hours apart but no more than 16 hours apart.

SPECIAL CONDITIONS

B. NARRATIVE EFFLUENT LIMITATIONS FOR ALL OUTFALLS

1. The effluent shall not contain a visible oil sheen, foam, or floating solids 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 discharge shall not impart color, taste, turbidity, toxicity, radioactivity or other properties which cause those waters to be unsuitable for the designated uses and characteristics ascribed to their class.

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.

5. The permittee shall not use chlorophenolic-containing biocides.

C. TREATMENT PLANT OPERATOR

The waste water treatment facility must be operated by a person holding a minimum of a **Grade V** 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.

D. NOTIFICATION REQUIREMENT

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

1. Any substantial change (realized or anticipated) in the volume or character of pollutants being introduced into the waste water collection and treatment system.

2. For the purposes of this section, adequate notice 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 change in the quality and quantity of the waste water to be discharged from the treatment system.

SPECIAL CONDITIONS

E. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from Outfalls #001, #002, #003 and #100 and #200 (internal waste streams). Discharges of waste water from any other point source or sources are not authorized under this permit, but shall be reported in accordance with Standard Condition B(5)(Bypass) of this permit.

F. REOPENING OF PERMIT FOR MODIFICATIONS

Upon evaluation of the tests results specified by the 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 monitoring if results on file are inconclusive; or (3) change monitoring requirements or limitations based on new information. The permittee may also initiate permit reopening and modification by request to the Department.

G. MONITORING AND REPORTING

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

Maine Department of Environmental Protection
Eastern Maine Regional Office
Bureau of Land & Water Quality
Division of Engineering, Compliance & Technical Assistance
106 Hogan Road
Bangor, ME. 04401

SPECIAL CONDITIONS

H. COLOR

The permittee is required to report the daily average color discharged for a calendar quarter expressed as pounds of color per ton of unbleached pulp produced. Supporting calculations, in the format illustrated below must accompany the DMR reports for March, June, September and December of each calendar year.

Quarter Sample date	#001 Flow (MGD)	Color conc* (cpu)	Mass (lbs/day)	Unbleached Pulp Production tons/day
xx/xs/xx	35	716	201,000	1,400
xx/xs/xx	38	700	201,844	1,450
.....				
xx/xs/xx	37	695	204,463	1,425
Quarterly average			X=205,102	X=1,425

Quarterly average mass per ton = 205,102/1,425 = 144 lbs color/ton

* cpu (color pollution unit). See footnote #4 on page 14 of this permit.

I. THERMAL LOAD

The weekly rolling average thermal load limitation of 8.00 x 10^9 BTU's/day and a daily maximum limitation of 9.2 x 10^9 BTU's/day for Outfall 001, 002, and 003 (collectively) are in effect between June 1 and September 30 of each year. Between June 1 and September 30 of each year, the Qr, Qe, Te and Tr shall be recorded on a daily basis with the ambient river temperature being measured at the river water intake at the mill, and the total thermal load from the mill shall be calculated on a daily basis in accordance with the following formula:

$$[(Qe_{001})(Te_{001}-Tr)+(Qe_{002})(Te_{002}-Tr)+(Qe_{003})(Te_{003}-Tr)](8.34\ \text{lb/gal})= \Sigma\text{BTU/day}$$

Qe = Effluent flow in gallons (each outfall).
Te = Effluent temperature in °F (each outfall).
Tr = Upstream river water (intake) temperature in °F.

SPECIAL CONDITIONS

I. THERMAL LOAD (cont'd)

For each operating day during the applicable limitation period, the permittee shall calculate the Predicted River Temperature Increase (PRTI) on a daily basis in accordance with the following formula:

$$\text{PRTI } (^{\circ}F) = \frac{(Qe_{001})(Te_{001}-Tr) + (Qe_{002})(Te_{002}-Tr) + (Qe_{003})(Te_{003}-Tr)}{Qr}$$

where,

Qr = River flow in cfs or MGD as measured at the U.S.G.S. gauging station at the mill.
Qe = Effluent flow in like units as Qr from each outfall.
Te = Effluent temperature in °F for each outfall.
Tr = Upstream river water (intake) temperature in °F.

The daily recorded and calculated values shall be reported to the Department as an attachment to the Discharge Monitoring Reports (DMR's) for the months of June, July, August and September of each year.

EXAMPLE - DMR REPORTING FORM ATTACHMENT

Date	Qr (MGD)	Qe (MGD)	Tr(°F)	Te(°F)	PRTI(°F)	Heat(BTU's)
6/1/05	1,620	30.83	67	91	0.45	6.17×10^9

The permittee shall continue to investigate water reuse projects within the mill and waste water treatment technology alternatives to reduce the thermal discharge to the St. Croix River. **The permittee shall submit a summary of the projects undertaken during the term of this permit as an exhibit in the next application for permit renewal**. The report shall list the individual projects and quantify the heat load in BTU's/day that was removed from the discharge point(s).

SPECIAL CONDITIONS

J. ZONE OF INITIAL DILUTION & MIXING ZONE

The zone of initial dilution for the thermal discharge from the Domtar mill is described as beginning at Outfall #001 and extending downstream to the Baring railroad trestle, a distance of approximately 5.3 miles.

The mixing zone established by the Department for the thermal discharge from the Domtar mill is described as beginning at the Baring railroad trestle and extending downstream to the Milltown dam at the head of tide, approximately 4.0 miles. See Attachment B of this permit for a map illustrating the zone of initial dilution and mixing zone.

The receiving waters shall not be tested for temperature violations within the designated zone of initial dilution or the established mixing zone.

Within 60 days of the effective date of this permit, *[PCS Code 22099]* the permittee shall submit to the Department for review and approval, a plan for continuous monitoring of in-stream temperature (at least one upstream station and two downstream stations) between June 1 and September 30 of each year. **Beginning June 1, 2005**, the permittee shall commence continuous in-stream temperature monitoring.

On of before December 1 of each year calendar year, *[PCS Code 90199]* the permittee shall submit the results of the June 1 - September 30 monitoring data for that calendar year to the Department. The Department will review the annual temperature data and make a determination by April 1 of the following year whether sufficient information has been collected to assess the impact of the mill's thermal discharge on the receiving water and to accurately define the mixing zone established in this permit. Once the aforementioned determination is made, the Department shall provide the permittee with; 1) a written explanation of its findings and conclusions as to the impact (or lack thereof) of the thermal discharge on the receiving water, 2) the physical characteristics of the mixing zone and, 3) whether the continuous instream monitoring is necessary for the following year.

K. TOXICITY REDUCTION EVALUATION (TRE)

Within thirty (30) days of the effective date of this permit, *[PCS Code 01399]* the permittee shall submit to the Department for review and approval, a TRE plan which outlines a strategy to identify the source(s) and action items to be implemented to mitigate or eliminate potential exceedences of ambient water quality criteria and or thresholds associated with cadmium, zinc and the water flea (*Ceriodaphnia dubia*).

SPECIAL CONDITIONS

L. SCHEDULE OF COMPLIANCE

This permitting action is establishing a schedule of compliance for the monthly average mass and concentration limits for arsenic and the daily maximum mass limit for zinc as follows:

Arsenic:

Beginning the effective date of this permit and lasting through December31, 2007, the permittee shall conduct 1/Quarter testing for arsenic and report the mass and concentration on the applicable DMR's.

Beginning January 1, 2008, the permittee shall be in compliance with the monthly average mass and concentration limits of 0.17 lbs/day and 0.78 ug/L respectively, for arsenic. It is noted compliance with the concentration limitation will be based on the Department's current reporting limit (RL) of 5 ug/L.

Note: The applicable ambient water quality criteria for arsenic is currently undergoing review by the Department and other regulatory authorities. Should the criteria be changed during the term of this permit, the permit may be reopened and amended accordingly.

Zinc:

Beginning the effective date of this permit and lasting through December 31, 2007, the permittee shall conduct 1/Month testing for zinc. A daily maximum concentration limit of 135 ug/L is in effect but the permittee is only required to report the monthly average mass discharged during this time period on the applicable DMR's.

Beginning January 1, 2008, the permittee shall be in compliance with the daily maximum mass and concentration limits of 30 lbs/day and 135 ug/L respectively for zinc.

On July 1st and December 31st of calendar years 2005, 2006, 2007, the permittee shall submit progress reports on efforts made to come into compliance with the limitations for arsenic and zinc specified in Special Condition A of this permit. The permittee may satisfy this requirement by incorporating the progress reports in periodic updates of the TRE.

M. OPERATION & MAINTENANCE (O&M) PLAN

This facility shall have a current written comprehensive wastewater system 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.

SPECIAL CONDITIONS

M. OPERATION & MAINTENANCE (O&M) PLAN (cont'd)

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

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

N. BEST MANAGEMENT PRACTICES PLAN

1. SPECIALIZED DEFINITIONS.

   a. **Action Level**: A daily pollutant loading that when exceeded triggers investigative or corrective action. Mills determine action levels by a statistical analysis of six months of daily measurements collected at the mill. For example, the lower action level may be the 75th percentile of the running seven-day averages (that value exceeded by 25 percent of the running seven-day averages) and the upper action level may be the 90th percentile of the running seven-day averages (that value exceeded by 10 percent of the running seven-day averages).

   b. **Equipment Items in Spent Pulping Liquor, Soap, and Turpentine Service**: Any process vessel, storage tank, pumping system, evaporator, heat exchanger, recovery furnace or boiler, pipeline, valve, fitting, or other device that contains, processes, transports, or comes into contact with pulping liquor, soap, or turpentine. Sometimes referred to as "equipment items."

   c. **Immediate Process Area**: The location at the mill where pulping, screening, knotting, pulp washing, pulping liquor concentration, pulping liquor processing, and chemical recovery facilities are located, generally the battery limits of the aforementioned processes. "Immediate process area" includes spent pulping liquor storage and spill control tanks located at the mill, whether or not they are located in the immediate process area.

   d. **Intentional Diversion**: The planned removal of spent pulping liquor, soap, or turpentine from equipment items in spent pulping liquor, soap, or turpentine service by the mill for any purpose including, but not limited to, maintenance, grade changes, or process shutdowns.

   e. **Mill**: The owner or operator of a direct or indirect discharging pulp, paper, or paperboard manufacturing facility subject to this section.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

f. **Senior Technical Manager**: The person designated by the mill manager to review the BMP Plan. The senior technical manager shall be the chief engineer at the mill, the manager of pulping and chemical recovery operations, or other such responsible person designated by the mill manager who has knowledge of and responsibility for pulping and chemical recovery operations.

g. **Soap**: The product of reaction between the alkali in kraft pulping liquor and fatty acid portions of the wood, which precipitate out when water is evaporated from the spent pulping liquor.

h. **Spent Pulping Liquor**: For kraft and soda mills "spent pulping liquor" means black liquor that is used, generated, stored, or processed at any point in the pulping and chemical recovery processes. For sulfite mills "spent pulping liquor" means any intermediate, final, or used chemical solution that is used, generated, stored, or processed at any point in the sulfite pulping and chemical recovery processes (e.g., ammonium-, calcium-, magnesium-, or sodium-based sulfite liquors). **[Note: permitting authorities may consider green liquor, white liquor or fresh sulfite pulping liquor as a spent pulping liquor and require mills to include management of these materials in the BMPs.]**

i. **Turpentine**: A mixture of terpenes, principally pinene, obtained by the steam distillation of pine gum recovered from the condensation of digester relief gases from the cooking of softwoods by the kraft pulping process. Sometimes referred to as sulfate turpentine.

2. REQUIREMENT TO IMPLEMENT BEST MANAGEMENT PRACTICES.

The permittee must implement the Best Management Practices (BMPs) specified in paragraphs 2(a) through 2(j) (below). BMPs must be developed according to best engineering practices and must be implemented in a manner that takes into account the specific circumstances at each mill. The BMPs are as follows:

a. The permittee return spilled or diverted spent pulping liquors, soap, and turpentine to the process to the maximum extent practicable as determined by the mill, recover such materials outside the process, or discharge spilled or diverted material at a rate that does not disrupt the receiving wastewater treatment system.

b. The permittee must establish a program to identify and repair leaking equipment items. This program must include:

(i) Regular visual inspections (e.g., once per day) of process areas with equipment items in spent pulping liquor, soap, and turpentine service;

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

(ii) Immediate repairs of leaking equipment items, when possible. Leaking equipment items that cannot be repaired during normal operations must be identified, temporary means for mitigating the leaks must be provided, and the leaking equipment items repaired during the next maintenance outage;

(iii) Identification of conditions under which production will be curtailed or halted to repair leaking equipment items or to prevent pulping liquor, soap, and turpentine leaks and spills; and

(iv) A means for tracking repairs over time to identify those equipment items where upgrade or replacement may be warranted based on frequency and severity of leaks, spills, or failures.

c. The permittee must operate continuous, automatic monitoring systems that the mill determines are necessary to detect and control leaks, spills, and intentional diversions of spent pulping liquor, soap, and turpentine. These monitoring systems should be integrated with the mill process control system and may include, e.g., high level monitors and alarms on storage tanks; process area conductivity (or pH) monitors and alarms; and process area sewer, process wastewater, and wastewater treatment plant conductivity (or pH) monitors and alarms.

d. The permittee must establish a program of initial and refresher training of operators, maintenance personnel, and other technical and supervisory personnel who have responsibility for operating, maintaining, or supervising the operation and maintenance of equipment items in spent pulping liquor, soap, and turpentine service. The refresher training must be conducted at least annually and the training program must be documented.

e. The permittee must prepare a brief report that evaluates each spill of spent pulping liquor, soap, or turpentine that is not contained at the immediate process area and any intentional diversion of spent pulping liquor, soap, or turpentine that is not contained at the immediate process area. The report must describe the equipment items involved, the circumstances leading to the incident, the effectiveness of the corrective actions taken to contain and recover the spill or intentional diversion, and plans to develop changes to equipment and operating and maintenance practices as necessary to prevent recurrence. Discussion of the reports must be included as part of the annual refresher training.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

f. The permittee must establish a program to review any planned modifications to the pulping and chemical recovery facilities and any construction activities in the pulping and chemical recovery areas before these activities commence. The purpose of such review is to prevent leaks and spills of spent pulping liquor, soap, and turpentine during the planned modifications, and to ensure that construction and supervisory personnel are aware of possible liquor diversions and of the requirement to prevent leaks and spills of spent pulping liquors, soap, and turpentine during construction.

g. The permittee must install and maintain secondary containment (i.e., containment constructed of materials impervious to pulping liquors) for spent pulping liquor bulk storage tanks equivalent to the volume of the largest tank plus sufficient freeboard for precipitation. An annual tank integrity testing program, if coupled with other containment or diversion structures, may be substituted for secondary containment for spent pulping liquor bulk storage tanks.

h. The permittee must install and maintain secondary containment for turpentine bulk storage tanks.

i. The permittee must install and maintain curbing, diking or other means of isolating soap and turpentine processing and loading areas from the wastewater treatment facilities.

j. The mill must conduct wastewater monitoring to detect leaks and spills, to track the effectiveness of the BMPs, and to detect trends in spent pulping liquor losses. Such monitoring must be performed in accordance with paragraph 7.

3. AMENDMENT OF BMP PLAN.

a. The permittee must amend its BMP Plan whenever there is a change in mill design, construction, operation, or maintenance that materially affects the potential for leaks or spills of spent pulping liquor, turpentine, or soap from the immediate process areas.

b. **The permittee must complete a review and evaluation of the BMP Plan five years after the first BMP Plan is prepared and, except as provided in paragraph D.(1) (above), once every five years thereafter.** As a result of this review and evaluation, the permittee must amend the BMP Plan within three months of the review if the mill determines that any new or modified management practices and engineered controls are necessary to reduce significantly the likelihood of spent pulping liquor, soap, and turpentine leaks, spills, or intentional diversions from the immediate process areas, including a schedule for implementation of such practices and controls.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

4. REVIEW AND CERTIFICATION OF BMP PLAN.

The BMP Plan, and any amendments, must be reviewed by the senior technical manager at the mill and approved and signed by the mill manager. Any person signing the BMP Plan or its amendments must certify to the Permitting Authority under penalty of law that the BMP Plan (or its amendments) has been prepared in accordance with good engineering practices and in accordance with this regulation. The mill is not required to obtain approval from the Permitting Authority of the BMP Plan or any amendments.

5. RECORD KEEPING REQUIREMENTS

a. The permittee must maintain on its premises a complete copy of the current BMP Plan and the records specified in paragraph 5(b) (below) and must make such BMP Plan and records available to the Permitting Authority or his or her designee for review upon request.

b. The mill must maintain the following records for three years from the date they are created:

(i) Records tracking the repairs performed in accordance with the repair program described in paragraph 2(b);

(ii) Records of initial and refresher training conducted in accordance with paragraph 2(d);

(iii) Reports prepared in accordance with paragraph 2(e) of this section; and

(iv) Records of monitoring required by paragraphs 2(j) and 7.

6. ESTABLISHMENT OF WASTEWATER TREATMENT SYSTEM INFLUENT ACTION LEVELS.

a. The permittee must conduct a monitoring program, described in paragraph 6(b), for the purpose of defining wastewater treatment system influent characteristics (or action levels), described in paragraph 6(c), that will trigger requirements to initiate investigations on BMP effectiveness and to take corrective action.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

b. The permittee must employ the following procedures in order to develop the required action levels:

(i) Monitoring parameters. The permittee must collect 24-hour composite samples and analyze the samples for a measure of organic content (e.g., Chemical Oxygen Demand (COD) or Total Organic Carbon (TOC)). Alternatively, the permittee may use a measure related to spent pulping liquor losses measured continuously and averaged over 24 hours (e.g., specific conductivity or color). **[Note: Permitting authorities may specify monitoring parameter, if they choose.]**

(ii) Monitoring locations. For direct dischargers, monitoring must be conducted at the point influent enters the wastewater treatment system. For indirect dischargers monitoring must be conducted at the point of discharge to the POTW. For the purposes of this requirement, the permittee may select alternate monitoring point(s) in order to isolate possible sources of spent pulping liquor, soap, or turpentine from other possible sources of organic wastewaters that are tributary to the wastewater treatment facilities (e.g., bleach plants, paper machines and secondary fiber operations).

c. The permittee must complete an initial six-month monitoring program using the procedures specified in paragraph 6(b) and must establish initial action levels based on the results of that program. A wastewater treatment influent action level is a statistically determined pollutant loading determined by a statistical analysis of six months of daily measurements. The action levels must consist of a lower action level, which if exceeded will trigger the investigation requirements described in paragraph 7, and an upper action level, which if exceeded will trigger the corrective action requirements described in paragraph 7.

d. The permittee must complete a second six-month monitoring program using the procedures specified in paragraph G(2) of this section and must establish revised action levels based on the results of that program. The initial action levels shall remain in effect until replaced by revised action levels.

e. Action levels developed under this paragraph must be revised using six months of monitoring data after any change in mill design, construction, operation, or maintenance that materially affects the potential for leaks or spills of spent pulping liquor, soap, or turpentine from the immediate process areas.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

7. MONITORING, CORRECTIVE ACTION, AND REPORTING REQUIREMENTS.

   a. The permittee must conduct daily monitoring of the influent to the wastewater treatment system in accordance with the procedures described in paragraph 6(b) for the purpose of detecting leaks and spills, tracking the effectiveness of the BMPs, and detecting trends in spent pulping liquor losses.

   b. Whenever monitoring results exceed the lower action level for the period of time specified in the BMP Plan, the permittee must conduct an investigation to determine the cause of such exceedence. Whenever monitoring results exceed the upper action level for the period of time specified in the BMP Plan, the permittee must complete corrective action to bring the wastewater treatment system influent mass loading below the lower action level as soon as practicable.

   c. Although exceedence of the action levels will not constitute violations of the permit, failure to take the actions required by paragraph 7(b) as soon as practicable will be a violation.

   d. The permittee must report to the Permitting Authority the results of the daily monitoring conducted pursuant to paragraph 7(a). Such reports must include a summary of the monitoring results, the number and dates of exceedence of the applicable action levels, and brief descriptions of any corrective actions taken to respond to such exceedence. **Submission of such reports shall be at least 1/year with the December DMR** *[PCS Code 90199]*.

L. DIOXIN/FURAN CERTIFICATION

In lieu of 1/Month (40 CFR Part 430) monitoring of the bleach plant waste stream for 2,3,7,8 TCDD (dioxin) and 2,3,7,8 TCDF (furan), **by December 31 of each calendar year** ***(PCS Code 030MS)***, the permittee shall sample (1Year) and report the results for said parameters and provide the Department with a certification stating:

a. Elemental chlorine or hypochlorite was not used in the bleaching of pulp.
b. The chlorine dioxide (ClO2) generating plant has been operated in a manner which minimizes or eliminates byproduct elemental chlorine generation per the manufacturers/suppliers recommendations.
c. Defoamers or other additives with known dioxin precursors have not been utilized.
d. Fundamental design changes to the ClO2 stages of the bleach plant have been reported to the Department and said reports have explained the reason(s) for the change and any possible adverse consequences if any.
e. ClO2 production or consumption based on a per-ton of pulp basis has been within or below the historical range that has been shown to not discharge dioxin.

ATTACHMENT A

FRESHWATER WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

Facility _____ DEP License No _____ NPDES permit No _____

Contact person _____ Telephone No _____

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

Test type screening _____ surveillance _____ Dechlorinated? _____

Results % effluent Test required by: DEP/EPA

	Water flea	Trout	Fathead
LC50			
A-NOEL			
C-NOEL			

Receiving Water Concentration

A-NOEL	
C-NOEL	

Data summary

	water flea			tro ut			fat head		
	% survival		no. young	% survival		final wt (mg)	% survival		final wt (mg)
QC standard	A>90	C>80	>15/female	A>90	C>80	>2% increase	A>89	C>79	>0.25
lab control									
river 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 for trout show final wt and % incr for both controls

Reference toxicant

	water flea		tro ut		fat head	
	LC50/A-NOEL	C-NOEL	LC50/A-NOEL	C-NOEL	LC50/A-NOEL	C-NOEL
toxicant / date						
limits (mg/l)						
results (mg/l)						

Comments _____

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

signature _____ company _____

printed name _____ address _____

tel. no. _____

Report analytical chemistry on reverse side.

ANALYTICAL CHEMISTRY RESULTS
FRESHWATER TESTS

Date collected _____ mm/dd/yy

Date analyzed _____ mm/dd/yy

Lab ID No. _____

Analyte	Report Units	Results receiving water	Results effluent	Detection level	Method
Alkalinity	mg/L			mg/L	
Ammonia nitrogen	µg/L			µg/L	
Specific conductance	µmhos			µmhos	
Total residual chlorine	mg/L			mg/L	
Total organic carbon	mg/L			mg/L	
Total solids	mg/L			mg/L	
Total suspended solids	mg/L			mg/L	
Total aluminum	µg/L			µg/L	
Total cadmium	µg/L			µg/L	
Total calcium	mg/L			mg/L	
Total chromium	µg/L			µg/L	
Total copper	µg/L			µg/L	
Total hardness	mg/L			mg/L	
Total lead	µg/L			µg/L	
Total magnesium	µg/L			µg/L	
Total nickel	µg/L			µg/L	
Total zinc	µg/L			µg/L	
other (pH)	S.U.			S.U.	
other ( )					

Comments _____

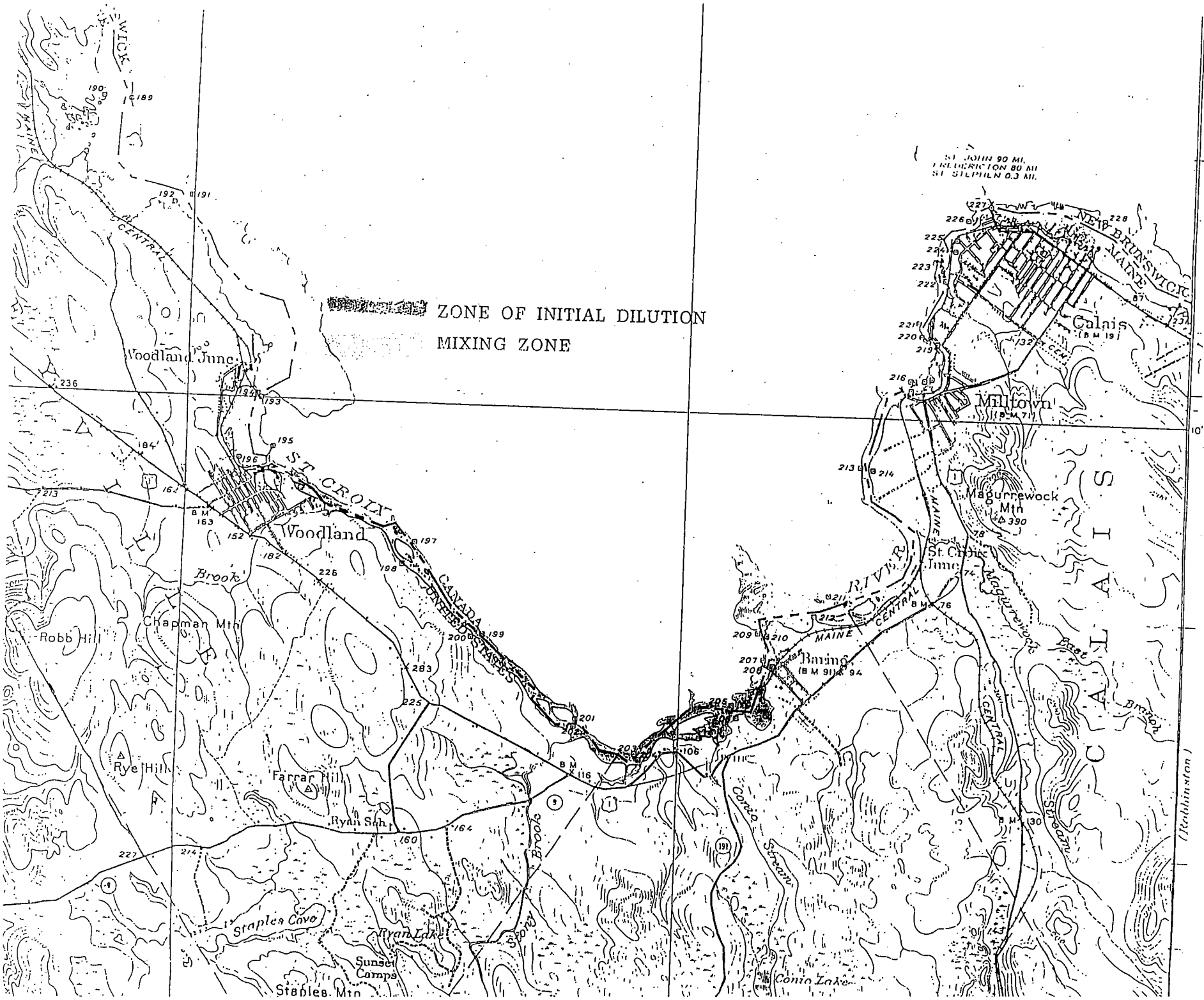
Laboratory conducting test. To the best of my knowledge this information is true, accurate, and complete

signature _____ lab name _____

printed name _____ address _____

tel. no. _____

ATTACHMENT B


ZONE OF INITIAL DILUTION
MIXING ZONE
Woodland Junc
Woodland
ST. CROIX
CANADA
UNITED STATES
Chapman Mtn
Robb Hill
Rye Hill
Farrar Hill
Ryan Sch
Staples Cove
Ryan Lake
Sunset Camps
Staples Mtn
Stony Brook
Conio Stream
Conio Lake
Baring
(B M 91)
St. Croix Junc
Magurrewock Mtn
Milltown
(B M 71)
Calais
(B M 19)
NEW BRUNSWICK
MAINE
RIVER
CALAIS
Magurrewock
East Branch
Stream
(Robbinston)
(DEVILS HEAD 1.24 OF
ST. JOHN 90 MI.
FREDERICTON 80 MI
ST. STEPHEN 0.3 MI.
MAINE CENTRAL

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND
MAINE WASTE DISCHARGE LICENSE

FACT SHEET

Date: **January 21, 2005**
Revised: **March 25, 2005, May 31, 2005**

PERMIT NUMBER: **ME0001872**
LICENSE NUMBER: **W002766-5N-E-R**

NAME AND ADDRESS OF APPLICANT:

DOMTAR MAINE CORPORATION
144 Main Street
Baileyville, Maine 04694

COUNTY: **Washington County**

NAME AND ADDRESS WHERE DISCHARGE OCCURS:

144 Main Street
Baileyville, Maine 04694

RECEIVING WATER AND CLASSIFICATION: **St. Croix River/ Class C**

COGNIZANT OFFICIAL AND TELEPHONE NUMBER: **Jay Beaudoin, Env. Supt.**
Grade V No. 368
(207) 427-4005

1. APPLICATION SUMMARY

Application: Domtar has filed an application with the Department to renew State Waste Discharge License (WDL) #W002766-44-C-R that was issued on May 17, 1996, in the name of the Georgia Pacific Corporation (GPC). The WDL expired on May 17, 2001. It is noted Domtar purchased GPC's mill in Baileyville in June of calendar year 2001. All licenses, permits, certifications, registrations and pending applications with the Department in the name of the GPC were formally transferred from the GPC to Domtar on June 19, 2001. The Domtar mill in Baileyville, Maine is an integrated mill manufacturing bleached kraft pulp and uncoated paper. The mill typically processes hardwood with periodic runs of softwood species. Domtar has applied to the Department for the issuance of a combination Maine Pollutant Discharge Elimination System (MEPDES) permit and WDL to discharge up to a daily maximum of 40 million gallons per day (MGD) of treated process waters, landfill leachate and other miscellaneous waste waters associated with the pulp and papermaking process, and up to a daily maximum of 5.6 MGD of non-contact cooling waters and some storm water runoff from two other outfalls to the St. Croix River. Domtar also maintains a multi-sector permit from the EPA for storm water outfalls associated with wood and log storage facilities and other associated adjunct facilities.

1. APPLICATION SUMMARY

The mill produced an average of 366 tons per day (TPD) of fine coated paper and 1,415 tons per day of unbleached kraft pulp (including market) for the period calendar years 1999 – 2001 inclusively. Pulp production is currently less than the mill's maximum production level of 1,600 tons/day due to current market conditions. For the purposes of this permitting action, the 1999-2001 values are considered representative of normal production and are therefore being used to derive applicable production based limitations.

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) program in Maine. From this point forward, the program will be referred to as the MEPDES program and the Department will utilize a permit number of #ME0001872 (same as the NPDES permit) as the primary reference number for Domtar's MEPDES permit. It is noted the effective NPDES permits issued by the EPA on February 27, 1987 and September 30, 1993 (excepting portions stayed by appeal) will be replaced by the MEPDES permit upon issuance and all terms and conditions of these former NPDES permits, including portions stayed by appeal, will be null and void.

b. Terms and Conditions - This permit is significantly different than the effective NPDES permit issued by the EPA in 1987 and the effective WDL issued by the State of Maine in 1996 (subsequently modified on August 18, 1998) due to new regulations promulgated by EPA in April of 1998 for the pulp and paper industry. The new regulation may be found at 40 Code of Federal Regulation (CFR) Part 430 and is often referred to as the "Cluster Rule."

This permit is carrying forward the following terms and conditions from WDL #W002766-44-C-R dated May 18, 1996 and or WDL Modification #W002766-44-D-M dated August 18, 1999:

1. The daily maximum flow limits for Outfalls #001, #002 and #003.

2. The seasonal daily maximum and monthly average water quality mass limits for biochemical oxygen demand (BOD_5) and the year-round daily maximum and monthly average water quality based mass limits for total suspended solids (TSS) for Outfall #001.

3. The daily maximum temperature limits for Outfalls #001, #002 and #003, weekly average and daily maximum thermal load limitations for the three outfalls collectively, and the thermal mixing zone established in Department Order WDL #W002766-51-A-N, dated March 4, 1996.

4. The technology based pH range limitations for Outfalls #001, #002 and #003.

2. PERMIT SUMMARY (cont'd)

5. The quarterly average technology based color limit of 150 lbs/ton of unbleached pulp produced for Outfall #001.

6. The daily maximum technology based concentration limit of <10 pg/L for 2,3,7,8 TCDD (dioxin) and 2,3,7,8 TCDF (furan) at the end of the bleach plant, Outfall #100 and #200, internal waste streams for the mill.

7. The annual testing requirement for whole effluent toxicity (WET) and chemical specific (priority pollutant) for Outfall #001.

This permit is different from WDL #W002766-44-C-R dated May 18, 1996 and or WDL Modification WDL #W002766-44-D-M dated August 18, 1999 in that it:

8. Establishes monthly average and daily maximum technology based mass limits for adsorbable organic halogens (AOX) for Outfall #001.

9. Establishes a monthly average and daily maximum mass reporting requirement for chemical oxygen demand (COD) for Outfall #001.

10. Establishes monthly average and or daily maximum water quality based mass and concentrations limits for arsenic, cadmium, copper, cyanide, lead, silver and zinc for Outfall #001 and a schedule of compliance for the limits associated with arsenic and zinc.

11. Establishes an acute and chronic no observed effect level (A-NOEL, C-NOEL) for the water flea (*Ceriodaphnia dubia*).

12. Requires the submission of a toxicity reduction evaluation (TRE) for cadmium, zinc and the water flea (*Ceriodaphnia dubia*).

13. Establishes daily maximum technology based concentration limits for 12 chlorinated phenolic compounds for the bleach plant, Outfall #100 & #200.

14. Establishes monthly average and daily maximum technology based mass limits for chloroform for the bleach plant, Outfall #100 & #200 collectively.

15. Reduces the monitoring for dioxin and furan for the bleach from 1/Month to 1/Year provided the permittee provides the Department with an annual certification that there have not been any changes in the bleaching sequence/plant that would lead to the formation of dioxin/furan compounds.

16. Requires the permittee to develop, implement, and periodically update a Best Management Practices (BMP) plan for the mill operations.

2. PERMIT SUMMARY (cont'd)

17. Requires the permittee to maintain an up-to-date Operations and Maintenance (O&M) plan for the waste water treatment facility.

18. Establishes more stringent weekly average and daily maximum thermal load limitations for the three outfalls (collectively) based on updated thermal load discharge information.

c. History: - The most recent significant and relevant regulatory actions for the Domtar mill are as follows:

February 24, 1987 – The EPA issued a renewal of NPDES permit #ME0001872 in the name of the Georgia Pacific Corporation (GPC) for a five-year term.

September 27, 1987 – The Department issued WDL #W002766-44-A-R to the GPC for a five-year term.

September 30, 1993 – The EPA issued a renewal of NPDES permit #ME0001872 in the name of the GPC for a five-year term. The company appealed portions of this permit on November 1, 1993, and requested an evidentiary hearing in regards to limitations and monitoring requirements for dioxin, furan, aluminum, whole effluent toxicity, heat and color contained in the permit. EPA neither denied nor granted such a hearing and thus these permit conditions never became effective and those permit conditions and the appeal have since expired. The new MEPDES permit will replace the NPDES permit issued to the GPC in 1987 as well as the applicable portions of the 1993 permit which are still in effect.

March 4, 1996 - The Department issued Order #W002766-51-A-N that established a thermal mixing in the St. Croix River for the GPC discharge.

May 17, 1996 – The Department issued a renewal of the WDL by issuing WDL #W002766-44-C-R to the GPC for a five-year term.

August 18, 1999 – The Department modified the 5/17/96 WDL by issuing WDL Modification #W002766-44-5N-D-M. The modification was initiated by the Department and was necessary to implement new legislation regarding color, dioxin and furan limitations found at Maine law, 38 M.R.S.A., §414-C and §420.

May 23, 2000 – The EPA issued a formal draft NPDES permit in the name of GPC for a 30-day public comment period with a deadline of June 22, 2000, for comments. The permit was significantly different than permits issued to the GPC in the past as the permit contained terms and conditions implementing the Cluster Rule promulgated by the EPA on April 15, 1998.

2. PERMIT SUMMARY (cont'd)

June 20, 2000 – The Department administratively modified the 5/17/96 WDL by establishing interim mean and maximum concentration limitations of 35.5 ng/L and 53.3 ng/L, respectively, for mercury. A monitoring and reporting requirement of 4 /year with a minimum of 60 days between sampling events was also established. It is noted the limitations and reporting requirements are not found in this specific permitting document as limitations and monitoring requirements have been subject to numerous modifications in recent years. However, the interim limitations remain in effect and enforceable and any modifications to the limits and or monitoring requirements will be formalized outside of this permitting document.

June 22, 2000 – The GPC submitted a letter to the EPA commenting on the 5/23/00 draft NPDES permit. It is noted EPA never issued the NPDES permit as a final document due to issues surrounding the authorization of the NPDES permitting program to the State of Maine.

October 20, 2000 - The Department and the Georgia- Pacific Corporation entered into an Administrative Consent Agreement and Enforcement Order which resolved outstanding wastewater discharge violations at the Woodland mill for the period January 1, 1999 through August 1, 2000. Paragraph 34.B, Order 1 of that agreement required GPC to develop an internal reporting procedure to the mill's environmental management for all non-hazardous spills greater than 100 gallons. This condition remains in effect until the Department orders otherwise and is independent of this permitting action. All other conditions pertained to specific time frames and have been resolved or otherwise completed.

January 12, 2001 - The Department received authorization from the EPA to administer the NPDES program in Maine.

May 16, 2001 - The GPC submitted a timely application to the Department to renew the WDL last issued for the mill on May 17, 1996.

June 14, 2001 – The Department received an application from the Domtar Maine Corporation (Domtar) to transfer all active Maine licenses, modifications, condition compliance orders, all other approvals and all applications pending in the name of the GPC relating to a pulp and papermaking facility in Baileyville, Maine. It is noted Domtar and the GPC entered into a purchase and sale agreement for the Baileyville mill on June 1, 2001. The sale was completed in August 2001.

July 19, 2001 – The Department issued an Order transferring all Department licenses for Air, Site Location, NRPA, Solid Waste, Waste Water and Tax Exemption from GPC to Domtar.

2. PERMIT SUMMARY (cont'd)

February 15, 2002 – The Department issued a proposed draft MEPDES permit/WDL for the Domtar mill. The Department received written comments on the draft permit/license from the Natural Resources Council of Maine (NRCM), the Passamaquoddy Tribal Government and Maine's Department of Inland Fisheries and Wildlife.

November 15, 2002 – A meeting was held between the permittee, the NRCM, the Passamaquoddy Tribal government and various State and federal agencies to discuss the 2/15/02 proposed MEPDES permit/WDL and the written comments received by the Department on the draft MEPDES permit/WDL.

d. Source Description: This permit regulates three discharge points designated as Outfalls #001, #002 and #003 from Domtar's kraft pulp and paper mill to the St. Croix River in Baileyville. The Domtar facility has reported that the mill produces a total of 1,415 tons/day of unbleached kraft pulp (of which 1,075 tons/day is market pulp) and 366 tons/day of uncoated fine paper based on actual production levels for the period January 1, 1999 through November 30, 2001. The mill typically processes hardwood with periodic runs of softwood species. The facility currently discharges waste waters to the St. Croix River via three individual outfalls as follows:

Outfall #001 - Waste waters discharged include treated process waters, treated sanitary waste waters, treated landfill leachate, treated storm water runoff and treated miscellaneous waste waters associated with the pulp and papermaking process. Domtar's 2001 application indicates that the long term (three year mean for 1999 –2001) discharge flow has averaged 25.4 MGD, the biochemical oxygen demand (BOD_5) averaged 4,741 lbs/day, the total suspended solids (TSS) averaged 5,490 lbs/day, with a summer time average temperature of 81.5°F and a daily maximum temperature of 92.8°F. The permittee has indicated that these values are expected to be representative when production is at or near the production levels cited above.

Outfall #002 - Waste waters discharged include air compressor room cooling waters, storm water from the converting building and paper warehouse roof drains and air conditioning condensate waters. The permittee has indicated that the long-term discharge flow has averaged 830 gallons per minute (1.2 MGD), and a summer time average temperature of 79.5°F with a daily maximum temperature of 87.8°F.

Outfall #003 - Waste waters discharged from this outfall consist of turbine, evaporator and bleach plant cooling waters. Water taken in from the river directly or after treatment in the mill's water treatment plant pass through non-contact heat exchangers on various parts of process equipment. The outfall has historically only discharged intermittently during the summer months to rid the cooling water systems of excess heat although the mill has noted the potential for this discharge to be needed during other periods. The excess heat is due to a combination of reduced quantity of intake flow from the St. Croix as a result of increased return warm water for reuse as well as elevated temperatures of the intake water. The increased temperatures hinder the mill's process feedwater's ability

2. PERMIT SUMMARY (cont'd)

to cool equipment efficiently. Outfall #003 either discharges to the foam pond where it is co-mingled with treated process water effluent prior to discharge through Outfall #001 or through a separate direct discharge.

It is noted the Domtar's Baileyville mill has been elemental chlorine free (ECF) since 1997. The bleaching sequence used is a five-stage process in the following order: DoEopD1E2D2 where the first stage Do is an acidic wash with chlorine dioxide bleaching, followed in the second stage by the addition of a caustic wash (NaOH) with hydrogen peroxide and liquid oxygen (Eop). The third stage D1 is a second acidic wash with chlorine dioxide followed by a fourth stage caustic wash (NaOH) and a fifth final stage acidic chlorine dioxide wash. Enzymes derived from white rot fungus may also be added in the brownstock prior to the first stage to facilitate bleaching and reduce chemical usage. These enzymes are derived from nature. The wash from each subsequent acidic and caustic stages flow counter current to the previous corresponding stage of like pH to minimize water and chemical usage. Residuals and purge flows for acidic stages discharge to the plant acid sewer and those from the caustic stages discharge to the plant alkaline sewer. More wash flow is used and thus more purge and residual discharge occurs from the alkaline stages. Accordingly, the flows for this sewer are about 3 times that of the acidic sewer flows.

e. Waste Water Treatment - General Description - (Note: This section describes Domtar's waste water system for general information purposes.) Outfall #001 receives a secondary level of treatment prior to discharge to the St. Croix River. Storm water from the mill roof and yard drainage and waste waters associated with the paper machine, the kraft mill, the pulp dryer and steam and power sources combine in the main lift station where three-200 H.P. pumps lift the waste waters to the mill's primary clarifier. The primary clarifier was modified in the mid 1990's with the addition of Stamford baffles and a reconfigured centerwell. In addition, the mill replaced it's wet ash sluice system with a dry ash system. These modifications provided an additional 20% removal efficiency in the primary system. In addition to the effluent from the main lift station, waste waters from the mill's #3 Recovery Boiler and filter backwash from the mill's process water treatment plant sand filter beds are discharged to the clarifier. Storm water from additional mill roof and yard drainage, spills, overflows and underdrains from the mill's spill pond also discharge to the clarifier. The acid effluent from the mills bleach plant, sanitary waste waters and waste waters associated with the mill's lime kiln and re-caust operations are discharged to the mills acid sewer. The low pH of the mill's acid sewer (2-4 standard units) provides initial treatment and disinfection of sanitary waste waters.

The acid sewer bypasses the mills primary clarifier and mixes with primary clarified effluent just prior to the secondary lift station at a mix box chamber. Supplemental acid addition for pH control can occur at this point through a designed addition and monitoring system or by increasing upstream acid flow from the mill's bleach plant. Continuous pH monitoring and automatic acid flow controllers are integrated into this control system.

2. PERMIT SUMMARY (cont'd)

In addition to process and sanitary waste waters, landfill leachate and storm water runoff from the mill's 68-acre #3 landfill site are conveyed to the mill's waste water treatment facility through a combination of pressure and gravity sewer systems. Blowdown from a board drying dust collector precipitator at the Louisiana Pacific's Oriented Strand Board facility upriver is combined with the landfill leachate and conveyed to the secondary lift station.

From the secondary lift station, the partial or primary treated effluent is pumped approximately two (2) miles up gradient to treatment lagoons. The effluent initially discharges to a settling lagoon providing for a ten (10) hour detention time to settle out solids. From the settling pond, the effluent travels through two aerated lagoons operating in series providing for approximately seven days (11 days theoretical design) of detention time. The secondary system has been modified to include four (4) partition curtains, a mid-point recycle system (2.5 MGD), a reconfigured outfall, on-line continuous monitoring, polymer and treatment chemical addition facilities and a supplemental microorganism unit to maximize efficiency. Secondary treated effluent is then conveyed back down to the mill by way of a gravity pipeline to the mill's foam pond. Discharge to the St. Croix River is through a parshall flume measuring five (5) feet in throat width just downstream of which monitoring and sampling are conducted for compliance with this permit. A foam box located further downstream of the flume and sample arrangement serves as an area where effluent is allowed to cascade into a walled structure to induce foaming prior to discharge. This action minimizes the possibility of foaming in the receiving waters. A containment wall and supplemental defoaming nozzles are also deployed here. River boom and associated deployment and emergency response equipment is located in or in staging areas adjacent to the river channel below the discharge for use in the event of an oil spill. When deployed this boom also may contain natural and effluent related foam. Natural wetland areas and other sources of woody organic material in the river drainage produce foam on the river and its feeder streams.

See Attachment A of this Fact Sheet for a flow diagram of the treatment process associated with waste waters discharged through Outfall #001.

Outfall #002 discharges non-process waste waters that do not receive any formal treatment prior to discharge as the only contaminant of concern is heat. Water is taken from the river or the mills intake water treatment plant and used to cool air compressors through non-contact heat exchangers. Outfall #002 normally discharges directly to the receiving waters. If operational issues necessitate, this discharge may be valved to the primary treatment system and subsequently the secondary treatment system and discharged through Outfall #001.

Outfall #003 also discharges non-process waste waters but historically only on a seasonal/intermittent basis (July, August and September). The mill has noted that discharge during other time periods may be necessary in the future. The discharge does not receive any formal treatment prior to discharge as the only contaminant of concern is heat. Water is taken from the river or the mill's intake water treatment plant and is used

2. PERMIT SUMMARY (cont'd)

to cool equipment through non-contact heat exchangers. Outfall #003 has historically discharged to the foam pond, therefore, technically discharging to the receiving waters via Outfall #001. The mill has identified a potential need to discharge from this outfall directly.

3. RECEIVING WATER QUALITY STANDARDS

Maine law, 38 M.R.S.A. §467(13)(A)(4) indicates that the St. Croix River at the point of discharge is classified as a Class C waterway. Maine law, 38 M.R.S.A. §465(4) contains the classification standards for Class C waters. It is noted this later statute was revised as of August 2004 such that a new 30-day rolling average dissolved oxygen standard of 6.5 parts per million (mg/L) must be maintained as well as the instantaneous minimum of 5.0 parts per million. The Department initiated a water quality monitoring program in the summer of 2004 to study conditions in the St. Croix River and updated the water quality model for the river. The Department anticipates completing the study during the summer of 2005 with a final report issued in early 2006.

4. RECEIVING WATER QUALITY CONDITIONS

The St. Croix River main stem from Grand Falls to tidewater (22.2 miles, Class C) is listed in a table entitled, *Category 2: Rivers And Streams Attaining Some Designated Uses, Insufficient Information For Other Uses*, in a document entitled State of Maine, Department of Environmental Protection, 2002 Integrated Water Quality Monitoring And Assessment Report prepared by the Department. The Department placed this segment of the river in this category as the Department has not completed its ambient water quality sampling to update a 1986 waste load allocation as of the date of this permitting action.

On March 4, 1996, the Department issued WDL #W002766-51-A-N which established a formal mixing zone for the thermal discharge from the Domtar mill. Special Condition A of that order established weekly rolling average and daily maximum thermal limitations consistent with Maine Law, 38 M.R.S.A. §464 (4)(I) (since repealed). As a result of the establishment of the mixing zone, the St. Croix River was removed from the 303(d) list in the 1998 State of Maine Water Quality Assessment (305b) Report. For the purposes of this permitting action, the St. Croix River is attaining the standards of its assigned classification.

It is noted that all fresh water bodies in Maine carry a fish advisory for mercury due primarily to atmospheric transport and deposition. Maine law 38 M.R.S.A., §420 and Department Rule, Chapter 519, *Interim Effluent Limitations and Controls For the Discharge of Mercury*, establishes controls of mercury to surface waters of the State and United States through interim effluent limitations and implementation of pollution prevention plans. On June 20, 2000, the Department established an average concentration limit of 35.5 ng/L and a daily maximum concentration limit of 53.3 ng/L for mercury with a monitoring frequency of 4 tests per year spaced at least 60 days apart. The interim limits were based on a past

4. RECEIVING WATER QUALITY CONDITIONS (cont'd)

demonstrated performance evaluation of ten mercury test results submitted between October 1998 and February 2000. It is noted Domtar's test results for calendar year 2004 range from 9 ng/L – 12 ng/L. The 2004 values were elevated slightly above previous and future expected values due to a strike at the mill's normal sulfuric acid supply facility located in Canada. In 1999, Domtar was awarded recognition from Maine's Governor for environmental excellence in proactively reducing mercury emissions in its effluent.

In an effort to facilitate the establishment of water quality standards for the province of New Brunswick, (which at least meet those in place for the State of Maine), the St. Croix International Waterway Commission has been conducting biological and chemical testing of the river. This testing has been conducted over the last five years with the first three years of data analyzed to date. For the receiving water segment below the Domtar mill, preliminary results indicate Class B attainment in the areas sampled. In addition, the Department conducted the first of several scheduled ambient water quality sampling events in the St. Croix River during the summer of calendar year 2004. The sampling is being conducted to update the Department's water quality model developed in the early 1980's. Once the sampling is completed and model re-calibrated, the Department will update the 1986 waste load allocation and if necessary, this permit may be reopened pursuant to Special Condition F of this permit to incorporate more stringent limitations to meet water quality standards.

5. RIVER FLOW

River flows at the point of discharge are regulated by upstream hydropower dam operations at Grand Falls and at Woodland. Additional upstream storage dam locations which contribute to river flows at the point of discharge include; Forest City, Vanceboro, Canoose, Clifford, West Grand, and Sysladobsis. An earthen dam at Farm Cove prevents uncontrolled discharge of impounded waters. This dam maintains a small constant flow to a brook flowing into Grand Falls Flowage. Domtar owns and operates all nine of these facilities. A run-of-river hydro power generating facility is located downstream of the mill in the Milltown area of St. Stephen, New Brunswick. This facility depends on upstream flow releases to generate Power and is outside the jurisdiction of the United States. Although hydro power is generated at Grand Falls and Woodland , the Federal Energy Regulatory Commission (FERC) concluded in 1997 that the reservoirs at Forest City, West Grand, Farm Cove, and Sysladobsis (grouped into two projects) have not been operated for downstream power benefits and thus no license under the Federal Power Act is required to operate and maintain the projects. This latter decision is currently undergoing a rehearing and appeal process. The FERC licenses for these two projects are in effect and valid through August 2000, with annual licenses issued by the FERC pending final resolution. The Vanceboro Project is licensed by FERC through 2016. FERC's 1997 decision did not include any direct review or discussion on decisions relative to this project, however the rehearing and appeal process does consider this project as all of these including Grand Falls are auxiliary to an interconnected with the Woodland dam in design and operation such that they form one complete unit of development. The Grand Falls and Woodland Projects were authorized by

5. RIVER FLOW (cont'd)

an Act of Congress prior to the Federal Power Act. Accordingly, FERC jurisdiction does not apply. The Canoose Dam is entirely in Canada, outside the jurisdiction of the United States. The Clifford Lake Dam is a small facility associated with the Grand Falls Project.

The Board of Control of the St. Croix River International Joint Commission (IJC) has the authority to establish (and has established) minimum and maximum levels and flows at Forest City, Vanceboro, and Grand Falls Projects all of which are on the US / Canada boundary. The Woodland Dam which is also on the US / Canada boundary is exempt from IJC jurisdiction because its construction predates the IJC's implementing Act (Boundary Water Treaty Act of 1909).

The IJC currently has issued orders for a minimum flow of 75 cfs at Forest City and a minimum flow of 200 cfs at Vanceboro. As noted, the IJC orders also include maximum and minimum water levels at those dams. In addition, a minimum and maximum lake level is specified by order for Grand Falls Dam but no flow specification is made. The minimum hydropower generation design flow for this facility and Woodland below is 750 cfs. As early as the 1860's State Governmental surveys identified the St. Croix as having a dependable flow of around 1000 cfs and it was on this basis the lower minimum design flow was specified. This minimum design flow was utilized to design the systems integrated operation. The Board has not issued an order for the Woodland Dam. Over the last ten years, USGS records at the Baring gauging station, located 5.3 miles below Woodland Dam and the point of the Domtar discharge, show that a 7-day minimum of 850 cfs has been consistently maintained. (Note: During the drought of 2002 the DEP authorized a late winter minimum flow of 500- 550 cfs to conserve lake system water. While 750 cfs was achievable, environmental conditions at this time of year allowed a compromise to avoid summer public water use conflicts. The Department agreed that this emergency flow was not representative of a true minimum and accordingly would not be utilized as such for licensing and other assessment purposes.) The 1987 EPA permit and State WDL required the GPC to provide a minimum flow of 750 cfs at Baring from June 1 through September 30 as a condition of permit and license. The permittee has indicated that the IJC formerly specified a minimum flow of 750 cfs as a daily mean flow and not an instantaneous flow as specified in the 1987 EPA permit and 1996 State WDL. The permittee has provided the Department with a lengthy and well documented history of the flow management plan for the river indicating that minimum flow at and below the Domtar mill in said plan is 750 cfs. Consistent flows in the lower river equal to or higher than this value have been the basis for the construction and operation of the dams on the watershed since the early 1800's. The three power generating dams constructed in the early 1900's were also designed accordingly. As a result, 750 cfs is being utilized as the low flow (7Q10) in calculating applicable dilution factors and corresponding water quality based limits in this permitting action. Should the IJC or other regulatory authorities with appropriate jurisdiction establish a minimum flow regime lower or higher than 750 cfs, this permit may be re-opened (after notice to the permittee) pursuant to Special Condition F of this permit, to re-evaluate effects on water quality and the environment, the applicable dilution factors and water quality based limits.

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS

a. Regulatory Basis: The discharge from the Domtar facility is subject to National Effluent Guidelines (NEG) found in 40 Code of Federal Regulations (CFR) Part 430 – *Pulp, Paper and Paperboard Manufacturing Point Source Category*. The regulation was revised on April 15, 1998, and reorganized 26 sub-categories in the previous regulation into 12 sub-categories by grouping mills with similar processes. Applicable Subparts of the new regulation for the Domtar facility are limited to Subpart B, *Bleached Papergrade and Soda*. The NEGs establish applicable limitations representing;
1) best practicable control technology currently available (BPT) for toxic and conventional pollutants for existing dischargers, 2) best conventional pollutant technology economically achievable (BCT) for conventional pollutants for existing dischargers, and 3) best available technology economically achievable (BAT) for toxic and non-conventional pollutants for existing dischargers. The regulation establishes limitations and monitoring requirements on the final outfall to the receiving waterbody as well as internal waste stream(s) such as the bleach plant effluent. The regulation also establishes limitations based on several methodologies including monthly average and or daily maximum mass limits based on production of pulp and paper produced or concentration limitations based on BPT, BCT or BAT. Allowances for alternate monitoring certifications and frequencies are also provided for, subject to certain conditions. Should such conditions be met the permit may be reopened (subject to Special Condition F and proper notifications or requests) to reevaluate and modify as appropriate applicable limitations.

Maine law, 38 M.R.S.A. Section 414-A, requires that the effluent limitations prescribed for discharges require application of best practicable treatment, be consistent with the U.S. Clean Water Act, and ensure that the receiving waters attain the State water quality standards as described in Maine's Surface Water Classification System. In addition, 38 M.R.S.A., Section 420 and Department Regulation Chapter 530.5, *Surface Water Toxics Control Program*, requires the regulation of toxic substances at the levels set forth for Federal Water Quality Criteria as published by the U.S. Environmental Protection Agency pursuant to the Clean Water Act.

b. Production: This permitting action is utilizing production figures of 1,415 tons/day of unbleached kraft pulp produced (1,051 tons/day as market pulp) and 366 tons/day of uncoated fine paper for calculating technology based mass figures in this permitting action. The production figures are based on actual production figures provided by Domtar for the period January 1, 1999 through November 30, 2001. The mill is operated at a base rate of 1,075 tons/day of market pulp in 2001 and has a set base rate of 1,100 tons/day thereafter. Daily optimum target rate is 1,200 tons/day as bleached market pulp. For uncoated fine paper, the current (2001-2002) base rate is 366 tons/day with an optimum rate of 436 tons on certain product types.

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

OUTFALL #001 (Final effluent)

c. Dilution Factors: Dilution factors associated with the discharge from the mill's waste water treatment facility were derived in accordance with freshwater protocols established in Department Rule Chapter 530.5, *Surface Water Toxics Control Program*, October of 1994. With a permitted flow of 40.0 MGD, dilution calculations are:

$$\text{Dilution Factor} = \frac{\text{River Flow (cfs)(Conv. Factor)}}{\text{Plant Flow}}$$

Acute: 1Q10 = 750 cfs $\Rightarrow \frac{(750\text{ cfs})(0.6464)}{40.0\text{ MGD}} = 12.1:1$

Modified Acute[1]
¼1Q10 = 188 cfs $\Rightarrow \frac{(188\text{ cfs})(0.6464)}{40.0\text{ MGD}} = 3.0:1$

Chronic: 7Q10 = 750 cfs $\Rightarrow \frac{(750\text{ cfs})(0.6464)}{40.0\text{ MGD}} = 12.1:1$

Harmonic Mean: = 1,812 cfs $\Rightarrow \frac{(1{,}812\text{ cfs})(0.6464)}{40.0\text{ MGD}} = 29.3:1$

Foonotes:

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

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

OUTFALL #001 (Final effluent)

d. Flow: The previous licensing action established a daily maximum limit of 40 MGD that is being carried forward in this permitting action that represents the design flow of the waste water treatment facility. A review of the Discharge Monitoring Report (DMR) data for the period January 1, 1999 to the present and the long term maximum daily flows reported in the 2001 application for permit renewal indicate actual maximum flows have averaged approximately 31 MGD. A peak flow in excess of 38 MGD occurred during substantial rains in the summer of 2004. Efforts to reduce the potential for untreated pollutant discharge and improved spill prevention has resulted in increased storm water collection area routed to the wastewater system.

e. Biochemical oxygen demand (BOD_5) & Total suspended solids (TSS):

The following table contains the monthly average and daily maximum BOD and TSS limitations as calculated utilizing the BPT effluent limitations in the National Effluent Guidelines (NEGs) found at 40 CFR Part 430, Sub-part B.

Final Prod. (t/d)	Subpart B	BOD Avg		BOD Max		TSS Avg		TSS Max	
		kg/kkg	lbs/day	kg/kkg	lbs/day	kg/kkg	lbs/day	kg/kkg	lbs/day
366	Kraft Fine Paper	5.5	4,026	10.6	7,759	11..9	8,710	22.15	16,214
1,051	B-Mkt Bl Kft	8.05	16,.921	15.45	32,476	16.4	34,472	30.4	63,901
1,417	Totals		20,947		40,235		43,182		80,115

This permitting action is carrying forward all seasonal BOD and year-round TSS limits from the previous licensing action. Excepting the summer monthly average limits, the BOD limits were derived from Department modeling of the river as part of the St. Croix River Waste Load Allocation published by the Department in 1986 which demonstrated that minimum dissolved oxygen standards for Class C waters would not be maintained during the summer months at the year-round BOD_5 loadings from Outfall 001. The summer monthly average limit of 8,400 lbs/day for BOD was derived from modeling conducted by the Department in 1992, which demonstrated improved river water quality would be maintained with this discharge limitation using a 7Q10 river flow of 750 cfs which USGS records show had been maintained. The TSS limitations were established in a 1985 WDL licensing action by the Department and were derived as a result of the aforementioned 1986 waste load allocation. All BOD and TSS limits are well below NEG limits as calculated above for the specified production level. This permitting action has

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

OUTFALL #001 (Final effluent)

reduced the monitoring frequency for BOD from 1/Day to 3/Week given the historical compliance record and the fact that chemical oxygen demand (COD) is being tested for 1/Day. As for TSS, this permitting action is carrying forward the monitoring frequency of 1/Day. The Domtar mill has more than thirteen (13) years of effluent COD data that demonstrates a good correlation between BOD and COD values whereby the ratio of COD to BOD is consistently between the range of 0.27 and 0.30.

A review of the Discharge Monitoring Report (DMR) data for the period January 1, 1999 to the present and the 2001 application for permit renewal indicates the actual monthly average and daily maximum discharges of BOD have averaged approximately 4,741 lbs/day or 39.5% of the winter limits and 56% of the summer limits respectively, and the actual monthly average and daily maximum discharges of TSS have averaged approximately 5,496 lbs/day or 29.5% of the monthly average limit.

f. Temperature: The previous permitting action established a year-round daily maximum effluent temperature limit of 100 °F that is being carried forward in this permitting action. A review of the Discharge Monitoring Report (DMR) data for the period January 1, 1999 to the present and the 2001 application for permit renewal indicates the effluent temperature for the last seven years averages 82 °F during the summer period and 64 °F during the winter time. See the discussion under the section entitled *Thermal Load* of this Fact Sheet for Outfall #00T.

g. pH Range: The previous licensing action established a pH range limit of 5.0 – 9.0 standard units that was based on federal regulation 40 CFR, Part 430. This permitting action is carrying the limit forward and continues to be consistent with the NEGs.

h. Adsorbable organic halogens (AOX): The previous licensing action established a 1/Month monitoring requirement for AOX. This permitting action is establishing monthly average and daily maximum technology based mass limits for AOX based on federal regulation found at 40 CFR Part 430. The regulation establishes production based BAT monthly average and daily maximum allowances of 0.623 kg/kkg and 0.951 kg/kkg (lbs per 1000 pounds or metric tons) respectively, of unbleached pulp production. With a historic unbleached kraft production of 1,415 tons/day the limits are calculated as follows:

1,415 tons/day X 0.623 lbs/1000 lbs X 2000 lbs/ton = 1,763 lbs /day
1,415 tons/day X 0.951 lbs/1000 lbs X 2000 lbs/ton = 2,691 lbs /day

A review of the Discharge Monitoring Report (DMR) data for the period February of 1996 – July 2004 indicates the mean monthly average and mean daily maximum AOX concentration discharged has been 0.195 kg/kkg and 0.209 kg/kkg respectively, based on 70 data points. The federal regulations require 1/Day monitoring

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

OUTFALL #001 (Final effluent)

for AOX on the final outfall. However, given the fact that permittee has demonstrated that the monthly average and daily maximum AOX discharged has only been 37% and 25% respectively, of the levels established in the federal regulation, this permitting action is establishing a monitoring frequency of 3/Week for AOX based on a best professional judgment of the monitoring frequency necessary to determine on-going compliance with the BAT thresholds in the federal regulation.

i. COD: The previous licensing action did not establish final effluent limitations or monitoring requirements for COD. It is noted the federal regulation has reserved promulgation of specific final effluent limits for COD. Pursuant to 40 CFR Part 430, this permitting action is establishing a monthly average and daily maximum mass reporting requirement with a monitoring frequency of 1/Day. It is noted that the USEPA is continuing to review the applicability of COD limitations with no final determination as of the date of this permitting action as whether or not to promulgate numeric limitations. If such a determination is made the permit may be reopened (subject to Special Condition F) and modified accordingly.

j. Color: For the Domtar mill, applicable sections of Maine law, 38 M.R.S.A., §414-C states that:

2) Best practicable treatment; color pollution. For the purposes of Section 414-A, Subsection 1, best practicable treatment for color pollution control for discharges of color pollutants from the kraft pulping process is:

A) For discharges licensed and in existence prior to July 1, 1989:

1) On July 1, 1998, and until December 31, 2000, 225 pounds or less of color pollutants per ton of unbleached pulp produced, measured on a quarterly average basis: and

2) On and after January 1, 2001, 150 pounds or less of color pollutants per ton of unbleached pulp produced, measured on a quarterly average basis.

A discharge from a kraft mill that is in compliance with this section is exempt from provisions of subsection 3.

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

OUTFALL #001 (Final effluent)

3) An individual waste discharge may not increase the color of any water body by more than 20 color units. The total increase in color pollution units caused by all dischargers to the water body must be less than 40 color pollution units. This subsection applies to all flows greater than the minimum 30-day low flow that can be expected to occur with a frequency of once in 10 years (30Q10). A discharge that is in compliance with this subsection is exempt from the provisions of subsection 2. Such a discharge may not exceed 175 pounds of color pollutants per ton of unbleached pulp produced after January 1, 2001.

The previous licensing action established two tiers of limits for color. Beginning July 1, 1998 and lasting through December 31, 2000, a technology based limit of 225 pounds per ton of unbleached pulp produced was established and beginning January 1, 2001, the facility was limited to a technology based limit of 150 pounds per ton of unbleached pulp.

The Domtar facility is currently in compliance with the best practicable treatment standard of 150 lbs/ton. Since the first quarter of 1998, the Domtar facility has been discharging approximately 90 pounds of color per ton of air dried tons of unbleached pulp produced on a quarterly basis (three year average 1999 – 2001). This permitting action is carrying forward the technology based limit of 150 pounds per ton of unbleached pulp produced. It is noted the NEGs are silent on limitations and or monitoring requirements for color.

k. Whole Effluent Toxicity (WET) and Chemical Specific Testing – Maine Law, 38 M.R.S.A., Sections 414-A and 420, prohibits the discharge of effluents containing substances in amounts which would cause the surface waters of the State to contain toxic substances above levels set forth in Federal Water Quality Criteria as established by the EPA. Department Rules, 06-096 CMR Chapter 530.5, *Surface Water Toxics Control Program*, set forth ambient water quality criteria (AWQC) for toxic pollutants and procedures necessary to control levels of toxic pollutants in surface waters.

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

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

OUTFALL #001 (Final effluent)

WET monitoring is required to assess and protect against impacts upon water quality and designated uses caused by the aggregate effect of the discharge on specific aquatic organisms. Acute and chronic WET tests are performed on invertebrate and vertebrate species. Chemical specific, or "priority pollutant (PP)," testing is required to assess the levels of individual toxic pollutants in the discharge, comparing each pollutant to acute, chronic, and human health water quality criteria.

The Department issued a Fact Sheet to Domtar (the GPC at that time) on 2/1/95 which outlined the WET testing requirements under Department Rule Chapter 530.5, *Surface Water Toxics Control Program*. The regulation placed the facility in the high frequency category for WET testing as the facility had a chronic dilution factor of less than 20:1 and discharged industrial process waste waters. The 2/1/95 Fact Sheet also outlined the chemical specific (priority pollutant) testing requirement under Chapter 530.5. The regulation placed the facility in the high frequency category as the facility was licensed to discharge greater than 1.0 MGD and the facility discharged industrial process waste waters.

The Department's database for WET and chemical specific test results for Domtar indicates the facility has fulfilled the WET testing and chemical specific testing as required by Department rule Chapter 530.5. See Attachment B of this Fact Sheet for a summary of the WET test results and Attachment C of this Fact Sheet for a summary of the chemical specific test dates. Department Regulation Chapter 530.5 and Protocol E(1) of a document entitled *Maine Department of Environmental Protection, Toxicity Program Implementation Protocols*, dated July 1998, states that statistical evaluations shall be periodically performed on the most recent 60 months of WET and chemical specific data for a given facility to determine if water quality based limitations must be included in the permit.

On December 30, 2004, the Department conducted a statistical evaluation on the aforementioned tests results in accordance with the statistical approach outlined in EPA's March 1991 document entitled *Technical Support Document (TSD) for Water Quality Based Toxics Control*, Chapter 3.3.2 and Maine Department of Environmental Protection Guidance, July 1998, entitled *Toxicity Program Implementation Protocols*.

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

OUTFALL #001 (Final effluent)

WET:

The 12/30/04 statistical evaluation indicates that the discharge from the Domtar facility has one (1) test result (8/16/04) that exceeds the acute ambient water quality threshold of 33% (mathematical inverse of the modified acute dilution factor of 3.0:1). In addition the evaluation indicates there are two (2) test results (7/16/01 and 7/22/02) that have a reasonable potential to exceed the chronic ambient water quality threshold of 8.3% (mathematical inverse of the chronic dilution factor of 12.1:1) for the water flea (*Ceriodaphnia dubia*) and one (1) test result (11/13/00) that exceeds the chronic ambient water quality threshold of 8.3% for the water flea (*Ceriodaphnia dubia*). See Attachment B of this Fact Sheet for a summary of the WET test results evaluated. Therefore, this permitting action is establishing acute and chronic no observed effect level (C-NOEL) limits of 33% and 8.3% respectively, for the water flea (*Ceriodaphnia dubia*).

Chapter 530.5 does not establish monitoring frequencies for WET species or chemical specific elements/compounds that exceed or have a reasonable potential to exceed critical water quality thresholds or AWQC. The Department establishes the appropriate monitoring frequency in permitting actions after taking into consideration the severity, frequency and timing of tests results exceeding or having a reasonable potential to exceed AWQC. In the case of Domtar, this permitting action is establishing a 1/Quarter testing frequency (equivalent to screening level) for the water flea (*Ceriodaphnia dubia*) due to multiple test results of concern and is also requiring the submission of a TRE pursuant to Chapter 530 §C(3). See Special Condition K of this permit. The monitoring frequency for the fathead minnow (*Pimephales promelas*) has been established at a 1/Year testing frequency (surveillance level) as the statistical evaluation indicates there are no exceedences or reasonable potential to exceed critical water quality thresholds. Beginning twelve (12) months prior to the expiration date of the permit, the permittee is required to revert back to a screening level of testing of 1/Quarter for four consecutive calendar quarters for all species with the brook trout and fathead minnow species being alternated such that two tests on each species are conducted.

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

OUTFALL #001 (Final effluent)

Chemical Specific

As for chemical specific parameters, the 12/30/04 statistical evaluation indicates the discharge exceeds or has a reasonable potential to exceed applicable ambient water quality criteria as follows:

	Acute		Chronic		Human Health	
Parameter	RP	Exc.	RP	Exc.	RP	Exc.
4,4"-DDT*	---	---	---	---	Yes (O only)	Yes (W&O)
Arsenic	---	---	---	---	Yes (O only)	Yes (W&O)
Cadmium	Yes	Yes	Yes	---	---	---
Copper	Yes	---	---	---	---	---
Cyanide	Yes	---	Yes	---	---	---
Lead	---	---	Yes	Yes	---	---
Silver	Yes	Yes	---	---	---	---
Zinc	Yes	Yes	---	---	---	---

* Not applicable. See the discussion on page 23 of this Fact Sheet.

As for the remaining parameters on the chemical specific list, the 12/30/04 statistical evaluation indicates the parameters do not exceed or have a reasonable potential to exceed acute, chronic or human health AWQC.

Chapter 530.5 §C(2) states when a discharge *"...contains pollutants at levels that have a reasonable potential to cause or contribute to an ambient excursion in excess of a numeric or narrative water quality criterion, appropriate water quality based limits must be established in the license upon issuance."* It is noted that should future test results mathematically eliminate the reasonable potential to exceed AWQC thresholds, this permit may be modified pursuant to Special Condition F to remove the limit(s) and/or modify monitoring requirements.

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

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

OUTFALL #001 (Final effluent)

Pursuant to Chapter 530.5 §C(2) and §C(3), monthly average and daily maximum mass and concentration limits may be calculated as follows:

Human Health (HH)

Parameter	HH[1] Criterion	Harmonic Mean Dilution Factor	Calculated EOP[2] Concentration	Mon. Avg. Mass Limit
Arsenic	0.018 ug/L	29.0:1	0.52 ug/L	0.17 #/Day

Acute

Parameter	Acute[3] Criterion	Acute Dilution Factor	Calculated EOP[2] Acute Concentration	Daily Max. Mass Limit
Cadmium	0.639 ug/L	3.0:1	1.92 ug/L	0.64 #/Day
Copper	3.89 ug/L	3.0:1	11.7ug/L	3.9 #/Day
Cyanide	22 ug/L	3.0:1	66 ug/L	22 #/Day
Silver	0.25 ug/L	3.0:1	0.75 ug/L	0.25 #/Day
Zinc	29.9 ug/L	3.0:1	89.7 ug/L	30 #/Day

Chronic

Parameter	Chronic[3] Criterion	Chronic Dilution Factor	Calculated EOP[2] Chronic Concentration	Mon. Avg. Mass Limit
Cadmium	0.32 ug/L	12.1:1	3.87 ug/L	1.3 #/Day
Cyanide	5.2 ug/L	12.1:1	62.9 ug/L	21 #/Day
Lead	0.41 ug/L	12.1:1	4.96 ug/L	1.6 #/Day

Example calculation: Arsenic - $\frac{(0.018\ ug/L)(29)(8.34)(40\ MGD)}{1000\ ug/g} = 0.17$ lbs/day

Footnotes:

1. Human health criteria (water & organisms)
2. End of discharge pipe calculations.
3. Based on EPA's 1986 ambient water quality criteria (AWQC).

The calculations for cadmium are correct in that the monthly average limits calculated are higher than the daily maximum limit calculated. This anomaly occurs when the ratio between the acute and chronic AWQC (2:1) is less than the ratio between the acute and chronic dilution factors (4:1).

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

OUTFALL #001 (Final effluent)

The TSD recommends that "background" concentrations of toxic pollutants in the receiving water should be used in calculating permit limits for those pollutants. The Department does not have sufficient information at this time to factor in ambient levels of these pollutants in the receiving waters. Therefore a "background" concentration of zero was used in calculating applicable limits in this permitting action.

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

In addition, EPA's Technical Support Document For Water Quality Based Toxics Control, March 1991, Chapter 5, Section 5.7, recommends that permit limits for both mass and concentration be specified for effluents discharging into waters with less than 100 fold dilution to ensure attainment of water quality standards. As not to penalize the permittee for operating at flows less than the permitted flows, the Department is establishing concentration limits based on a factor of 1.5 as the permittee has consistently discharge at or below 2/3 rds of the permit limitation of 40 MGD. Therefore, concentration limits for the parameters of concern in this permitting action have been calculated to be:

Parameter	Calculated EOP Concentration	Monthly Avg. Concentration Limit	Daily Max. Concentration Limit
Arsenic	0.52 ug/L	0.78 ug/L	---
Cadmium	3.87, 1.92ug/L	5.8 ug/L	2.9 ug/L
Copper	11.7 ug/L	---	17.6 ug/L
Cyanide	62.9, 66 ug/L	94 ug/L	99 ug/L
Lead	4.96 ug/L	7.4 ug/L	---
Silver	0.75 ug/L	---	1.1 ug/L
Zinc	89.7 ug/L	---	134 ug/L

In the event future statistical evaluations demonstrate that the reasonable potential to exceed AWQC for any parameter or the result(s) in question fall outside the 60-month evaluation period, this permit may be reopened pursuant to Special Condition F of this permit to remove the limitation(s) and or reduce the monitoring requirement(s).

This permitting action is establishing the monitoring requirement frequencies for the parameters that exceed or have a reasonable to exceed AWQC based on a best professional judgment given the timing, frequency and severity of the exceedence or reasonable to exceed AWQC. A more in-depth review of the tests results in Attachment C of this Fact Sheet for each parameter indicates:

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

OUTFALL #001 (Final effluent)

4,4"-DDT – The test result of concern (0.06 ug/L on 7/22/02) is the only detectable concentration [Department reporting limit (RL)=0.05 ug/L] in the permittee's testing history which includes 14 test results. The permittee has reported 5 tests results (all <0.05 ug/L) subsequent to the 7/22/02 test result. The permittee has provided the Department with additional information from the laboratory conducting the analysis indicating the result of concern may not be scientifically defensible as "... *the DDT may be masked by another compound or may have been miss identified altogether.*" The Department considers the five subsequent test results to be a Phase I TRE (screening level of testing) and has determined that the discharge of 4,4"-DDT is not an on-going issue at the Domtar mill. Therefore, due to the questionable validity of the test result, the Department is not establishing a limitation for 4,4"-DDT and not requiring any additional work on a TRE at this time. Should future test results indicate the presence of 4,4"-DDT, this permit may be reopened pursuant to Special Condition F to incorporate additional monitoring requirements and or the implementation of additional phases of a TRE.

Arsenic – The permittee has reported three test results (7.0 ug/L, 7.0 ug/L and 9.0 ug/L) between 5/00 and 7/02 that exceed the human health AWQC (water & organisms). The permittee was notified of these exceedences and a Phase I TRE was conducted. The test results in Attachment C of this Fact sheet indicate all 26 test results submitted to the Department subsequent to the most recent test result of concern (7/22/02) have been reported at or below the Department's RL of 5 ug/L. The Department has determined that the discharge of arsenic is no longer an on-going issue at the Domtar mill but multiple detectable levels within a 60-month period warrants additional monitoring for this parameter. Therefore, the Department is establishing a screening level of testing of 1/Quarter but not requiring any additional work on a TRE at this time. Should future test results indicate the presence of arsenic, this permit may be reopened pursuant to Special Condition F to incorporate additional monitoring requirements and or the implementation of additional phases of a TRE.

Cadmium – The permittee has reported seven test results in the most recent 60-month period that exceed or have a reasonable to exceed acute and or chronic AWQC. More specifically, of the seven results, seven have a reasonable potential to exceed the acute AWQC, three results have a reasonable potential to exceed the chronic AWQC and two exceed the acute AWQC. The Department considers the discharge of cadmium from the Domtar mill to be an on-going concern. Therefore, the Department is establishing a screening level of testing of 1/Quarter and requiring the submission of TRE (See Special Condition K of this permit) for cadmium in an effort to identify the source(s) and reduce discharge levels to meet applicable AWQC.

Copper - The permittee has reported eight test results that have a reasonable to exceed the acute AWQC. The Department considers the discharge of copper from the Domtar mill to be a potential for concern. Therefore, the Department is establishing a screening level of testing of 1/Quarter.

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

OUTFALL #001 (Final effluent)

Cyanide – The permittee has reported one test result (31 ugL on 7/16/01) that has a reasonable to exceed both the acute and chronic AWQC. This data point appears to be an outlying data point as all other test results reported in the permittee's testing history are less than 6.0 ug/L with a Department RL of 5 ug/L. In addition, the permittee has submitted 16 test results subsequent to the 7/16/01 test result of concern that do not exceed or have a reasonable potential to exceed any AWQC. The Department does not consider the discharge of cyanide from the Domtar mill to be an on-going concern. Therefore, the Department is establishing a surveillance level of testing of 1/Year.

Lead - The permittee has reported six test results of concern for lead. Five test results ranging from 4 ug/L to 7 ug/L (all between 3/22/04 – 5/24/04) have a reasonable to exceed the chronic AWQC and a test result of 8 ug/L on 7/16/01 exceeds the chronic AWQC. The permittee was made aware of the exceedence and implemented a Phase I TRE by conducting additional testing. The Department does not consider the discharge of lead from the Domtar mill to be an on-going concern but a 1/Quarter monitoring frequency is being established to track lead levels being discharged.

Silver - The permittee has reported four test result of concern for silver. Test results ranging from 1.0 ug/L – 2.7 ug/L (between 7/16/01 – 6/3/03) exceed the acute AWQC. The Department RL for silver is 1.0 ug/L. The permittee was made aware of the exceedences and implemented a Phase I TRE by conducting additional testing. The permittee has submitted eighteen test results subsequent to the most recent result of concern (6/3/03) that do not exceed or have a reasonable potential to exceed any AWQC. The Department does not consider the discharge of silver from the Domtar mill to be an on-going concern. Therefore, the Department is establishing a surveillance level of testing of 1/Year.

Zinc – The permittee has reported 36 test results for zinc in the most recent 60-month period that have a reasonable potential to exceed the acute AWQC for zinc. Of the 36 test results eight exceed the acute AWQC. The Department considers the discharge of zinc from the Domtar mill to be an on-going concern. Therefore, the Department is establishing a screening level of testing of 1/Quarter and requiring the submission of TRE for zinc (See Special Condition K of this permit) in an effort to identify the source(s) and reduce discharge levels to meet applicable AWQC.

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

OUTFALL #001 (Final effluent)

The permittee has provided the Department with the following text as an update to their on-going TRE efforts to eliminate the discharge of toxic pollutants in toxic amounts.

> *"The mill Environmental Department has implemented a TRE process for certain metals, cyanide and other substances such as NPEs that we voluntarily choose to ban. This process has involved extensive sampling and analysis of mill effluent, influent and process streams, review and where appropriate, sampling and analysis of certain chemicals and other feedstock constituents and review and analysis of certain process discharges. Other activities involved; 1) discussion and review of purchasing specifications with suppliers, 2) sampling and analysis of area background water and fish samples for target constituents, 3) ferric chloride, ferric sulfate and bioxide chemical trials for metals precipitation, 4) rerouting and rework of the mill lime kiln color clarifier discharge, and 5) rework of mill water plant backwash. This summer [2004] a strike at our (and most of Maine's) sulfuric acid supplier forced alternative procurement. In 1998 our usual sulfuric acid supplier was chosen due to low concentrations of mercury, zinc and other analytes present in this supply as a significant cost savings. The alternative supply utilized this summer had much higher values for these analytes. Following this event we have modified our alternative supply procurement specifications to favor lower concentration sources. Efforts are ongonig."*

This permitting action is establishing a schedule of compliance, as specified in Special Condition L of the permit for the water quality based limitations for arsenic and zinc. The permittee has indicated that the schedule is necessary to provide sufficient time to conduct additional work on the TRE (as required by Special Condition K of the permit) in an effort to identify and mitigate or eliminate the source(s) of the toxicity.

As for the remaining parameters on the chemical specific list, the 12/30/04 statistical evaluation indicates the parameters do not exceed or have a reasonable potential to exceed acute, chronic or human health AWQC. Therefore, this permitting action establishes a surveillance level of testing of 1/Year for the first four years of the permit and a screening level of testing of 1/Quarter for four consecutive quarters beginning 12 months prior to the expiration date of the permit.

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

OUTFALL #100 (Bleach Plant Acid Sewer) & OUTFALL #200 (Alkaline Sewer)

In accordance with federal regulation 40 CFR Part 430, this permitting action is establishing limitations and monitoring requirements for an internal point source, the combined bleach plant filtrate effluents.

l. Flow: The previous licensing action established a monthly average reporting requirement for flow from the bleach plant. The license required estimating the flow when sampling for pollutants was required as the licensee demonstrated at that time that installing continuous flow measurement was disproportionate to EPA's cost estimates proposed in the draft regulation due to the age of mill, and the configuration of the bleach plant sewers. The permittee has since installed continuous flow measuring devices on the bleach plant sewers. Therefore, the sample types for flow on this outfall has been changed to continuous monitoring.

m. 2,3,7,8-TCDD (Dioxin): The previous licensing action established a daily maximum concentration limit of <10 ppq (pg/L) with a monitoring frequency of 2/Quarter for dioxin based on Maine law, 38 M.R.S.A., §420. The limit of 10 pg/L is also the ML (Minimum Level - the level at which the analytical system gives recognizable signals and an acceptable calibration point) for EPA Method 1613. Federal regulation 40 CFR Part 430 establishes the same limitation and is therefore being carried forward in this permitting action.

n. 2,3,7,8 TCDF (Furan): The previous licensing action established two tiers of daily maximum concentration limits for furan. The license established a limit of <100 ppq (pg/L) through December 31, 1999 and then was reduced to <10 ppq (pg/L) beginning January 1, 2000, based on Maine law, 38 M.R.S.A., §420. The monitoring frequency was established at 2/Quarter like dioxin. The limit of 10 pg/L is also the ML for furan for EPA Method 1613. Federal regulation 40 CFR Part 430 establishes a daily maximum concentration limit of 31.9 pg/L. Being that Maine law is more stringent, the limit of <10 pg/L is being carried forward in this permitting action.

Federal regulation 40 CFR Part 430 does authorize the permitting authority to modify the monitoring frequency for dioxin and furans after five years of monitoring data (60 data points) for dioxin and furan has been collected. Domtar has been monitoring the bleach plant effluent for dioxin and furan since 1997 and has more than 60 data points. The data collected to date indicates dioxin and furan has been less than the respective MLs of 10 ppq since the transition to the elimination of elemental chlorine from the bleaching process was completed in 1997. Therefore, the Department is modifying the 1/Month monitoring requirement by establishing a monitoring requirement of 1/Year for dioxin and furan. In lieu of the 1/Month monitoring requirement, Special Condition O, *Dioxin/Furan Certification*, of this permit requires the permittee to submit an annual certification indicating the bleaching process has not changed from previous practices and therefore the formation of dioxin/furan compounds is highly unlikely.

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

OUTFALL #100 (Bleach Plant Acid Sewer) & OUTFALL #200 (Alkaline Sewer)

It is noted, Maine law 38 M.R.S.A., §420(2)(I)(3) states that - *After December 31, 2002, a mill may not discharge dioxin into its receiving waters. For purposes of this subparagraph, a mill is considered to have discharged dioxin into its receiving waters if 2, 3, 7, 8 - tetrachlorodibenzo-p-dioxin or 2, 3, 7, 8 - tetrachlorodibenzo-p-furan is detected in any of the mill's internal waste streams of its bleach plant and in a confirmatory sample at levels exceeding 10 picograms per liter, unless the Department adopts a lower detection level by rule, which is a routine technical rule pursuant to Title 5, chapter 375, subchapter II-A, or a lower detection level by incorporation of a method in use by the United States Environmental Protection Agency, or if levels of dioxin, as defined in section 420-A, subsection 1 detected in fish tissue sampled below the mill's wastewater outfall are higher than levels in fish tissue sampled at an upstream reference site not affected by the mill's discharge or on the basis of a comparable surrogate procedure acceptable to the commissioner. The commissioner shall consult with the technical advisory group established in section 420-B, subsection 1, paragraph B, subparagraph (5) in making this determination and in evaluating surrogate procedures. The fish-tissue sampling test must be performed with differences between the average concentrations of dioxin in the fish samples taken upstream and downstream from the mill measured with at least 95% statistical confidence. If the mill fails to meet the fish-tissue sampling-result requirements in this subparagraph and does not demonstrate by December 31, 2003 to the commissioner's satisfaction that its wastewater discharge is not the source of elevated dioxin concentrations in fish below the mill, then the commissioner may pursue any remedy authorized by law.*

Based on fish tissue sampling dating back to 1997 as part of the Dioxin Monitoring Program pursuant to Maine law 38 M.R.S.A., §420-A, the Department has made the determination that the discharge from the Domtar facility is in compliance with Maine law 38 M.R.S.A., §420(2)(I)(3).

o. Twelve Chlorophenolics: The previous licensing did not establish limitations or monitoring requirements for the chlorophenolic compounds specified in this permitting action. Federal regulation 40 CFR Part 430 establishes said parameters and limitations. The technology based limitations vary from 2.5 ug/L to 5.0 ug/L and are equivalent to the ML for each parameter using EPA Method 1653. A 1/Month monitoring requirement has also been established based on the federal regulation.

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

OUTFALL #100 (Bleach Plant Acid Sewer) & OUTFALL #200 (Alkaline Sewer)

p. Chloroform: The previous licensing action did not establish limitations or monitoring requirements for chloroform. This permitting action is establishing monthly average and daily maximum mass limits for chloroform based on federal regulation found at 40 CFR Part 430. The regulation establishes production based BAT monthly average and daily maximum allowances of 4.14 g/kkg and 6.92 g/kkg of unbleached pulp production. With a historic unbleached kraft production of 1,415 tons/day the limits are calculated as follows:

1,415 tons/day x 4.14 g/kkg x 0.907 kkg/ton x 1.0 lbs/ 454g = 11.7 lbs /day
1,415 tons/day x 6.92 g/kkg x 0.907 kkg/ton x 1.0 lbs/ 454g = 19.6 lbs /day

The monthly average and daily maximum mass limits apply to the two bleach lines collectively. A monitoring requirement of 1/Week has been established based on the federal regulation.

OUTFALL #002 –(Miscellaneous)

Outfall #002 consists of river intake filter backwash waters, air compressor room cooling waters, storm water from the converting building and paper warehouse roof drains and air conditioning condensate waters.

q. Flow: The previous licensing action established a daily maximum flow limitation of 2.0 MGD with seasonal monitoring frequencies which are being carried forward in this permitting action as it remains representative of the flow from this outfall. The long-term flow for Outfall 002 is approximately 1.3 MGD according to the 2001 permit renewal application and review of DMR data.

r. Temperature: The previous licensing action established a year-round daily maximum temperature limit with seasonal monitoring requirements that are being carried forward in this permitting action as it remains representative of the flow from this outfall. Long-term actual summer effluent temperature is about 80 °F according to the 2001 permit renewal application and review of the DMR data.

s. pH range: The previous licensing action established a daily maximum pH range limitation of 5.0 –9.0 standard units with a footnote exempting the permittee from violations of the limit if the discharge was with 0.5 standard units of the pH of the precipitation or ambient receiving water pH. This limitation and provision for exceedences are being carried forward in this permitting action.

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

OUTFALL #003 (Cooling Waters)

Outfall #003 consists of an intermittent discharge of steam electric power system turbine condensate cooling, evaporator and bleach plant cooling waters, however, these waters are normally recycled after passing through cooling towers or else diverted to be used as process water. Outfall #003 has not discharged over the past eleven years.

t. Flow: The previous licensing action established a daily maximum flow limitation of 3.6 MGD with seasonal monitoring frequencies which are being carried forward in this permitting action as it remains representative of the estimated flow from this outfall when active.

u. Temperature: The previous licensing action established a year-round daily maximum temperature limit with seasonal monitoring frequencies that are being carried forward in this permitting action as it remains representative of the flow from this outfall when active.

v. pH range: The previous licensing action established a daily maximum pH range limitation of 5.0 –9.0 standard units with a footnote exempting the licensee from violations of the limit if the discharge was with 0.5 standard units of the pH of the precipitation or the ambient receiving water pH. This limitation and provision for exceedences are being carried forward in this permitting action.

OUTFALL #00T (Seasonal thermal load limitation)

This "outfall" is not a physical outfall structure discharging to a receiving water but an administrative "outfall" utilized to track thermal loadings rejected collectively from the mill to the St. Croix River by the three outfalls described above.

A 1996 licensing action established seasonal weekly average and daily maximum thermal load limitations expressed in British Thermal Units (BTUs)/Day and established a formal thermal mixing zone, both of which are being carried forward in this permitting action. The thermal load limitations for the mill were established in accordance with Maine law, 38 M.R.S.A., §464(4)(I)(since repealed). The monthly average limit of 2.76×10^{10} BTUs/day was based on the mill's past demonstrated performance as stipulated in 38 M.R.S.A., §464(4)(I) and the daily maximum limit of 3.17×10^{10} BTUs/day was established at 1.15 times the monthly average limit also in accordance with 38 M.R.S.A., §464(4)(I).

Department Rule Chapter 582, *Regulations Relating To Temperature*, limits thermal discharges to an in-stream temperature increase (ΔT) of 0.5° F above the ambient receiving water temperature when the weekly average temperature of the receiving water is greater than or equal to 66° F or when the daily maximum temperature is greater than or equal to 73° F. The temperature thresholds are based on EPA water quality criterion for the protection of brook trout and Atlantic salmon (both species indigenous to the St. Croix River). The

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

OUTFALL #00T (Seasonal thermal load limitation)

weekly average temperature of 66° F was derived to protect for normal growth of the brook trout and the daily maximum threshold temperature of 73° F protects for the survival of juvenile and adult Atlantic salmon during the summer months. As a point of clarification, the Department interprets the term "weekly average temperature" to mean a seven (7) day rolling average. To promote consistency, the Department also interprets the ΔT of 0.5° F as a weekly rolling average criterion when the receiving water temperature is $\geq$66° F and <73° F. When the receiving water temperature is $\geq$73° F compliance with the ΔT of 0.5° F is evaluated on a daily basis.

To comply with Department rule Chapter 582, the Domtar mill would be limited to a thermal load of 2.0×10^9 Btu/day based on the following calculation:

$$(485{,}000{,}000 \text{ gal})(0.5\ ^{\circ}\text{F})(8.34) = 2.0 \times 10^{9} \text{ BTUs/day}$$

This is the heat load that would theoretically cause the St. Croix River temperature to increase by 0.5 °F (after complete mixing) at a 7Q10 river flow of 750 cfs (485 MGD).

Maine law, 38 M.R.S.A., §464(4)(I) stated in part that dischargers must demonstrate to the satisfaction of the Department that they are unable to meet the standards in the existing temperature rule after application of best practicable treatment (BPT). In supplemental information to their 1996 application for establishing the mixing zone, the GPC identified numerous temperature reduction projects and waste water treatment minimization practices including paper machine whitewater and condensate recycling, recycling of bleach plant filtrate, steam condensate reuse, evaporator condensate recycling to the bleach plant and digestor area heat exchangers. The GPC also indicated that it was proceeding with installation of two cooling towers for the purpose of cooling certain process water streams for reuse. These measures demonstrated to the satisfaction of the Department that the mill was applying BPT to the discharge.

Maine law, 38 M.R.S.A., §464(4)(I) also stated that the quantity of heat discharged during a 7-day period may not exceed the maximum heat discharged in any 7-day period between January 1, 1989 and January 11, 1995 and that the amount of heat discharged on any single day may not exceed 1.15 times the maximum 7-day day average. The 7-day maximum quantity of heat discharged must protect existing uses.

Maine law, 38 M.R.S.A., §451 states that after adoption of any classification by the Legislature for surface waters or tidal flats or sections thereof, it is unlawful for any person, firm, corporation, municipality, association, partnership, quasi-municipal body, state agency or other legal entity to dispose of any pollutants, either alone or in conjunction with another or others, in such manner as will, after reasonable opportunity for dilution, diffusion or mixture with the receiving waters or heat transfer to the atmosphere, lower the quality of those waters below the minimum requirements of such classifications, or where mixing zones

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

OUTFALL #00T (Seasonal thermal load limitation)

have been established by the department, so lower the quality of those waters outside such zones, notwithstanding any exemptions or licenses which may have been granted or issued under sections 413 to 414-B.

Section 451 also states that, after opportunity for hearing, the Department may establish by order, a mixing zone with respect to any discharge for which a license has been issued pursuant to section 414.

Section 451 also states that the purpose of a mixing zone is to allow a reasonable opportunity for dilution, diffusion or mixture of pollutants with the receiving waters before the receiving waters below or surrounding a discharge will be tested for classification violations. In determining the extent of any mixing zone to be established under this section, the Department may require from the applicant testimony concerning the nature and rate of the discharge; the nature and rate of existing discharges to the waterway; the size of the waterway and the rate of flow therein; any relevant seasonal, climatic, tidal and natural variations in such size, flow, nature and rate; the uses of the waterways in the vicinity of the discharge, and such other and further evidence as in the Department's judgment will enable it to establish a reasonable mixing zone for such discharge. An order establishing a mixing zone may provide that the extent thereof varies in order to take into account seasonal, climatic, tidal and natural variations in the size and flow of, and the nature and rate of, discharges to the waterway.

Under the guidance of the Department, the GPC conducted a thermal survey of the St. Croix River between June 29, 1989, and August 17, 1989, in an attempt to identify any applicable thermal impact to the St. Croix River from the waste water being discharged from the Woodland mill. The study area covered approximately 8.1 miles ranging from the mill's Outfall #001 downstream to the Milltown bridge. The time frame selected to study the receiving waters was chosen as it was thought to be the period most representative of when the river would reach its maximum temperatures and thus have the greatest impact on cold water fisheries. During the study, the river flow averaged 1,892 cfs at the U.S.G.S. gauging station at Baring, with an average mill effluent flow of 29.5 MGD. The report concluded that based on the data collected in the study, complete mixing of the mill effluent with the receiving water (horizontally and vertically) occurs at the Baring railroad trestle approximately 5.3 miles downstream of Outfall #001.

The GPC's February 1993 document entitled *Application Support Document For a Thermal Mixing Zone in the St. Croix River"*stated that the 1989 thermal study indicated that the Outfall #001 discharge increased the river temperature of a portion of the receiving water immediately downstream of the outfall by a maximum of 2.8°F. The report also indicates that diurnal fluctuations during the study period varied by as much as 2°F from mid-morning to mid-afternoon.

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

OUTFALL #00T (Seasonal thermal load limitation)

The Department's Bureau of Land & Water Quality's Division of Environmental and Assessment (DEA) evaluated and commented on the 1989 thermal study results in a May 24, 1990 intra-Departmental memorandum. The Department stated that because St. Croix River flows were much higher than the minimum required flow of 750 cfs between June 1 and September 30, it was difficult to gauge the effect of the discharge on the river during low flow conditions. The Department utilized the model QUAL2E to determine the impact at 7Q10 flows (750 cfs) and at maximum effluent discharge flow of 40 MGD. GPC's data was used to calibrate the model. The model predicted that at the point of complete mix, approximately 5.3 miles downstream of Outfall #001, under low flow conditions, the ΔT was 1.1°F. The model also predicted that at the Milltown bridge (approximately 8.1 miles downstream) the ΔT was reduced to 0.7°F.

The Department and the GPC concurred that it was (and still is) extremely difficult to separate out what portion of the ΔT is due to the thermal discharge from the mill and what portion is due to diurnal fluctuations. As a result, it was agreed that establishment of a formal mixing zone would be the preferred option to address the thermal discharge issue. As a result, on March 4, 1996, the Department issued #W002766-51-A-N that established a zone of initial dilution and a mixing zone for heat only. The WDL stated that the receiving waters are not to be tested for temperature violations within the designated zone of initial dilution or the established mixing zone.

The Department and the GPC agreed that the point of complete mix occurs at the Baring railroad trestle approximately 5.3 miles downstream of the mill's Outfall #001. This segment of the river will be considered to be the zone of initial dilution for the thermal discharge.

The mixing zone established by the Department for the thermal discharge from the Woodland mill is described as beginning at the Baring railroad trestle and extending downstream approximately 4.0 miles to the Milltown dam at the head of tide.

Special Condition M of Department WDL #W002766-44-C-R issued on May 16, 1996 required the licensee to "*...continue to investigate water reuse projects within the mill and waste water treatment technology alternatives to reduce the thermal discharge to the St. Croix River. The licensee shall submit a summary of the projects undertaken during the term of this license as an exhibit in the next application for license renewal. The report shall list the individual projects and quantify the heat load in BTU's/day that was removed from the discharge point(s).*"

Prior to submission of the May 16, 2001, application for permit/license renewal, the permittee was instructed by the Department to delay the submittal of the information required by Special Condition M due to the anticipated delay in issuing a new permit. The objective was to gather more current thermal discharge data and information to give the Department the most current update of projects undertaken to reduce heat rejected to the river.

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

OUTFALL #00T (Seasonal thermal load limitation)

In addition to Special Condition M, the Department requested Domtar to update the thermal data calculations for the period 2001-2003 (inclusively) to be consistent with the criteria in Maine law, 38 M.R.S.A., §464(4)(I) in establishing the thermal limits in the previous licensing action. Maine law, 38 M.R.S.A., §464(4)(I) stated that the quantity of heat discharged during a 7-day period may not exceed the maximum heat discharged in any 7-day period between January 1, 1989 and January 11, 1995 and that the amount of heat discharged on any single day may not exceed 1.15 times the maximum 7-day day average. The 7-day maximum quantity of heat discharged must protect existing uses.

On January 25, 2002, Domtar submitted information to the Department as to pollution prevention and or treatment technology alternatives to reduce the thermal load discharged to the St. Croix River and comply with Special Condition M of WDL #W002766-44-C-R. Domtar's text is as follows:

In the fall of 1996 the Woodland Pulp and Paper Mill installed four cooling towers at a cost of $2.0 million. The mill had originally anticipated the installation of two towers but opted for four to minimize the thermal impact of our waste discharge license WDL#W0002766-44-C-R. Two of the cooling towers were installed in the finish products area and the additional two towers in the water treatment department.

OPERATIONAL ISSUES FOR FINISH PRODUCTS COOLING TOWERS

The finish product cooling towers were placed into continuous service on June 7, 1997. The towers received hot fine fiber-laden effluent from the vacuum pumps of #4 paper machine and the pulp dryer, cooled and filtered then recycled the water back to the vacuum pumps on both machines. During the initial operation of the cooling towers the incoming temperature ran at approximately 120° F and the towers were able to cool the effluent to 71° F before reusing it on the vacuum pumps. The towers were able to recycle 1.4 million gallons per day from#4 paper machine and 0.6 million gallons per day for the pulp dryer.

The finish products cooling towers had operational trouble from the initial startup. We experienced two shut downs of the paper machine due to lack of seal water to the vacuum pumps. This issue was resolved quickly and operations fine-tuned the water pressures to minimize real and perceived effects of the recycled cooling water. On the pulp dryer side, there was considerable concern over separator pit level and it was believed that the cooling water was affecting drying on the pulp machine. Both finish products cooling towers operated intermittently at best.

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

OUTFALL #00T (Seasonal thermal load limitation)

The cooling towers showed signs of plugging after several months of on and off operation. The vacuum seal water lines plugged regularly, which caused the cooling towers to be taken off-line several times. The towers were treated with a biocide and a defoamer on a continual basis while in use. In addition, the cooled recycle water was treated with a corrosion inhibitor to protect the vacuum pumps. The paper machine cooling tower was difficult to keep clean with several inches of filler from the machine white water covering the base of the tower. The pulp dryer cooling tower was also difficult to keep clean because of microbiological growth on the filter media.

RESULTS OF FINISH PRODUCTS COOLING TOWERS

After a year and a half trial and error, both the paper machine and pulp machine cooling towers were retired from their original scope. In August of 1998 a team was formed and a series of meetings held to find an alternative use for the finish products cooling tower. Note: Domtar has indicated that no final determination on best alternative use for these units have been made as of this permitting action. Implementation and construction related to any such alternative is further limited at this time by business conditions.

OPERATIONAL ISSUES AND RESULTS FOR THE WATER TREATMENT COOLING TOWERS

The cooling towers in the water treatment facility were designed to cool re the warm water produced by the heat exchangers on the black liquor evaporators and the digester heat exchanger . This cooled water is then combined with mill degremont water to be used in the mill processes. During the initial start up of the water treatment cooling towers the only operational problem encountered was that the flow to the towers was restricted to 8.0 million gallons by the piping. The piping was corrected at a cost of $600,000 and this resulted in a dramatic increase to 13.0 million gallons per day.

SUMMARY

Although the mill originally opted to construct four cooling tower and we ended up with only two towers operating the two operating towers have been maximized to more than compensate for the two finish products towers that are currently idle.

Subsequent mandates in State Law along with the production increases have place a greater demand on our ability to reduce the thermal loading on the St. Croix River. The most significant change in our process was the addition of a state mandated CLO2 plant in 1998. The CLO2 plant requires two large chillers to cool mill water from approximately 70° F to 35-40° F during the summer months.

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

OUTFALL #00T (Seasonal thermal load limitation)

During the period of analysis (1996-2001) the upstream river flows (which are affected by precipitation) and corresponding temperatures varied such that determination of total mill contribution to final BTU loading is difficult. It is evident however that the increase in BTU loading since 1998 is not entirely associated with the new chiller operation but rather also influenced by precipitation related river flow reductions and corresponding ambient temperature increased A related process variable that has contributed to the BTU loading has been a need to increase thermally produced electricity resulting from lost hydro power opportunities during this period due to lower river flows. Thermally generated electricity from the Mill's No. 11 steam turbine was increased to compensate for reduction in the generation of hydro electricity.

In summary, when we compare BTU loading from 1996 to 2001 we see that the loading is very similar. The addition of the CLO2 plant, increase in thermally generated electricity, and the decrease in Hydro generated electricity have all played an important role in the increase thermal loading since 1998. This loading increase can be seen clearly on graph "Combined 001 and 002 BTU for ME0001872", which is included.

Domtar submitted updated thermal calculations to the Department to comply with Special Condition M of WDL #W002766-44-C-R. The calculations indicate that for the summer months (June – September) between June 2001 and September of 2003, the highest 7-day quantity of heat collectively discharged was 0.800×10^{10} BTU/day or 8.00×10^{9} BTUs/day. As previously stated to comply with Department rule Chapter 582, the Domtar mill would be limited to a thermal load of 2.0×10^{9} BTUs/day. Therefore, in keeping with the methodology established in the Maine law, 38 M.R.S.A., §464(4)(I) (since repealed) the Department is reducing the weekly average heat load limitation from 2.76×10^{10} BTU/day to 8.00×10^{9} BTUs/day and reducing the daily maximum heat load limitation from 3.17×10^{10} BTU/day to 9.21×10^{9} BTU/day. As with previous legislation, the daily maximum limitation was derived by multiplying the weekly average heat load of 8.00×10^{9} BTU/day by a factor of 1.15.

In addition to establishing lower thermal load limitations from the previous licensing action, Special Condition I of this permitting action requires the permittee to continue to investigate water reuse projects within the mill and waste water treatment technology alternatives to reduce the thermal discharge to the St. Croix River. The permittee shall submit a summary of the projects undertaken during the term of this permit as an exhibit in the next application for permit renewal. The report shall list the individual projects and quantify the heat load in BTU's/day that was removed from the discharge point(s).

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

OUTFALL #00T (Seasonal thermal load limitation)

Special Condition J of this permit requires the permittee (beginning June 1, 2005) to continually monitor the upstream and downstream temperature of the receiving waters to assess the impact of the mill's thermal discharge on the receiving water and to more accurately define the physical extent of the mixing zone. The data shall be submitted by the permittee and reviewed by the Department on an annual basis. Special Condition J contains a re-opener clause to impose more stringent thermal limitations should the data indicate that the thermal discharge is adversely impacting existing uses or discontinue monitoring if no new information is being generated by the monitoring.

7. BEST MANAGEMENT PRACTICES PLAN

Best Management Practices (BMPs) are specified at 40 CFR 430.03(d). The primary objective of the BMPs is to prevent leaks and spills of spent pulping liquors, soap, and turpentine. The secondary objective is to contain, collect, and recover at the immediate process area, or otherwise control, those leaks, spills, and intentional diversions of spent pulping liquor, soap and turpentine that do occur. Toward those objectives, the permittee must implement the Best Management Practices (BMPs) specified in 40 CFR 430.03 (c). The conditions established in Special Condition N of the permit are recommended by EPA Headquarters via a May 2000 Permit Guidance Document for the Pulp, Paper and Paperboard Manufacturing Point Source Category.

8. ENDANGERED SPECIES ACT

On September 9, 1999, the EPA entered into formal consultation with the U.S. Fish and Wildlife Service (USFWS) regarding the re-issuance of six kraft mill permits in Maine including the Domtar mill (formerly the Georgia-Pacific Woodland) permit. The consultation involved a review of whether the discharges from the mills adversely affects the continued existence of the federally-threatened bald eagle in Maine. A final Biological Opinion (BO) was prepared by the USFWS on August 18, 2000. The BO concludes that re-issuance of the permits will not jeopardize the continued existence of the bald eagle near any of the six mills but for five of the six mills (excluding the Domtar mill), the permit issuance action could result in an unquantified incidental take of eagles during the next five years due to contamination in fish (principal bald eagle prey) by dioxins and furans by effecting eagle health and reproduction potential. Based on the findings of the BO, the USFWS has requested the EPA establish specific terms and conditions (as described in the BO) for a bald eagle monitoring program in NPDES for five of the six mills (excluding the Domtar mill). The Domtar mill was excluded based upon 1998 fish monitoring data from the St. Croix River which were found to be at or better than background reference levels. Therefore, Domtar is not subject to the specific terms and conditions of the bald eagle monitoring program as specified in the BO.

8. ENDANGERED SPECIES ACT (cont'd)

However, Domtar is interested in the health and recovery of the bald eagle as well as importance of this species to the Passamaquoddy Tribe and has voluntarily donated $15,000 to a cooperative study that began in the summer of calendar year 2004. The study is being conducted jointly by the Maine IF&W and USFWS. The Maine IF&W has provided preliminary information to Domtar and the Passamaquoddy tribe indicating additional aerial surveys have been conducted and egg samples collected. The Maine IF&W has indicated a more detailed report summarizing activities to date is forth coming. Domtar has indicated they will consider assisting in future studies following review and assessment of findings.

9. DISCHARGE IMPACT ON RECEIVING WATER QUALITY

As permitted, the Department has determined the existing water uses will be maintained and protected and the discharge will not cause or contribute to the failure of the St. Croix River to meet standards of its assigned Class C classification.

10. PUBLIC COMMENTS

Public notice of this application was made in the Bangor Daily News newspaper on or about May 17, 2001. The Department receives public comments on an application until the date a final agency action is taken on that application. Those persons receiving copies of draft permits shall have at least 30 days in which to submit comments on the draft or to request a public hearing, pursuant to Chapter 522 of the Department's rules.

11. DEPARTMENT CONTACTS

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

Gregg Wood
Division of Water Resource Regulation
Bureau of Land and Water Quality
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017 Telephone: (207) 287-7693
E-mail: gregg.wood@maine.gov

12. RESPONSE TO COMMENTS

Beginning in February of 2002 through the present, the Department has issued two proposed draft MEPDES permit/WDL documents for a 30-day public review and comment period , the most recent being January 21, 2005. On February 22, 2005, the Department received written comments from the Natural Resources Council of Maine (NRCM hereinafter). Response to NRCM comments are as follows:

12. RESPONSE TO COMMENTS (cont'd)

Comment #1: The NRCM has stated that the limits in the permit that were based on a 30-day average 6.5 mg/L of dissolved oxygen at 22 degrees Centigrade are not protective of salmonid fish species and are therefore not consistent with the narrative requirement to protect all indigenous species in Class C waters. As a result, the NRCM states, *"There is no justification to use this standard as a policy, and the Council believes any license limits based upon it are illegal."*

Response #1: The Department acknowledges the 2004 legislative action whereby a mistake in the adoption of 30-day average dissolved oxygen standard (6.5 mg/L) occurred resulting in the passage of a law where the 6.5 mg/L standard was an instantaneous criterion rather than a 30-day average criterion. A key component in adopting a new 30-day average dissolved oxygen standard to protect all indigenous species in Class C waters is the assignment of a temperature at which the 6.5 mg/L standard is to be evaluated against.

There is presently no finally approved numerical monthly average dissolved oxygen standard for Class C waters. However, as has been done in the past, the Department has used a numerical monthly average standard in order to further interpret the narrative standard which states that discharges to Class C waters "may cause some changes to aquatic life provided that the receiving waters shall be of sufficient quality to support all species of fish indigenous to the receiving waters . . ." [38 MRSA §465 (4)(C)]. The Department has used a monthly average dissolved oxygen standard of 6.5 ppm to be applied whenever the daily water temperature is equal to or less than 22 degrees.

The use of a monthly average standard that considers temperature is premised on the fact that a monthly average standard is designed to protect for those conditions over which salmonid growth may occur. A daily average standard is designed to protect for survival conditions. The Department evaluated a range of studies (Forseth, 2001; Brett 1979, et al.), and the EPA's 1986 *Ambient Aquatic Life Water Quality Criteria for Dissolved Oxygen (Freshwater)* (the "Gold Book") to determine that salmonids can reasonably be expected to grow over a range of temperatures, where 24 degrees Celsius is reasonably considered an upper limit where rate of growth ceases. An incipient lethal temperature is somewhere above 24 degrees, perhaps beginning at 26 degrees.

While 24 degrees is reasonably considered the upper limit of growth, 22 degrees as an upper limit captures the majority of the time during which salmonids would be growing. If growth rate is plotted versus temperature the curve would show a gradually increasing rate of growth beginning at 8 to 10 degrees Celsius and leveling out somewhere around 20 degrees. After 20 degrees Celsius the rate of growth steeply declines approaching zero at around 24 degrees. 22 degrees is reasonably considered to be on the descending portion of the growth curves where rates are dropping and approaching zero. Evaluated another way it can be said that a temperature standard of 22 degrees captures 85% of the temperature window over which growth occurs.

12. RESPONSE TO COMMENTS (cont'd)

Further, 22 degrees captures the bulk of total amassed growth because of how the rate changes over time. Gary Chapman, one of the authors of the EPA "Gold Book", provided information (he did not take a position on any particular standard) to the Department during the 2004 legislative deliberations on this standard. He presented modeling results which showed how the application of these two different temperatures would affect the total weight of an individual salmon. The modeling results showed that a salmon subject to a 22 degree standard would gain 2 grams less of weight than one subject to a 24 degree standard. Neither fish would lose weight, they would only grow slightly less over the course of a year. In the case of Chapman's modeling results, which are not empirical observations, a "22-degree" fish has 98% of the weight of a "24-degree" fish.

The DEP therefore finds that the use of a 22 degree standard is reasonable and is in keeping with the narrative standard that requires that Class C waters shall "support all indigenous species of fish."

Brett, J. R. 1979. "Environmental factors and growth" in Hoar, Randall and J.R. Brett (eds). Fish Physiology, Volume 8. New York: Academic Press

Forseth, T., et al. 2001. "Functional models for growth and food consumption of Atlantic salmon parr, *Salmo salar*, from a Norwegian River" *Freshwater Biology* 46, 173-186

Comment #2: The NRCM submitted a comment objecting to the Department carrying forward a thermal mixing zone that was established by the Department on March 4, 1996. The NRCM contends the Domtar facility has had sufficient time and technologies exist to address the thermal discharge from the mill such that that discharge is in compliance with the Department rule, Chapter 582, *Regulations Relating To Temperature.* The NRCM states the 1995 emergency legislation [Maine law, 38 M.R.S.A., §464(4)(I)] that provided for a three-year period of time for discharges to develop and implement facility specific solutions to address thermal discharges was intended "*... to provide an amnesty period to come into compliance, not to allow dischargers to avoid complying with temperature laws forever.*" In addition, the NRCM contends the 1995 legislation did not intend that mixing zones would be a permanent solution to temperature problems.

Response #2: The Department disagrees with the NRCM's interpretation of the 1995 legislation (since repealed). The Department maintains the position that the 1995 legislation established a three-year period of time to develop and implement a long term solution and did not simply provide an amnesty period to come into compliance with the temperature regulation.

Maine law 38 M.R.S.A., Section 451 states that, after opportunity for hearing, the Department may establish by order, a mixing zone with respect to any discharge for which a license has been issued pursuant to section 414.

12. RESPONSE TO COMMENTS (cont'd)

Section 451 also states that the purpose of a mixing zone is to allow a reasonable opportunity for dilution, diffusion or mixture of pollutants with the receiving waters before the receiving waters below or surrounding a discharge will be tested for classification violations. In determining the extent of any mixing zone to be established under this section, the Department may require from the applicant testimony concerning the nature and rate of the discharge; the nature and rate of existing discharges to the waterway; the size of the waterway and the rate of flow therein; any relevant seasonal, climatic, tidal and natural variations in such size, flow, nature and rate; the uses of the waterways in the vicinity of the discharge, and such other and further evidence as in the Department's judgment will enable it to establish a reasonable mixing zone for such discharge. An order establishing a mixing zone may provide that the extent thereof varies in order to take into account seasonal, climatic, tidal and natural variations in the size and flow of, and the nature and rate of, discharges to the waterway.

This permitting action is carrying forward the mixing zone for heat as the discharge from the Domtar mill is not in compliance with the Chapter 582 regulation after the heat discharged from the mill has had a reasonable opportunity for dilution, diffusion or mixture with the receiving waters. Regardless of the 1995 legislation, Section 451 of Maine law authorizes the Department to establish a mixing zone after taking into consideration the factors cited above.

The Department expects continuous improvement in thermal load reduction projects at the Domtar mill and the last paragraph of Special Condition I of this permit (inadvertently not included in the January 21, 2005 proposed draft document) requires the permittee to do so. In addition, the thermal load limitations in this permitting action are more stringent than the previous licensing action and Special Condition J of this permit requires Domtar to conduct in-stream temperature monitoring to assess the impact of the mill's thermal discharge on the receiving water and to more accurately define the mixing zone given the reduction in heat load over the 5-year term of the previous license.

Comment #3: The NRCM expressed concern that the Department may be dismissing exceedences of metals' criteria too quickly simply based on additional sampling. In addition, the NRCM questioned the Department's rationale for the monitoring frequencies established in the permit for lead and silver along with the apparent dismissal of a valid laboratory test for 4,4'-DDT.

Response #3: *Lead* - The Department has re-evaluated the test results for lead and concurs with the NRCM that the monitoring frequency of 1/Year in the proposed draft permit may not be appropriate given five of the most recent six test results of concern occurred in the most current 12-month period. To be consistent with the rationale for establishing a monitoring frequency for arsenic, the Department is increasing the monitoring frequency for lead from 1/Year to 1/Quarter in the final permit.

12. RESPONSE TO COMMENTS (cont'd)

Silver - The permittee has submitted eighteen test results subsequent to the most recent result of concern (6/3/03) that do not exceed or have a reasonable potential to exceed any AWQC. The permitee has demonstrated to the Department's satisfaction that silver is not an on-going concern and the 1/Year monitoring frequency is reasonable and appropriate.

4,4-DDT – The Department did not dismiss the test result of 0.06 ug/L on 7/22/02. The laboratory that conducted the test provided information to the permittee which was forwarded to the Department indicating that in their opinion, the result was questionable. Given the fact this compound has been banned from use for a number of years and the permittee has reported five tests results (all less than the Department's reporting limit of 0.05 ug/L) subsequent to the 7/22/02 test result that do not exceed or have reasonable potential to exceed AWQC, the Department stands by it's best professional judgment not to establish a limitation for 4,4'-DDT at this time. If future test results indicate 4,4-DDT is present in the discharge at or above the Department's reporting limit of 0.05 ug/L, this permit will be re-opened to incorporate applicable limitations and monitoring requirements and a toxicity reduction evaluation (TRE).

Comment #4 – The NRCM contends the Department needs to take into account background levels of contaminants already present in the St. Croix River.

Response #4 – The Department does not have sufficient data on background levels of contaminants present in the St. Croix River to factor into the establishment of applicable limitations in this permitting action. It is noted the Department is currently in the formal process of adopting revisions to Department rule Chapter 530.5, *Surface Water Toxics Control Program*, to account for and provide a methodology for factoring background levels of contaminants in receiving waters.

Comment #5: The NRCM states the Department has failed to account for subsistence fishing rights and practices of the Passamaquoddy Nation. More specifically, the NRCM contends the Department has made no attempt to account for this by developing more protective criteria for toxics than the EPA's standard ambient water quality criteria for the general population.

Response #5: The NRCM's has not provided information to the Department regarding the Passamaquoody Nation's fish consumption rates being higher than values used by the Department and or EPA in the establishing ambient water quality criteria. Therefore, the Department has to date utilized the federal water quality criteria as established by USEPA pursuant to Department rule Chapter 530.5, *Surface Water Toxics Control Program,* Section A(2)(a)(i). It is noted the Department is currently in the formal process of adopting revisions to Department rules Chapter 530.5 and Chapter 584, *Surface Water Quality Criteria for Toxic Pollutants*. The proposed revisions to rules addresses NRCM's concerns by proposing a process to consider higher consumptions rates for populations such as the Passamaquoddy Nation that practice subsistence fishing rights and practices.

12. RESPONSE TO COMMENTS (cont'd)

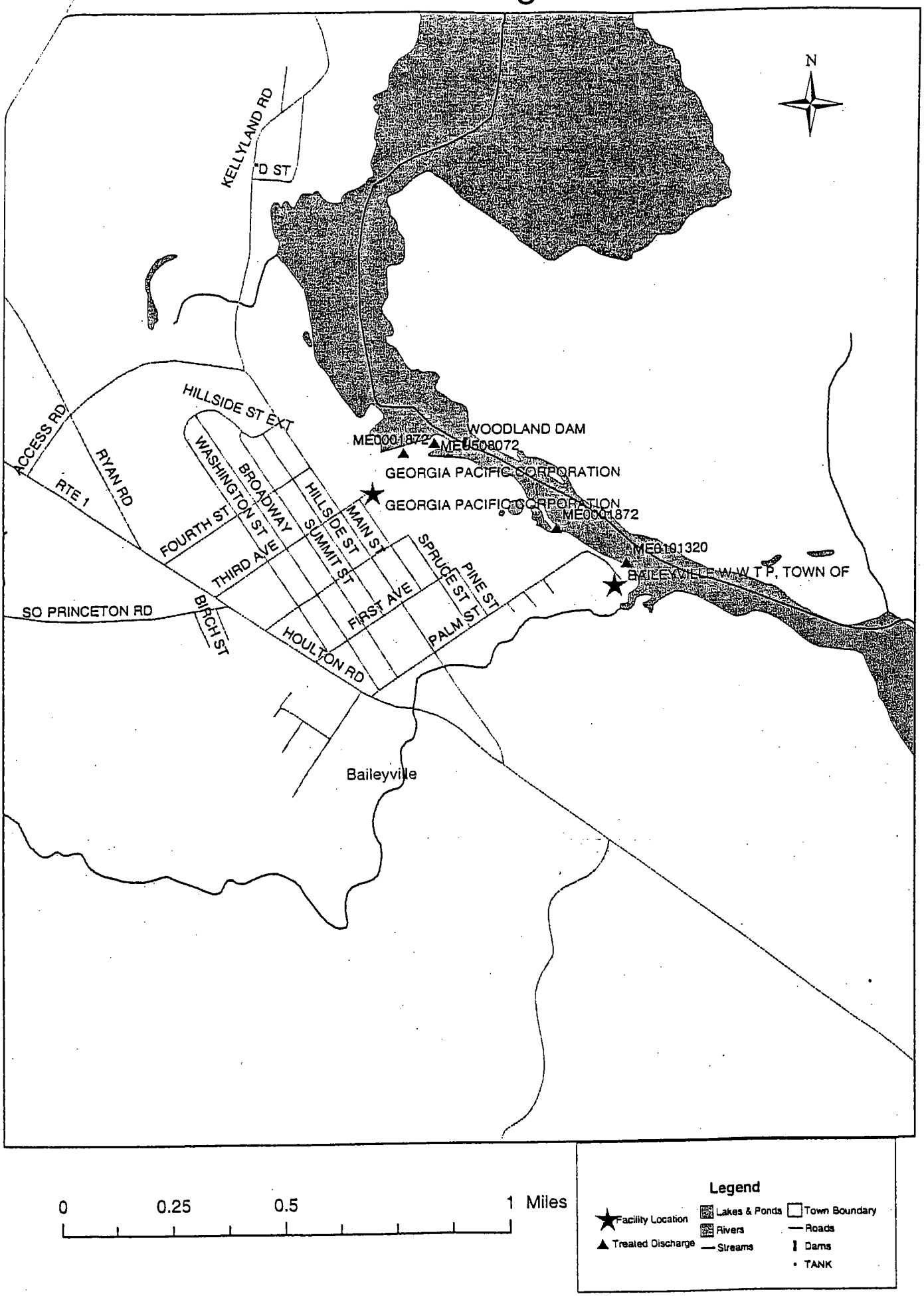
Comment #6: The NCRM indicated they maintain the contention that the elemental chlorine free (ECF) process the Domtar mill creates dioxin. As result, the NRCM believes the permit is not protective of human health, the environment or bald eagles.

Response #6: The NRCM did not provide any specific changes to the permit to remedy their concern. The State of Maine has never posted a fish advisory for the St. Croix River due to unacceptable levels of dioxin in fish tissue nor has the NRCM provided the Department with information indicating fish tissue and or non-viable eggs, dead young sub-adults or adult bald eagles contained elevated levels of dioxin. The 1/21/05 proposed draft permit was sent to the U.S. Fish & Wildlife Service (USFWS) and the Maine Department of Inland Fisheries & Wildlife for review and comment. Neither agency provided comments regarding the lack of protection provided in the permit for bald eagles. As a result, without any specific recommendations from any party regarding these issues, the permit remains unchanged.

Comment #7: On May 24, 2005, Domtar was made aware of the fact the Department had issued formal 30-day proposed draft permits for two other integrated kraft pulp and paper facilities that provided for an alternate testing regime for dioxin and furan from the mills' bleach plant(s). Domtar requested the same reduction.

Response #7: The EPA's May 2005 Permit Guidance Document for implementing the Cluster Rule indicates the 1/Month monitoring frequency for dioxin and furan may be adjusted after the five-year "minimum monitoring period" ends. As indicated in the Fact Sheet, the Domtar mill has been sampling the bleach plant effluents since 1997 resulting in more than 60 data points required by the five-year minimum monitoring period. Being that all results for dioxin and furan have been reported as less than the ML of 10 ppq, the Department concurs that a reduction in the monitoring frequency is justified. In addition, the reduction in the monitoring frequency is consistent and other recent permitting actions by the Department. The final permit has been modified to reduce the dioxin and furan monitoring frequency for the bleach plant and incorporated a Special Condition O, *Dioxin/Furan Certification*, requiring an annual certification.

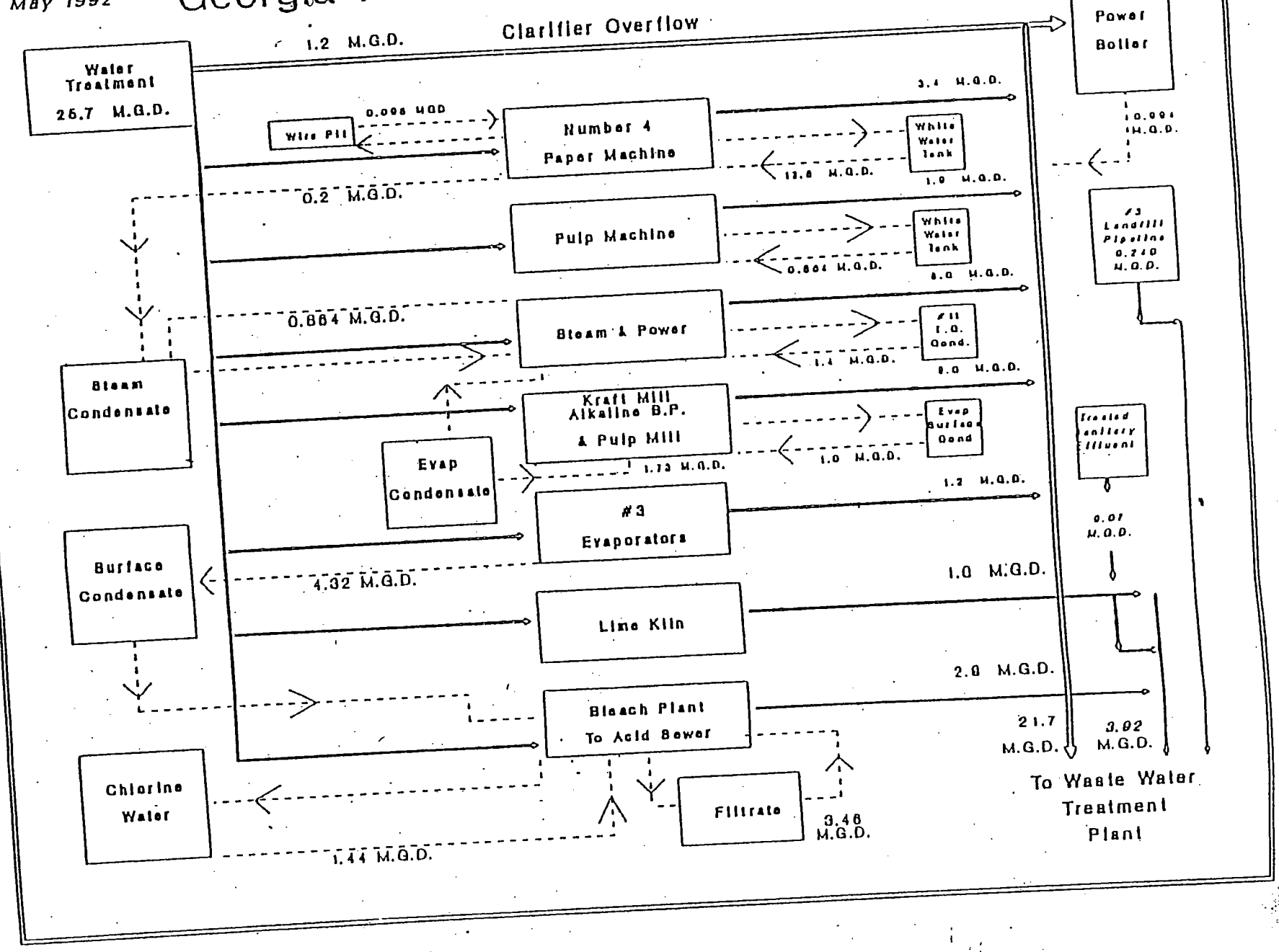
Wastewater Licensing Information



ATTACHMENT A

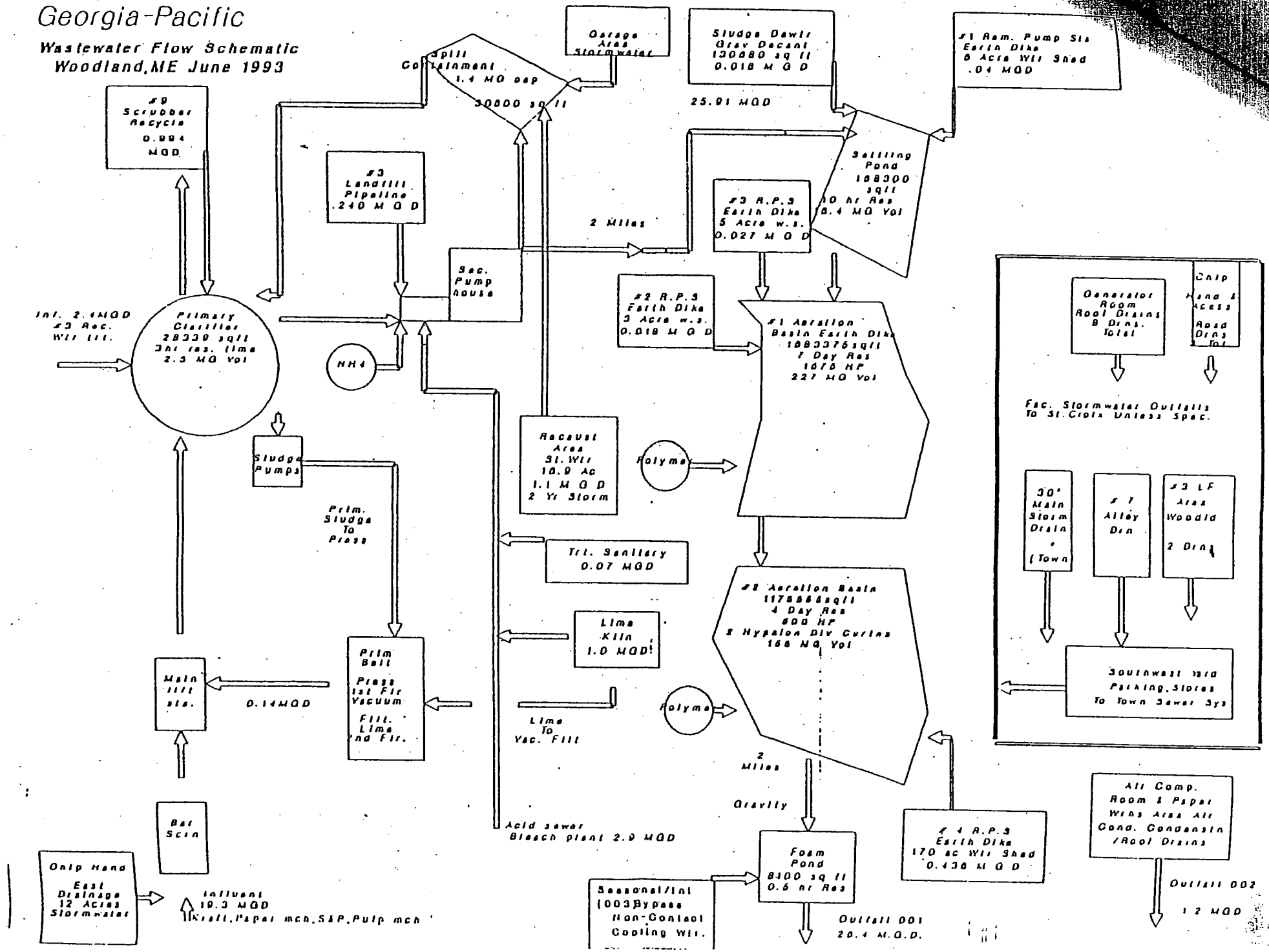
May 1992

Georgia-Pacific Mill Process Flow Chart



Georgia-Pacific

Wastewater Flow Schematic
Woodland, ME June 1993



ATTACHMENT B

DOMTAR (GP)
ST. CROIX RIVER

Flow: 40.0 MGD
Chronic dilution: 12.1:1
Acute dilution: 12.1:1

Species	Test	Test Result %	Sample Date
FATHEAD	LC50	>100	01/22/1991
WATER FLEA	LC50	>100	01/22/1991
TROUT	C_NOEL	100.00	07/09/1991
TROUT	LC50	>100	07/09/1991
WATER FLEA	C_NOEL	100.00	07/09/1991
WATER FLEA	LC50	>100	07/09/1991
TROUT	C_NOEL	25	04/08/1992
TROUT	LC50	>100	04/10/1992
WATER FLEA	C_NOEL	25	04/10/1992
WATER FLEA	LC50	>100	04/10/1992
TROUT	A_NOEL	50	05/08/1992
TROUT	C_NOEL	50	05/08/1992
TROUT	LC50	>100	05/08/1992
WATER FLEA	A_NOEL	50	05/08/1992
WATER FLEA	C_NOEL	25	05/08/1992
WATER FLEA	LC50	>100	05/08/1992
TROUT	A_NOEL	100	06/15/1992
TROUT	C_NOEL	50	06/15/1992
TROUT	LC50	>100	06/15/1992
WATER FLEA	A_NOEL	100	06/15/1992
WATER FLEA	C_NOEL	100	06/15/1992
WATER FLEA	LC50	>100	06/15/1992
TROUT	A_NOEL	100	07/10/1992
TROUT	C_NOEL	100	07/10/1992
TROUT	LC50	>100	07/10/1992
WATER FLEA	A_NOEL	50	07/13/1992
WATER FLEA	C_NOEL	50	07/13/1992
WATER FLEA	LC50	>100	07/13/1992
TROUT	A_NOEL	100	07/07/1993
TROUT	C_NOEL	50	07/07/1993
TROUT	LC50	>100	07/07/1993
WATER FLEA	A_NOEL	100	07/07/1993
WATER FLEA	C_NOEL	25	07/07/1993
WATER FLEA	LC50	>100	07/07/1993
TROUT	A_NOEL	100	08/02/1994
TROUT	C_NOEL	100	08/02/1994
TROUT	LC50	>100	08/02/1994
WATER FLEA	A_NOEL	100	08/02/1994
WATER FLEA	C_NOEL	50	08/02/1994
WATER FLEA	LC50	>100	08/02/1994
TROUT	A_NOEL	100	08/02/1995

Chronic dilution: 12.1:1
Acute dilution: 12.1:1

Species	Test	Test Result %	Sample Date	
TROUT	C_NOEL	100	08/02/1995	
TROUT	LC50	>100	08/02/1995	
WATER FLEA	A_NOEL	100	08/02/1995	
WATER FLEA	C_NOEL	25	08/02/1995	
WATER FLEA	LC50	>100	08/02/1995	
TROUT	A_NOEL	100	07/15/1996	
TROUT	C_NOEL	100	07/15/1996	
TROUT	LC50	>100	07/15/1996	
WATER FLEA	A_NOEL	100	07/15/1996	
WATER FLEA	C_NOEL	8.3	07/15/1996	
WATER FLEA	LC50	>100	07/15/1996	
WATER FLEA	A_NOEL	57.1	08/19/1996	
WATER FLEA	C_NOEL	50	08/19/1996	
WATER FLEA	LC50	85.6	08/19/1996	
TROUT	A_NOEL	100	08/04/1997	
TROUT	C_NOEL	100	08/04/1997	
TROUT	LC50	>100	08/04/1997	
WATER FLEA	A_NOEL	41.7	08/04/1997	
WATER FLEA	C_NOEL	25	08/04/1997	
WATER FLEA	LC50	>100	08/04/1997	
FATHEAD	A_NOEL	100	02/16/1998	
FATHEAD	C_NOEL	50	02/16/1998	
FATHEAD	LC50	>100	02/16/1998	
WATER FLEA	A_NOEL	100	02/16/1998	
WATER FLEA	C_NOEL	8.3	02/16/1998	
WATER FLEA	LC50	>100	02/16/1998	
TROUT	A_NOEL	100	07/20/1998	
TROUT	C_NOEL	50	07/20/1998	
TROUT	LC50	>100	07/20/1998	
WATER FLEA	A_NOEL	40	07/20/1998	
WATER FLEA	C_NOEL	8.3	07/20/1998	
WATER FLEA	LC50	>100	07/20/1998	
TROUT	A_NOEL	100	07/06/1999	
TROUT	C_NOEL	100	07/06/1999	
TROUT	LC50	>100	07/06/1999	
WATER FLEA	A_NOEL	100	07/06/1999	
WATER FLEA	C_NOEL	50	07/06/1999	
WATER FLEA	LC50	>100	07/06/1999	BEGIN 60-MONTH
TROUT	A_NOEL	100	02/21/2000	EVALUATION PERIOD
TROUT	C_NOEL	34	02/21/2000	
TROUT	LC50	>100	02/21/2000	

Species	Test	Test Result %	Sample Date
WATER FLEA	A_NOEL	100	02/21/2000
WATER FLEA	C_NOEL	50	02/21/2000
WATER FLEA	LC50	>100	02/21/2000
FATHEAD	A_NOEL	100	05/22/2000
FATHEAD	C_NOEL	100	05/22/2000
FATHEAD	LC50	>100	05/22/2000
WATER FLEA	A_NOEL	100	05/22/2000
WATER FLEA	C_NOEL	34	05/22/2000
WATER FLEA	LC50	>100	05/22/2000
TROUT	A_NOEL	100	08/21/2000
TROUT	C_NOEL	100	08/21/2000
TROUT	LC50	>100	08/21/2000
WATER FLEA	A_NOEL	100	08/21/2000
WATER FLEA	C_NOEL	18	08/21/2000
WATER FLEA	LC50	>100	08/21/2000
FATHEAD	A_NOEL	100	11/13/2000
FATHEAD	C_NOEL	100	11/13/2000
FATHEAD	LC50	>100	11/13/2000
WATER FLEA	A_NOEL	100	11/13/2000
WATER FLEA	C_NOEL	5	11/13/2000
WATER FLEA	C_NOEL	100	11/13/2000
WATER FLEA	LC50	>100	11/13/2000
WATER FLEA	A_NOEL	100	01/24/2001
WATER FLEA	C_NOEL	50	01/24/2001
WATER FLEA	LC50	>100	01/24/2001
TROUT	A_NOEL	100	07/16/2001
TROUT	C_NOEL	100	07/16/2001
TROUT	LC50	>100	07/16/2001
WATER FLEA	A_NOEL	64.3	07/16/2001
WATER FLEA	C_NOEL	8.3	07/16/2001
WATER FLEA	LC50	>100	07/16/2001
WATER FLEA	A_NOEL	100	08/05/2001
WATER FLEA	A_NOEL	55.0	09/17/2001
WATER FLEA	C_NOEL	50.0	09/17/2001
WATER FLEA	LC50	70.7	09/17/2001
TROUT	A_NOEL	100	07/22/2002
TROUT	C_NOEL	100	07/22/2002
TROUT	LC50	>100	07/22/2002
WATER FLEA	A_NOEL	100	07/22/2002
WATER FLEA	C_NOEL	12	07/22/2002
WATER FLEA	LC50	>100	07/22/2002

Species	Test	Test Result %	Sample Date
WATER FLEA	A_NOEL	100	10/28/2002
WATER FLEA	C_NOEL	<5.0	10/28/2002
WATER FLEA	LC50	>100	10/28/2002
WATER FLEA	A_NOEL	100	11/11/2002
WATER FLEA	C_NOEL	25	11/11/2002
WATER FLEA	LC50	>100	11/11/2002
TROUT	A_NOEL	100	03/17/2003
TROUT	C_NOEL	50	03/17/2003
TROUT	LC50	>100	03/17/2003
WATER FLEA	A_NOEL	100	03/17/2003
WATER FLEA	C_NOEL	50	03/17/2003
WATER FLEA	LC50	>100	03/17/2003
WATER FLEA	C_NOEL	50	05/27/2003
TROUT	A_NOEL	100	07/28/2003
TROUT	C_NOEL	100	07/28/2003
TROUT	LC50	>100	07/28/2003
WATER FLEA	A_NOEL	100	07/28/2003
WATER FLEA	C_NOEL	50	07/28/2003
WATER FLEA	LC50	>100	07/28/2003
TROUT	A_NOEL	100	01/20/2004
TROUT	C_NOEL	25	01/20/2004
TROUT	LC50	>100	01/20/2004
WATER FLEA	A_NOEL	100	01/20/2004
WATER FLEA	C_NOEL	50	01/20/2004
WATER FLEA	LC50	>100	01/20/2004
TROUT	A_NOEL	100	08/16/2004
TROUT	C_NOEL	100	08/16/2004
TROUT	LC50	>100	08/16/2004
WATER FLEA	A_NOEL	8.1	08/16/2004
WATER FLEA	LC50	>100	08/16/2004
WATER FLEA	A_NOEL	100	09/29/2004
WATER FLEA	C_NOEL	25	09/29/2004
WATER FLEA	LC50	>100	09/29/2004
FATHEAD	A_NOEL	100	11/08/2004
FATHEAD	C_NOEL	100	11/08/2004
FATHEAD	LC50	>100	11/08/2004
WATER FLEA	A_NOEL	100	11/08/2004
WATER FLEA	C_NOEL	25	11/08/2004
WATER FLEA	LC50	>100	11/08/2004
FATHEAD	A_NOEL	100	11/09/2004
FATHEAD	C_NOEL	100	11/09/2004

Species	Test	Test Result %	Sample Date
FATHEAD	LC50	>100	11/09/2004
WATER FLEA	A_NOEL	100	11/09/2004
WATER FLEA	C_NOEL	25	11/09/2004
WATER FLEA	LC50	>100	11/09/2004

ATTACHMENT C

Sample Date: 02/21/2000
Plant flows provided

Total Tests: 136
Missing Compounds: 0
Tests With High DL: 7

mon.(MGD)= 22.800
day(MGD)= 22.400

M = 0 V = 7 A = 0
BN = 0 P = 0 other = 0

Sample Date: 05/22/2000
Plant flows provided

Total Tests: 136
Missing Compounds: 0
Tests With High DL: 0

mon.(MGD)= 19.800
day(MGD)= 21.700

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

Sample Date: 08/21/2000
Plant flows provided

Total Tests: 139
Missing Compounds: 0
Tests With High DL: 0

mon.(MGD)= 27.400
day(MGD)= 26.600

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

Sample Date: 11/13/2000
Plant flows provided

Total Tests: 134
Missing Compounds: 0
Tests With High DL: 0

mon.(MGD)= 23.900
day(MGD)= 25.400

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

Sample Date: 12/13/2000
Plant flows provided

Total Tests: 135
Missing Compounds: 0
Tests With High DL: 0

mon.(MGD)= 22.400
day(MGD)= 23.000

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

Sample Date: 01/25/2001
Plant flows provided

Total Tests: 135
Missing Compounds: 0
Tests With High DL: 0

mon.(MGD)= 21.800
day(MGD)= 23.100

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

Sample Date: 07/16/2001
Plant flows provided

Total Tests: 133
Missing Compounds: 0
Tests With High DL: 0

mon.(MGD)= 27.400
day(MGD)= 25.300

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

Sample Date: 09/17/2001
Only acute flow provided

Total Tests: 24
Tests With High DL: 2

day(MGD)= 25.100

M = 2 V = 0 A = 0
BN = 0 P = 0 other = 0

Sample Date: 12/17/2001
Plant flows not provided

Total Tests: 21
Tests With High DL: 0

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

Sample Date: 07/22/2002
Plant flows provided

Total Tests: 136
Missing Compounds: 0
Tests With High DL: 0

mon.(MGD)= 29.600
day(MGD)= 29.000

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

Sample Date: 10/14/2002
Plant flows provided

Total Tests:	123	mon.(MGD)= 22.700
Missing Compounds:	1	day(MGD)= 28.500
Tests With High DL:	0	

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

Sample Date: 11/11/2002
Plant flows provided

Total Tests:	134	mon.(MGD)= 24.000
Missing Compounds:	1	day(MGD)= 25.700
Tests With High DL:	0	

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

Sample Date: 03/17/2003
Plant flows provided

Total Tests:	125	mon.(MGD)= 25.600
Missing Compounds:	0	day(MGD)= 23.300
Tests With High DL:	0	

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

Sample Date: 05/27/2003
Plant flows provided

Total Tests:	138	mon.(MGD)= 22.500
Missing Compounds:	0	day(MGD)= 27.400
Tests With High DL:	0	

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

Sample Date: 07/28/2003
Plant flows provided

Total Tests:	138	mon.(MGD)= 25.400
Missing Compounds:	0	day(MGD)= 29.500
Tests With High DL:	0	

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

PP Data for "Hits" Only

DOMTAR (GP)
ST. CROIX RIVER

4,4'-DDT
MDL = 0.05 ug/l

	Conc, ug/l	MDL	Sample Date	Date Entered
	0.060000	OK	07/22/2002	09/24/2002
<	0.050000	OK	02/21/2000	04/24/2000
<	0.050000	OK	05/22/2000	07/19/2000
<	0.050000	OK	08/21/2000	10/18/2000
<	0.050000	OK	11/13/2000	12/20/2000
<	0.050000	OK	12/13/2000	03/05/2001
<	0.050000	OK	01/25/2001	04/02/2001
<	0.050000	OK	07/16/2001	09/06/2001
<	0.050000	OK	11/11/2002	01/27/2003
<	0.050000	OK	03/17/2003	06/10/2003
<	0.050000	OK	05/27/2003	08/06/2003
<	0.050000	OK	10/14/2002	08/06/2003
<	0.050000	OK	07/28/2003	10/15/2003

ALUMINUM
No MDL

Conc, ug/l	MDL	Sample Date	Date Entered
1.520000	NS	07/16/2001	10/19/2001
400.000000	NS	09/17/2001	11/19/2001
1000.00000	NS	12/17/2001	03/21/2002
1100.00000	NS	08/21/2000	10/27/2000
1500.00000	NS	11/13/2000	02/13/2001
1500.00000	NS	10/17/2002	10/15/2003
1700.00000	NS	07/28/2003	10/15/2003
1720.00000	NS	07/22/2002	03/26/2003
1800.00000	NS	04/15/2003	08/08/2003
2000.00000	NS	01/25/2001	04/09/2001
2100.00000	NS	11/11/2002	04/08/2003
2400.00000	NS	02/21/2000	04/24/2000
2400.00000	NS	12/13/2000	03/01/2001
2800.00000	NS	05/27/2003	08/07/2003
6100.00000	NS	05/22/2000	06/22/2000

ARSENIC
MDL = 5 ug/l

Conc, ug/l	MDL	Sample Date	Date Entered
1.000000	OK	11/13/2000	12/20/2000
1.000000	OK	08/21/2000	12/27/2004
1.000000	OK	09/17/2001	01/03/2005
1.000000	OK	04/06/2003	01/03/2005
1.000000	OK	04/21/2003	01/03/2005
1.000000	OK	01/19/2004	01/03/2005
2.000000	OK	02/21/2000	04/24/2000
2.000000	OK	05/27/2003	08/06/2003
2.000000	OK	10/14/2002	08/06/2003
2.000000	OK	12/17/2001	01/03/2005
2.000000	OK	04/14/2003	01/03/2005
2.000000	OK	02/23/2004	01/03/2005
2.000000	OK	03/22/2004	01/03/2005
3.000000	OK	07/28/2003	10/15/2003
3.000000	OK	12/03/2001	01/03/2005
3.000000	OK	06/03/2003	01/03/2005
3.000000	OK	02/18/2004	01/03/2005
3.000000	OK	03/04/2004	01/03/2005
3.000000	OK	03/09/2004	01/03/2005

PP Data for "Hits" Only

DOMTAR (GP)
ST. CROIX RIVER

ARSENIC
MDL = 5 ug/l

	Conc, ug/l	MDL	Sample Date	Date Entered
	3.000000	OK	03/16/2004	01/03/2005
	3.000000	OK	03/28/2004	01/03/2005
	3.000000	OK	04/28/2004	01/03/2005
	3.000000	OK	05/25/2004	01/03/2005
	4.000000	OK	11/11/2002	01/27/2003
	4.000000	OK	04/07/2004	01/03/2005
	4.000000	OK	04/13/2004	01/03/2005
	4.000000	OK	05/21/2004	01/03/2005
	4.000000	OK	06/08/2004	01/03/2005
	4.000000	OK	06/15/2004	01/03/2005
	4.000000	OK	08/16/2004	01/03/2005
	5.000000	OK	06/09/2004	01/03/2005
	7.000000	OK	05/22/2000	07/19/2000
	7.000000	OK	12/13/2000	03/01/2001
	9.000000	OK	07/22/2002	09/24/2002
<	1.000000	OK	08/21/2000	10/18/2000
<	1.000000	OK	01/25/2001	04/02/2001
<	1.000000	OK	07/16/2001	09/06/2001
<	1.000000	OK	03/17/2003	06/10/2003

CADMIUM
MDL = 1 ug/l

	Conc, ug/l	MDL	Sample Date	Date Entered
	0.200000	OK	12/13/2000	03/01/2001
	0.200000	OK	01/25/2001	04/02/2001
	0.200000	OK	04/07/2004	01/03/2005
	0.500000	OK	07/28/2003	10/15/2003
	0.500000	OK	04/06/2003	01/03/2005
	0.600000	OK	10/14/2002	08/06/2003
	0.600000	OK	04/21/2003	01/03/2005
	0.600000	OK	08/16/2004	01/03/2005
	0.700000	OK	04/14/2003	01/03/2005
	0.800000	OK	07/22/2002	09/24/2002
	0.900000	OK	02/21/2000	04/24/2000
	0.900000	OK	08/27/2002	12/27/2002
	0.900000	OK	12/03/2001	01/03/2005
	0.900000	OK	06/09/2004	01/03/2005
	1.000000	OK	11/13/2000	12/20/2000
	1.000000	OK	05/27/2003	08/06/2003
	1.000000	OK	06/03/2003	01/03/2005
	1.000000	OK	01/19/2004	01/03/2005
	1.000000	OK	02/18/2004	01/03/2005
	1.100000	OK	08/21/2000	10/18/2000
	1.100000	OK	04/15/2003	08/08/2003
	1.100000	OK	02/23/2004	01/03/2005
	1.200000	OK	05/21/2004	01/03/2005
	1.400000	OK	03/22/2004	01/03/2005
	1.400000	OK	04/13/2004	01/03/2005
	1.400000	OK	06/08/2004	01/03/2005
	1.500000	OK	11/11/2002	01/27/2003
	1.600000	OK	05/22/2000	06/22/2000
	1.600000	OK	03/16/2004	01/03/2005
	1.600000	OK	05/25/2004	01/03/2005
	1.700000	OK	06/15/2004	01/03/2005

PP Data for "Hits" Only

DOMTAR (GP)
ST. CROIX RIVER

CADMIUM
MDL = 1 ug/l

Conc, ug/l	MDL	Sample Date	Date Entered
1.800000	OK	07/16/2001	09/06/2001
1.800000	OK	03/28/2004	01/03/2005
1.800000	OK	04/28/2004	01/03/2005
2.100000	OK	12/17/2001	03/21/2002
2.500000	OK	03/17/2003	06/10/2003
2.500000	OK	03/09/2004	01/03/2005
3.000000	OK	03/04/2004	01/03/2005
3.500000	OK	09/17/2001	11/19/2001
6.000000	OK	10/17/2002	10/15/2003
< 0.600000	OK	07/28/2003	10/15/2003

COPPER
MDL = 3 ug/l

Conc, ug/l	MDL	Sample Date	Date Entered
2.000000	OK	01/19/2004	01/03/2005
2.000000	OK	08/16/2004	01/03/2005
3.000000	OK	08/27/2002	12/27/2002
3.000000	OK	04/14/2003	01/03/2005
3.000000	OK	02/18/2004	01/03/2005
3.000000	OK	03/22/2004	01/03/2005
3.000000	OK	04/07/2004	01/03/2005
3.000000	OK	04/28/2004	01/03/2005
3.000000	OK	05/21/2004	01/03/2005
4.000000	OK	07/28/2003	10/15/2003
4.000000	OK	04/06/2003	01/03/2005
4.000000	OK	04/21/2003	01/03/2005
4.000000	OK	06/09/2004	01/03/2005
4.000000	OK	03/28/2004	01/03/2005
4.000000	OK	05/25/2004	01/03/2005
5.000000	OK	11/13/2000	12/20/2000
5.000000	OK	01/25/2001	04/02/2001
5.000000	OK	07/22/2002	09/24/2002
5.000000	OK	03/16/2004	01/03/2005
5.000000	OK	06/08/2004	01/03/2005
6.000000	OK	12/17/2001	03/21/2002
6.000000	OK	11/11/2002	01/27/2003
6.000000	OK	05/27/2003	08/06/2003
6.000000	OK	12/03/2001	01/03/2005
7.000000	OK	12/13/2000	03/01/2001
7.000000	OK	10/14/2002	08/06/2003
7.000000	OK	10/17/2002	10/15/2003
7.000000	OK	02/23/2004	01/03/2005
7.000000	OK	04/13/2004	01/03/2005
8.000000	OK	06/03/2003	01/03/2005
8.000000	OK	03/04/2004	01/03/2005
8.000000	OK	06/15/2004	01/03/2005
9.000000	OK	05/22/2000	06/22/2000
9.000000	OK	09/17/2001	11/19/2001
10.000000	OK	03/17/2003	06/10/2003
10.000000	OK	04/15/2003	08/08/2003
11.000000	OK	02/21/2000	04/24/2000
12.000000	OK	08/21/2000	10/18/2000
13.000000	OK	07/16/2001	09/06/2001
13.000000	OK	03/09/2004	01/03/2005

PP Data for "Hits" Only

DOMTAR (GP)
ST. CROIX RIVER

LEAD
MDL = 3 ug/l

	Conc, ug/l	MDL	Sample Date	Date Entered
	1.000000	OK	03/17/2003	06/10/2003
	1.000000	OK	08/21/2000	12/27/2004
	1.000000	OK	09/17/2001	01/03/2005
	1.000000	OK	04/06/2003	01/03/2005
	1.000000	OK	04/14/2003	01/03/2005
	1.000000	OK	04/21/2003	01/03/2005
	1.000000	OK	06/03/2003	01/03/2005
	1.000000	OK	06/09/2004	01/03/2005
	1.000000	OK	02/18/2004	01/03/2005
	1.000000	OK	02/23/2004	01/03/2005
	1.000000	OK	03/04/2004	01/03/2005
	1.000000	OK	03/09/2004	01/03/2005
	1.000000	OK	03/16/2004	01/03/2005
	2.000000	OK	11/13/2000	12/20/2000
	2.000000	OK	12/13/2000	03/01/2001
	2.000000	OK	01/25/2001	04/02/2001
	2.000000	OK	11/11/2002	01/27/2003
	2.000000	OK	04/13/2004	01/03/2005
	3.000000	OK	12/17/2001	03/21/2002
	3.000000	OK	07/28/2003	10/15/2003
	3.000000	OK	12/03/2001	01/03/2005
	3.000000	OK	01/19/2004	01/03/2005
	3.000000	OK	05/21/2004	01/03/2005
	3.000000	OK	06/15/2004	01/03/2005
	3.000000	OK	08/16/2004	01/03/2005
	4.000000	OK	02/21/2000	04/24/2000
	4.000000	OK	04/07/2004	01/03/2005
	5.000000	OK	03/22/2004	01/03/2005
	5.000000	OK	04/28/2004	01/03/2005
	6.000000	OK	03/28/2004	01/03/2005
	7.000000	OK	05/25/2004	01/03/2005
	8.000000	OK	07/16/2001	09/06/2001
<	1.000000	OK	05/22/2000	07/19/2000
<	1.000000	OK	08/21/2000	10/18/2000
<	1.000000	OK	07/22/2002	09/24/2002
<	1.000000	OK	05/27/2003	08/06/2003
<	1.000000	OK	10/14/2002	08/06/2003
<	3.000000	OK	09/17/2001	11/19/2001
<	3.000000	OK	07/22/2002	03/26/2003
<	3.000000	OK	05/27/2003	08/07/2003
<	3.000000	OK	04/15/2003	08/08/2003
<	3.000000	OK	10/17/2002	10/15/2003

PP Data for "Hits" Only

DOMTAR (GP)
ST. CROIX RIVER

SILVER
MDL = 1 ug/l

	Conc, ug/l	MDL	Sample Date	Date Entered
	0.100000	OK	06/03/2003	01/05/2005
	0.300000	OK	08/21/2000	10/18/2000
	0.300000	OK	09/17/2001	01/03/2005
	0.300000	OK	12/03/2001	01/05/2005
	0.300000	OK	12/17/2001	01/05/2005
	0.300000	OK	01/19/2004	01/05/2005
	0.300000	OK	02/18/2004	01/05/2005
	0.300000	OK	02/23/2004	01/05/2005
	0.300000	OK	08/16/2004	01/05/2005
	0.400000	OK	03/09/2004	01/05/2005
	0.400000	OK	06/15/2004	01/05/2005
	0.500000	OK	03/22/2004	01/05/2005
	0.500000	OK	03/28/2004	01/05/2005
	0.500000	OK	04/07/2004	01/05/2005
	0.500000	OK	04/28/2004	01/05/2005
	0.500000	OK	05/21/2004	01/05/2005
	0.500000	OK	06/08/2004	01/05/2005
	0.700000	OK	05/27/2003	08/06/2003
	0.700000	OK	10/14/2002	08/06/2003
	0.700000	OK	07/28/2003	10/15/2003
	0.700000	OK	06/09/2004	01/05/2005
	0.700000	OK	03/16/2004	01/05/2005
	0.800000	OK	03/17/2003	06/10/2003
	0.800000	OK	03/04/2004	01/05/2005
	0.900000	OK	04/13/2004	01/05/2005
	0.900000	OK	05/25/2004	01/05/2005
	1.000000	OK	02/21/2000	04/24/2000
	1.400000	OK	04/14/2003	01/05/2005
	2.100000	OK	07/16/2001	09/06/2001
	2.700000	OK	04/06/2003	01/05/2005
<	0.300000	OK	05/22/2000	07/19/2000
<	0.300000	OK	11/13/2000	12/20/2000
<	0.300000	OK	12/13/2000	03/05/2001
<	0.300000	OK	01/25/2001	04/02/2001
<	0.300000	OK	07/22/2002	09/24/2002
<	0.300000	OK	11/11/2002	01/27/2003
<	1000.00000	HI	09/17/2001	11/19/2001

ZINC
MDL = 5.0 ug/l

Conc, ug/l	MDL	Sample Date	Date Entered
5.000000	OK	12/17/2001	03/21/2002
50.000000	OK	12/17/2001	01/03/2005
60.000000	OK	08/16/2004	01/03/2005
80.000000	OK	07/16/2001	09/06/2001
80.000000	OK	07/28/2003	10/15/2003
80.000000	OK	06/08/2004	01/03/2005
90.000000	OK	01/25/2001	04/02/2001
90.000000	OK	10/14/2002	08/06/2003
90.000000	OK	04/15/2003	08/08/2003
90.000000	OK	10/17/2002	10/15/2003
90.000000	OK	02/18/2004	01/03/2005
100.000000	OK	09/17/2001	11/19/2001
100.000000	OK	07/22/2002	09/24/2002

PP Data for "Hits" Only

DOMTAR (GP)
ST. CROIX RIVER

ZINC
MDL = 5.0 ug/l

Conc, ug/l	MDL	Sample Date	Date Entered
100.000000	OK	08/27/2002	12/27/2002
100.000000	OK	12/03/2001	01/03/2005
100.000000	OK	03/16/2004	01/03/2005
100.000000	OK	04/13/2004	01/03/2005
110.000000	OK	04/21/2003	01/03/2005
110.000000	OK	02/23/2004	01/03/2005
110.000000	OK	04/28/2004	01/03/2005
110.000000	OK	05/21/2004	01/03/2005
110.000000	OK	06/15/2004	01/03/2005
120.000000	OK	11/11/2002	01/27/2003
120.000000	OK	06/03/2003	01/03/2005
120.000000	OK	06/09/2004	01/03/2005
120.000000	OK	01/19/2004	01/03/2005
120.000000	OK	03/22/2004	01/03/2005
140.000000	OK	08/21/2000	10/18/2000
140.000000	OK	04/14/2003	01/03/2005
150.000000	OK	11/13/2000	12/20/2000
150.000000	OK	03/09/2004	01/03/2005
150.000000	OK	03/28/2004	01/03/2005
150.000000	OK	04/07/2004	01/03/2005
150.000000	OK	05/25/2004	01/03/2005
160.000000	OK	04/06/2003	01/03/2005
170.000000	OK	03/17/2003	06/10/2003
180.000000	OK	05/22/2000	06/22/2000
180.000000	OK	12/13/2000	03/01/2001
180.000000	OK	05/27/2003	08/06/2003
190.000000	OK	03/04/2004	01/03/2005
240.000000	OK	02/21/2000	04/24/2000