STATE OF MAINE

Department of Environmental Protection

JOHN ELIAS BALDACCI
GOVERNOR

David P. Littell
COMMISSIONER

January 22, 2009

Thomas Griffin
Environmental Manager
S.D. Warren Company – Somerset Operations
1329 Waterville Road
Skowhegan, ME 04976

RE: Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0021521
Maine Waste Discharge License (WDL) Application #W000385-5N-J-R
FINAL MEPDES Permit/WDL
Sent via e-mail as PDF document with electronic signature

Dear Mr. Griffin:

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

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

If you have any questions regarding the matter, please feel free to call me at 287-7659.

Sincerely,

Bill Hinkel
Division of Water Quality Management
Bureau of Land and Water Quality

Enc.
ec: Denise Behr, DEP Lauren Lohn, DEP
Sandy Mojica, USEPA Jeff Murphy, NOAA-NMFS File #0385

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

DEPARTMENT ORDER

IN THE MATTER OF

S. D. WARREN COMPANY		)	MAINE POLLUTANT DISCHARGE
SKOWHEGAN, SOMERSET COUNTY, MAINE		)	ELIMINATION SYSTEM PERMIT
PULP & PAPER MANUFACTURING FACILITY		)	AND
#ME0021521		)	WASTE DISCHARGE LICENSE
#W000385-5N-J-R	**APPROVAL**	)	**RENEWAL**

Pursuant to the provisions of the *Federal Water Pollution Control Act*, Title 33 USC, §1251, *Conditions of licenses*, 38 M.R.S.A. § 414-A, and applicable regulations, the Maine Department of Environmental Protection (Department) has considered the application of the S.D. WARREN COMPANY (SDW), with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

APPLICATION SUMMARY

The SDW has applied to the Department for renewal of Waste Discharge License (WDL) #W000385-5N-G-R / Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0021521, which was issued for the SDW's Somerset Operations mill (d/b/a SAPPI Fine Paper) on September 12, 2003, and expired on September 12, 2008. The 9/12/03 permit authorized the monthly average discharge of up to 46.5 million gallons per day (MGD) of secondary treated waste waters, including bleach plant effluent (internal waste stream) from Outfall #100, to the Kennebec River, Class C, in Fairfield, Maine. The 9/12/03 permit also authorized the discharge of an unspecified quantity of storm water runoff via five (5) outfall points (Outfalls #002A, #003A, #004A, and #005A to the Kennebec River and Outfall #007A to an unnamed tributary to the Kennebec River). Additionally, the 9/12/03 permit authorized the discharge of backwash water from the river water intake debris screen to the Kennebec River.

On December 12, 2003, the Department administratively modified the 9/12/03 permit (specifically, Special Condition M, *Landfill Leachate*, of the 9/12/03 permit) to authorize an increase in the daily maximum volume of Waste Management landfill leachate that would be permitted to be treated in the SDW's wastewater treatment system from 200,000 gallons per day (GPD) to 300,000 GPD.

APPLICATION SUMMARY (cont'd)

On July 12, 2005, the Department administratively modified the 9/12/03 permit to authorize the following:

1. Reduce the minimum monitoring frequency requirements specified at Special Condition A, *Effluent Limitations and Monitoring Requirements*, for dioxin and furan from once per month to once per year and to establish Special Condition P, *Dioxin/Furan Certification*, which is consistent with the United States Environmental Protection Agency's (USEPA) May 2005 Permit Guidance Document for implementing the "Cluster Rule."
2. Increase the daily maximum volume of Waste Management landfill leachate that would be permitted to be treated in the SDW's wastewater treatment system from 300,000 GPD to 400,000 GPD (Special Condition M of the 9/12/03 permit).
3. As an option, authorizing the SDW to utilize river flow data obtained from the USGS Gage Station in North Sidney as well as from Florida Power Light and Energy's Weston Station in Skowhegan for calculating river temperature increases in Special Condition I of the 9/12/03 permit.
4. Acknowledging miscellaneous (non-storm water) waste water sources not identified in the April 14, 2000 application for permit renewal that discharge to the storm water system.

On April 10, 2006, the Department amended the 9/12/03 permit by incorporating the whole effluent toxicity (WET), analytical chemistry and priority pollutant testing requirements of *Surface Water Toxics Control Program*, 06-096 CMR 530 (effective October 9, 2005).

On June 27, 2008, the Department issued minor permit revision #W000385-5N-I-M, to the SDW to reduce the minimum monitoring frequency requirements for 1) adsorbable organic halides (AOX) from 3/week to 1/week; 2) chloroform from 1/week to 1/ quarter; and 3) chlorinated phenolics from 1/month to 2/year. These reductions in monitoring were based on available data and the USEPA's guidance on performance-based reduction of permit monitoring requirements.

REGULATORY SUMMARY

On January 12, 2001, the Department received authorization from the USEPA to administer the National Pollutant Discharge Elimination System (NPDES) program in Maine. From that point forward, the program has been referred to as the MEPDES program and will utilize a permit number of #ME0021521 (same as the previous NPDES permit) as a reference number for SDW's MEPDES permit.

PERMIT SUMMARY

This permitting action is similar to the 9/12/03 permitting action, 12/12/03 and 7/12/05 administrative modifications, 4/10/06 permit amendment, and 6/27/08 minor permit revision in that it is:

Outfall #001A (secondary treated waste waters)

1. Carrying forward the monthly average discharge flow limit of 46.5 MGD and daily maximum discharge flow reporting requirement;

2. Carrying forward the separate "summer season" and "winter season" monthly average and daily maximum effluent limitations for biochemical oxygen demand (BOD_5) and total suspended solids (TSS);

3. Carrying forward the "summer season" daily maximum effluent temperature limitation of 105°F and "winter season" daily maximum effluent temperature monitoring and reporting requirement;

4. Carrying forward the "summer season" weekly rolling average and daily maximum temperature difference limitations of 0.4°F and 0.5°F, respectively;

5. Carrying forward the daily maximum and minimum effluent pH range limitation;

6. Carrying forward the quarterly average effluent color limitation of 175 lbs./ton of unbleached pulp produced;

7. Carrying forward the monthly average and daily maximum effluent mass reporting requirements for chemical oxygen demand (COD);

8. Carrying forward the "summer season" monthly average and daily maximum effluent mass and concentration reporting requirements for total phosphorous (total-unfiltered P);

9. Carrying forward whole effluent toxicity (WET), priority pollutant and analytical chemistry testing requirements consistent with 06-096 CMR 530;

10. Carrying forward an annual certification statement requirement as Special Condition I, *06-096 CMR 530(2)(D)(4) Statement for Reduced/Waived Toxics Testing*, of this permit (a requirement imposed in the 4/10/06 permit amendment);

PERMIT SUMMARY (cont'd)

11. Carrying forward authorization to accept and treat a daily maximum of up to 400,000 gallons per day (0.400 MGD) of Waste Management landfill leachate (Special Condition M);

12. Carrying forward previous Special Condition O, *Best Management Practices Plan*, as required by 40 CFR Part 430.03 (now Special Condition N);

Outfall #100 (internal waste stream from bleach plant)

13. Carrying forward the daily maximum (internal) discharge flow reporting requirement;

14. Carrying forward the daily maximum concentration limitations for 2,3,7,8 TCDD (dioxin), 2,3,7,8 TCDF (furan) and previous Special Condition P, *Dioxin/Furan Certification*, (now Special Condition J) established in the 7/12/05 administrative modification;

15. Carrying forward the daily maximum concentration limitations for 12 chlorinated phenolic compounds; and

Outfalls #002A, #003A, #004A, #005A and #007A (storm water runoff)

16. Carrying forward authorization to discharge storm water runoff from five outfall points.

This permitting action is significantly different from the 9/12/03 permitting action, 12/12/03 and 7/12/05 administrative modifications, 4/10/06 permit amendment, and 6/27/08 minor permit revision in that it is:

Outfall #001A (secondary treated waste waters)

1. Reducing the minimum monitoring frequency requirements for BOD_5 and TSS from once per day to three times per week based on the results of facility testing and Department best professional judgment;

2. Reducing the minimum monitoring frequency requirements for COD from once per day to once per week based on the results of facility testing and Department best professional judgment;

3. Revising the monthly average and daily maximum effluent mass limitations for adsorbable organic halides (AOX) based on new production information;

4. Establishing monthly average water quality-based concentration and mass limitations for total aluminum based on the results of facility testing;

PERMIT SUMMARY (cont'd)

5. Establishing monthly average water quality-based concentration and mass limitations for bis(2-ethylhexyl) phthalate based on the results of facility testing and revising the minimum monitoring frequency requirement (established in the 4/10/06 permit amendment) from once per year to twice per year consistent with surveillance level testing requirements prescribed by 06-096 CMR 530;

6. Eliminating previous Special Condition L, *Biological Monitoring Program*, as the facility has fulfilled the requirements of this bird species monitoring condition;

7. Adding the authorization to accept and treat a daily maximum of up to 10,000 gallons per day (0.010 MGD) of waste water from BioRenewable Fuels in Fairfield. This material may contain residual oil and grease. SDW's Wastewater Treatment Plant is designed with multiple systems for oil containment and treatment and thus the final effluent will not produce a visible sheen in the receiving water. See Memorandum from Steve Woodard of Woodard and Curran to Michael Barden of the Maine Pulp and Paper Association, dated March 18, 2003, and included as Attachment E of the fact sheet;

8. Revising the minimum monitoring frequency requirement for landfill leachate monitoring from three times per year to once per calendar quarter (Special Condition M of this permit);

Outfalls #002A, #003A, #004A, #005A and #007A (storm water runoff)

9. Eliminating the analytical monitoring requirements for storm water runoff and establishing quarterly visual monitoring requirements consistent with the *Multi-Sector General Permit Maine Pollutant Discharge Elimination System Stormwater Discharge Associated with Industrial Activity*, dated October 11, 2005;

10. Correcting the name of the receiving water for Outfall #005A from the Kennebec River to Craigin Brook; and

Outfall #100 (internal waste stream from bleach plant)

11. Revising the monthly average and daily maximum effluent mass limitations for chloroform based on new production information.

CONCLUSIONS

BASED on the findings in the attached Fact Sheet dated January 22, 2009, and subject to the Conditions listed below, the Department makes the following conclusions:

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

2. The discharges, either individually 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, *Classification of Maine waters*, 38 M.R.S.A. § 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) Where the standards of classification of the receiving water bodies are not met, the discharges will not cause or contribute to the failure of the water bodies 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 water quality of any water body, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.

4. The discharges will be subject to effluent limitations that require application of best practicable treatment as defined in 38 M.R.S.A. § 414-A(1)(D).

ACTION

THEREFORE, the Department APPROVES the above noted application of the S.D. WARREN COMPANY to discharge: 1) up to a monthly average of 46.5 million gallons per day (MGD) of treated process and other waste waters associated with the pulp and papermaking process including but not limited to, treated sanitary waste waters, cooling waters, treated landfill leachate from SDW's on site landfill, treated residuals storage pad leachate, treated leachate from Waste Management's Crossroad commercial landfill in Norridgewock, treated waste water from an on-site precipitated calcium carbonate plant and treated waste water from BioRenewable Fuels in Fairfield to the Kennebec River, Class C, in Fairfield, Maine; 2) storm water from various areas of the mill complex to the Kennebec River, Class C, in Fairfield and Class B, in Skowhegan, Maine; to Craigin Brook, Class B, in Fairfield, Maine; to an unnamed tributary to the Kennebec River, Class B, in Skowhegan, Maine; and 3) an unspecified quantity of backwash waters from the river intake debris screen to the Kennebec River, Class B, in Skowhegan, Maine, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations including:

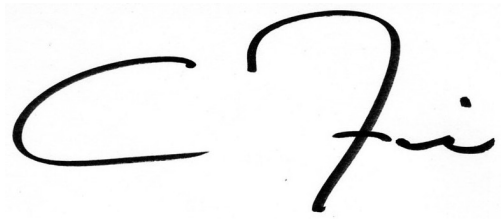
1. *Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits*, revised July 1, 2002, copy attached.

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

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

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: September 5, 2008
Date of application acceptance: September 9, 2008



This permit has been digitally signed by Andrew C. Fisk on behalf of Commissioner David P. Littell. It is digitally signed pursuant to authority under 10 M. R.S.A. § 9418. It has been filed with the Board of Environmental Protection as of the signature date 2009.01.23 09:29:10 -05'00'

This Order prepared by William F. Hinkel, BUREAU OF LAND & WATER QUALITY

SPECIAL CONDITION

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. The permittee is authorized to discharge secondary treated waste waters, including bleach plant effluent (internal waste stream) from Outfall #100, to the Kennebec River via **Outfall #001A**. Such discharges shall be limited and monitored by the permittee as specified below[(1)]:

OUTFALL #001A – 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 *[50050]*	46.5 MGD *[03]*	Report MGD *[03]*	---	---	---	Continuous *[99/99]*	Recorder*[RC]*
BOD_5 *[00310]*							
June 1 – September 30	9,400 lbs./day	16,600 lbs./day	---	---	---	3/Week *[03/07]*	Composite *[24]*
October 1 – May 31	14,850 lbs./day *[26]*	32,670 lbs./day *[26]*	---	---	---		
TSS *[00530]*							
June 1 – September 30	30,000 lbs./day	50,000 lbs./day	---	---	---	3/Week *[03/07]*	Composite *[24]*
October 1 – May 31	41,820 lbs./day *[26]*	77,850 lbs./day *[26]*	---	---	---		
Temperature *[00011]*							
June 1 – September 30	---	---	---	---	105°F *[15]*	1/Day *[01/01]*	Measure *[MS]*
October 1 – May 31	---	---	---	---	Report °F *[15]*	1/Week *[01/07]*	
Temperature Difference *[70013]* *June 1 – September 30*	---	---	---	0.4°F[(2)] *[15]*	0.5°F[(3)] *[15]*	1/Day*[01/01]*	Calculate *[CA]*
pH *[00400]*	---	--	---	---	5.0 – 9.0 SU *[12]*	1/Day *[01/01]*	Grab *[GR]*

The italicized numeric values bracketed in the table above and in text on subsequent pages are code numbers that Department personnel utilize to code the monthly Discharge Monitoring Reports.

FOOTNOTES: See Pages 13-17 of this permit for the applicable footnotes.

SPECIAL CONDITIONS

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

1. The permittee is authorized to discharge secondary treated waste waters, including bleach plant effluent (internal waste stream) from Outfall #100, to the Kennebec River via **Outfall #001A**. Such discharges shall be limited and monitored by the permittee as specified below[(1)]:

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

Effluent Characteristic	Discharge Limitations					Minimum Monitoring Requirements	
	Monthly Average	Daily Maximum	Monthly Average	Weekly Average	Daily Maximum	Measurement Frequency	Sample Type
	as specified	as specified	as specified	as specified	as specified	as specified	as specified
Color[(4)] *[00084]*	175 lbs./ton *[42]*	---	---	---	---	3/Week *[03/07]*	Calculate *[CA]*
Adsorbable Organic Halides[(5)] (AOX) *[03594]*	2,019 lbs./day *[26]*	3,081 lbs./day *[26]*	---	---	---	1/Week *[01/07]*	Composite *[24]*
Chemical Oxygen Demand (COD) *[81017]*	Report lbs./day *[26]*	Report lbs./day *[26]*	---	---	---	1/Week *[01/07]*	Composite *[24]*
Total Phosphorus [(6)] *[00665]* ***June 1 – September 30***	Report lbs./day *[26]*	Report lbs./day *[26]*	Report ug/L *[19]*	---	Report ug/L *[19]*	1/Week *[01/07]*	Grab *[GR]*

The italicized numeric values bracketed in the table above and in text on subsequent pages are code numbers that Department personnel utilize to code the monthly Discharge Monitoring Reports.

FOOTNOTES: See Pages 13-17 of this permit for the applicable footnotes.

SPECIAL CONDITIONS

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

2. Whole effluent toxicity, analytical chemistry and priority pollutant testing requirements for **Outfall #001A** (1).

SURVEILLANCE LEVEL - Beginning upon issuance and lasting until 12 months prior to permit expiration.

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Whole Effluent Toxicity (7)						
Acute – NOEL						
Ceriodaphnia dubia (Water flea) *[TDA3B]*	---	---	---	Report % *[23]*	1/ 2 Years *[01/2Y]*	Composite *[24]*
Salvelinus fontinalis (Brook trout) *[TDA6F]*	---	---	---	Report % *[23]*	1/ 2 Years *[01/2Y]*	Composite *[24]*
Chronic – NOEL						
Ceriodaphnia dubia (Water flea) *[TBP3B]*	---	---	---	Report % *[23]*	1/ 2 Years *[01/2Y]*	Composite *[24]*
Salvelinus fontinalis (Brook trout) *[TBQ6F]*	---	---	---	Report % *[23]*	1/ 2 Years *[01/2Y]*	Composite *[24]*
Analytical Chemistry (8) *[51477]*	---	---	---	Report ug/L *[28]*	1/ 2 Years *[01/2Y]*	Composite / Grab *[24/GR]*
Priority Pollutant (9) *[50008]*	---	---	---	---	---	---
Aluminum (Total) *[01105]*	849 lbs./day *[26]*	---	3.3 mg/L *[19]*	---	1/Quarter *[01/90]*	Composite *[24]*
Bis (2-ethylhexyl) phthalate *[16770]*	19 lbs./day *[26]*	---	75 ug/L *[28]*	---	2/Year *[02/YR]*	Composite *[24]*

The italicized numeric values bracketed in the table and in subsequent text are code numbers that Department personnel utilize to code the monthly Discharge Monitoring Reports.

FOOTNOTES: See Pages 13-17 of this permit for applicable footnotes.

SPECIAL CONDITIONS

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

3. Whole effluent toxicity, analytical chemistry and priority pollutant testing requirements for **Outfall #001A** (1).

SCREENING LEVEL - Beginning 12 months prior to expiration of the current permit or in the fifth year since the last screening test, which ever is sooner.

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Whole Effluent Toxicity (7)						
Acute – NOEL						
Ceriodaphnia dubia (Water flea) *[TDA3B]*	---	---	---	Report % *[23]*	2/Year *[02/YR]*	Composite *[24]*
Salvelinus fontinalis (Brook trout) *[TDA6F]*	---	---	---	Report % *[23]*	2/Year *[02/YR]*	Composite *[24]*
Chronic – NOEL						
Ceriodaphnia dubia (Water flea) *[TBP3B]*	---	---	---	Report % *[23]*	2/Year *[02/YR]*	Composite *[24]*
Salvelinus fontinalis (Brook trout) *[TBQ6F]*	---	---	---	Report % *[23]*	2/Year *[02/YR]*	Composite *[24]*
Analytical Chemistry (8) *[51477]*	---	---	---	Report ug/L *[28]*	1/ Quarter *[01/90]*	Composite / Grab *[24/GR]*
Priority Pollutant (9) *[50008]*	---	---	---	Report ug/L *[28]*	1/Year *[01/YR]*	Composite / Grab *[24/GR]*
Aluminum (Total) *[01105]*	849 lbs./day *[26]*	---	3.3 mg/L *[19]*	---	1/Quarter *[01/90]*	Composite *[24]*
Bis (2-ethylhexyl) phthalate *[16770]*	19 lbs./day *[26]*	---	75 ug/L *[28]*	---	2/Year *[02/YR]*	Composite *[24]*

The italicized numeric values bracketed in the table and in subsequent text are code numbers that Department personnel utilize to code the monthly Discharge Monitoring Reports.

FOOTNOTES: See Pages 13-17 of this permit for applicable footnotes.

SPECIAL CONDITIONS

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

4. The permittee is authorized to discharge bleach plant effluent via **Outfall #100** (internal waste stream) to the secondary treatment system for discharge to the Kennebec River via Outfall #001A. Such internal waste stream discharges shall be limited and monitored by the permittee as specified below[(1)]:

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]*	Report MGD *[03]*	Report MGD *[03]*	---	---	1/Day *[01/01]*	Measure *[MS]*
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]*	2/Year *[02/YR]*	Composite *[24]*
3,4,5-Trichlorocatechol[(12)] *[73037]*	---	---	---	<5.0 ug/L[(11)] *[28]*	2/Year *[02/YR]*	Composite *[24]*
3,4,,6- Trichlorocatechol[(12)] *[51024]*	---	---	---	<5.0 ug/L[(11)] *[28]*	2/Year *[02/YR]*	Composite *[24]*
3,4,5-Trichloroguaiacol[(12)] *[61024]*	---	---	---	<2.5 ug/L[(11)] *[28]*	2/Year *[02/YR]*	Composite *[24]*
3,4,6-Trichloroguaiacol[(12)] *[51022]*	---	---	---	<2.5 ug/L[(11)] *[28]*	2/Year *[02/YR]*	Composite *[24]*
4,5,6-Trichloroguaiacol[(12)] *[73088]*	---	---	---	<2.5 ug/L[(11)] *[28]*	2/Year *[02/YR]*	Composite *[24]*
2,4,5-Trichlorophenol[(12)] *[61023]*	---	---	---	<2.5 ug/L[(11)] *[28]*	2/Year *[02/YR]*	Composite *[24]*
2,4,6-Trichlorophenol[(12)] *[34621]*	---	---	---	<2.5 ug/L[(11)] *[28]*	2/Year *[02/YR]*	Composite *[24]*
Tetrachlorocatechol[(12)] *[79850]*	---	---	---	<5.0 ug/L[(11)] *[28]*	2/Year *[02/YR]*	Composite *[24]*
Tetrachloroguaiacol[(12)] *[73047]*	---	---	---	<5.0 ug/L[(11)] *[28]*	2/Year *[02/YR]*	Composite *[24]*
2,3,4,6-Tetrachlorophenol[(12)] *[77770]*	---	---	---	<2.5 ug/L[(11)] *[28]*	2/Year *[02/YR]*	Composite *[24]*
Pentachlorophenol[(12)] *[39032]*	---	---	---	<5.0 ug/L[(11)] *[28]*	2/Year *[02/YR]*	Composite *[24]*
Chloroform[(13)] *[32106]*	13.4 lbs./day *[26]*	22.4 lbs./day *[26]*	---	---	1/Quarter *[01/90]*	Grab *[24]*

The italicized numeric values bracketed in the table and in subsequent text are code numbers that Department personnel utilize to code the monthly Discharge Monitoring Reports.

FOOTNOTES: See Pages 13-17 of this permit for applicable footnotes.

SPECIAL CONDITIONS

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

FOOTNOTES:

1. **Sampling** – Sampling and analysis must be conducted in accordance with; a) methods approved by 40 Code of Federal Regulations (CFR) Part 136, b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136, or c) as otherwise specified by the Department. Samples that are sent out for analysis shall be analyzed by a laboratory certified by the State of Maine's Department of Health and Human Services. Samples that are sent to a POTW licensed pursuant to *Waste discharge licenses*, 38 M.R.S.A. § 413 are subject to the provisions and restrictions of *Maine Comprehensive and Limited Environmental Laboratory Certification Rules*, 10-144 CMR 263 (last amended February 13, 2000).

   All detectable analytical test results shall be reported to the Department, including results which are detected below the respective reporting limits (RLs) specified by the Department. See Attachment A of this permit for a list of the Department's current RLs. If a non-detect analytical test result is below the respective RL, the concentration result shall be reported as <Y where Y is the actual detection limit achieved by the laboratory for each respective parameter. Reporting a value of <Y that is greater than an established RL is not acceptable and will be rejected by the Department. For mass, if the analytical result is reported as <Y or if a detectable result is less than a RL, report as <X lbs/day, where X is the parameter specific limitation established in the permit. Compliance with this permit will be evaluated based on whether or not a compound is detected at or above the Department's RL.

2. **Temperature Difference** (Increase of the ambient receiving water temperature) – This is a weekly rolling average limitation when the receiving water temperature is ≥66°F and <73°F. See Special Condition L, *Temperature Difference*, of this permit for the equation to calculate the predicted river temperature increase (PRTI).

3. **Temperature Difference** (Increase of the ambient receiving water temperature) – This is a daily maximum limitation when the receiving water temperature is ≥73°F. See Special Condition L, *Temperature Difference,* of this permit for the equation to calculate the PRTI.

4. **Color** – The limitation is a calendar quarterly average limitation. Quarterly results shall be reported in the monthly Discharge Monitoring Reports (DMRs) 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 SU) in the effluent from Outfall #001A at a minimum of three (3) times per week. See Special Condition K, *Color,* of this permit for reporting requirements. The calculated specific mass discharged, expressed as lbs./ton of unbleached pulp produced, shall be based on air-dried tons of brown stock entering the bleach plant. A color pollution unit is equivalent to a platinum cobalt color unit as described in NCASI Technical Document #253. The mass discharge of color is defined as the number of color pollution units (cpu) multiplied by the volume of effluent discharged in million gallons per day multiplied by 8.34.

SPECIAL CONDITIONS

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

FOOTNOTES:

5. **AOX –** The analytical method to be used to determine adsorbable organic halides shall be USEPA 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 specific mass discharged shall be based on air-dried tons of brown stock entering the bleach plant at the stage where chlorine-based compounds are first added.

6. **Total Phosphorous (Total-P)** – All total unfiltered phosphorus monitoring conducted by the permittee for compliance with this permit shall be performed in accordance with Attachment B of this permit, *Protocol for Total Phosphorus Sample Collection and Analysis for Waste Water and Receiving Water Monitoring Required by Permits*, dated June 2007, unless otherwise specified by the Department.

7. **Whole effluent toxicity (WET) testing** – Definitive WET testing is a multi-concentration testing event (a minimum of five dilutions bracketing the critical acute and chronic thresholds of 3.7% and 3.0%, respectively), which provides a point estimate of toxicity in terms of No Observed Effect Level, commonly referred to as NOEL or NOEC. A-NOEL is defined as the acute no observed effect level with survival as the end point. C-NOEL is defined as the chronic no observed effect level with survival, reproduction and growth as the end points. The critical acute and chronic thresholds were derived as the mathematical inverse of the applicable acute and chronic dilution factors of 27.1:1 and 33.2:1, respectively, for Outfall #001A.

    a. **Surveillance level testing** – Beginning upon issuance of this permit and lasting through 12 months prior to permit expiration, the permittee shall conduct surveillance level WET testing at a minimum frequency of once every two years (reduced testing) for the water flea (*Ceriodaphnia dubia*) and the brook trout (*Salvelinus fontinalis*). Tests shall be conducted in different calendar quarters.

    b. **Screening level testing –** Beginning 12 months prior to expiration of the current permit or in the fifth year since the last screening test, which ever is sooner, the permittee shall conduct screening level WET testing at a minimum frequency of twice per year for the water flea (*Ceriodaphnia dubia*) and the brook trout (*Salvelinus fontinalis*). Screening tests shall be conducted with one test in January to June and one test 6 months later pursuant to 06-096 CMR 530(2)(D)(2).

SPECIAL CONDITIONS

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

FOOTNOTES:

WET test results must be submitted to the Department not later than the next Discharge Monitoring Report (DMR) required by the permit, provided, however, that the permittee may review the toxicity reports for up to 10 business days of their availability before submitting them. The permittee shall evaluate test results being submitted and identify to the Department possible exceedences of the critical acute and chronic water quality thresholds specified above.

Toxicity tests must be conducted by an experienced laboratory approved by the Department. The laboratory must follow procedures as described in the following USEPA 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.

Results of WET tests shall be reported on the "Whole Effluent Toxicity Report Fresh Waters" form included as Attachment C of this permit each time a WET test is performed. The permittee is required to analyze the effluent for the nine (9) parameters specified in the WET chemistry section and the thirteen (13) parameters specified in the analytical chemistry section on the "WET and Chemical Specific Data Report Form" (including total hardness) included as Attachment A of this permit each time a WET test is performed.

8. **Analytical chemistry** – Pursuant to 06-096 CMR 530(2)(C)(4), analytical chemistry refers to a suite of thirteen (13) chemical tests that consist of: ammonia nitrogen (as N), total aluminum, total arsenic, total cadmium, total chromium, total copper, total cyanide, total hardness, total lead, total nickel, total silver, total zinc and total residual chlorine.

   a. **Surveillance level testing** – Beginning upon permit issuance and lasting through 12 months prior to permit expiration, the permittee shall conduct analytical chemistry testing at a minimum frequency of once every two years (reduced testing), except for those analytical chemistry parameter(s) otherwise regulated in this permit. Tests shall be conducted in different calendar quarters.

   b. **Screening level testing** – Beginning 12 months prior to expiration of the current permit or in the fifth year since the last screening test, which ever is sooner, the permittee shall conduct analytical chemistry testing at a minimum frequency of once per calendar quarter for four consecutive calendar quarters, except for those analytical chemistry parameter(s) otherwise regulated in this permit.

SPECIAL CONDITIONS

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

FOOTNOTES:

9. **Priority pollutant testing –** Priority pollutants are those parameters specified at *Effluent Guidelines and Standards*, 06-096 CMR 525(4)(IV) (effective January 12, 2001).

   a. **Screening level testing** – Beginning 12 months prior to expiration of the current permit or in the fifth year since the last screening test, which ever is sooner, the permittee shall conduct screening level priority pollutant testing at a minimum frequency of once per year, except for those analytical chemistry parameter(s) otherwise regulated in this permit.

   Surveillance level testing is not required pursuant to 06-096 CMR 530.

   Priority pollutant and analytical chemistry testing shall be conducted on samples collected at the same time as those collected for whole effluent toxicity tests when applicable. Priority pollutant and analytical chemistry testing shall be conducted using methods that permit detection of a pollutant at existing levels in the effluent or that achieve minimum reporting levels of detection as specified by the Department.

   Test results must be submitted to the Department not later than the next Discharge Monitoring Report (DMR) required by the permit, provided, however, that the permittee may review the toxicity reports for up to 10 business days of their availability before submitting them. The permittee shall evaluate test results being submitted and identify to the Department, possible exceedences of the acute, chronic or human health AWQC as established in *Surface Water Quality Criteria for Toxic Pollutants*, 06-096 CMR 584 (effective October 9, 2005). For the purposes of DMR reporting, enter a "1" for yes, testing done this monitoring period or "NODI-9" monitoring not required this period.

   All mercury sampling required to determine compliance with interim limitations established pursuant to *Interim Effluent Limitations and Controls for the Discharge of Mercury*, 06-096 CMR 519 (last amended October 6, 2001), shall be conducted in accordance with USEPA's "clean sampling techniques" found in EPA Method 1669, Sampling Ambient Water For Trace Metals At EPA Water Quality Criteria Levels. All mercury analysis shall be conducted in accordance with EPA Method 1631, Determination of Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Fluorescence Spectrometry.

SPECIAL CONDITIONS

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

FOOTNOTES:

10. **2,3,7,8 TCDD (Dioxin) and 2,3,7,8 TCDF (Furan)** – The analytical method to be used to determine the concentrations of dioxin and furan shall be USEPA Method 1613B.

11. **Minimum Levels (MLs)** – The limitations established in this permitting action for dioxin, furan and the 12 chlorinated phenolic compounds are equivalent to the MLs established for USEPA Methods 1613 and 1653 respectively. Compliance will be based on the MLs as listed in Special Condition A of this permit. Any level of TCDD/TCDF reported below the ML is not quantifiable and is considered an estimate. For the purposes of reporting test results on the monthly DMR, the permittee shall adhere to the reporting format specified in Footnote #1 above.

12. **12 Chlorinated phenolic compounds** – The analytical method to be used to determine the concentrations of these compounds shall be USEPA Method 1653.

13. **Chloroform** – The preferred analytical method to be used for chloroform is USEPA Method 1624B for which a ML of 20 ug/l shall be attained. Other approved USEPA 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 32-hour period where a minimum of six (6) grab samples are collected, each grab sample being at least four (4) hours apart but no more than 16 hours apart.

B. NARRATIVE EFFLUENT LIMITATIONS

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

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

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

4. Notwithstanding specific conditions of the 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.

SPECIAL CONDITIONS

C. TREATMENT PLANT OPERATOR

The treatment facility must be operated by a person holding a minimum of a **Grade V** certificate (or Registered Maine Professional Engineer) pursuant to *Sewerage Treatment Operators*, 32 M.R.S.A. §§ 4171-4182 and *Regulations for Wastewater Operator Certification*, 06-096 CMR 531 (effective May 8, 2006). 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. AUTHORIZED DISCHARGES

The permittee is authorized to discharge only: 1) in accordance with the permittee's General Application for Waste Discharge License, accepted for processing on September 9, 2008; 2) in accordance with the terms and conditions of this permit; 3) via Outfall #001A (secondary treated waste waters); 4) storm water via the five storm water outfalls (Outfalls #002A, #003A, #004A, #005A and #007A); and 5) Outfall #006A (backwash water from the river water intake debris screen). Discharges of wastewater from any other point source are not authorized under this permit, and shall be reported in accordance with Standard Condition B(5), *Bypasses*, of this permit.

E. 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

F. 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 shall be postmarked by the thirteenth (13th) day of the month or hand-delivered to a Department Regional Office such that the DMRs are received by the Department by 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, unless otherwise specified, to the Department's facility inspector at:

Department of Environmental Protection
Bureau of Land & Water Quality
Division of Water Quality Management
17 State House Station
Augusta, Maine 04333-0017

G. STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITY – PLANS AND MONITORING REQUIREMENTS

1. Storm Water Pollution Prevention Plan (SWPPP)

   a. With respect to areas of the facility contributing storm water flow subject to this permit, the permittee shall develop, implement, maintain and annually update a Storm Water Pollution Prevention Plan (SWPPP) for the facility that is consistent with the SWPPP requirements established in Part IV Sections A-O of the Department's *Multi-Sector General Permit Maine Pollutant Discharge Elimination System Stormwater Discharge Associated with Industrial Activity*, dated October 11, 2005. The permittee shall maintain a copy of the SWPPP on-site for Department or USEPA staff inspection.

   b. **Within 60 days of any change** in design, construction, operation, maintenance, or any chemical spill at the facility which has or may have a significant effect on the amount of pollutants present in storm water, the permittee shall amend the SWPPP and note all changes.

2. Monitoring Requirements

   At a minimum frequency of once per calendar quarter, the permittee shall perform and document a visual examination of a storm water discharge at the end of the storm water conduit for each outfall (Outfalls #002A, #003A, #004A, #005A and #007A) in accordance with Department guidance document #DEPLW0768, *Standard Operating Procedure Guidelines for Visual Monitoring of Stormwater Associated with Industrial Activities*, including associated Attachments A (*Instructions for Completing the Visual Monitoring Form)* and B (*Visual Monitoring Form*) (all included as Attachment D of this permit). The permittee shall document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. The permittee must maintain the visual examination reports on-site with the SWPPP for a minimum of three years from the observation date.

SPECIAL CONDITIONS

G. STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITY – PLANS AND MONITORING REQUIREMENTS (cont'd)

3. Authorized storm water discharge points.

Outfall No.	Description	Receiving Water and Location
#002A	Discharge from Sedimentation Pond #2 north of paper mill	Kennebec River, Class B, in Skowhegan
#003A	Discharge from Sedimentation Pond #1 northwest of polishing pond	Kennebec River, Class C, in Fairfield
#004A	Discharge from Sedimentation Pond #3 east of paper mill	Kennebec River, Class B, in Skowhegan
#005A	Discharge from Sedimentation Pond #5 near the onsite landfill	Craigin Brook, Class B, in Fairfield
#007A	Discharge from log laydown area north of mill complex	Unnamed tributary to the Kennebec River, Class B, in Skowhegan

H. OPERATIONS AND MAINTENANCE (O&M) PLAN

This facility shall have a current written comprehensive Operation & Maintenance (O&M) Plan. The plan shall provide a systematic approach by which the permittee shall at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit.

By December 31 of each year, **or within 90 days of any process changes or minor equipment upgrades,** the permittee shall evaluate and modify 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 USEPA personnel upon request.

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

SPECIAL CONDITIONS

I. 06-096 CMR 530(2)(D)(4) STATEMENT FOR REDUCED/WAIVED TOXICS TESTING

This permitting action establishes reduced surveillance level testing for WET and analytical chemistry testing. **On or before December 31st of each year *[PCS Code 95799]***, the permittee shall provide the Department with statements describing the following:

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

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

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

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

J. DIOXIN/FURAN CERTIFICATION

In lieu of 1/Month monitoring of the bleach plant waste stream for 2,3,7,8 TCDD (dioxin) and 2,3,7,8 TCDF (furan) (40 CFR Part 430), **by December 31 of each calendar year *[PCS Code 90199, 90299, 90399, 90499, 90599]***, the permittee shall sample (1/Year) and report the results for said parameters and provide the Department with a certification stating:

a. Elemental chlorine gas 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. Purchasing procedures are in place for the procurement of defoamers or other additives without elevated levels of known dioxin precursors.
d. Fundamental design changes to the ClO2 plant and/or bleach plant operation have been reported to the Department and said reports explained the reason(s) for the change and any possible adverse consequences if any.

SPECIAL CONDITIONS

K. 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 a format similar to the format illustrated below must be retained on-site for at least three (3) years and made available to Department or USEPA personnel upon request.

Quarter Sample Date	#001A Flow (mgd)	Color Conc (cpu)	Mass (lbs/day)	Unbleached Pulp Production tons/day
xx/xs/xx	31	310	80,147	1,100
xx/xs/xx	30	340	85,069	1,050
.....				
xx/xs/xx	31	315	81,440	1,010
Quarterly Average			X=82,219	X=1,053

Quarterly Average Mass per Ton = 82,219/1,053 = 78 lbs color/ton

L. TEMPERATURE DIFFERENCE

During the period June 1 to September 30, when the ambient receiving water temperature is $\geq$66°F and <73°F, the permittee is limited to a thermal discharge that will not increase the ambient receiving water temperature by more than 0.4°F based on a weekly (7 days) rolling average calculation. When the ambient receiving water temperature is $\geq$73°F, the permittee is limited to a thermal discharge that will not increase the ambient receiving water temperature by more than 0.5°F based on a daily calculation. For each operating day during the applicable limitation period, the permittee shall calculate the Predicted River Temperature Increase (PRTI) associated with the thermal discharge from Outfall #001A according to the following equation:

$$PRTI\ (^{o}F) = \frac{Qe\ (Te - Tr)}{Qr}$$

where,

Qr = Ambient receiving water flow in gpd or MGD (must be like units as Qe)
Qe = Effluent flow in gpd or MGD (must be like units as Qr)
Te = Effluent temperature in ^{o}F
Tr = Ambient receiving water (mill intake) temperature in ^{o}F

Receiving water flow measurements (Qr) shall be obtained from Florida Power and Light's (FPL) Weston Station located in the Town of Skowhegan or prorated following a Department approved methodology from USGS Gage #01049265 at North Sidney or any other source approved by the Department. The permittee shall identify on the DMR the source of receiving water flow measurements. The permittee shall adhere to mathematical protocols for significant figures and rounding the calculated PRTI values. All PRTI values reported to the Department on the monthly Discharge Monitoring Reports (DMRs) for compliance with the weekly rolling average and daily maximum ΔT limitations of 0.4°F and 0.5°F, respectively, shall be rounded to the nearest 0.1°F.

SPECIAL CONDITIONS

L. TEMPERATURE DIFFERENCE (cont'd)

Between June 1 and September 30 of each year, the permittee shall monitor the discharge from Outfall #001A and the ambient receiving waters on a daily basis for the parameters in the equation on the previous page. The daily recorded and calculated values shall be reported to the Department as an attachment to the DMRs 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)
6/1/02	1,544	25.2	67	91	0.4
6/2/02	1,710	23.8	67	89	0.3

M. LANDFILL LEACHATE

The permittee is authorized to accept a maximum of 0.400 MGD of landfill leachate and floor drain water from the Waste Management Disposal Services of Maine's facility in Norridgewock, Maine into the waste water treatment facility. Tests shall be conducted on samples representative of leachate and floor drain waters accepted at the mill **at a minimum frequency of three times per year** (a minimum of one test in each of the following periods: March – April, July – August, and November – December, unless otherwise specified by the Department) and shall include the following parameters: pH, oil & grease, total suspended solids, BOD, cadmium, chromium copper, lead, mercury, nickel, zinc, arsenic, barium, selenium, silver, chemical oxygen demand and *E. coli* bacteria.

The permittee shall submit test results of leachate analysis as an attachment to the corresponding Discharge Monitoring Report. As an attachment to the test results submitted with the DMR, the permittee shall report the daily maximum and monthly average volumes of leachate received from Waste Management Disposal Services for the corresponding time frame.

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).

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

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.

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.

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.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

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 must 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;

(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.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

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 and made available to Department and USEPA personnel for inspection upon request.

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. The reports shall be made available to Department and USEPA personnel for inspection upon request. Discussion of the reports must be included as part of the annual refresher training.

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.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

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 3.a. (of this section 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.

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.

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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.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

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.

   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: The permittee must receive Department approval prior to using these alternative monitoring parameters (e.g., specific conductivity, color, etc.)]**

      (ii) Monitoring locations. The permittee shall select 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). The permittee shall maintain an up-to-date schematic depicting the monitoring locations for Department and USEPA personnel upon request.

   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 6(b) 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.

SPECIAL CONDITIONS

N. BEST MANAGEMENT PRACTICES PLAN (cont'd)

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.

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 Department 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(s) of the applicable action levels, and brief descriptions of any corrective actions taken to respond to such exceedence. **The reports shall be submitted to the Department no later than January 31 of the following year.**

O. REOPENING OF PERMIT FOR MODIFICATION

Upon evaluation of the tests results in 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 any time 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.

P. SEVERABILITY

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

ATTACHMENT A

Printed 1/22/2009

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

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

Licensed Flow (MGD)		**Flow for Day (MGD)[1]**	**Flow Avg. for Month (MGD)[2]**
Acute dilution factor			
Chronic dilution factor		**Date Sample Collected**	Date Sample Analyzed
Human health dilution factor			
Criteria type: M(arine) or F(resh)			

Laboratory _____ Telephone _____
Address _____
Lab Contact _____ Lab ID # _____

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

FRESH WATER VERSION

Please see the footnotes on the last page.

			Effluent Limits, %			Receiving Water or Ambient	**Effluent Concentration (ug/L or as noted)**		**Possible Exceedence [7]**		
	WHOLE EFFLUENT TOXICITY		Acute	Chronic			WET Result, % Do not enter % sign	Reporting Limit Check	Acute	Chronic	
	Trout - Acute										
	Trout - Chronic										
	Water Flea - Acute										
	Water Flea - Chronic										
	WET CHEMISTRY										
	pH (S.U.) (9)					(8)					
	Total Organic Carbon (mg/L)					(8)					
	Total Solids (mg/L)										
	Total Suspended Solids (mg/L)										
	Alkalinity (mg/L)					(8)					
	Specific Conductance (umhos)										
	Total Hardness (mg/L)					(8)					
	Total Magnesium (mg/L)					(8)					
	Total Calcium (mg/L)					(8)					
	ANALYTICAL CHEMISTRY [3]										
	Also do these tests on the effluent with WET. Testing on the receiving water is optional	Reporting Limit	Effluent Limits, ug/L Acute[6]	Chronic[6]	Health[6]			Reporting Limit Check	**Possible Exceedence [7]** Acute	Chronic	Health
	TOTAL RESIDUAL CHLORINE (mg/L) (9)	0.05				NA					
	AMMONIA	NA				(8)					
M	ALUMINUM	NA				(8)					
M	ARSENIC	5				(8)					
M	CADMIUM	1				(8)					
M	CHROMIUM	10				(8)					
M	COPPER	3				(8)					
M	CYANIDE	5				(8)					
M	LEAD	3				(8)					
M	NICKEL	5				(8)					
M	SILVER	1				(8)					
M	ZINC	5				(8)					

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

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

Maine Department of Environmental Protection
WET and Chemical Specific Data Report Form
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V	ACROLEIN	NA									
V	ACRYLONITRILE	NA									
V	BENZENE	5									
V	BROMOFORM	5									
V	CARBON TETRACHLORIDE	5									
V	CHLOROBENZENE	6									
V	CHLORODIBROMOMETHANE	3									
V	CHLOROETHANE	5									
V	CHLOROFORM	5									
V	DICHLOROBROMOMETHANE	3									
V	ETHYLBENZENE	10									
V	METHYL BROMIDE (Bromomethane)	5									
V	METHYL CHLORIDE (Chloromethane)	5									
V	METHYLENE CHLORIDE	5									
V	TETRACHLOROETHYLENE (Perchloroethylene or Tetrachloroethene)	5									
V	TOLUENE	5									
V	TRICHLOROETHYLENE (Trichloroethene)	3									
V	VINYL CHLORIDE	5									

Notes:

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

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

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

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

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

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

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

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

(9) pH and Total Residual Chlorine must be conducted at the time of sample collection. Tests for Total Residual Chlorine need be conducted only when an effluent has been chlorinated or residual chlorine is believed to be present for any other reason.

Comments:

ATTACHMENT B

Protocol for Total Phosphorus Sample Collection and Analysis for Waste Water and Receiving Water Monitoring Required by Permits

Approved Analytical Methods: EPA 365.1 (Rev. 2.0), 365.3, 365.4; SM 4500-P B.5, 4500-P E, 4500-P F; ASTM D515-88(A), D515-88(B); USGS I-4600-85, I-4610-91; OMAAOAC 973.55, 973.56

Sample Collection: The Maine DEP is requesting that total phosphorus analysis be conducted on composite effluent samples, unless a facility's Permit specifically designates grab sampling for this parameter. Facilities can use individual collection bottles or a single jug made out of glass or polyethylene. Bottles and/or jugs should be cleaned prior to each use with dilute HCL. This cleaning should be followed by several rinses with distilled water. Commercially purchased, pre-cleaned sample containers are an acceptable alternative. The sampler hoses should be cleaned, as needed.

Sample Preservation: During compositing the sample must be at 0-6 degrees C (without freezing). If the sample is being sent to a commercial laboratory or analysis cannot be performed the day of collection then the sample must be preserved using H_2SO_4 to obtain a sample pH of <2 su and refrigerated at 0-6 degrees C (without freezing). The holding time for a preserved sample is 28 days.

Note: Ideally, Total P samples are preserved as described above. However, if a facility is using a commercial laboratory then that laboratory may choose to add acid to the sample once it arrives at the laboratory. The Maine DEP will accept results that use either of these preservation methods.

Laboratory QA/QC: Laboratories must follow the appropriate QA/QC procedures that are described in each of the approved methods.

Sampling QA/QC: If a composite sample is being collected using an automated sampler, then once per month run a blank on the composite sampler. Automatically, draw distilled water into the sample jug using the sample collection line. Let this water set in the jug for 24 hours and then analyze for total phosphorus. Preserve this sample as described above.

ATTACHMENT C

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
WHOLE EFFLUENT TOXICITY REPORT
FRESH WATERS

Facility Name _____ MEPDES Permit # _____

Facility Representative _____ Signature _____

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

Facility Telephone # _____ Date Collected _____ (mm/dd/yy) Date Tested _____ (mm/dd/yy)

Chlorinated? _____ Dechlorinated? _____

Results

	% effluent	
	water flea	**trout**
A-NOEL		
C-NOEL		

Effluent Limitations

A-NOEL	
C-NOEL	

Data summary

	water flea			**trout**		
	% survival		**no. young**	**% survival**		**final weight (mg)**
QC standard	**A>90**	**C>80**	**>15/female**	**A>90**	**C>80**	**> 2% increase**
lab control						
receiving water control						
conc. 1 (%)						
conc. 2 (%)						
conc. 3 (%)						
conc. 4 (%)						
conc. 5 (%)						
conc. 6 (%)						
stat test used						

place * next to values statistically different from controls

for trout show final wt and % incr for both controls

Reference toxicant

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

Comments _____

Laboratory conducting test

Company Name _____ Company Rep. Name (Printed) _____

Mailing Address _____ Company Rep. Signature _____

City, State, ZIP _____ Company Telephone # _____

Report WET chemistry on DEP Form "ToxSheet (Fresh Water Version), March 2007."

ATTACHMENT D

Bureau of Land and Water Quality
Division of Watershed Management
Industrial Stormwater Program

Standard Operating Procedure
Guidelines For Visual Monitoring of Stormwater Discharges Associated With Industrial Activities.

1. **APPLICABILITY.** This Standard Operating Procedure (SOP) applies to all industrial facilities covered under the Maine Multi-Sector General Permit (MSGP) for Stormwater Discharges Associated with Industrial Activity regardless of the facility's industrial sector code. All permitted facilities are required to perform quarterly visual monitoring of their stormwater discharges associated with industrial activity as part of their Stormwater Pollution Prevention Plans (SWPPP) in order to achieve compliance with the Multi-Sector General Permit.

2. **PURPOSE.** To provide guidelines for standardized methods for sample collection and visual examination of industrial stormwater discharges for indicators of stormwater pollution as defined in Part V of the Maine MSGP. To provide guidelines describing standardized methods of data recording and record keeping of all quarterly visual stormwater discharge monitoring data. These guidelines are described in Part 5 of the MSGP.

3. **DEFINITIONS.**

3.1. Multi-Sector General Permit (MSGP) A general permit for Stormwater Discharges Associated with Industrial Activities. Authorizes the direct discharge of stormwater associated with industrial activity to waters of the State other than groundwater, provided the discharge meets the requirements stated in this permit. This permit is effective October 11, 2005 and expires October 11, 2010. It replaces EPA's MSGP for Industrial Activities issued October 30, 2000.

3.2. SWPPP. Stormwater Pollution Prevention Plan. A plan developed and implemented by each industrial facility. It outlines sources of potential stormwater pollutants and the methods by which these pollutants will be reduced or prevented from entering waters of the State. The Plan identifies in writing a SWPPP team of facility personnel as well as a SWPPP team leader who is ultimately responsible for SWPPP implementation.

3.3. GRAB SAMPLE. Sample of stormwater discharge taken as a single uninterrupted event (i.e., grabbed at one time) from a single stormwater outfall from the industrial facility. The sample may be collected manually or with an automatic sampler.

3.4. OUTFALL. Any location such as a ditch, rill, pipe, storm drain, boat ramp, or detention pond exit where shallow concentrated flow of stormwater leaves an industrial facility.

3.5. MEASURABLE STORM EVENT. Any storm event that yields at least 0.1 inch of precipitation.

4. RESPONSIBILITIES.

4.1. MONITORING PROGRAM IMPLEMENTATION. The schedule for performing visual examinations should be clearly documented in the facility's SWPPP. The permittee must perform and document a quarterly visual examination of industrial stormwater discharges from each outfall which discharges stormwater associated with industrial activity from the facility.

4.2. OUTFALL IDENTIFICATION. The permittee must identify each industrial stormwater outfall at the facility. All outfalls shall be clearly identified on the facility site map which is part of the facility's SWPPP and also listed in the written text of the SWPPP.

4.3. EMPLOYEE TRAINING. The permittee is responsible for ensuring that all facility personnel involved in stormwater sampling are properly trained to do so. Staff involved in sampling should:

a. Be familiar with the site map and outfall locations
b. Walk the site to physically identify each sampling location
c. Become familiar with local rainfall and drainage patterns
d. Learn proper procedures for measuring rainfall
e. Become competent with proper sample collection procedures

Personnel involved in sampling should also be trained in all facility safety procedures as they apply to stormwater sampling. Where practicable the same individual should carry out the collection and examination of discharges for the entire permit term. Written documentation signed by the SWPPP team leader certifying that all personnel involved in sampling have been properly trained should be maintained onsite with the SWPPP.

4.4. SAMPLE COLLECTION FREQUENCY. Visual examinations of industrial stormwater discharges must be performed once per monitoring quarter. If no measurable storm event resulted in discharge from the facility during a monitoring quarter, the permittee is excused from visual monitoring for that quarter provided the permittee documents in the monitoring records that no runoff occurred. Schedule of monitoring quarters is listed below.

- First: October 1 to December 31
- Second: January 1 to March 31
- Third: April 1to June 30
- July 1 to September 30

All other time specific sampling requirements are to be performed in accordance with the parameters outlined in the procedures section of this document.

4.5. RECORD KEEPING AND REPORTING. The permittee must maintain reports of all visual examinations conducted onsite with the SWPPP. The permittee is not required to submit visual examination results to DEP unless specifically asked to do so. Requirements for recording visual examination data are outlined in the procedures section of this document.

5. PROCEDURES

5.1. MEASURING RAINFALL. All facilities required to perform visual monitoring of industrial stormwater discharges should have a rain gauge on site for measuring rainfall. The rain gauge may be a standard rain gauge, tipping bucket gauge, weighing type gauge, float recording gauge, or any other National Weather Service approved device for measuring rainfall to the nearest 0.1 inch. To minimize measurement errors, the gauge should be placed on a level surface that is not windswept and is away from trees or buildings that might interfere with the path of rainfall. The gauge should be regularly inspected by sampling personnel to ensure that it is in good working order and capable of accurately measuring rainfall to the nearest 0.1 inch.

5.2. SAMPLE COLLECTION TIMING. A grab sample must be collected from each facility outfall once per monitoring quarter during a measurable storm event that occurs at least 72 hours from the previously measurable storm event. The 72 hour interval is waived when the preceding measurable storm did not yield a measurable discharge. During a measurable storm event, a grab sample for visual examination should be collected during the first 60 minutes or as soon thereafter as practicable, but not to exceed 2.25 hours of when runoff begins discharging from areas of exposed industrial activity. During monitoring quarters when snowmelt represents the only stormwater discharge, a grab sample must also be collected during periods of significant snowmelt within the first 60 minutes or as soon thereafter as practicable, but not to exceed 2.25 hours) of when snowmelt begins discharging from areas of exposed industrial activity. Stormwater runoff from employee parking lots, administration buildings, and landscaped areas that is not mixed with stormwater associated with industrial activity, or stormwater discharges to municipal sanitary sewers does not need to be sampled.

5.3. SAMPLE CONTAINER CLEANING AND PREPARATION. The facility should have an adequate supply of containers prepared for collection of industrial stormwater samples from each outfall prior to collecting samples for visual examination. All sample containers used for sampling for visual examination should be certified as clean and free of residue by the container manufacturer, or cleaned according to the following procedure.

5.3.1. Wash containers in a non-phosphate detergent and tap water wash.

5.3.2. Thoroughly fill and rinse containers with tap water at least three (3) times.

5.3.3. Store containers closed, and in an area free of dust and other potential sample contaminants.

5.3.4. If additional containers are needed to collect samples from less accessible outfalls (i.e. buckets which are attached to poles for reaching outfalls), these containers should also be cleaned and prepared as indicated above.

5.4. SAMPLE COLLECTION. Samples should be examined in clear glass or clear plastic container prepared and cleaned as indicated above, so that all visual monitoring criteria can be observed.

5.4.1. MANUAL GRAB SAMPLE COLLECTION. Manual grab samples should be collected by inserting a container under or downstream of a discharge with the container opening facing upstream, and with the opening of the container completely immersed under water, whenever possible. Small containers (ideally 250 ml to 750 ml or approximately 8 to 24 ounces in size) are recommended in order to be able to submerse the container opening under water while still collecting an adequate sample size to make a correct visual inspection. In most cases the sample container can be held in hand while the sample is collected. Less accessible outfalls may require the use of poles and buckets to collect grab samples. Take the grab from the horizontal and vertical center of the outfall. If sampling in a channel, (i.e., ditch, trench, rill) avoid stirring up bottom sediments. Avoid touching the inside of the container to prevent contamination. Transfer sample to a clear glass or plastic container if using another container such as a bucket to collect a sample from a less accessible location. If taking samples from multiple outfalls, label containers with outfall identification prior to taking samples. Make sure samples are securely capped until examination.

5.4.2. COLLECTION OF GRAB SAMPLES BY AUTOMATIC SAMPLER. Facilities which use automatic samplers for stormwater sampling may collect grab samples for visual examination by this method. Programming for collecting grab samples is specific to the type of automatic sampler. All facility personnel who collect stormwater samples using automatic samplers should be properly trained in operation of the sampler before doing so. Several different types of automatic samplers are available for stormwater sampling. However, the following guidelines should be followed when sampling regardless of the type of sampler used. All equipment must be properly cleaned, particularly the tubing and sample containers. Deionized water should be drawn through the sampler to remove any residuals prior to taking samples. Tubing should also be periodically replaced to avoid algae or bacterial growth. Additionally, a distilled/deionized water blank sample should be taken at each outfall sampled to determine if contamination of stormwater samples by the sampling equipment has occurred. Samplers should be used in exact accordance with the manufacturers' instructions. All sampler calibration and maintenance data should be kept on site with the SWPPP.

5.5. SAMPLE EXAMINATION. Visual examination of all grab samples collected must be performed within the first sixty (60) minutes (or as soon thereafter as practicable, but not to exceed 2.25 hours) of when the runoff or snowmelt begins discharging from the facility. Collect the samples and bring them to a well lit indoor area. Pour each sample into a separate 1 L polycarbonate plastic graduated Imhoff cone. The cone should have graduations that allow volume measurement to the nearest milliliter. Record the total sample volume to the nearest milliliter on the visual monitoring form. Examine the samples for the following criteria according to the instructions provided with the visual monitoring form: Foam, odor, clarity, floating solids, suspended solids, color, oil sheen, settled solids, and any other obvious indicators of stormwater pollution. Read the settled solids 1 hour after pouring the sample into the cone, this assures all solids are settled out of the water. Settled solids in the bottom of the cone should be measured to the nearest milliliter. It is also recommended that a

sample of tap water be collected in the same type of container used to collect the samples and used as a comparison to aid in evaluating the samples for the criteria stated above.

*Note: Clear polycarbonate plastic Imhoff cones are available from several scientific supply companies. See section 6 for a list of suppliers.

5.6. SAMPLE DATA RECORDING. Record all sample data on the visual monitoring form (Attachment B) after examining the sample for all of the criteria listed in the instructions (Attachment A). The form should include the examination date and time, examination personnel, the nature of the discharge (i.e., rain or snowmelt), identification of outfall sampled, quality of the stormwater discharge (including observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and any other obvious indicators of stormwater pollution), and probable sources of any observed contamination. The permittee must sign and certify the documentation in accordance with Part VII (E) of the Maine MSGP. All visual examination reports must be maintained on site with the SWPPP.

5.7. RECOMMENDATIONS FOR SOLVING SAMPLE LOCATION PROBLEMS. Consult guidelines listed below when it is necessary to sample an outfall located at a less than ideal location for sampling.

- PROBLEM: Sampling where stormwater comingles with process or non process water.
  RECOMMENDATION: Attempt to sample the stormwater discharge before it mixes with the non-stormwater discharge. If this is impossible, sample the discharge both during dry and wet weather and maintain a record of the visual examination data observed under both conditions on site with the SWPPP. This will provide an indication of the contribution of any observable contamination from each source.

- PROBLEM: Numerous small point channels make up an outfall from which it is difficult to collect a sample.
  RECOMMENDATION: Impound channels or join their flow together by building a weir or digging a ditch to collect discharge at a low point for sampling. This artificial collection point should be lined with plastic to prevent infiltration and/or high levels of sediment.

- PROBLEM: Inaccessible discharge point (examples include underwater discharges or unreachable discharges (e.g., out of a cliff).
  RECOMMENDATION: Go up the pipe to sample (i.e., to the nearest manhole or inspection point). If these are not available, tap into the pipe, or sample at several locations upstream of the pipe if the pipe is the only outfall for the facility.

- PROBLEM: Managing multiple sampling sites to collect grab samples during the first 60 minutes of a measurable storm event.
  RECEMMONDATION: Have a sampling crew ready for mobilization when forecasts indicate a measurable storm event is likely to occur. If this is not possible, sample missed outfall locations during other measurable storm events.

- PROBLEM: Commingling of parking lot runoff with discharge associated with industrial activity.

RECOMMENDATION: The combined runoff must be sampled at the discharge point as near as possible to the industrial activity or at the parking lot drain inlet if there is one.

- PROBLEM: Sampling in manholes
  RECOMMENDATION: Sample with a collection device on the end of a pole to reach stormwater. Personnel sampling in manholes should have confined space safety training if manhole has to be entered.

- PROBLEM: Run-on from other property.
  RECOMMENDATION: If possible, collect and examine a sample of the stormwater at the border of the property where the run-on occurs. Then, collect and examine a sample of the stormwater at a facility outfall downstream of the run-on point. Note any observable differences between the samples and maintain the documentation with the SWPPP.

- When confronted with other difficult sampling scenarios not addressed above, the permittee should consult DEP for guidance on how to best address the situation.

6. REFERENCES

6.1. GUIDANCE MANUAL FOR THE MONITORING AND REPORTING REQUIREMENTS OF THE NPDES MULTI-SECTOR STORM WATER GENERAL PERMIT
United States Environmental Protection Agency, Office of Water (EN-336), EPA 833-B-99-001(January, 1999)

6.2. NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT
United States Environmental Protection Agency, Office of Water (EN-336), EPA 833-8-92-001 (July, 1992)

6.3. STATE OF MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION MULTI-SECTOR GENERAL PERMIT MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM STORMWATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY Maine Department of Environmental Protection, Bureau of Land and Water Quality, Waste Discharge License # W-008227-5Y-A-N (October 11, 2005)

***Notes: List of Vendors that Supply One Liter (1L) Clear Polycarbonate Imhoff Cones**

Forestry Suppliers Inc.
PO Box 8397
Jackson, MS 39284
(800) 752-8460
www.forestry-suppliers.com

Lab Safety Supply Inc.
PO Box 1368
Janesville, WI 53547-1368
(800) 356-0783
www.labsafety.com

Nalge Nunc International
International Dept.
75 Panorama Creek Dr.
Rochester, NY 14625
(800) 625-4327
www.nalgenelabware.com

Pollard Water
200 Atlantic Ave.
Hyde Park, NY 11040
800-437-1146
www.pollardwater.com

Instructions for Completing the Visual Monitoring Form

1. Completely fill out all required information on the top of the visual monitoring form.

2. Pour the sample into a 1 L clear polycarbonate Imhoff cone. Record the total sample volume measured in the cone to the nearest milliliter. Evaluate the sample for the following parameters according to the following instructions.

   - **Foam:** This must be done first. Examine the sample for foam immediately after pouring it into the cone. Record foam results on the visual monitoring form as they most closely match one of the descriptions listed below.

     i. **None**-Most bubbles break down within ten (10) seconds of pouring; only a few large bubbles persist longer than ten (10) seconds.

     ii. **Moderate**-Many small bubbles are present but these bubbles persist for less than two (minutes) after pouring.

     iii. **High**-Many small bubbles are present and they persist longer than two (2) minutes after pouring.

3. Examine the sample for the following criteria after it has settled for ten (10) minutes. Record the results on the visual monitoring form as they most closely match the descriptions listed below.

   - **Color:** Record the best description of the sample color in the appropriate space on the visual monitoring form.

   - **Odor:** If sample has no odor other than natural rainwater or snowmelt write “normal” on the visual monitoring form. Note the presence of any of the following odors if detected: Gasoline, diesel, oil, solvents (WD-40, other petroleum products, etc.), landfill, fishy, glycol, any other unusual odors not normally present in clean runoff from the area sampled.

   - **Clarity:** Record sample clarity results as they most closely match one of the descriptions listed below.

     i. **Clear**-Sample doesn’t filter out any light, can be seen through regardless of color.

     ii. **Cloudy-**Sample filters out some light; not clear but objects can still be identified when looking through the cone.

     iii. **Very Cloudy**-Sample filters out most light; objects are indiscernible when looking through the cone.

     iv. **Opaque**-Sample doesn’t allow any light to pass through; objects cannot be seen when looking through the cone.

- **Floating Solids:** Give a general description of the type of floating solids present (wood chips, leaf debris, algae, etc) in the general comments section for each sample. Record results for amount floating solids present as they most closely match the descriptions listed below. Record amount data in the appropriate box on page 1 of the visual monitoring form.

    i. **None**- No floating solids present on the surface of the sample.

    ii. **Slight**-Only a few floating particles observed on the surface of the sample.

    iii. **Moderate**- Less than 20% of the surface of the sample is covered with floating solids.

    iv. **High**- More than 20% of the surface of the sample is covered with floating solids.

- **Settled Solids:** Give a general description of the type of settled solids present (sand, decayed plant matter, rust particles etc) in the general comments section for each sample. Allow settle for one hour. Measure the settled solids in the bottom of the cone to the nearest milliliter and record the results in the appropriate box on page 1 of the visual monitoring form.

- **Suspended solids:** In the general comments section for each sample, give a general description of the type of solids present if any are observed suspended below the sample surface. Record whether or not settled solids were present in the appropriate box on page 1 of the visual monitoring form.

- **Oil Sheen:** Record whether or not an oil sheen is present in the sample.

- **General Comments Section on Page 2:** Make sure you have described the type of floating, settled and suspended solids observed in the samples in the general comments section provided for each outfall sample. Also note the following conditions at each outfall during the time sampled: General volume of water and flow, algae (if any is present), odor, color, and any other unusual characteristics noticed at the sampling location. Record the number of days since the last known measurable storm or runoff event.

4. Ensure that all visual monitoring forms are filed on site with the Stormwater Pollution Prevention Plan (SWPPP) each time visual monitoring is done.

Standard Operating Procedure
Bureau of Land and Water Quality
Date: April 20, 2006
Doc num: DEPLW0768

Visual Monitoring Form

Facility Name _____ Sampler's Name _____

Facility Address _____ MSGP Permit Number _____

OUTFALL NUMBER						
OBSERVATION TIME						
EST. TIME FROM ONSET OF RUNOFF						
DISCHARGE TYPE Rain or Snowmelt						
COLOR						
ODOR						
CLARITY						
FLOATING SOLIDS*						
SETTLED SOLIDS*						
SUSPENDED SOLIDS*						
FOAM						
OIL SHEEN						
Probable source of any observed contamination						

*Enter description of these criteria in the general comments section for each outfall on the back of this page.

Sampler's Signature _____ Date _____

General Comments

In the comments section, enter physical description of floating, settled, and suspended solids for each outfall sampled. Enter general comments on the condition and appearance of each outfall in the comments section also as indicated in the instructions.	
Outfall 1	Comments:
Outfall 2	Comments:
Outfall 3	Comments:
Outfall 4	Comments:
Outfall 5	Comments:
Outfall 6	Comments:

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

AND

MAINE WASTE DISCHARGE LICENSE

FACT SHEET

Date: **JANUARY 22, 2009**

PERMIT NUMBER: **#ME0021521**
LICENSE NUMBER: **#W000385-5N-J-R**

NAME AND ADDRESS OF APPLICANT

S.D. WARREN COMPANY
225 FRANKLIN STREET
BOSTON, MASSACHUSSETTS 02110

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

S.D. WARREN COMPANY
SOMERSET MILL
1329 WATERVILLE ROAD
SKOWHEGAN, MAINE 04976

COUNTY: **SOMERSET COUNTY**

RECEIVING WATERS/CLASSIFICATIONS:
KENNEBEC RIVER / CLASSES B AND C; CRAIGIN BROOK / CLASS B; UNNAMED STREAM / CLASS B

COGNIZANT OFFICIAL AND TELEPHONE NUMBER: **THOMAS GRIFFIN, ENV. MGR. (207) 238-3128**

1. APPLICATION SUMMARY

The S.D. Warren Company (SDW) has applied to the Department of Environmental Protection (Department) for renewal of Waste Discharge License (WDL) #W000385-5N-G-R / Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0021521, which was issued for the SDW's Somerset Operations mill (d/b/a SAPPI Fine Paper) on September 12, 2003, and expired on September 12, 2008. The 9/12/03 permit authorized the monthly average discharge of up to 46.5 million gallons per day (MGD) of secondary treated waste waters, including bleach plant effluent (internal waste stream) from Outfall #100, to the Kennebec River, Class C, in Fairfield, Maine. The 9/12/03 permit also authorized the discharge of an unspecified quantity of storm water runoff via five (5) outfall points (Outfalls #002A, #003A, #004A, and #005A to the Kennebec River and Outfall #007A to an unnamed tributary to the Kennebec River). Additionally, the 9/12/03 permit authorized the discharge of backwash water from the river water intake debris screen to the Kennebec River.

1. APPLICATION SUMMARY (cont'd)

On December 12, 2003, the Department administratively modified the 9/12/03 permit (specifically, Special Condition M, *Landfill Leachate*, of the 9/12/03 permit) to authorize an increase in the daily maximum volume of Waste Management landfill leachate that would be permitted to be treated in the SDW's wastewater treatment system from 200,000 gallons per day (GPD) to 300,000 GPD.

On July 12, 2005, the Department administratively modified the 9/12/03 permit to authorize the following:

1. Reduce the minimum monitoring frequency requirements specified at Special Condition A, *Effluent Limitations and Monitoring Requirements*, for dioxin and furan from once per month to once per year and to establish Special Condition P, *Dioxin/Furan Certification*, which is consistent with the United States Environmental Protection Agency's (USEPA) May 2005 Permit Guidance Document for implementing the "Cluster Rule."
2. Increase the daily maximum volume of Waste Management landfill leachate that would be permitted to be treated in the SDW's wastewater treatment system from 300,000 GPD to 400,000 GPD (Special Condition M of the 9/12/03 permit).
3. As an option, authorizing the SDW to utilize river flow data obtained from the USGS Gage Station in North Sidney as well as from Florida Power Light and Energy's Weston Station in Skowhegan for calculating river temperature increases in Special Condition I of the 9/12/03 permit.
4. Acknowledging miscellaneous waste water sources not identified in the April 14, 2000 application for permit renewal that discharge to the storm water system.

On April 10, 2006, the Department amended the 9/12/03 permit by incorporating the whole effluent toxicity (WET), analytical chemistry and priority pollutant testing requirements of *Surface Water Toxics Control Program*, 06-096 CMR 530 (effective October 9, 2005).

On June 27, 2008, the Department issued minor permit revision #W000385-5N-I-M, to the SDW to reduce the minimum monitoring frequency requirements for 1) adsorbable organic halides (AOX) from 3/week to 1/week; 2) chloroform from 1/week to 1/ quarter; and 3) chlorinated phenolics from 1/month to 2/year. These reductions in monitoring were based on available data and the USEPA's guidance on performance-based reduction of permit monitoring requirements.

2. PERMIT SUMMARY

a. Terms and Conditions **This permitting action is similar to the 9/12/03 permitting action, 12/12/03 and 7/12/05 administrative modifications, 4/10/06 permit amendment, and 6/27/08 minor permit revision in that it is:**

Outfall #001A (secondary treated waste waters)

1. Carrying forward the monthly average discharge flow limit of 46.5 MGD and daily maximum discharge flow reporting requirement;

2. Carrying forward the separate "summer season" and "winter season" monthly average and daily maximum effluent limitations for biochemical oxygen demand (BOD_5) and total suspended solids (TSS);

2. PERMIT SUMMARY (cont'd)

3. Carrying forward the "summer season" daily maximum effluent temperature limitation of 105°F and "winter season" daily maximum effluent temperature monitoring and reporting requirement;

4. Carrying forward the "summer season" weekly rolling average and daily maximum temperature difference limitations of 0.4°F and 0.5°F, respectively;

5. Carrying forward the daily maximum and minimum effluent pH range limitation;

6. Carrying forward the quarterly average effluent color limitation of 175 lbs./ton of unbleached pulp produced;

7. Carrying forward the monthly average and daily maximum effluent mass reporting requirements for chemical oxygen demand (COD);

8. Carrying forward the "summer season" monthly average and daily maximum effluent mass and concentration reporting requirements for total phosphorous (total-P);

9. Carrying forward whole effluent toxicity (WET), priority pollutant and analytical chemistry testing requirements consistent with 06-096 CMR 530;

10. Carrying forward an annual certification statement requirement as Special Condition I, *06-096 CMR 530(2)(D)(4) Statement for Reduced/Waived Toxics Testing*, of this permit (a requirement imposed in the 4/10/06 permit amendment);

11. Carrying forward authorization to accept and treat a daily maximum of up to 400,000 gallons per day (0.400 MGD) of Waste Management landfill leachate (Special Condition M);

12. Carrying forward previous Special Condition O, *Best Management Practices Plan*, as required by 40 CFR Part 430.03 (now Special Condition N);

Outfall #100 (internal waste stream from bleach plant)

14. Carrying forward the daily maximum (internal) discharge flow reporting requirement;

15. Carrying forward the daily maximum concentration limitations for 2,3,7,8 TCDD (dioxin), 2,3,7,8 TCDF (furan) and previous Special Condition P, *Dioxin/Furan Certification*, (now Special Condition J) established in the 7/12/05 administrative modification;

16. Carrying forward the daily maximum concentration limitations for 12 chlorinated phenolic compounds; and

2. PERMIT SUMMARY (cont'd)

Outfalls #002A, #003A, #004A, #005A and #007A (storm water runoff)

17. Carrying forward authorization to discharge storm water runoff from five outfall points.

This permitting action is significantly different from the 9/12/03 permitting action, 12/12/03 and 7/12/05 administrative modifications, 4/10/06 permit amendment, and 6/27/08 minor permit revision in that it is:

Outfall #001A (secondary treated waste waters)

1. Reducing the minimum monitoring frequency requirements for BOD_5 and TSS from once per day to three times per week based on the results of facility testing and Department best professional judgment;

2. Reducing the minimum monitoring frequency requirements for COD from once per day to once per week based on the results of facility testing and Department best professional judgment;

3. Revising the monthly average and daily maximum effluent mass limitations for adsorbable organic halides (AOX) based on new production information;

4. Establishing monthly average water quality-based concentration and mass limitations for total aluminum based on the results of facility testing;

5. Establishing monthly average water quality-based concentration and mass limitations for bis(2-ethylhexyl) phthalate based on the results of facility testing and revising the minimum monitoring frequency requirement (established in the 4/10/06 permit amendment) from once per year to twice per year consistent with surveillance level testing requirements prescribed by 06-096 CMR 530;

6. Eliminating previous Special Condition L, *Biological Monitoring Program*, as the facility has fulfilled the requirements of this bird species monitoring condition;

7. Adding the authorization to accept and treat a daily maximum of up to 10,000 gallons per day (0.010 MGD) of waste water from BioRenewable Fuels in Fairfield. This material may contain residual oil and grease. SDW's Wastewater Treatment Plant is designed with multiple systems for oil containment and treatment and thus the final effluent will not produce a visible sheen in the receiving water. See Memorandum from Steve Woodard of Woodard and Curran to Michael Barden of the Maine Pulp and Paper Association, dated March 18, 2003, and included as Attachment E of the fact sheet;

8. Revising the minimum monitoring frequency requirement for landfill leachate monitoring from three times per year to once per calendar quarter (Special Condition M of this permit);

2. PERMIT SUMMARY (cont'd)

Outfalls #002A, #003A, #004A, #005A and #007A (storm water runoff)

9. Eliminating the analytical monitoring requirements for storm water runoff and establishing quarterly visual monitoring requirements consistent with the *Multi-Sector General Permit Maine Pollutant Discharge Elimination System Stormwater Discharge Associated with Industrial Activity*, dated October 11, 2005;

10. Correcting the name of the receiving water for Outfall #005A from the Kennebec River to Craigin Brook; and

Outfall #100 (internal waste stream from bleach plant)

11. Revising the monthly average and daily maximum effluent mass limitations for chloroform based on new production information.

b. History: This section provides a summary of recent, relevant licensing/permitting actions that have been completed for the SDW facility. Additional history is provided in the fact sheet associated with the 9/12/03 permit, which is maintained on record at the Department's Augusta office.

September 24, 1987 – The USEPA issued a renewal of NPDES permit #ME0021521.

May 25, 1990 – The USEPA issued a modification of NPDES permit #ME0021521 to accommodate the increase in paper production from #3 paper machine. The SDW requested an evidentiary hearing on various limitations in the permit modification that resulted in the appealed conditions being stayed.

January 14, 1994 – The USEPA issued a renewal of NPDES permit #ME0021521. The SDW appealed a number of conditions in the permit.

May 23, 2000 – Pursuant to *Certain deposits and discharges prohibited*, 38 M.R.S.A. § 420 and *Waste discharge licenses*, 38 M.R.S.A. § 413 and *Interim Effluent Limitations and Controls for the Discharge of Mercury*, 06-096 CMR 519 (last amended October 6, 2001), the Department issued a *Notice of Interim Limits for the Discharge of Mercury* to the permittee thereby administratively modifying WDL # W000385-44-C-R by establishing interim monthly average and daily maximum effluent concentration limits of 28.5 parts per trillion (ppt) and 42.7 ppt, respectively, and a minimum monitoring frequency requirement of four (4) tests per year for mercury. It is noted the limitations have not been incorporated into Special Condition A, *Effluent Limitations And Monitoring Requirements*, of this permit as limitations and monitoring frequencies are regulated separately through 38 M.R.S.A. § 413 and 06-096 CMR 519. 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.

July 14, 2000 – The USEPA withdrew the NPDES permit issued on 1/14/94 permit which resulted in the 9/24/87 being the most current NPDES.

2. PERMIT SUMMARY (cont'd)

January 12, 2001 – The Department received authorization from the USEPA to administer the NPDES permit program in Maine, excluding areas of special interest to Maine Indian Tribes. From that point forward, the program has been referred to as the MEPDES program, and MEPDES permit #ME0021521 has been utilized as the primary reference number for the SDW facility.

September 12, 2003 – The Department issued MEPDES permit #ME0021521 / WDL #W000385-5N-G-R to the SDW for a five-year terms. The 9/12/03 WDL superseded WDL Modification #W000385-44-F-M issued on October 21, 1998, WDL Modification #W000385-44-E-M issued on March 19, 1996, WDL Modification #W000385-44-D-M issued on 12/29/95, and WDL #W000385-44-C-R issued on May 1, 1995. Additional permitting actions that occurred subsequent to issuance of the 9/12/03 permit are summarized in Section 1 of this fact sheet above.

February 26, 2008 – SDW submitted notification to the Department, as required by Special Condition D of the 9/12/03 permit, that the Recovery Boiler and Evaporators were going to be upgraded.

September 5, 2008 – The SDW submitted a timely and complete General Application to the Department for renewal of the 9/12/03 MEPDES permit. The application was accepted for processing on September 9, 2008, and was assigned WDL #W000385-5N-J-R / MEPDES #ME0021521.

c. Source Description: The SDW mill, located in both the Town's of Skowhegan and Fairfield, Maine (with the discharge in Fairfield), manufactures bleached kraft pulp and bleached kraft fine paper. A map showing the location of the mill and receiving waters is included as Attachment A of this fact sheet. SDW has previously been authorized and has requested to renew authorization to discharge a monthly average of up to 46.5 million gallons per day (MGD) of treated process and other waste waters associated with the pulp and papermaking process, including but not limited to, treated sanitary waste waters, cooling waters, treated landfill leachate, treated residuals storage pad leachate, leachate from Waste Management's Crossroad commercial landfill in Norridgewock, waste from an on-site precipitated calcium carbonate (PCC) plant and storm water from various areas of the mill complex to the Kennebec River. Additionally, this permitting action is authorizing SDW to accept and introduce into the treatment process wastewater from a biofuel manufacturing company located in Fairfield, Maine. BioRenewable Fuels has indicated to SDW that it will generate up to a daily maximum of 5,000 gallons per day of wastewater at the current production rate and possibly as high as 8,500 gpd as biofuel production at the facility increases to projected levels.

The SDW mill produces approximately 2,350 tons/day of fine bleached kraft paper from hardwood and softwood pulp. It is also noted that in their 9/9/08 General Application, SDW indicated that the facility is planning to upgrade the recovery boiler in 2008/2009 which will increase pulp production by approximately 50 tons/day. The Department concurred with SDW that this upgrade would be relatively insignificant. Two additional aerators will be added to the Secondary Treatment system to treat any potential increases in effluent loading.

2. PERMIT SUMMARY (cont'd)

SDW provided the following average production figures for Sappi's fiscal (October – September) years 2006-2008:

Bleached Pulp Production: 1,543 ADT*/day
Market Bleached Kraft Pulp: 349 ADT/day
Unbleached Pulp Production: 1,620 ADT/day
Bleached Kraft Fine Paper Production: 1,821 (Reel) MDT*/day
Non-integrated Fine Paper: 579 (Reel) MDT/day
* ADT/day = air-dry-tons/day MDT/day = machine dry tons/day

Settled storm water runoff waters are discharged via Outfalls #002A, #003A and #004A to the Kennebec River. Outfall #005A discharges to Craigin Brook, a tributary to the Kennebec River. (It is noted that the SDW monitors water quality in Outfall #005A and Craigin Brook as part of its solid waste license.) The previous permit erroneously stated that Outfall #005A discharges to the Kennebec River. Storm waters discharged via Outfalls #002A, #003A, #004A and #005A are conveyed to sedimentation ponds that contain an effluent oil weir prior to discharge. Storm water runoff from a small log lay down area is discharged via Outfall #007A to an unnamed tributary of the Kennebec River. Storm water from the northwest corner of the plant site, which consists primarily of woods and fields, also discharges through Outfall #007A. It is noted storm water from sedimentation pond #4 is conveyed to pond #1 and then to the Kennebec River via Outfall #003A. See storm water discharge table below. Outfall #006A discharges backwash waters from the mill's river water intake debris screen at a rate of approximately 50 gallons per minute when backwashing to remove accumulated debris from river intake waters.

Based on information contain in the SDW's 9/9/08 General Application, storm water discharges associated with this industrial site are as follows:

Outfall No.	Description	Total Impervious Surface / Total Area Drained
#002A	Discharge from Sedimentation Pond #2 north of paper mill	9.5 ac / 35.5 ac
#003A	Discharge from Sedimentation Pond #1 northwest of polishing pond	14.1 ac / 95.2 ac
#004A	Discharge from Sedimentation Pond #3 east of paper mill	29.3 ac / 92.3 ac
#005A	Discharge from Sedimentation Pond #5 near sludge landfill	7.3 ac / 51.9 ac
#007A	Discharge from log laydown area north of mill complex	1.6 ac / 89.8 ac

2. PERMIT SUMMARY (cont'd)

e. Wastewater Treatment: Treatment prior to discharge via Outfall #001A is provided by primary clarification, an extended aeration biological treatment system followed by a polishing pond. Sanitary wastewaters from the mill receive treatment in a package treatment plant followed by disinfection and discharge to the polishing pond. In addition to process wastewater, the treatment system receives, but is not limited to; 1) leachate from the company landfill, 2) leachate and floor drain water from the Waste Management Disposal Services of Maine's Crossroads landfill facility in Norridgewock Maine, 3) cooling water consisting primarily of condensing water from the evaporator's surface condensers, turbine condenser cooling water and small quantities of cooling tower and boiler blowdown from the company's steam electric power generation facilities and 4) waste waters from an onsite precipitated calcium carbonate plant that was constructed and started up in 1998 and, 5) treated residuals storage pad leachate and storm water from various areas at the mill complex and, 6) miscellaneous non-process waste waters.

Pulp mill primary sludge, paper mill primary sludge and secondary sludge are blended together and dewatered using screw presses. The dewatered sludge is burned in the hogged fuel boilers and is also disposed of in the company owned landfill. Occasionally sludge is dewatered and disposed of at a commercial landfill in Norridgewock.

Final effluent is conveyed for discharge to the Kennebec River via a 40-inch diameter outfall pipe that is submerged to a depth of approximately 20 feet at mean low water. Effluent is dispersed through a diffuser installed at the end of the outfall pipe.

SDW's schematic of the wastewater treatment system is included as Attachment B of this fact sheet.

3. CONDITIONS OF PERMITS

Conditions of licenses, 38 M.R.S.A. § 414-A, requires that the effluent limitations prescribed for discharges, including, but not limited to, effluent toxicity, require application of best practicable treatment (BPT), be consistent with the U.S. Clean Water Act, and ensure that the receiving waters attain the State water quality standards as described in Maine's Surface Water Classification System. In addition, *Certain deposits and discharges prohibited*, 38 M.R.S.A., § 420 and 06-096 CMR 530 require the regulation of toxic substances not to exceed levels set forth in *Surface Water Quality Criteria for Toxic Pollutants*, 06-096 CMR 584 (effective October 9, 2005), and that ensure safe levels for the discharge of toxic pollutants such that existing and designated uses of surface waters are maintained and protected.

4. RECEIVING WATER QUALITY STANDARDS

Classification of major river basins, 38 M.R.S.A. § 467(4)(A)(9) classifies the Kennebec River from the Route 201A bridge in Anson-Madison to the Fairfield-Skowhegan boundary, including all impoundments (which is the reach that storm water Outfalls #002A and #004A discharge into) as Class B waters. 38 M.R.S.A. § 467(4)(A)(10) classifies the Kennebec River, from the Fairfield-Skowhegan boundary to its confluence with Messalonskee Stream, including all impoundments (which is the reach that Outfall #001A and storm water Outfall #003A discharge into) as Class C waters. 38 M.R.S.A. § 467(4)(I) classifies Craigin Brook (receiving water for storm water Outfall #005A) and the unnamed tributary to the Kennebec River (receiving water for storm water Outfall #007A) as Class B waters.

38 M.R.S.A. § 465(3) describes the standards for Class B waters. *Standards for classification of fresh surface waters*, 38 M.R.S.A. § 465(3) describes the standards for Class B waters. 38 M.R.S.A. § 465(4) describes the standards for Class C waters.

5. RECEIVING WATER QUALITY CONDITIONS

The State of Maine 2008 Integrated Water Quality Monitoring and Assessment Report, (Report) prepared by the Department pursuant to Sections 303(d) and 305(b) of the Federal Water Pollution Control Act, lists the segment of the Kennebec River that contains the discharge from the SDW as *"Category 4-B: Rivers and Streams Impaired by Pollutants - Pollution Control Requirements Reasonably Expected to Result in Attainment."* Impairment in this context refers to a fish consumption advisory due to the presence of dioxin (including 2,3,7,8-TCDD). The 2008 Report states that new dioxin sources have been removed and the river is expected to attain its ascribed standards. Compliance is measured by (1) no detection of dioxin in any internal waste stream (at 10 pg/l detection limit); and (2) no detection in fish tissue sampled below a mill's outfall greater than upstream reference. This and previous permitting actions require the SDW to monitor the bleach plant effluent for dioxin to demonstrate that the mill processes and discharges do not contribute dioxin to the river.

With regard to dioxin in the Kennebec River, the Department's *Dioxin Monitoring Program 2006 Report* ,which contains the findings from the 2006 Dioxin Monitoring Program provides the following results and discussion. Figures and appendices referenced in the italicized text below refer to those presented in the *Dioxin Monitoring Program 2006 Report*.

> *There is a trend of generally declining concentrations of dioxins and furans in smallmouth bass and white suckers averaged over all stations for each of the Androscoggin, Kennebec and Penobscot rivers since 1997 (Figures 3, 4) no doubt due to reductions in discharges at the mills. Despite the overall declining trend, concentrations sometimes increase from one year to the next, due to variability or unknown cause.*

> *Fairfield- (KFF) A total of 3 brown trout and 5 white suckers were collected from the river between the Shawmut Dam and the I-95 bridge, approximately 7-8 miles below SAPPI Somerset's bleached kraft pulp and paper mill in Skowhegan (Appendix 5).*

5. RECEIVING WATER QUALITY CONDITIONS (cont'd)

TCDD concentrations in brown trout were slightly elevated above those in historical reference stations unimpacted by point sources (Appendix 6). [Dioxin toxic equivalents with non-detects at half the detection level, DTEh] were also slightly elevated at just below the [potential Fish Tissue Action Level, pFTAL] (Figure 1, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in an increase in total toxic equivalents (TTEh) that are still well below (34%) the [Fish Tissue Action Level for reproduction, FTALr].

TCDD in white suckers were also slightly elevated above those in historical reference stations unimpacted by point sources (Appendix 6). DTEh exceeded the pFTAL although below (40%) the [Fish tissue Action Level for cancer, FTALc] (Figure 2, Appendix 2). The addition of dioxin-like (coplanar) PCBs to DTEh results in an increase in total toxic equivalents (TTEh) that further exceed the pFTAL but are below (67%) the FTALr.

There is no declining trend with brown trout, but DTEh from 2005 and 2006 appear lower than those from previous years (Figure 14). Concentrations in 2005 were similar to those of the reference station at Madison and Norridgewock from previous years, but concentrations in 2006 were slightly elevated. There was a significant declining trend for TCDD and DTEh (Figure 15) for suckers for the period 1997-2006.

Fish sampling in 2003 and 2004 documented that the mill was no longer discharging measurable amounts of dioxins. The mill has demonstrated continued compliance with the 'no discharge' provision of the 1997 Dioxin law. In a letter dated March 6, 2006 the mill certified that it has met the performance criteria established by DEP for the bleaching process and defoamer usage (Appendix 7). Sampling bleach plant effluent was conducted in 2006 documented that concentrations of both TCDD and TCDF were below detection at a low sample specific detection level (Appendix 4). Additional periodic monitoring should be continued to confirm low levels in brown trout and rainbow trout, which are fished heavily in this river reach.

The 2008 Report also lists this segment of the Kennebec River as *"Category 5-B: Rivers and Streams Impaired by Bacteria Contamination (TMDL Required)."* The Department has not scheduled a TMDL for bacteria for the Kennebec River at this time. The communities that maintain combined sewer overflow points in this segment of the river have developed and implemented a CSO master plan for the elimination of all CSO points. The Department acknowledges that elimination of all CSO points is a costly and long-term project. As the CSO communities' sewer collection systems and treatment facilities are upgraded and maintained in according to the CSO Master Plan and Nine Minimum Controls, there should

5. RECEIVING WATER QUALITY CONDITIONS (cont'd)

be reductions in the frequency and volume of CSO and primary treatment activities and, over time, improvement in the quality of the wastewater discharged to the receiving waters.

The 2008 Report also lists this segment of the Kennebec River as *"Category 5-D: Rivers and Streams Impaired by Legacy Pollutants."* Impairment in this context refers to the presence of polychlorinated biphenyls (PCBs) in some fish tissues. The presence of PCBs is not typically associated with any identifiable source but is rather a legacy of practices that predate the national ban on the use of PCB in 1979. The Department has no information that the discharge from the SDW as permitted causes or contributes to this non-attainment status.

The 2008 Report also lists Maine's fresh waters as *"Category 4-A: Rivers and Streams with Impaired Use, TMDL Completed."* All freshwaters formerly listed in Category 5-C are moved to Category 4-A (TMDL Completed) due to US EPA approval of a Regional Mercury TMDL. Impairment in this context refers to a statewide fish consumption advisory due to elevated levels of mercury in some fish tissues. The Report states, *"Impairment caused by atmospheric deposition of mercury; a regional scale TMDL has been approved. Maine has a fish consumption advisory for fish taken from all freshwaters due to mercury. Many waters, and many fish from any given water, do not exceed the action level for mercury. However, because it is impossible for someone consuming a fish to know whether the mercury level exceeds the action level, the Maine Department of Human Services decided to establish a statewide advisory for all freshwater fish that recommends limits on consumption. Maine has already instituted statewide programs for removal and reduction of mercury sources."*

Pursuant to 38 M.R.S.A. § 420(1-B)(B), *"a facility is not in violation of the ambient criteria for mercury if the facility is in compliance with an interim discharge limit established by the Department pursuant to section 413 subsection 11."* The Department has established interim monthly average and daily maximum mercury concentration limits and reporting requirements for this facility pursuant to 06-096 CMR 519.

The Department's <u>*Kennebec River Modeling Report, Final April 2000*</u> concludes,

> *The 1997-1998 survey data indicated attainment of DO standards at all locations. Conditions during the surveys included higher than 7Q10 river flow and less than permit loading from all point sources. The actual point source BOD5 loadings ranged from 2 to 31 percent of daily maximum permit levels with an average of 14 percent (refer to data reports). The 7Q10 modeling extends the evaluation to critical conditions of 7Q10 river flow and maximum permit loading. The modeling indicated two areas of marginal attainment: within a 4 mile segment from mile 34 to mile 31 and within a 0.5 mile segment near mile 11.4.*
>
> *The first area is near the end of the class B segment below Skowhegan.* (Note: The 4 mile segment from mile 34 to mile 31 is upstream of the SDW mill.) *No assimilative capacity remains in*

5. RECEIVING WATER QUALITY CONDITIONS (cont'd)

> *regard to loading to this segment. The major discharge to this segment is from Anson-Madison SD. Plant/nutrient impact is a major component here and the data indicate a significant phosphorous loading from the Anson-Madison discharge. The majority of flow to the SD is from Madison Paper and paper mills often must add nutrients in order to achieve good wastewater treatment. If this is the case it may be possible to better control the phosphorous levels in the effluent through tighter process control.*
>
> *The second area is within the former Edwards dam impoundment. This is not believed to be a real problem because the diurnal range used in the model was that measured when the dam was in place. Additional data within this segment would verify this assumption.*
>
> *The model predicts that class C segments of the river will attain class C DO standards of 5 ppm or 60% saturation but is not predicted to attain class B standards of 7 ppm or 75% saturation.*
>
> *[The Department] should work with the paper mills to investigate methods to reduce P loading through process controls. Investigation of nutrient reduction may have to be extended to municipal plants as well.*

Since the publication of the 2000 Report, SDW has significantly reduced its phosphorus loading as part of a pollution prevention project with the Department.

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS

a. Regulatory Basis: The discharge from SDW's Somerset 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 SDW 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.

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

Outfall #001A

b. Production: SDW provided the following average production figures for Sappi's fiscal (October – September) years 2006-2008:

Bleached Pulp Production: 1,543 ADT/day
Market Bleached Kraft Pulp: 349 ADT/day
Unbleached Pulp Production: 1,620 ADT/day
Bleached Kraft Fine Paper Production: 1,821 (Reel) MDT/day
Non-integrated Fine Paper: 579 (Reel) MDT/day

The corresponding mass effluent limits based on BPT standards found in federal regulation 40 CFR Part 430 may be calculated as follows:

2006-2008 Final P (t/d)	Subpart	BOD Avg.		BOD Max		TSS Avg.		TSS Max	
		lbs/ton	lbs/day	lbs/ton	lbs/day	lbs/ton	lbs/day	lbs/ton	lbs/day
1,821	B-Kraft Fine	11.0	20,031	21.2	38,605	23.8	43,340	44.3	80,670
579	K-NI Fine	8.5	4,921	16.4	9,496	11.8	6,832	22.0	12,738
349	B-Mkt Bl Kft	16.1	5,619	30.9	10,784	32.8	11,447	60.8	21,219
	Totals		30,553		58,885		61,619		114,627

c. Flow: The previous permitting action established, and this permitting action is carrying forward, a monthly average discharge flow limitation of 46.5 MGD for Outfall #001A based on the average design criterion for the treatment system, and a daily maximum discharge flow reporting requirement to assist in compliance evaluations.

A summary of the discharge flow data as reported on the Discharge Monitoring Reports (DMRs) submitted to the Department for Outfall #001A for the period January 2005 through July 2008 is as follows:

Discharge Flow	Minimum	Maximum	Arithmetic Mean	# DMRs
Monthly Average	21.8 MGD	31.2 MGD	25.1 MGD	43
Daily Maximum	23.4 MGD	34.7 MGD	27.8 MGD	43

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

Outfall #001A

d. Dilution Factors: Dilution factors associated with the average design flow of 46.5 MGD were derived in accordance with 06-096 CMR 530(4)(A)(1)(a) and were calculated as follows::

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

Mod. Acute: ¼ Q10 = 487 cfs $\Rightarrow \frac{(487 \text{ cfs})(0.6464)}{46.5 \text{ MGD}} = 7.8:1$

Acute: 1Q10 = 1,947 cfs $\Rightarrow \frac{(1{,}947 \text{ cfs})(0.6464)}{46.5 \text{ MGD}} = 27.1:1$

Chronic: 7Q10 = 2,388 cfs $\Rightarrow \frac{(2{,}388 \text{ cfs})(0.6464)}{46.5 \text{ MGD}} = 33.2:1$

Harmonic Mean: = 4,034 cfs $\Rightarrow \frac{(4{,}034 \text{ cfs})(0.6464)}{46.5 \text{ MGD}} = 56.1:1$

06-096 CMR 530(4)(B)(1) states,

> *Analyses using numerical acute criteria for aquatic life must be based on 1/4 of the 1Q10 stream design flow to prevent substantial acute toxicity within any mixing zone and to ensure a zone of passage of at least 3/4 of the cross-sectional area of any stream as required by Chapter 581. Where it can be demonstrated that a discharge achieves rapid and complete mixing with the receiving water by way of an efficient diffuser or other effective method, analyses may use a greater proportion of the stream design flow, up to and including all of it, as long as the required zone of passage is maintained.*

The Department has determined that the discharge via Outfall #001A does achieve complete and rapid mixing with the receiving waters. Thus, the Department is utilizing the full 1Q10 stream flow in acute evaluations pursuant to 06-096 CMR 530.

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

Outfall #001A

e. Biochemical oxygen demand (BOD_5) & Total suspended solids (TSS): The previous permitting action established the following separate "summer season" (June 1 – September 30) and "winter season" (October 1 – May 31) mass effluent limitations for BOD_5 and TSS. The 40 CFR Part 430 technology-based effluent thresholds for each pollutant are provided for comparison purposes.

9/12/03 Permit Limits	Monthly Average	Daily Maximum
BOD_5 Summer	9,400 lbs./day	16,600 lbs./day
BOD_5 Winter	14,850 lbs./day	32,670 lbs./day
Technology-based (BPT) Effluent Thresholds for BOD_5	30,533 lbs./day	58,855 lbs./day
TSS Summer	30,000 lbs./day	50,000 lbs./day
TSS Winter	41,820 lbs./day	77,850 lbs./day
Technology-based (BPT) Effluent Thresholds for TSS	61,619 lbs./day	114,627 lbs./day

The fact sheet associated with the previous permitting action stated that these limitations were carried forward from the May 1, 1995 WDL and that the summer limits were based on consideration of current discharge levels, the existing state of technology, including process and treatment methods at the mill, and the impact of the discharge on receiving water quality. The 5/1/95 WDL stated that the winter BOD limits were established in an August 15, 1990 Administrative Order (AO) issued by the USEPA settling an appeal of a final NPDES permit decision dated September 24, 1987.

Department licensing/permitting actions impose the more stringent of either a water quality-based, BPT-based, or in this case, previous permit limit (to satisfy the anti-backsliding provisions of *Waste Discharge License Conditions*, 06-096 CMR 523 (effective January 12, 2001). Whereas the technology-based effluent thresholds specified above are less stringent than the previous permit limits and the Department's Division of Environmental Assessment has not recommended more stringent water quality-based limits for BOD_5 and TSS, this permitting action is carrying forward the seasonal monthly average and daily maximum mass effluent limitations for BOD_5 and TSS that are more stringent than the technology based standards.

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

Outfall #001A

A summary of the effluent BOD_5 and TSS data as reported on the DMRs submitted to the Department for the period January 2005 through July 2008 is as follows:

BOD_5	Minimum	Maximum	Arithmetic Mean	# DMRs
Monthly Average	1,963 lbs./day	8,906 lbs./day	3,936 lbs./day	43
Daily Maximum	3,529 lbs./day	16,611 lbs./day	6,911 lbs./day	43

TSS	Minimum	Maximum	Arithmetic Mean	# DMRs
Monthly Average	2,502 lbs./day	7,315 lbs./day	4,136 lbs./day	43
Daily Maximum	3,686 lbs./day	17,592 lbs./day	7,491 lbs./day	43

In consideration of the technology-based effluent thresholds, the effluent limits established in this permit and the test results on file (all summarized above), the Department is making a best professional decision to reduce the minimum monitoring frequency requirement for BOD_5 and TSS from once per day to three times per week.

f. Temperature: The previous permitting action established, and this permitting action is carrying forward, a daily maximum effluent temperature reporting requirement for the "winter season" period of October 1 – May 31 and a daily maximum effluent temperature limitation of 105^{o} F during the "summer season" period of June 1 – September 30 to ensure that the discharge complied with the requirements of *Regulations Relating to Temperature*, 06-096 CMR 582 (last amended February 18, 1989). Additional discussion related to temperature is provided in Section 6.i. below.

A summary of the effluent temperature data as reported on the DMRs submitted to the Department for the period January 2005 through July 2008 is as follows:

Temperature	Minimum	Maximum	Arithmetic Mean	# DMRs
Summer Season	88^{o} F	96^{o} F	93^{o} F	14
Winter Season	72^{o} F	91^{o} F	80^{o} F	29

This permitting action is carrying forward the minimum monitoring frequency requirements of once per day during the summer season and once per week during the winter season for effluent temperature based on Department best professional judgment.

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

Outfall #001A

g. Temperature Difference: The previous permitting action established, and this permitting action is carrying forward, weekly rolling average and daily maximum temperature difference limitations of 0.4^{o} F and 0.5^{o} F, respectively.

06-096 CMR 582 states that no discharge of pollutants shall cause the ambient temperature of any freshwater body, as measured outside a mixing zone, to be raised more than 5 degrees Fahrenheit. The rule also limits a discharger 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 USEPA water quality criterion for the protection of brook trout and Atlantic salmon. The weekly average temperature threshold of 66° F was derived to protect for normal growth of the brook trout and the daily maximum temperature threshold of 73° F protects for the survival of juveniles 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 ≥66° F and <73° F. When the receiving water temperature is ≥73°F, compliance with the ΔT of 0.5° F is evaluated on a daily basis. Compliance with the weekly rolling average and daily maximum ΔT limits of 0.5° F is determined by calculating the predicted river temperature increase (PRTI) based on the ambient river flow, ambient river temperature, actual discharge flow and actual discharge temperature from the mill.

See Special Condition L, *Temperature Difference*, of this permit for the equation to calculate the PRTI.

Enforcement generally, 38 M.R.S.A. § 451 states,

> *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 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.*

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

Outfall #001A

38 M.R.S.A. § 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 *Applications for licenses,* 38 M.R.S.A. § 414.

38 M.R.S.A. § 451 states,

> *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.*

On June 26, 1995, emergency legislation, 38 M.R.S.A. § 464(4)(I), was enacted that provided a mechanism by which the Department was to develop in consultation with affected dischargers, facility specific solutions to comply with the State statutes, rules and regulations regarding thermal impact and, no later than January 1, 1996, develop appropriate amendments to the dischargers licenses. The legislation also provided for a three-year schedule of compliance to develop the facility specific solutions during which time interim thermal load limitations would be applicable. The law had a sunset provision and was repealed on January 1, 1999.

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 a letter dated August 29, 1995, to the Department, the SDW identified numerous temperature reduction projects such as paper machine cooling towers, a turbine condenser cooling tower, surface condenser modifications and a polishing pond that had been undertaken since 1975 to reduce heat loading to the river. In addition, several projects were completed to increase the efficiency of internal processes resulting in thermal reductions. These measures were determined by the Department to be satisfactory in the application of best practicable treatment.

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

Outfall #001A

38 M.R.S.A. § 464(4)(I) also stated 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 average. The 7-day maximum quantity of heat discharged must protect existing uses.

On December 29, 1995, the Department issued WDL Modification #W000385-44-D-M to satisfy 38 M.R.S.A. § 464(4)(I), by carrying forward the daily maximum thermal load limitation established in the May 1, 1995 WDL renewal and required the SDW Somerset mill to conduct a thermal study in Kennebec River to determine compliance with 06-096 CMR 582.

Under a study plan entitled Study Plan For Delineation of Mixing Zone and Assessment of Kennebec Characteristics, S.D. Warren – Somerset Mill, Skowhegan, Maine dated May 1996 and approved by the Department on June 11, 1996, the SDW conducted a thermal survey of the Kennebec River. The study area covered approximately 10.5 miles ranging from 5.5 miles upstream of the mill's Outfall #001A to 5 miles downstream to a point 500 feet below the Shawmut Dam. 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.

The report concluded that based on the data collected in the study, complete mixing of the mill effluent with the receiving water occurred approximately 5.5 miles downstream of Outfall #001A at the Shawmut Dam but was inconclusive as to whether the thermal discharge complied with 06-096 CMR 582 at the Shawmut Dam.

On December 18, 2001, the SDW submitted calculations that indicated the highest 7-day heat load rejected to the river during the June 1 – September 30 time frame for calendar year 1999, 2000 and 2001 was 6.8×10^9 BTUs/Day with a mean summer thermal load discharge of approximately 4.4×10^9 BTUs/Day.

This permitting action is carrying forward from the previous permitting action a daily maximum water quality based ΔT limit of 0.5°F pursuant to 06-096 CMR 582 and carrying forward a negotiated weekly rolling average ΔT limit of 0.4°F. Compliance with these limitations is based on the equation found in Special Condition L of this permit. The permittee shall adhere to mathematical protocols for significant figures and rounding the calculated PRTI values. All PRTI values reported to the Department on the monthly Discharge Monitoring Reports (DMRs) for compliance with the weekly rolling

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

Outfall #001A

average and daily maximum ΔT limitations shall be rounded to the nearest 0.1°F. For example, values between

≥0.350°F - ≤0.450°F shall be rounded off to 0.4°F and values between
>0.450°F - <0.550°F shall be rounded off to 0.5°F.

h. pH Range: The previous permitting action established, and this permitting action is carrying forward, a technology-based pH limit of 5.0 – 9.0 standard units, which is based on 40 CFR, Part 430, and a minimum monitoring frequency requirement of once per day based on best professional judgment.

A summary of pH data as reported on the monthly DMRs for the period of January 2005 through July 2008 (# DMRs = 43) indicates the facility has been in compliance with the pH range limitation 100% of the time during said reporting period.

i. Color: The previous permitting action established, and this permitting action is carrying forward, a calendar quarterly average effluent color limitation of 175 lbs./ton. For the SDW Somerset mill, applicable sections of *Color pollution control*, 38 M.R.S.A. § 414-C state that:

> *2. Best practicable treatment; color pollution. For the purposes of section 414-A, subsection 1, paragraph D, "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; and*
>
> *A discharge from a kraft pulp mill that is in compliance with this subsection is exempt from the provisions of subsection 3.*
>
> *3. Instream color pollution standard. An individual waste discharge may not increase the color of any water body by more than 20 color pollution units. The total increase in color pollution units caused by all waste discharges 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. A discharge that is in*

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

Outfall #001A

compliance with this subsection is exempt from the provisions of subsection 2, paragraph A. Such a discharge may not exceed 175 pounds of color pollutants per ton of unbleached pulp produced after January 1, 2001.

The 5/1/95 licensing action established two tiers of limits for color. Beginning July 1, 1998 and lasting through December 31, 2000, a quarterly average water quality based mass limit of 291,000 lbs of color was established and beginning January 1, 2001, the facility was limited to a technology-based limit of 175 pounds per ton of unbleached pulp. In the 9/12/03 permitting action, the Department determined that the SDW facility was in compliance with the best practicable treatment standard of 175 lbs./ton stating, *"Since the first quarter of 1998, the SDW facility has been discharging approximately 122 pounds of color per ton of air dried tons of unbleached pulp produced on a quarterly basis."*

A summary of quarterly average effluent color data for the period of January 2005 through June 2008 (# calendar quarters for which data are available = 13) indicates the color has ranged from 97 lbs./ton to 137 lbs./ton with a arithmetic mean of 117 lbs./ton.

j. Adsorbable organic halides (AOX): The previous permitting action established monthly average and daily maximum effluent AOX mass limitations of 1,900 lbs./day and 2,900 lbs./day, respectively. These AOX limits are based on federal regulation found at 40 CFR Part 430 and an unbleached kraft pulp production value of 1,525 tons/day. The SDW has updated the unbleached kraft pulp production value from 1,525 tons/day to 1,620 tons/day. The regulation establishes production-based BAT monthly average and daily maximum allowances of 0.623 and 0.951 kg/kkg (same as lbs. per 1000 pounds) of unbleached pulp production**.** With an unbleached kraft pulp production value of 1,620 tons/day the limits are calculated as follows:

[1,620 tons/day] [0.623 lbs./1000 lbs] [2000 lbs./ton] = 2,019 lbs./day
[1,620 tons/day] [0.951 lbs./1000 lbs] [2000 lbs./ton] = 3,081 lbs./day

A summary of the effluent AOX data as reported on the DMRs submitted to the Department for the period January 2005 through July 2008 is as follows:

AOX	Minimum	Maximum	Arithmetic Mean	# DMRs
Monthly Average	371 lbs./day	926 lbs./day	736 lbs./day	43
Daily Maximum	722 lbs./day	1,414 lbs./day	988 lbs./day	43

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

Outfall #001A

On June 27, 2008, the Department issued minor permit revision #W000385-5N-I-M, to the SDW to reduce the minimum monitoring frequency requirements for absorbable organic halides from 3/week to 1/week based on available data and the USEPA's guidance on performance-based reduction of permit monitoring requirements. This permitting action is carrying forward the minimum monitoring frequency requirement of once per week for AOX.

k. Chemical Oxygen Demand (COD): The previous permitting action established, and this permitting action is carrying forward, monthly average and daily maximum monitoring and mass reporting requirements for COD. The federal regulation at 40 CFR Part 430 has reserved promulgation of numeric effluent limits for COD at this time but proposes to do so at a later date through rulemaking.

A summary of the effluent COD data as reported on the DMRs submitted to the Department for the period January 2005 through July 2008 is as follows:

COD	Minimum	Maximum	Arithmetic Mean	# DMRs
Monthly Average	28,464 lbs./day	160,892 lbs./day	114,411 lbs./day	43
Daily Maximum	18,719 lbs./day	198,237 lbs./day	147,036 lbs./day	43

In consideration of the lack of numeric technology-based effluent guidelines for COD and the test results on file, the Department is making a best professional decision to reduce the minimum monitoring frequency requirement for COD from once per day to once per week.

l. Total Phosphorous (Total-P): The previous permitting action established, and this permitting action is carrying forward, seasonal (June 1 – September 30 of each year) monthly average and daily maximum concentration and mass reporting requirements for total-P with a minimum monitoring frequency requirement of once per week. The monitoring requirement was based on Department best professional judgment in consideration of a report entitled, *Kennebec River Modeling Report, Final April 2000* (Report), prepared by the Department. The Department concluded in the Report's executive summary that, "*The majority of the phosphorous loading to the river is from point sources. There are indications that nutrient loading may become a major water quality issue in the future"* and "*the paper mills are the major source of phosphorous. [The Department] should work with the paper mills to investigate methods to reduce phosphorous loading through process controls. Investigation of nutrient reduction may have to be extended to municipal plants as well."* The Report states, "*Plant growth is a function of available light and nutrients. Light limitation is a function of bank cover (for narrow streams) and water clarity. The nutrients of concern include nitrogen and*

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

Outfall #001A

phosphorous. In general it has been found that in fresh water systems phosphorous is the growth limiting nutrient while in marine systems nitrogen is the limiting nutrient."

The Report does not contain final recommendations for establishment of total-P effluent limitations for the SDW.

A summary of the seasonal effluent total-P data as reported on the DMRs submitted to the Department for the period June 2005 through September 2007 is as follows:

Total-P	Minimum	Maximum	Arithmetic Mean	# DMRs
Monthly Average	81 lbs./day	451 lbs./day	228 lbs./day	14
	0.38 mg/L	2.18 mg/L	1.08 mg/L	14
Daily Maximum	132 lbs./day	911 lbs./day	432 lbs./day	14
	0.59 mg/L	4.3 mg/L	2.06 mg/L	14

This permitting action is carrying forward the minimum monitoring frequency requirement of once per week for total unfiltered-P based on Department best professional judgment.

m. Whole Effluent Toxicity (WET), Priority Pollutant, and Analytical Chemistry Testing: 38 M.R.S.A. § 414-A and 38 M.R.S.A. § 420 prohibit the discharge of effluents containing substances in amounts that would cause the surface waters of the State to contain toxic substances above levels set forth in Federal Water Quality Criteria as established by the USEPA. 06-096 CMR 530 sets forth effluent monitoring requirements and procedures to establish safe levels for the discharge of toxic pollutants such that existing and designated uses of surface waters are maintained and protected and narrative and numeric water quality criteria are met. 06-096 CMR 584 sets forth ambient water quality criteria (AWQC) for toxic pollutants and procedures necessary to control levels of toxic pollutants in surface waters.

WET, priority pollutant and analytical chemistry testing, as required by 06-096 CMR 530, is included in this permit in order to characterize the 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 water flea (*Ceriodaphnia dubia*) and vertebrate brook trout (*Salvelinus fontinalis*). Chemical-specific monitoring is required to assess the levels of individual toxic pollutants in the discharge, comparing each pollutant to acute, chronic, and human health water quality criteria. Priority pollutant testing refers to the analysis for levels of priority pollutants listed in 06-096 CMR 525(4)(VI). Analytical chemistry refers to a suite of thirteen (13) chemical tests consisting of: ammonia-nitrogen, total aluminum, total cadmium, total chromium, total copper, total hardness (fresh water only), total lead, total nickel, total silver, total zinc, total arsenic, total cyanide and total residual chlorine.

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

Outfall #001A

06-096 CMR 530(2)(A) specifies the dischargers subject to the rule as, *"all licensed dischargers of industrial process wastewater or domestic wastes discharging to surface waters of the State must meet the testing requirements of this section. Dischargers of other types of wastewater are subject to this subsection when and if the Department determines that toxicity of effluents may have reasonable potential to cause or contribute to exceedences of narrative or numerical water quality criteria."* The SDW discharges industrial process wastewater to surface waters via Outfall #001A and is therefore subject to the testing requirements of the toxics rule.

06-096 CMR 530(4)(C) states "*The background concentration of specific chemicals must be included in all calculations using the following procedures. The Department may publish and periodically update a list of default background concentrations for specific pollutants on a regional, watershed or statewide basis. In doing so, the Department shall use data collected from reference sites that are measured at points not significantly affected by point and non-point discharges and best calculated to accurately represent ambient water quality conditions."*

"The Department shall use the same general methods as those in section 4(D) to determine background concentrations. For pollutants not listed by the Department, an assumed concentration of 10% of the applicable water quality criteria must be used in calculations." The Department has insufficient information on the background levels of metals in the water column in the Kennebec River. Therefore, a default background concentration of 10% of the applicable water quality criteria is being used in the calculations of this permitting action.

06-096 CMR 530(4)(E) states "*In allocating assimilative capacity for toxic pollutants, the Department shall hold a portion of the total capacity in an unallocated reserve to allow for new or changed discharges and non-point source contributions. The unallocated reserve must be reviewed and restored as necessary at intervals of not more than five years. The water quality reserve must be not less than 15% of the total assimilative quantity."*

Therefore, the Department is reserving 15% of the applicable water quality criteria used in the calculations of this permitting action.

06-096 CMR 530(4)(F) requires evaluation of toxic pollutant impacts on a watershed basis. This section of the rule states, "*Where there is more than one discharge into the same fresh or estuarine receiving water or watershed, the Department shall consider the cumulative effects of those discharges when determining the need for and establishment of the level of effluent limits. The Department shall calculate the total allowable discharge quantity for specific pollutants, less the water quality reserve and background concentration, necessary to achieve or maintain water quality criteria at all points of discharge, and in the entire watershed."* The Department is currently working to construct a computer program model to conduct this analysis. Until such time the model

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

Outfall #001A

is complete and a multi-discharger statistical evaluation can be conducted, the Department is evaluating the impact of the SDW's discharge assuming it is the only discharger to the river. Should the multi-discharger evaluation indicate there are parameters that exceed or have a reasonable potential to exceed applicable AWQC, this permit may be reopened pursuant to Special Condition O, *Reopening of Permit For Modifications*, to incorporate additional limitations and or revise monitoring requirements.

This permit provides for reconsideration of effluent limits and monitoring schedules after evaluation of toxicity testing results. The monitoring schedule includes consideration of results currently on file, the nature of the wastewater, existing treatment, and receiving water characteristics.

On October 9, 2005, a new Department rule, 06-096 CMR 530, became effective and replaced the previous toxics rule, Chapter 530.5. On April 10, 2006, the Department amended WDL#W000385-5N-G-R by issuing a Surface Waters Toxics Control Program fact sheet for this facility and establishing or revising test frequencies to be consistent with 06-096 CMR 530 requirements and provisions for reduced testing.

06-096 CMR 530(2)(B) categorizes dischargers subject to the toxics rule into one of four levels (Levels I through IV). Level II dischargers are *"Those dischargers having a chronic dilution factor of at least 20 but less than 100 to 1."* The chronic dilution factor associated with the discharge from the SDW is 33.2:1; therefore, this facility is considered a Level II facility for purposes of toxics testing.

06-096 CMR 530(2)(D) specifies default WET, priority pollutant, and analytical chemistry test schedules for Level II dischargers as follows:

Surveillance level testing – Beginning upon issuance of the permit and lasting until 12 months prior to permit expiration.

Level	WET Testing	Priority pollutant testing	Analytical chemistry
II	1 per year	None required	2 per year

Screening level testing – Beginning 12 months prior to expiration of the current permit and in every fifth year since the last screening test, which ever is sooner.

Level	WET Testing	Priority pollutant testing	Analytical chemistry
II	2 per year	1 per year	4 per year

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

Outfall #001A

The permittee is required to analyze the effluent for the nine (9) parameters specified in the WET chemistry section and the thirteen (13) parameters specified in the analytical chemistry section on the "WET and Chemical Specific Data Report Form" (including total hardness) included as Attachment A of this permit each time a WET test is performed.

WET Evaluation

06-096 CMR 530(3)(E) states:

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

On October 15, 2008, the Department conducted a statistical evaluation on the most recent 60 months of WET test results on file with the Department for the SDW in accordance with the statistical approach outlined above. **The 10/15/08 statistical evaluation indicates the discharge from the SDW has not demonstrated a reasonable potential to exceed the critical acute or chronic ambient water quality thresholds for the water flea or the brook trout.** See Attachment C of this fact sheet for a summary of the WET test results. It is noted that neither the 9/12/03 permit nor the 4/10/06 permit amendment established numeric limitations for WET species.

06-096 CMR 530(2)(D)(3)(c) states, in part, *"Dischargers in Level II may reduce surveillance testing to one WET or specific chemical series every other year provided that testing in the preceding 60 months does not indicate any reasonable potential for exceedence as calculated pursuant to section 3(E)."* Based on the provisions of 06-096 CMR 530, the reduced surveillance level WET testing authorized by the 4/10/06 permit amendment, and Department best professional judgment, this permitting action is carrying forward reduced surveillance level WET testing frequency of once every other year for the SDW. This permitting action is carrying forward the default screening level WET testing requirements as specified in the table above and 06-096 CMR 530(2)(D).

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

Outfall #001A

06-096 CMR 530(2)(D)(4) states, *"All dischargers having waived or reduced testing must file statements with the Department on or before December 31 of each year describing the following.*

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

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

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

The 4/10/06 fact sheet discussed above specified that the facility must comply with this annual notification statement to continue waived surveillance level testing. This permitting action is establishing the notification requirement in this permitting action as Special Condition I, *06-096 CMR 530(2)(D)(4) Statement for Reduced/Waived Toxics Testing*, pursuant to 06-096 CMR 530(2)(D)(4). This permit provides for reconsideration of testing requirements, including the imposition of certain testing, in consideration of the nature of the wastewater discharged, existing wastewater treatment, receiving water characteristics, and results of testing.

Priority Pollutant Evaluation

On October 15, 2008, the Department conducted a statistical evaluation on the most recent 60 months of chemical-specific tests results on file with the Department for the SDW in accordance with the statistical approach outlined above. The results of the statistical evaluation were compared to 06-096 CMR 584 and the Ambient Water Quality Criteria (AWQC) specified in Appendix A. **Based on the 10/15/08 statistical evaluation, the Department has identified that the discharge demonstrated a reasonable potential to exceed the chronic AWQC for aluminum and the human health criteria (organisms only) for bis(2-ethylhexyl) phthalate.** The discharge does not exceed or demonstrate a reasonable potential to exceed the critical AWQC for any other parameters tested. It is noted that the 10/15/08 statistical evaluation indicates several test results for total arsenic potentially exceed the human health (water and organisms) ambient water quality criterion threshold for inorganic arsenic. However, all tests results are below the Department's minimum reporting level of 5.0 µg/L for total arsenic. 06-096 CMR 530(3)(F)(1) states, *"When a test result for a specific chemical is reported as not found in concentrations at a detection level specified by the Department pursuant to section 2(C)(6), the compound must be considered to be not present for the purposes of determining exceedences of water quality criteria."* Therefore, the Department is applying this provision of Department rules to make a best professional judgment determination that the discharge does not

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

Outfall #001A

exhibit RP for inorganic arsenic. See Attachment D of this fact sheet for a summary of chemical-specific test dates, aluminum and bis(2-ethylhexyl) phthalate test results for this facility.

06-096 CMR 530(3) states, in part,

> *The Department shall establish appropriate discharge prohibitions, effluent limits and monitoring requirements in waste discharge licenses if a discharge contains pollutants that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an ambient excursion in excess of a numeric or narrative water quality criteria or that may impair existing or designated uses. The licensee must also control whole effluent toxicity (WET) when discharges cause, have a reasonable potential to cause, or contribute to an ambient excursion above the narrative water quality criteria.*

With a monthly average discharge flow limit of 46.5 MGD, water quality-based concentration and mass limits for aluminum (total) and bis(2-ethylhexyl) phthalate may be calculated using the following formulas:

Concentration Limit Formula =

$$[(\text{Dilution Factor})(0.75)(\text{criterion})] + (0.25)(\text{criterion})$$

Mass Limit Formula =

$$\frac{(\text{Conc. Limit, } \mu\text{g/L})(8.34 \text{ lbs./gallon})(\text{flow limit, MGD})}{1000 \ \mu\text{g/mg}}$$

06-096 CMR 530(3)(D)(1) states, *"for specific chemicals, effluent limits must be expressed in total quantity that may be discharged and in effluent concentration. In establishing concentration, the Department may increase allowable values to reflect actual flows that are lower than permitted flows and/or provide opportunities for flow reductions and pollution prevention provided water quality criteria are not exceeded."* The arithmetic mean of 25.1 MGD is less than the design capacity of 46.5 MGD as discussed in Section 6 c. of this fact sheet. The water quality-based concentration thresholds for aluminum (total) and bis(2-ethylhexyl) phthalate are being increased by a factor of 1.5 so as not to penalize the permittee for operating at flows less than the permitted flow and to promote water conservation at the facility.

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

Outfall #001A

Aluminum (Total):

End-of-pipe (EOP), water quality-based monthly average concentration and mass limits for aluminum (total) may be calculated as follows:

Monthly Average Conc. = [(33.2)(0.75)(87 µg/L)] + (0.25)(87 µg/L)
= 2,166.3 + 21.8
= 2,188 µg/L x 1.5 = 3,282 µg/L ≈ **3.3 mg/L**

Monthly Average Mass = $\frac{(2{,}188\ \mu g/L)(8.34\ lbs./gallon)(46.5\ MGD)}{1000\ \mu g/mg}$ = **849 lbs./day**

Bis(2-ethylhexyl) phthalate:

End-of-pipe (EOP), water quality-based monthly average concentration and mass limits for bis(2-ethylhexyl) phthalate may be calculated as follows:

Monthly Average Conc. = [(56.1)(0.75)(1.19 µg/L)] + (0.25)(1.19 µg/L)
= 50.1 + 0.3
= 50 µg/L x 1.5 = **75 mg/L**

Monthly Average Mass = $\frac{(50\ \mu g/L)(8.34\ lbs./gallon)(46.5\ MGD)}{1000\ \mu g/mg}$ = **19 lbs./day**

06-096 CMR 530 does not establish specific monitoring frequencies for parameters that exceed or have a reasonable to exceed AWQC. This permitting action is establishing monitoring frequencies for aluminum and bis(2-ethylhexyl) phthalate based on a best professional judgment given the timing, frequency and severity of the reasonable potential to exceed AWQC. The Department is establishing a monitoring frequency of twice per year for bis(2-ethylhexyl) phthalate and once per calendar quarter for total aluminum. Monitoring for bis(2-ethylhexyl) phthalate shall be conducted with one test in January to June and one test 6 months later pursuant to 06-096 CMR 530(2)(D)(2).

Based on the provisions of 06-096 CMR 530, the reduced surveillance level priority pollutant and analytical chemistry testing authorized by the 4/10/06 permit amendment, and Department best professional judgment, this permitting action is carrying forward reduced surveillance level analytical chemistry testing (once every other year) for the SDW, except for those parameters otherwise limited in this permit [aluminum and bis(2-ethylhexyl) phthalate]. 06-096 CMR 530 does not require surveillance level testing for priority pollutants. This permitting action is carrying forward the default screening level priority pollutant and analytical chemistry testing requirements as specified in the table above and 06-096 CMR 530(2)(D).

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

Outfall #100 (Bleach Plant)

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

n. Flow: The previous permitting action established, and this permitting action is carrying forward, monthly average and daily maximum reporting requirements for flow from the bleach plant.

A summary of the discharge flow data as reported on the Discharge Monitoring Reports (DMRs) submitted to the Department for Outfall #100 for the period January 2005 through July 2008 is as follows:

Discharge Flow	Minimum	Maximum	Arithmetic Mean	# DMRs
Monthly Average	2.54 MGD	7.17 MGD	5.96 MGD	43
Daily Maximum	4.84 MGD	9.5 MGD	7.00 MGD	43

o. 2,3,7,8-TCDD (Dioxin): The previous permitting action established, and this permitting action is carrying forward, a daily maximum concentration limit of <10 ppq (pg/L) for 2,3,7,8-TCDD (Dioxin) with a minimum monitoring frequency requirement of once per month. The numeric limitation is based on 38 M.R.S.A. § 420 and 40 CFR Part 430. 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 USEPA Method 1613B. On July 12, 2005, the Department administratively modified the 9/12/03 permit to reduce the minimum monitoring frequency requirement from once per month to once per year. This reduction was based on the provision in 40 CFR Part 430 that authorizes 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. The SDW has been monitoring the bleach plant effluent for dioxin and furan since 1997 which 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 reduced the monitoring frequency to once per year and established (previous Special Condition P and now Special Condition J) a dioxin and furan certification requirement that requires the permittee to submit an annual certification indicating the bleaching process has not fundamentally 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)

A summary of 2,3,7,8-TCDD (Dioxin) data as reported to the Department for the period of January 2005 through July 2008 (n = 10) indicates this compound has ranged from <0.35 pg/L to <2.5 pg/L with an arithmetic mean of <1.22 pg/L. The facility has been in compliance with the <10 pg/L limitation 100% of the time during said reporting period.

It is noted that the previous permit specified that all detectable analytical test results for dioxin, furan and the 12 chlorophenolic compounds discussed below – including those results below the respective ML for each parameter – must be reported to the Department, but that compliance shall be based on the ML. All reported test results on file with the Department during said monitoring period for dioxin are below the ML and represent the detection level achieved by the laboratory for that particular parameter and analysis.

p. 2,3,7,8 TCDF (Furan): The previous permitting action established, and this permitting action is carrying forward, a daily maximum concentration limit of <10 ppq (pg/L) for 2,3,7,8 TCDF (Furan) with a minimum monitoring frequency requirement of once per month. 40 CFR Part 430 establishes a daily maximum concentration limit of 31.9 pg/L; however, 38 M.R.S.A. § 420 contains the more stringent limitation of <10 pg/L and is therefore being carried forward in this permitting action. 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 USEPA Method 1613B. On July 12, 2005, the Department administratively modified the 9/12/03 permit to reduce the minimum monitoring frequency requirement from once per month to once per year based on test results and provision in 40 CFR Part 430. (See discussion in related dioxin section above.)

A summary of 2,3,7,8 TCDF (Furan) data as reported to the Department for the period of January 2005 through July 2008 (n = 10) indicates this compound has ranged from <0.527 pg/L to <1.76 pg/L with an arithmetic mean of <0.97 pg/L. The facility has been in compliance with the <10 pg/L limitation 100% of the time during said reporting period. All reported test results on file with the Department during said monitoring period for furan are below the ML and represent the detection level achieved by the laboratory for that particular parameter and analysis.

q. Twelve Chlorophenolics: The previous permitting action established, and this permitting action is carrying forward, daily maximum concentration limits for the twelve chlorophenolic compounds specified at 40 CFR Part 430.24. The limitations are either 2.5 ug/L or 5.0 ug/L, depending on the parameter, and are equivalent to the respective ML for each parameter using USEPA Method 1653. The 9/12/03 permit established a minimum monitoring frequency requirement of once per month for each compound based on the federal regulation. On June 27, 2008, the Department issued a minor permit revision to the 9/12/03 permit to reduce the minimum monitoring frequency requirement for the twelve chlorophenolic compounds to twice per year based on the test results on

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

Outfall #100 (Bleach Plant)

file and USEPA guidance for performance-based reduction in monitoring frequencies. (See WDL #W000385-5N-I-M for additional details.)

A review of the Outfall #100 chlorophenolic monitoring results submitted to the Department for the period of January 2005 through July 2008 indicates that the facility has been in compliance with the respective limitations 100% of the time during said reporting period.

r. Chloroform: The previous permitting action established monthly average and daily maximum mass limitations of 12.6 lbs./day and 21.1 lbs./day, respectively, for chloroform based on federal regulation found at 40 CFR Part 430 and an unbleached kraft pulp production value of 1,525 tons/day. The SDW has updated the unbleached kraft pulp production value from 1,525 tons/day to 1,620 tons/day. The regulation establishes production-based BAT monthly average and daily maximum allowances of 4.14 and 6.92 g/kkg of unbleached pulp production. With an unbleached kraft production of 1,620 tons/day the limits are calculated as follows:

[1,620 tons/day] [4.14 g/kkg] [0.907 kkg/ton] [1.0 lbs/ 454g] = 13.4 lbs /day
[1,620 tons/day] [6.92 g/kkg] [0.907 kkg/ton] [1.0 lbs/ 454g] = 22.4 lbs /day

A summary of the Outfall #100 chloroform data as reported on the DMRs submitted to the Department for the period January 2005 through July 2008 is as follows:

Chloroform	Minimum	Maximum	Arithmetic Mean	# DMRs
Monthly Average	0.6 lbs./day	2.2 lbs./day	1.25 lbs./day	42
Daily Maximum	0.7 lbs./day	3.2 lbs./day	1.9 lbs./day	42

On June 27, 2008, the Department issued a minor permit revision to the 9/12/03 permit to reduce the minimum monitoring frequency requirement for chloroform from once per week to once per calendar quarter. This reduction in monitoring frequency, which is being carried forward in this permitting action, was based on Department best professional judgment in consideration of the test results on file and USEPA guidance.

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

Outfalls #002A, #003A, #004A, #005A & #007A (Storm Water)

s. Storm Water Associated with Industrial Activity: The previous permitting action authorized the discharge of storm water via five (5) outfall points (Outfalls #002A, #003A, #004A, #005A and #007A) and established monitoring and reporting requirements for the parameters flow, TSS, BOD_5, and oil & grease; and it established a pH range limitation of 5.0 – 9.0 SU. Monitoring for all parameters was required at a minimum frequency of once per calendar quarter. These analytical monitoring requirements were based on the USEPA's Storm Water Multi-Sector General Permit in effect at the time the 9/12/03 permit was issued.

On October 11, 2005, the Department issued *Multi-Sector General Permit Maine Pollutant Discharge Elimination System Stormwater Discharge Associated with Industrial Activity* (MSGP). To be consistent with the terms and conditions of the Department's 10/11/05 MSGP, this permitting action is carrying forward the requirement to maintain a current Storm Water Pollution Prevention Plan (SWPPP) for the mill site. This permitting action is, however, eliminating the requirement to conduct analytical monitoring for the parameters specified in the 9/12/03 permit as well as the pH range limitation as the 10/11/05 MSGP, and now Special Condition G of this permit, requires quarterly visual monitoring for observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution from each outfall point. These observations must be performed in accordance with Department guidance document #DEPLW0768, *Standard Operating Procedure Guidelines for Visual Monitoring of Stormwater Associated with Industrial Activities*, including associated Attachments A (*Instructions for Completing the Visual Monitoring Form)* and B (*Visual Monitoring Form*) (all included as Attachment D of this permit).

The Department has reviewed the effluent storm water data for the permitted outfalls for the period of January 2005 through July 2008 and has determined that there are statistically significant data on file to characterize the discharges from these outfalls such that additional analytical monitoring is not being carried forward at this time.

It is noted that the previous permit erroneously stated that Outfall #005A discharges to the Kennebec River. In fact, this storm water outfall discharges directly to Craigin Brook, a Class B tributary to the Kennebec River. This permitting action is correctly acknowledging and authorizing the SDW to discharge storm water (in accordance with the terms and conditions of the permit) to Craigin Brook.

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

Outfall #006A (Backwash waters)

t. River Water Intake Backwash: The previous permitting action authorized, as is this permitting action, the discharge of river water intake backwash via Outfall #006A without specific effluent limitations or monitoring requirements. Water for the mill is supplied from the Kennebec River pumphouse. At the pumphouse, water is drawn in from the river through two bar screens which prevent large debris from entering with the water. The water then passes through two vertical traveling screens which remove smaller material that could plug the lift pumps. River water is then pumped to the mill's water treatment plant. The traveling screens are ¼-inch square mesh screens that are self-cleaning. River water from the lift pumps is used to back flush these screens. The backwash is returned to the river through a pipe in the inlet structure. The backwash waters do not come into contact with any mill processes that would potentially contaminate the backwash waters. The permittee indicated (in its 9/9/08 General Application) that the discharge rate associated with this activity is approximately 50 gallons per minute.

7. BEST MANAGEMENT PRACTICES PLAN

Best Management Practices (BMPs) applicable to this facility are specified at 40 CFR 430.03. The primary objective of the Best Management Practices 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).

8. BIOLOGICAL MONITORING PROGRAM

Special Condition L, *Biological Monitoring Program*, of the 9/12/03 permit required the permittee to monitor bald eagles within a 25-mile radius of the SDW's Somerset mill in Fairfield/Skowhegan. Other fish-eating birds, namely ospreys, great blue herons and common loons, may be sampled as surrogates for dead young, sub-adult or adult eagles or non-viable bald eagle eggs. The SDW participated in the biological monitoring program during calendar years 2003-2008. The 9/12/03 permit stipulated that the biological monitoring program condition expired concurrent with the 9/12/08 expiration date of the previous permit.

During the development of this renewal permit, the Department consulted with the Maine Department of Inland Fisheries and Wildlife (MDIFW) as to their recommendation on reinstating a biological monitoring requirement for the SDW. The MDIFW provided the following summary and recommendations.

> *1. Nesting eagles are clearly increasing throughout Maine, despite low productivity relatively to that achieved in most populations.*

8. BIOLOGICAL MONITORING PROGRAM (cont'd)

2. Eagles in central Maine generally exhibit productivity higher than the statewide average.
3. In similar studies of eagle eggs elsewhere in Maine, we are most concerned with elevated PCBs and mercury.
4.Planar PCBs (notably PCB #126 and PCB #77; occasionally PCB #81) are responsible for most of the organochlorine toxicity in recent (since 2000) eagle egg samples from Maine.
5. Dioxins and furans are present in very low levels and contribute very modest proportions to total toxicity.

It is clear that Maine's eagles have been increasing despite low reproductive rates. Low productivity may stem partially from elevated PCB residues. The SD Warren study and other MPDES licenses provide good baseline data on the array of traditional organocholorine and heavy metal contaminants affecting eagles. Future studies will likely use these data in comparisons to see if the influences of these persistent contaminants change. Periodic attention to a top-level predator such as bald eagles presumably is a good test for persistent contaminants moving through food webs … and potentially a barometer for human exposure.

Based mostly on the broader perspectives of findings from analyses of bald eagle eggs collected in Maine since 2000, I concur that additional biological monitoring for bald eagles is NOT warranted in the 2008 renewal of the MPDES license for the SD Warren mill.

MDIFW has posted the following endangered species listing status information on their website[1]:

In January 2009, the Commissioner of the Maine Department of Inland Fisheries and Wildlife (MDIFW) will be recommending removal of the Bald Eagle (Haliaeetus leucocephalus) from Maine's list of Endangered and Threatened Species. State and federal law first recognized the Bald Eagle as an Endangered Species in Maine and 42 other states in 1978. Subsequent recovery of eagle populations led to reclassification as a Threatened Species in 1995. Further improvements prompted the federal government to remove Bald Eagles from its list of Endangered and Threatened species in 2007. However, the Bald Eagle remains listed as a Threatened species under Maine's Endangered Species Act (MESA), because federal delisting does not automatically trigger state delisting in Maine. To remove the Bald Eagle from Maine's list, the Commissioner of MDIFW must recommend its

[1] Information from http://www.maine.gov/ifw/wildlife/species/endangered_species/baldeagle_delisting.htm obtained on November 7, 2008.

8. BIOLOGICAL MONITORING PROGRAM (CONT'D)

> *removal to Maine's Legislature, who has the final authority for listing and delisting, but only upon the recommendation of the Commissioner.*

Therefore, this permitting action is not reinstating the biological monitoring program condition contained in the 9/12/03 permit.

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 water body to meet standards for Class C classification.

10. PUBLIC COMMENTS

Public notice of this application was made in the *Morning Sentinel* newspaper on or about September 2, 2008. The Department receives public comments on an application until the date a final agency action is taken on the 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 *Application Processing Procedures for Waste Discharge Licenses,* 06-096 CMR 522 (effective January 12, 2001).

11. DEPARTMENT CONTACTS

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

William F. Hinkel
Division of Water Quality Management
Bureau of Land & Water Quality
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017 Telephone: (207) 287-7659 Fax: (207) 287-3435
e-mail: bill.hinkel@maine.gov

12. RESPONSE TO COMMENTS

During the period of November 7, 2008, through December 8, 2008, the Department solicited comments on the proposed draft Maine Pollutant Discharge Elimination System Permit to be issued to SDW for the proposed discharges. The Department received comments from SDW in a letter dated December 2, 2008, from the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) via electronic mail dated December 1, 2008, as well as internal review comments from Department staff. The Department consulted with NOAA on their December 1, 2008 comments and requested more specific information on the expressed concerns. In response, NOAA submitted additional comments on the draft permit via e-mail dated December 30, 2008. This section summarizes significant comments and the Department's responses to those comments.

12. RESPONSE TO COMMENTS (cont'd)

Comment #1: SDW stated, *"The only substantive comment that SDW has regarding this draft permit is on the limits calculated for AOX and chloroform. These limits have been calculated using the unbleached pulp production of 1525 tons/day submitted with the previous license application. These limits should be recalculated using the unbleached pulp production of 1620 tons/day submitted with this license application."*

Response #1: The Department concurs that the mathematical calculations for AOX and chloroform limitations should be based on current unbleached pulp production values. The Department has revised the calculations and applicable limitations for these parameters. See Special Condition A of this permit, and Sections 6.j. and 6.r. of this fact sheet, respectively, for the revised limitations.

Comment #2: The Department's Division of Water Quality Management (DWQM), Enforcement Unit requested that the minimum monitoring frequency requirement for total aluminum be increased from the proposed twice per year to once per calendar quarter based on the significant allocation provided to this point source and to garner additional information to characterize the effluent.

Response #2: Given that the total aluminum mass limitation of 849 lbs./day established in this permit represents a significant portion of the total assimilative capacity of the Kennebec River, the DWQM's Licensing Unit believes monitoring at a minimum frequency of once per quarter is reasonable and will provide beneficial information to utilize in toxics evaluations for all dischargers to the Kennebec River. Therefore, the Department has revised the minimum monitoring frequency requirement for total aluminum from twice per year to once per calendar quarter.

Comment #3: In their 12/1/08 comments, NMFS stated, *"Issuance of the permit is likely to have more than a minor detrimental effect on shortnose sturgeon and Atlantic salmon in the Kennebec River. If critical habitat is designated for Atlantic salmon as proposed by NMFS, discharges from the mill could also result in the destruction or adverse modification of habitat for Atlantic salmon."*

Response #3: The Department responded to NMFS by requesting specific information to support the statement that "*Issuance of the permit is likely to have more than a minor detrimental effect on shortnose sturgeon and Atlantic salmon in the Kennebec River.*" On December 30, 2008, NMFS provided additional comments in support of their 12/1/08 comments, and it is further noted that on January 9, 2009, the Department met with representatives from NMFS, Maine Department of Marine Resources, and the U.S. Fish and Wildlife Service to discuss the comments and concerns raised in the 12/30/08 e-mail. Responses to the specific issues raised by NMFS are summarized below.

12. RESPONSE TO COMMENTS (cont'd)

Comment #4: With regard to NMFS' 12/1/08 comments on Atlantic salmon, NMFS stated, "*NMFS will postpone* [until a final rule has been promulgated] *providing comments on DEP permits in the proposed expanded area for the Atlantic salmon or proposed critical habitat.*"

Response #4: On September 3, 2008, the NMFS and U.S. Fish and Wildlife Service (USFWS) (jointly, the Services) proposed a rule to expand the range Atlantic salmon as an endangered or threatened species for consideration under the Endangered Species Act. Federal Register Vol. 73, No. 171. The proposed rule summary states that the Services *"have determined that naturally spawned and conservation hatchery populations of Atlantic salmon within the range of the Gulf of Maine (GOM) distinct population segment (DPS), including those that were already listed in November 2000, constitute a new GOM DPS and hence a 'species' for listing as endangered or threatened consideration under the Endangered Species Act (ESA). This also constitutes a 12–month finding on a petition to list Atlantic salmon in the Kennebec River as endangered. We will propose to designate critical habitat for the GOM DPS in a subsequent Federal Register notice."*

The Department and NMFS have reached agreement that permitting actions cannot be conditioned based on a proposed rule and that concerns related to the proposed expanded area for Atlantic salmon or critical habitat will be addressed after a final rule for the proposed listing of salmon in the Kennebec River has been promulgated. Special Condition O of the permit, *Reopening of Permit for Modification*, provides a mechanism to modify the final permit, if necessary, based on new information regarding the listing of Atlantic salmon in the Kennebec River.

Comment #5: NMFS stated, *"new information… indicates that shortnose sturgeon have expanded their range above the site of the former Edwards Dam and they can now be found as far upstream as Waterville. This means that shortnose sturgeon could occur within approximately 8 miles of the discharge site. We understand that the discharge is in compliance with the Maine water quality standards and that these are intended to be protective of indigenous species which presumably include shortnose sturgeon. However, as there are no studies that have examined the effects of exposure of shortnose sturgeon to many of the chemicals discharged by this facility, and these chemicals are known to have deleterious effects on aquatic life at certain concentrations, we request additional information as to why the levels set in the permit are protective of shortnose sturgeon that would be exposed to discharges from this facility. For example, studies on 2,3,7,8-TCDD (Dioxin) have shown that early life stages are particularly vulnerable to these chemicals, with very low concentrations resulting in direct mortality and sublethal effects that reduce survival. While the chemicals found in an individual fish can not be linked to a particular discharge, the findings demonstrate that discharges of dioxins and other chemicals from paper mills do effect shortnose sturgeon in the Kennebec River."*

Response #5: Based on the Department's *Dioxin Monitoring Program 2006 Report*, *"Fish sampling in 2003 and 2004 documented that the mill was no longer discharging measurable amounts of dioxins. The mill has demonstrated continued compliance with the 'no discharge' provision of the 1997 Dioxin law. In a letter dated March 6, 2006 the mill certified that it has met the performance criteria established by DEP for the bleaching process and defoamer usage (Appendix 7). Sampling bleach plant effluent was conducted in*

12. RESPONSE TO COMMENTS (cont'd)

2006 documented that concentrations of both TCDD and TCDF were below detection at a low sample specific detection level (Appendix 4)." The Department concludes that SAPPI has passed the above/below dioxin test demonstrating that the discharge is not contributing measureable amounts of dioxin to the Kennebec River. Further, Special Condition A of the permit establishes a <10 pg/L limit and monitoring requirements for bleach plant effluent (internal waste stream) and monitoring has demonstrated that for the period of January 2005 through July 2008, dioxin test results from Outfall #100 have ranged from <0.35 pg/L to <2.5 pg/L.

Comment #6: NMFS stated, "*the permit does allow the discharge to exceed water quality standards in a mixing zone. We request the information/analysis you conducted to demonstrate that any effects on water quality would not have more than a minor detrimental effect on shortnose sturgeon. We believe it is logical to assume that discharges that exceed water quality standards in Maine are not protective of indigenous species - therefore the impact of a mixing zone on listed species should be explicitly considered and addressed in the permit."*

Response #6: The permit does not establish a formal mixing zone for the discharge. *Regulations Relating to Water Quality Evaluations*, 06-096 CMR 581(5) (last amended January 29, 1989) states in pertinent part, *"All discharges of pollutants shall, at a minimum, provide for* [sic] *a zone of passage for free-swimming and drifting organisms. Such zone of passage shall not be less than 3/4 of the cross-sectional area at any point in the receiving body of water."* The stream design flows and dilution factors associated with the discharge were calculated in accordance with 06-096 CMR 581 and 06-096 CMR 530 to ensure the required zone of passage criterion is achieved.

Comment #7: NMFS stated, *"…WET test results can be indicative of effects of discharges on growth and reproduction, WET tests can not be used to demonstrate carcinogenic, mutagenic, or bioaccumulative effects. For example, dioxins and furans are persistent and bioaccumulative. Shortnose sturgeon, due to their life history, are susceptible to low-level, long-term exposure to sediment bound contaminants, especially lipophilic compounds such as dioxins. We request the information/analysis you conducted to demonstrate that the WET test results are sufficient to indicate that the discharge will result in no long term effects to shortnose sturgeon due to deposition of dioxins and furans in the sediment and subsequent bioaccumulation by shortnose sturgeon."*

Response #7: As stated in Response #5 above, the Department concludes based on facility and ambient testing that the SDW is not contributing measureable amounts of dioxin to the Kennebec River. Thus, the Department makes the finding that the discharge will not have long-term effects on the shortnose sturgeon resulting from the discharge of dioxin. The majority of WET test results on file with the Department for this facility are 100%. This means that the test organisms passed the acute no observed effect level (A-NOEL) end-point of survival, and the chronic no observed effect level (C-NOEL) end-point of survival, reproduction and growth. The lowest WET test result on file for this facility is 25%. This means that at a dilution ratio of 25% effluent to 75% ambient receiving water, the test organisms achieved their respective end-points. Based on the receiving water flow and

12. RESPONSE TO COMMENTS (cont'd)

permitted discharge flow, the discharge represents a maximum of 3.7% of the total river volume (at 1Q10 flow conditions).

The Kennebec Water Power Company uses water stored annually in Brassua Lake, Moosehead Lake, and Flagstaff Lake to provide more uniform flows on the Kennebec River than would occur naturally. Historically, the storage system has supported an average annual regulated flow of 3,600 cfs at Madison. The calendar year of 2001 was the driest on record in 107 years of record keeping in Maine. By January of 2002, extremely low water levels in the water storage systems on all of the state's major rivers led DEP and FERC to work with dam owners to reduce river flows in order to stretch out the available water in storage until the spring runoff occurred. As a result, the regulated flow at Madison was decreased to 1,300 cfs – the lowest flow ever recorded at Madison. The 7Q10 river flow at the point of SDW's discharge is 2,388 cfs.

At the full permitted flow of 46.5 MGD, the discharge represents approximately 3% of the river volume under low-flow 7Q10 conditions and approximately 3.7% under critical 1Q10 flow conditions. With regard to SDW's lowest WET test result of 25%, NMFS asked the Department to determine how often the variable effluent and river flows would result in a situation where the discharge constituted 25% of the river volume. In order for the discharge (at full permitted flow) to constitute 25% of the receiving water volume, the flow in the Kennebec would have to be 288 cfs. [(288 cfs)(0.6464)] / 46.5 MGD = 4:1 The Department concludes that the likelihood of a true receiving water flow of 288 cfs at the point of discharge (nearly five times lower than the lowest value on record) is infinitesimal and not a practical concern.

Comment #8: NMFS stated, "*There is a discharge limit (in pounds/day) for adsorbable organic halides, but no water quality standard specified. There is also no explanation of the expected concentration of AOX in the receiving waters. Without this information it is difficult to speculate as to the effect of the discharge of these amounts of AOX on shortnose sturgeon. Similarly, while there are discharge limits (also in pounds/day) for aluminum and bis (2-ethylhexyl) phthalate there is no information provided on the expected concentration of these pollutants in the receiving water*."

Response #8: The monthly average and daily maximum mass limitations for AOX are technology-based limits prescribed by federal regulation 40 CFR Part 430. Neither the Department nor the USEPA has developed ambient water quality criteria for AOX. The monthly average concentration and mass limitations for total aluminum and bis(2-ethylhexyl) phthalate are water quality-based limits that were derived in accordance with 06-096 CMR 530. As stated on Page 24 of this fact sheet, 06-096 CMR 530(4)(C) states, *"The Department shall use the same general methods as those in section 4(D) to determine background concentrations. For pollutants not listed by the Department, an assumed concentration of 10% of the applicable water quality criteria must be used in calculations."* The Department has insufficient information on the background levels of total aluminum and bis(2-ethylhexyl) phthalate in the Kennebec River. Therefore, a default background concentration of 10% of the applicable water quality criteria is considered to be representative of the background concentrations for these compounds and is being used to calculate effluent limitations in this permitting action.

12. RESPONSE TO COMMENTS (cont'd)

Comment #9: NMFS stated, "*Early life stages of shortnose sturgeon may be negatively impacted by exposure to increased levels of total suspended solids. While the draft permit contains a monthly average and daily maximum limit in pounds/day for TSS it does not contain a water quality limit (i.e., TSS per mg/L). TSS levels greater than 100 mg/L are potentially harmful to shortnose sturgeon eggs and larvae as they can result in the smothering and burial of these largely immobile life stages. NMFS requests information as to whether TSS levels below the Lockwood Dam, where shortnose sturgeon eggs and larvae may be seasonally present, would be affected by the proposed discharge. We believe a condition to monitor ambient water quality (TSS, DO, chemicals) below the mill's discharge is needed to help us understand the complete effects of discharges on listed species in the Kennebec River.*"

Response #9: The permit establishes a monthly average mass limitation of 41,820 lbs./day during the cold season months. As illustrated on Page 15 of the fact sheet, this is a negotiated limit that is significantly more stringent than the applicable technology-based limit. A corresponding concentration threshold may be back-calculated as follows:

$$\text{Monthly Average: } \frac{(41{,}820 \text{ lbs./day})}{(46.5 \text{ MGD})(8.34 \text{ lbs/gal})} = 108 \text{ mg/L}$$

With a dilution factor of 33.2:1, the Department has calculated that, on average, the discharge may contribute as much as 3.3 mg/L of TSS to the background concentration. The Lockwood Dam in Waterville is approximately 8 miles below the point of discharge and the Department concludes that the discharge, as permitted, will not result in a significant increase in TSS concentrations below the Lockwood Dam.

Comment #10: NMFS stated, "*Increases in water temperature can have significant impacts on shortnose sturgeon including affecting migration, spawning and early life development. Shortnose sturgeon are negatively impacted by temperatures greater than 28°C (Flourney /et al./1992; Campbell and Goodman 2003). The proposed permit allows a daily maximum temperature of 105°F (equivalent to 40.5°C). There is little explanation of the mixing zone for heated effluent. Without a description of the size of the thermal plume or its behavior in the river it is impossible to determine whether shortnose sturgeon will be exposed to temperatures greater than 28°C.*

NMFS requests information as to whether shortnose sturgeon located below the Lockwood Dam could be exposed to temperatures greater than 28°C as a result of the discharge from the SD Warren facility. Also, please indicate whether the North Sidney gage is prorated to account for additional inflow (e.g., Sebasticook River) prior to incorporation into the Predicted River Temperature Increase calculations."

Response #10: 06-096 CMR 582 states, "*No discharge of pollutants shall cause the ambient temperature of any freshwater body, as measured outside a mixing zone, to be raised more than 5 degrees Fahrenheit…. In no event shall any discharge cause the temperature of any freshwater body to exceed 85 degrees Fahrenheit at a point outside a mixing zone established by the Board, nor shall such discharge cause the temperature of any waters to exceed the U.S. Environmental Protection Agency's national ambient water quality criteria*

12. RESPONSE TO COMMENTS (cont'd)

established to protect all species of fish that are indigenous to the receiving waters at any point outside a mixing zone established by the Board." This permitting action does not establish a mixing zone for heat; therefore, the permittee is required to comply with the 06-096 CMR 582 at all times. The permit establishes a daily maximum effluent temperature limit of 105° F during the critical warm season months, but also establishes a daily maximum temperature difference limitation of 0.5° F when the receiving water temperature is ≥ 73° F. Thus, if the receiving water temperature is approaching the sturgeon-sensitive critical value of ~82° F, the delta (Δ) T of 0.5° F is in effect and would prevent the discharge from causing or contributing to an excursion of 06-096 CMR 582 requirements and would, at most, raise the ambient river temperature to 82.5° F. The permit requires daily calculation of the predicted river temperature increase when the ambient temperature rises to a level that is of concern to NMFS for the health of sturgeon.

When the permittee obtains river flow data from the USGS gage in Sidney, the value(s) must be prorated to be accurate of flows at the point of discharge. The second full paragraph under Special Condition L of this permit has been modified to specify this procedural requirement.

Comment #11: NMFS stated that it "*has questions regarding the dilution calculations used for the proposed WET testing and other applicable criteria. DEP has determined that use of the standard ¼ Q10 dilution factor is not needed for this permit as the effluent receives "complete and rapid mixing". P. 19 of 36 of the draft fact sheet, however, indicates that "complete mixing of the mill effluent with the receiving water occurred approximately 5.5 downstream of Outfall #001A". Based upon information provided in the fact sheet, we believe dilution calculations should be based on ¼ Q10 and request DEP revise the draft permit accordingly.*

Response #11: The Department has determined that the configuration of the outfall pipe and diffuser allows a zone of passage of at least ¾ the cross-sectional area of the river as required by 06-096 CMR 581 and that application of the 1Q10 stream design flow is appropriate for this discharge for purposes of calculating effluent limitations for toxic pollutants. The Department has determined based on a 1997 study conducted by SDW that the effluent plume becomes completely mixed between 2,500 feet to 2 miles below the diffuser. Maine law at 38 M.R.S.A. § 451 allows for a "*reasonable opportunity for dilution, diffusion or mixture with the receiving waters or heat transfer to the atmosphere….*" For purposes of thermal mixing, the Department has determined that a reasonable opportunity for dilution for this discharge (otherwise referred to as zone of initial dilution) is the distance from the diffuser to the Shawmut Dam, approximately 5.5 miles below the point of discharge.

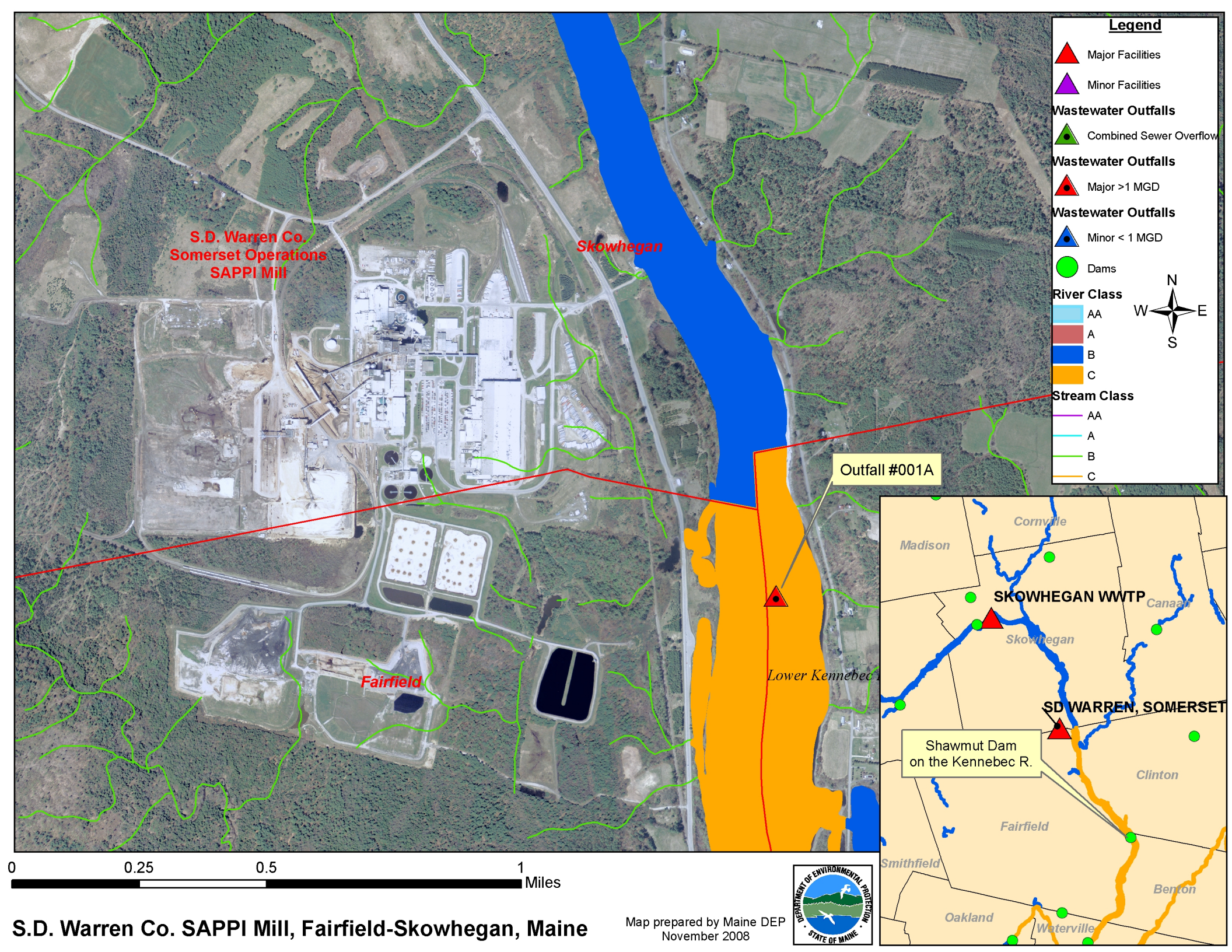
Comment #12: NMFS stated, "*Lastly, we understand that the unplanned/accidental spillage of untreated effluent can and has occurred at the mill. Untreated effluent containing spent pulping liquors* [sic], *soap, turpentine is expected to be very toxic to aquatic organisms including listed shortnose sturgeon. While we understand the MEPDES/WDL does not authorize diverted/spilled effluent to the Kennebec River, this action could be very harmful to shortnose sturgeon. NMFS request additional information as to whether required BMPs in the proposed permit would be sufficient to avoid all future spilled/diverted discharges to the Kennebec River. NMFS requests information on the frequency and past occurrences of*

12. RESPONSE TO COMMENTS (cont'd)

circumstances (spills etc.) that have resulted in the release of untreated discharges into the receiving waters.

Response #12: The BMPs established at Special Condition N of the permit are mandated by the USEPA and address spills at the industrial facility. Additionally, Special Condition G of the permit requires SDW to maintain a storm water pollution prevention plan that also addresses spills at the facility. The Department can not guarantee that the BMPs will prevent all future spills at the facility. However, the discharge of spilled materials is not authorized by this permit and the permittee is required to report all spills to the Department. The Department's compliance inspector will evaluate spill reports on a case-by-case basis and require analytical monitoring or other responsive actions to ensure the impact of spills is minimized. The Department has agreed to provide NMFS with copies of spill reports and actions taken by the Department in response to reported spills.

ATTACHMENT A

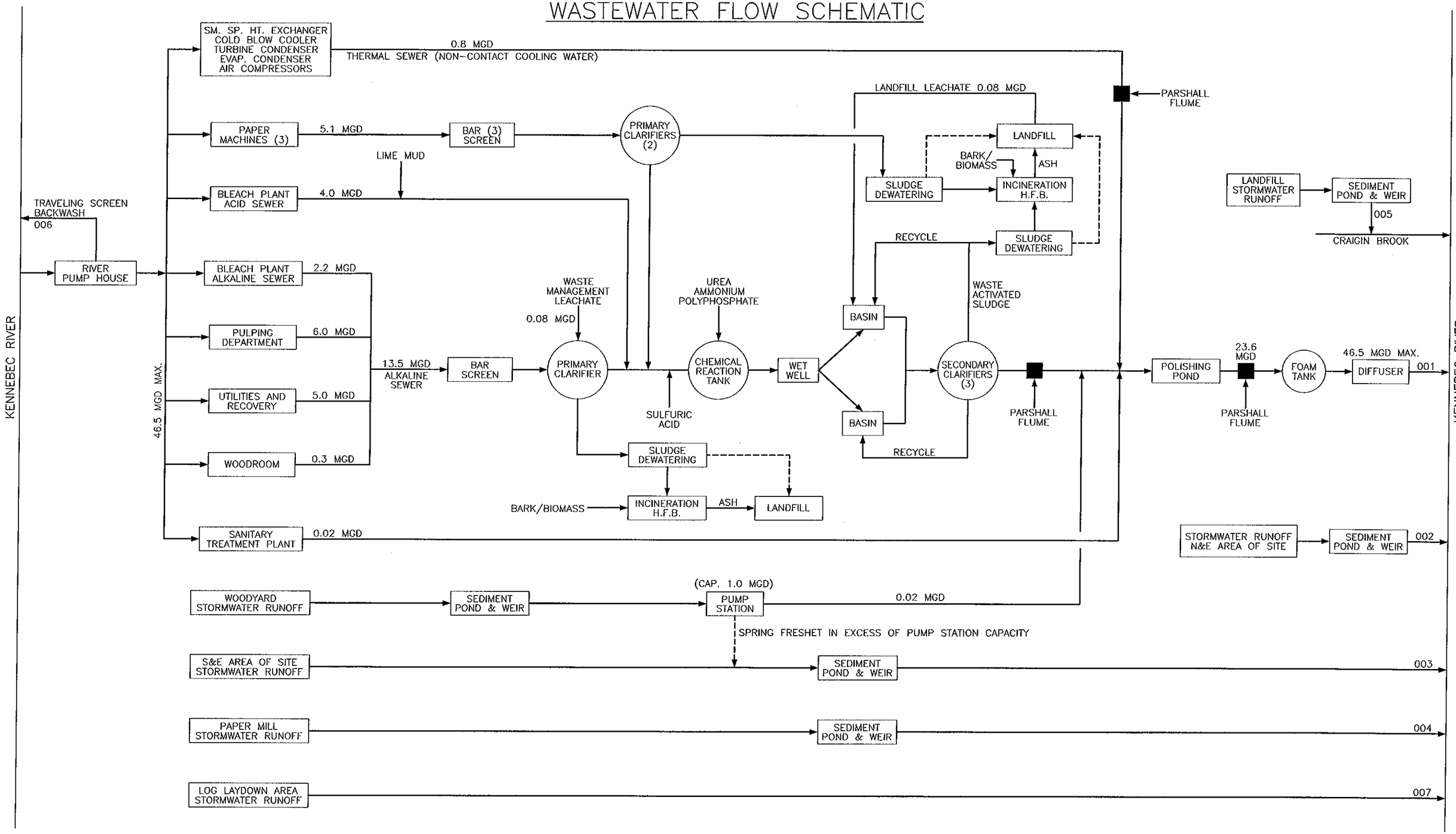


S.D. Warren Co. SAPPI Mill, Fairfield-Skowhegan, Maine

Map prepared by Maine DEP
November 2008

ATTACHMENT B

WASTEWATER FLOW SCHEMATIC



REV	DESCRIPTION	DATE	BY	APP.

CAPITAL PROJECT

ENGINEERING PROJECT

UNLESS OTHERWISE SPECIFIED, FINISHED SURFACES UNIT IS TO BE DIMENSIONAL LIMITS ON FINISHED SURFACES ARE TO BE: FRACTIONAL ± 1/64; DECIMAL ± 0.005; OCTAL ± 0.05; ANGULAR ± 1/4°

BY: JCR | DATE: 11-3-08

CHKD: RN | SCALE: NONE

APP: | AREA: 15500

sappi

SOMERSET PLANT
SKOWHEGAN MAINE

INSTALLATION: WASTE TREATMENT

ASSEMBLY: WASTEWATER FLOW SCHEMATIC

DETAIL: LAYOUT

DWG. 12266D-155-F

ATTACHMENT C

Species	Test	Test Result %	Sample Date
AMNICOLA	A_NOEL	>100	08/25/1978
AMNICOLA	C_NOEL	100.00	08/25/1978
BASS	A_NOEL	>75	08/25/1978
D PULEX	A_NOEL	>100	08/25/1978
PNKSEED	A_NOEL	>100	08/25/1978
PNKSEED	C_NOEL	3.00	08/25/1978
FATHEAD	A_NOEL	25	01/01/1992
FATHEAD	C_NOEL	100	01/01/1992
WATER FLEA	A_NOEL	100	01/01/1992
WATER FLEA	C_NOEL	3	01/01/1992
FATHEAD	A_NOEL	37.7	02/01/1992
FATHEAD	C_NOEL	100	02/01/1992
WATER FLEA	A_NOEL	100	02/01/1992
WATER FLEA	C_NOEL	10	02/01/1992
WATER FLEA	A_NOEL	100	10/01/1992
WATER FLEA	C_NOEL	25	10/01/1992
WATER FLEA	A_NOEL	100	06/01/1993
WATER FLEA	C_NOEL	25	06/01/1993
FATHEAD	A_NOEL	100	08/01/1993
FATHEAD	C_NOEL	100	08/01/1993
WATER FLEA	A_NOEL	100	08/01/1993
WATER FLEA	C_NOEL	50	08/01/1993
TROUT	A_NOEL	100	09/01/1993
TROUT	C_NOEL	100	09/01/1993
WATER FLEA	A_NOEL	100	09/01/1993
WATER FLEA	C_NOEL	25	09/01/1993
FATHEAD	A_NOEL	100	11/01/1993
FATHEAD	C_NOEL	100	11/01/1993
WATER FLEA	A_NOEL	100	11/01/1993
WATER FLEA	C_NOEL	25	11/01/1993
FATHEAD	A_NOEL	100	01/01/1994
FATHEAD	C_NOEL	50	01/01/1994
WATER FLEA	A_NOEL	100	01/01/1994
WATER FLEA	C_NOEL	50	01/01/1994
TROUT	A_NOEL	100	04/01/1994
TROUT	C_NOEL	25	04/01/1994
WATER FLEA	A_NOEL	100	04/01/1994
WATER FLEA	C_NOEL	50	04/01/1994
FATHEAD	A_NOEL	100	07/01/1994
FATHEAD	C_NOEL	100	07/01/1994
WATER FLEA	A_NOEL	100	07/01/1994
WATER FLEA	C_NOEL	25	07/01/1994

Species	Test	Test Result %	Sample Date
TROUT	A_NOEL	100	09/28/1994
TROUT	C_NOEL	50	09/28/1994
WATER FLEA	A_NOEL	100	09/28/1994
WATER FLEA	C_NOEL	50	09/28/1994
FATHEAD	A_NOEL	100	06/20/1995
FATHEAD	C_NOEL	100	06/20/1995
WATER FLEA	A_NOEL	100	06/20/1995
WATER FLEA	C_NOEL	25	06/20/1995
FATHEAD	A_NOEL	100	05/30/1996
FATHEAD	C_NOEL	100	05/30/1996
WATER FLEA	A_NOEL	100	05/30/1996
WATER FLEA	C_NOEL	25	05/30/1996
FATHEAD	A_NOEL	100	10/28/1997
FATHEAD	C_NOEL	100	10/28/1997
WATER FLEA	A_NOEL	100	10/28/1997
WATER FLEA	C_NOEL	25	10/28/1997
FATHEAD	A_NOEL	100	04/28/1998
FATHEAD	C_NOEL	100	04/28/1998
WATER FLEA	A_NOEL	100	04/28/1998
WATER FLEA	C_NOEL	50	04/28/1998
TROUT	A_NOEL	100	05/11/1999
TROUT	C_NOEL	50	05/11/1999
WATER FLEA	A_NOEL	100	05/11/1999
WATER FLEA	C_NOEL	25	05/11/1999
TROUT	A_NOEL	100	09/07/1999
TROUT	C_NOEL	100	09/07/1999
WATER FLEA	A_NOEL	100	09/07/1999
WATER FLEA	C_NOEL	100	09/07/1999
FATHEAD	A_NOEL	100	09/12/2000
FATHEAD	C_NOEL	100	09/12/2000
WATER FLEA	A_NOEL	100	09/12/2000
WATER FLEA	C_NOEL	100	09/12/2000
FATHEAD	A_NOEL	100	06/12/2001
FATHEAD	C_NOEL	100	06/12/2001
WATER FLEA	A_NOEL	100	06/12/2001
WATER FLEA	C_NOEL	100	06/12/2001
FATHEAD	A_NOEL	100	09/03/2002
FATHEAD	C_NOEL	100	09/03/2002
WATER FLEA	A_NOEL	100	09/03/2002
WATER FLEA	C_NOEL	100	09/03/2002
FATHEAD	A_NOEL	100	12/02/2003
FATHEAD	C_NOEL	100	12/02/2003

Species	Test	Test Result %	Sample Date
WATER FLEA	A_NOEL	100	12/02/2003
WATER FLEA	C_NOEL	50	12/02/2003
FATHEAD	A_NOEL	100	08/10/2004
FATHEAD	C_NOEL	100	08/10/2004
WATER FLEA	A_NOEL	100	08/10/2004
WATER FLEA	C_NOEL	100	08/10/2004
FATHEAD	A_NOEL	100	05/17/2005
FATHEAD	C_NOEL	100	05/17/2005
WATER FLEA	A_NOEL	100	05/17/2005
WATER FLEA	C_NOEL	100	05/17/2005
FATHEAD	A_NOEL	100	03/08/2006
FATHEAD	C_NOEL	100	03/08/2006
WATER FLEA	A_NOEL	100	03/08/2006
WATER FLEA	C_NOEL	100	03/08/2006
TROUT	A_NOEL	100	12/04/2007
TROUT	C_NOEL	100	12/04/2007
WATER FLEA	A_NOEL	100	12/04/2007
WATER FLEA	C_NOEL	50	12/04/2007
TROUT	A_NOEL	100	05/27/2008
TROUT	C_NOEL	50	05/27/2008
WATER FLEA	A_NOEL	100	05/27/2008
WATER FLEA	C_NOEL	25	05/27/2008

ATTACHMENT D

Sample Date: 06/12/2001
Plant flows provided

Total Tests: 136
Missing Compounds: 0
Tests With High DL: 25
mon.(MGD)= 30.180
day(MGD)= 29.140

M = 0 V = 25 A = 0
BN = 0 P = 0 other = 0

Sample Date: 09/03/2002
Plant flows not provided

Total Tests: 135
Missing Compounds: 1
Tests With High DL: 0

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

Sample Date: 12/02/2003
Plant flows not provided

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

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

Sample Date: 08/10/2004
Plant flows not provided

Total Tests: 136
Missing Compounds: 1
Tests With High DL: 0

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

Sample Date: 06/22/2005
Plant flows not provided

Total Tests: 123
Missing Compounds: 1
Tests With High DL: 2

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

Sample Date: 03/08/2006
Plant flows not provided

Total Tests: 137
Missing Compounds: 0
Tests With High DL: 18

M = 0 V = 0 A = 0
BN = 2 P = 16 other = 0

Sample Date: 12/04/2007
Plant flows provided

Total Tests: 136
Missing Compounds: 0
Tests With High DL: 0
mon.(MGD)= 24.030
day(MGD)= 22.560

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

Sample Date: 05/27/2008
Plant flows provided

Total Tests: 23
Tests With High DL: 0
mon.(MGD)= 22.870
day(MGD)= 23.250

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

PP Data for "Hits" Only

SD WARREN (K)
KENNEBEC RIVER

ALUMINUM
No MDL

	Conc, ug/l	MDL	Sample Date	Date Entered
	787.000000	NS	03/08/2006	04/25/2006
	910.000000	NS	05/17/2005	08/10/2005
	982.000000	NS	12/02/2003	02/06/2004
	1120.00000	NS	09/03/2002	11/25/2002
	1300.00000	NS	06/12/2001	08/26/2001
	1400.00000	NS	08/10/2004	11/02/2004
	1600.00000	NS	05/27/2008	08/11/2008
	1850.00000	NS	09/04/2007	12/17/2007
	1960.00000	NS	02/11/2008	03/20/2008
	2560.00000	NS	12/04/2007	02/12/2008

ARSENIC
MDL = 5 ug/l

	Conc, ug/l	MDL	Sample Date	Date Entered
	1.000000	OK	06/12/2001	09/06/2001
	1.000000	OK	09/03/2002	12/12/2002
	2.000000	OK	12/02/2003	01/23/2004
	3.000000	OK	03/08/2006	05/04/2006
	3.000000	OK	08/10/2004	11/08/2004
<	5.000000	OK	02/11/2008	03/20/2008
<	5.000000	OK	09/04/2007	12/17/2007
<	5.000000	OK	12/04/2007	02/12/2008
<	5.000000	OK	06/22/2005	08/08/2005
<	5.000000	OK	05/27/2008	08/11/2008

B-BHC
MDL = 0.05 ug/l

	Conc, ug/l	MDL	Sample Date	Date Entered
	0.100000	OK	08/10/2004	11/08/2004
<	0.050000	OK	12/02/2003	01/23/2004
<	0.050000	OK	09/03/2002	12/12/2002
<	0.050000	OK	12/04/2007	02/12/2008
<	0.050000	OK	06/22/2005	08/08/2005
<	0.050000	OK	06/12/2001	09/06/2001
<	0.051000	HI	03/08/2006	05/04/2006

BIS(2-ETHYLHEXYL)PHTHALATE
MDL = 3.0 ug/l

	Conc, ug/l	MDL	Sample Date	Date Entered
	3.000000	OK	05/27/2008	08/11/2008
	7.000000	OK	12/02/2003	01/23/2004
	17.000000	OK	12/04/2007	02/12/2008
	19.000000	OK	06/22/2005	08/08/2005
	20.000000	OK	08/10/2004	11/08/2004
	25.000000	OK	03/08/2006	05/04/2006
<	2.000000	OK	09/03/2002	12/12/2002
<	2.000000	OK	06/12/2001	09/06/2001

ATTACHMENT E

MEMORANDUM

To: Michael Barden - MPPA

From: Steve Woodard, Ph.D., P.E. - Woodard & Curran

Date: March 18, 2003

RE: **Oil Spills to Wastewater Treatment Plants**

The purpose of this memo is to: (1) provide information regarding the ability of biological wastewater treatment plants (WWTPs) to contain and/or treat oil spills; and (2) explore the volume of oil that might reasonably be managed by such a treatment plant without producing a visible sheen in the receiving water.

Mechanisms of Removal

Biological WWTPs have multiple lines of defense for oil spill containment and treatment. These plants are highly effective in treating spills of petroleum products, including hydraulic oil, lubricating oil, No. 2 heating oil and diesel fuel. A typical biological WWTP that currently exists at Maine pulp and paper mills includes primary clarification, aeration and secondary clarification. This is not unlike the processes normally used in the treatment of petroleum refinery wastewater.

Primary clarifiers serve as large oil/water and solids separators. Since oil is typically lighter than water, free oil tends to rise to the surface, where it is contained by a scum baffle. Much of the oil product will typically be contained by this scum baffle and either automatically skimmed off or, in the case of larger spills, removed with a vacuum truck. The emulsified oil fraction won't be removed by simple gravity separation. However, an appreciable quantity of emulsified oil can be removed with the primary solids that settle to the bottom of the clarifier. Oils have a much higher affinity for organic carbon than water, and tend to sorb strongly to solids that contain organic carbon. Pulp and paper mills typically remove appreciable quantities of paper fiber in primary clarifiers. This paper fiber has the potential to remove a substantial amount of oil along with it. The actual removal capacity depends largely on the quantity of paper fiber in the clarifier at the time of the spill.

Any oil that passes through primary clarifier will enter the second line of defense, the aeration basin(s). Two oil removal mechanisms are at work here: (1) biodegradation, and (2) sorption. The shorter chain compounds tend to biodegrade fairly well, while sorption is the primary removal mechanism for the longer chain compounds. Similar to primary clarifiers, aeration basins contain large quantities of organic matter. The organic matter in these biological treatment systems is composed mostly of microbial cell mass. In fact, roughly 50 percent of this cell mass is composed of organic carbon, making sorption an important oil removal mechanism in biological treatment systems.

The third line of defense is secondary clarification. This provides a second chance for any remaining free oil product to float to the water surface, be contained by the scum baffle and

ultimately be skimmed off. Hydrocarbons that have sorbed to the biomass are typically removed with the secondary sludge.

Supporting Literature

Studies have been conducted to show that biological treatment, or biological treatment in conjunction with physical treatment systems, can be effective in the removal of oil from wastewater (Chin, 1994; Wong and Goldsmith, 1988; WE&T, 1998; Seo et al., 1997; Dudly et al., 1992; and Sutton et al., 1992). Based on standard wastewater treatment practices, it has been demonstrated that large quantities of petroleum products can be removed through the treatment processes, mainly by executing oil/water separation techniques such as clarification. If additional treatment is required for an increased load of petroleum products, biological treatment can greatly assist in removing these compounds.

Oil Removal Capacity

Although the specific oil removal capacity varies from plant to plant, some general guidelines can be used to predict the volume of oil that would be contained and/or treated by a biological WWTP. Appreciable quantities will be removed by the primary clarifiers. The specific volume depends on the size of the clarifiers, the height of the scum baffle above the water surface, and the quantity of organic carbon (e.g. paper fiber) present at the time of the spill. For example, a 50-ft diameter clarifier is normally capable of containing at least 3,600 gallons. A 100-ft diameter clarifier is capable of containing at least 14,000 gallons.

Removal in the aeration basins will be directly related to the quantity of biomass in the system. Microbes are typically 50 percent organic carbon, on a dry mass basis. K_{oc} values (organic carbon partition coefficients) for hydraulic and lubricating oils are typically greater than 14,000. For a 15 million gallon per day (MGD) paper mill with a 5 MG aeration basin, the expected oil removal via sorption is 1,250 gallons. If we apply a 5-fold safety factor to account for the fact that all of the organic carbon in the biomass won't be available for sorption, the quantity drops to 250 gallons. This represents a gross, conservative estimation of the removal potential via sorption only, and doesn't take into account the much greater potential for removal in the clarifiers and via biodegradation.

In conclusion, it appears that discharges less than several hundred gallons would be an unnecessarily low reporting limit for oil spills contained by a biological wastewater treatment plant at a typical Maine pulp and paper mill, especially given the multiple lines of defense employed at such a facility.

References

Chin, Kee Kean, "Evaluation of Treatment Efficiency of Processes for Petroleum Refinery Wastewater", Water Science Technology, Vol. 29, No. 8, pp. 47-50, 1994.

Wong, A.D. and C.D. Goldsmith, "The Impact of a Chemostat Discharge Containing Oil Degrading Bacteria on the Biological Kinetics of a Refinery Activated Sludge Process", Water Science Technology, Vol. 20, No. 11/12, pp. 131-136, 1988.

Water Environment & Technology, "Augmented Aerobic Digestion Eliminates Grease and Scum Disposal", Vol. 10, issue 5, May 1998.

Seo, G.T., T.S. Lee, B.H. Moon, K.S. Choi, and H.D. Lee, "Membrane Separation Activated Sludge For Residual Organic Removal in Oil Wastewater", Water Science Technology, Vol. 36, No. 12, pp. 275-282, 1997.

Dudley, S.K., R.B. Bustamante and W.P. Bonner, "Biological Treatability Studies of Selected Compounds of an Oil Shale Processing Wastewater," 46th Purdue Industrial Waste Conference Proceedings, Lewis Publishers, pp. 255-263, 1992.

Sutton, P.M., P.N. Mishra and P.M. Crawford, "Combining Biological and Physical Processes for Complete Treatment of Oily Wastewaters," 47th Purdue Industrial Waste Conference Proceedings, Lewis Publishers, pp. 851-862, 1992.