

November 13, 2008

Mr. Alan Frasier
Brunswick and Topsham Water District
P.O. Box 580
Brunswick, ME 04011

**RE: *Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0000957
Maine Waste Discharge License (WDL) Application #W002631-5S-C-R
FINAL MEPDES Permit/WDL***

Dear Mr. Frasier:

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.

pc: Matt Hight, DEP
Lori Mitchell, DEP
Sandy Lao, USEPA
File #2631

IN THE MATTER OF

BRUNSWICK AND TOPSHAM WATER DISTRICT) MAINE POLLUTANT DISCHARGE
BRUNSWICK, CUMBERLAND COUNTY) ELIMINATION SYSTEM PERMIT
DRINKING WATER TREATMENT PLANT) AND
#ME0000957) WASTE DISCHARGE LICENSE
#W002631-5S-C-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 BRUNSWICK AND TOPSHAM WATER DISTRICT (BTWD), with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

APPLICATION SUMMARY

The BTWD has applied to the Department for a renewal of combination Waste Discharge License (WDL) #W002631-5S-B-R / Maine Pollutant Discharge Elimination System (MEPDES) permit #ME0000957, which was issued on September 26, 2003 and expired on September 26, 2008, and one minor permit revision thereto, which was issued on April 30, 2008. The 9/26/03 permit authorized a monthly average discharge of 0.040 million gallons per day (MGD) and a daily maximum of up to 0.080 MGD of ion exchange regeneration (backwash and rinsate) wastewater from a municipal drinking water treatment plant to Androscoggin River, Class C, in Brunswick, Maine.

PERMIT SUMMARY

This permitting action is similar to the 9/26/03 permitting action and 4/30/08 minor permit revision in that it is:

1. Carrying forward the monthly average discharge flow limitation of 0.040 MGD;
2. Carrying forward the monthly average concentration and mass limits for total suspended solids (TSS);
3. Carrying forward the daily maximum concentration limit for settleable solids; and
4. Carrying forward the minimum monitoring frequency requirement for all monitored parameters.

PERMIT SUMMARY (cont'd)

This permitting action is different from the 9/26/03 permitting action and 4/30/08 minor permit revision in that it is:

1. Eliminating the daily maximum discharge flow limit and establishing a report only requirement;
2. Revising the acute dilution factor associated with the discharge based on changes in how discharge flow is regulated;
3. Revising the daily maximum mass limit for TSS based on changes in how discharge flow is regulated;
4. Eliminating the daily maximum monitoring and reporting requirements for total iron based on test results on file;
5. Eliminating the daily maximum monitoring and reporting requirements for total manganese based on test results on file; and
6. Revising the pH range limit for consistency with other MEPDES permits.

CONCLUSIONS

BASED on the findings in the attached Fact Sheet dated November 12, 2008, and subject to the Conditions listed below, the Department makes the following conclusions:

1. The discharge, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below such classification.
2. The discharge, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification which the Department expects to adopt in accordance with state law.
3. The provisions of the State's antidegradation policy, *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) The standards of classification of the receiving water body are met or, where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;
 - (d) Where the actual quality of any classified receiving water body exceeds the minimum standards of the next highest classification that higher water quality will be maintained and protected; and
 - (e) Where a discharge will result in lowering the existing 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 discharge 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 BRUNSWICK AND TOPSHAM WATER DISTRICT to discharge a monthly average of up to 0.040 MGD of ion exchange regeneration (backwash and rinsate) wastewater from a municipal drinking water treatment plant to Androscoggin River, Class C, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations including:

1. *Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits*, revised July 1, 2002, copy attached.
2. The attached Special Conditions, including any effluent limitations and monitoring requirements.
3. The term of this permit is five (5) years from the date of signature.

DONE AND DATED AT AUGUSTA, MAINE, THIS 13th DAY OF November, 2008
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAVID P. LITTELL, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: September 15, 2008
Date of application acceptance: September 18, 2008

Date filed with Board of Environmental Protection: _____
This Order prepared by William F. Hinkel, BUREAU OF LAND & WATER QUALITY

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. The permittee is authorized to discharge **drinking water ion exchange regeneration wastewater from Outfall #002A** to Androscoggin River. Such discharges shall be limited and monitored by the permittee as specified below⁽¹⁾:

Effluent Characteristic	Discharge Limitations		Minimum Monitoring Requirements			
	Monthly <u>Average</u>	Daily <u>Maximum</u>	Monthly <u>Average</u>	Daily <u>Maximum</u>	Measurement <u>Frequency</u>	Sample <u>Type</u>
	as specified	as specified	as specified	as specified	as specified	as specified
Flow <i>[50050]</i>	0.040 MGD <i>[03]</i>	Report MGD <i>[03]</i>	---	---	Continuous <i>[CN]</i>	Metered <i>[MT]</i>
TSS <i>[00530]</i>	10.0 lbs./day <i>[26]</i>	20.0 lbs./day <i>[26]</i>	30 mg/L <i>[19]</i>	60 mg/L <i>[19]</i>	2/Month <i>[02/30]</i>	Composite ⁽²⁾ <i>[CP]</i>
Settleable Solids <i>[00545]</i>	---	---	---	0.3 ml/L <i>[25]</i>	1/Week <i>[01/07]</i>	Composite ⁽²⁾ <i>[CP]</i>
pH <i>[00400]</i>	---	---	---	6.0 – 9.0 SU <i>[12]</i>	1/Week <i>[01/07]</i>	Grab ⁽³⁾ <i>[GR]</i>

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 (DMRs).

FOOTNOTES: See Page 6 of this permit for the 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. 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 a <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. **Composite samples.** Composite means a combined sample consisting of one grab sample collected during each minute of the initial 15-minute backwash phase of the regeneration cycle.
3. **pH monitoring.** Monitoring for pH shall be conducted through a grab sample collected during the midpoint of the initial 15-minute backwash phase of the regeneration cycle.

B. NARRATIVE EFFLUENT LIMITATIONS

1. The effluent shall not contain a visible oil sheen, foam or floating solids at any time which would impair the usages designated by the classification of the receiving waters.
2. The effluent shall not contain materials in concentrations or combinations which are hazardous or toxic to aquatic life, or which would impair the usages designated by the classification of the receiving waters.
3. The discharges shall not cause visible discoloration or turbidity in the receiving waters which would impair the usages designated by the classification of the receiving waters.
4. Notwithstanding specific conditions of this permit, the effluent must not lower the quality of any classified body of water below such classification, or lower the existing quality of any body of water if the existing quality is higher than the classification.

SPECIAL CONDITIONS

C. AUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with: 1) the permittee's General Application for Waste Discharge License, accepted for processing on September 18, 2008; 2) the terms and conditions of this permit; and 3) only from Outfall #002A. 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.

D. NOTIFICATION REQUIREMENT

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

1. Any substantial change 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.

E. MONITORING AND REPORTING

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

Department of Environmental Protection
Bureau of Land and Water Quality
Division of Water Quality Management
312 Canco Road
Portland, Maine 04103

SPECIAL CONDITIONS

F. OPERATION & MAINTENANCE (O&M) PLAN

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

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

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

G. 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.

H. 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.

**MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND
MAINE WASTE DISCHARGE LICENSE**

FACT SHEET

DATE: **NOVEMBER 12, 2008**

MEPDES PERMIT: **#ME0000957**
WASTE DISCHARGE LICENSE: **#W002631-5S-C-R**

NAME AND ADDRESS OF APPLICANT:

**BRUNSWICK AND TOPSHAM WATER DISTRICT
P.O. BOX 580
BRUNSWICK, MAINE 04011**

COUNTY: **CUMBERLAND**

NAME AND ADDRESS WHERE DISCHARGE OCCURS:

**BRUNSWICK AND TOPSHAM WATER DISTRICT
422 RIVER ROAD
BRUNSWICK, MAINE 04011**

RECEIVING WATER / CLASSIFICATION: **ANDROSCOGGIN RIVER / CLASS C**

COGNIZANT OFFICIAL AND TELEPHONE NUMBER: **MR. ALAN J. FRASIER, P.E.
DISTRICT ENGINEER
(207) 729-9956**

1. APPLICATION SUMMARY

- a. Application: The Brunswick and Topsham Water District (BTWD) has applied to the Department of Environmental Protection (Department) for a renewal of combination Waste Discharge License (WDL) #W002631-5S-B-R / Maine Pollutant Discharge Elimination System (MEPDES) permit #ME0000957, which was issued on September 26, 2003 and expired on September 26, 2008, and one minor permit revision thereto, which was issued on April 30, 2008. The 9/26/03 permit authorized a monthly average discharge of 0.040 million gallons per day (MGD) and a daily maximum of up to 0.080 MGD of ion exchange regeneration (backwash and rinsate) wastewater from a municipal drinking water treatment plant to Androscoggin River, Class C, in Brunswick, Maine.

2. PERMIT SUMMARY

a. Terms and Conditions: **This permitting action is similar to the 9/26/03 permitting action and 4/30/08 minor permit revision in that it is:**

1. Carrying forward the monthly average discharge flow limitation of 0.040 MGD;
2. Carrying forward the monthly average concentration and mass limits for total suspended solids (TSS);
3. Carrying forward the daily maximum concentration limit for settleable solids; and
4. Carrying forward the minimum monitoring frequency requirement for all monitored parameters.

This permitting action is different from the 9/26/03 permitting action and 4/30/08 minor permit revision in that it is:

1. Eliminating the daily maximum discharge flow limit and establishing a report only requirement;
 2. Revising the acute dilution factor associated with the discharge based on changes in how discharge flow is regulated;
 3. Revising the daily maximum mass limit for TSS based on changes in how discharge flow is regulated;
 4. Eliminating the daily maximum monitoring and reporting requirements for total iron based on test results on file;
 5. Eliminating the daily maximum monitoring and reporting requirements for total manganese based on test results on file; and
 6. Revising the pH range limit for consistency with other MEPDES permits.
- b. History: This section provides a summary of significant licensing/permitting actions that have been completed for the BTWD facility.

November 18, 1996 – The U.S. Environmental Protection Agency (USEPA) issued National Pollutant Discharge Elimination System (NPDES) general permit #MEG640007 to BTWD, which expired on January 9, 2000.

January 12, 2001 – The Department received authorization from the USEPA to administer the NPDES Permit Program in Maine. From that point forward, the program has been referred to as the Maine Pollutant Discharge Elimination System (MEPDES) Permit Program and this permit has been assigned #ME0000957.

2. PERMIT SUMMARY (cont'd)

September 26, 2003 – The Department issued combination Waste Discharge License (WDL) #W002631-5S-B-R / Maine Pollutant Discharge Elimination System (MEPDES) permit #ME0000957 to the BTWD for a five-year terms. The 9/26/03 MEPDES permit superseded WDL #W002631-59-A-R issued on February 28, 1991 and WDL #2631 issued on February 22, 1984.

September 15, 2008 – The BTWD submitted a timely and complete General Application to the Department for renewal of the 9/26/03 MEPDES permit. The application was accepted for processing on September 18, 2008, and was assigned WDL # W002631-5S-C-R / MEPDES #ME0000957.

- c. Source Description: The BTWD operates Taylor Station, a municipal drinking water treatment facility on the River Road in Brunswick. A site location map is included as Fact Sheet Attachment A. The design flow of the plant is 1,400 gallons per minute (gpm) with a maximum flow of 1,600 gpm. The Taylor Station facility serves approximately 6,600 customers in the Brunswick and Topsham area. Raw water is obtained from three ground water wells located approximately 150 feet from the western shore of the Androscoggin River in Brunswick. The three drilled wells are approximately 125 feet deep and are capable of pumping at a maximum rate of 500 gpm, 1,000 gpm and 1,500 gpm, respectively. Water is extracted from the wells on an alternating schedule based on level setpoints in the finished water storage tanks and pumped to the Taylor Station for treatment and chemical addition. Raw water is metered and conveyed to the facility via a 14-inch diameter conduit where it is distributed to an ion exchange system consisting of four 8-foot diameter by 6-foot high down-flow units, each rated for 400 gallons per minute. Each unit contains a 42-inch deep layer of Purolite C100 cation exchange resin beads supported by a 12-inch layer of quarter-inch flint support gravel. This particular treatment system, which was originally installed in 1965 and upgraded in 1998, uses the process of ion exchange to remove iron and manganese ions from the raw water. This process does not require chemical pre-treatment prior to treatment. Following the ion exchange process, the water is treated with sodium hypochlorite for disinfection, sodium zinc polyphosphate (Calgon TG-10) for corrosion control and sodium fluoride for consumer dental benefit and then delivered to the finished water distribution system via a 12-inch diameter finished water main. In the distribution system, storage tanks are utilized to meet periods of high customer demand and are refilled during periods of low demand. The BTWD utilizes the following storage tanks: the Bridge Street Tank in Topsham has a 2.5 million gallon capacity; the Church Road Tank in Brunswick has a 3.0 million gallon capacity; and the River Road Tank in Brunswick has a 0.9 million gallon capacity.

The BTWD also operates three other water extraction and/or treatment facilities in Brunswick and Topsham. The Williams Station facility, located on the River Road in Brunswick, extracts and pumps ground water to the Taylor Station facility for chemical treatment only. The Jordan Station facility, located on Jordan Avenue in Brunswick, extracts ground water and uses aeration and chemical addition to treat the water prior to distribution. The Jackson Station facility, located on the River Road in Topsham, treats raw ground water with a greensand filtration system and chemical addition prior to distribution. Filter backwash wastewater from the Jackson Station facility is discharged to an earthen lagoon. System operations and flow measurements for the Taylor Station are recorded by a SCADA system installed at the Jackson Station.

2. PERMIT SUMMARY (cont'd)

The ion exchange system at the Taylor Station facility must be periodically regenerated through backwashing, brine saturation and down-flow rinses to remove any accumulated particulate matter and regenerate the ion exchange capacity.

- d. Wastewater Treatment: Wastewater is produced during regeneration procedure that consists of a backwash sequence, a media regeneration sequence, and two final rinse sequences. Regeneration cycles are automatically initiated once a unit has processed 550,000 gallons of raw water. During a typical average week, BTWD performs 4 to 5 regeneration cycles per week with each cycle requiring 122 minutes to complete, including resting time, and producing 18,325 gallons of wastewater. However, the BTWD reported that plant production, and consequently the frequency of regeneration sequences, can vary greatly. The plant may operate 24 hours a day to meet system demand which varies seasonally and during event-driven periods such as fires, water main breaks and when other District facilities are taken off-line. Operating at the plant's design capacity, each unit would require one regeneration sequence per day for a total of approximately 73,300 gallons of wastewater generated each week.

The regeneration cycle for a unit begins with a 15-minute backwash rinse in which processed, but not chemically treated water is forced up through the ion exchange media at rate of 215 gallons per minute (GPM) to remove accumulated particulate matter. This sequence generates approximately 3,225 gallons of wastewater. Next, a media regeneration sequence begins in which an 11-13% brine solution is fed through the unit at a rate of 100 GPM for 40 minutes to regenerate the ion exchange capacity of the resin bead media generating approximately 4,000 gallons of wastewater. BTWD reported that approximately 750 pounds of sodium chloride are used during each of these regeneration sequences (based on flow data from January 2002 through March 2003). The unit then rests for 2 minutes before a slow rinse sequence begins in which processed water is fed through the ion exchange media at a rate of 100 GPM for 30 minutes to feed the remaining brine completely through the resin bed ensuring thorough contact and regeneration of the unit. The unit rests for 5 minutes before the final sequence, a fast rinse in which processed water is fed down through the unit at a rate of 270 GPM for 30 minutes to rinse out any remaining brine, is completed. The slow and fast rinse sequences together generate a total of 11,100 gallons of wastewater. Facility operators can then allow the unit to come back on-line to resume treatment or place the unit in stand-by mode.

Wastewater generated during each of the four distinct regeneration sequences is collected in a 4-inch diameter waste line and conveyed to a small (~ 8 cubic feet) sump underneath the facility building. The sump is designed to begin draining to an 8-inch diameter line once the water level reaches the midpoint depth; thus, the sump provides no wastewater retention or settling functions and the treatment system retains no sludge. Wastewater is conveyed approximately 1,000 feet for discharge to the Androscoggin River via Outfall #002A (referenced as Outfall #001A in previous licensing/permitting actions). The outfall is considered a bank discharge since it does not extend below the normal high water line of the river and does not achieve complete and rapid mixing of the effluent with the receiving water. The discharge occurs intermittently due to the production of wastewater in batches following a regeneration cycle.

2. PERMIT SUMMARY (cont'd)

A schematic of BTWD's drinking water treatment process is included as Fact Sheet Attachment B.

3. CONDITIONS OF PERMIT

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 *Surface Water Toxics Control Program*, 06-096 CMR 530 (effective October 9, 2005) 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(1)(A)(2) classifies the Androscoggin River at the point of discharge as a Class C waterway. *Standards for classification of fresh surface 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, prepared by the Department pursuant to Sections 303(d) and 305(b) of the Federal Water Pollution Control Act, lists the Androscoggin River 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.

The 2008 Report lists all of 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.*”

5. RECEIVING WATER QUALITY CONDITIONS (cont'd)

The 2008 Report also list the Androscoggin 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 Androscoggin River at this time. However, the Department continues to work with communities that maintain combined sewer overflow (CSO) discharges for the elimination of CSO points associated with the collection systems. The Department acknowledges that elimination of all CSO points is a costly and long-term project. As the sewer collection systems and treatment facilities are upgraded and maintained in according to their respective CSO Master Plans and Nine Minimum Controls, there should 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.

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS

- a. Flow: The previous permitting action established monthly average and daily maximum discharge flow limitations of 0.040 MGD and 0.080 MGD, respectively, for Outfall #002A. *Waste Discharge License Conditions*, 06-096 CMR 523(6)(b)(1) (effective January 12, 2001) states, “*In the case of [publicly owned treatment works], permit effluent limitations, standards, or prohibitions shall be calculated based on design flow.*” The BTWD is a publicly owned treatment works (POTW). In accordance with 06-096 CMR 523 and for consistency with the limitations established for other POTWs, this permitting action is eliminating the numeric daily maximum discharge flow limitation of 0.080 MGD and is establishing a reporting only requirement to assist in compliance evaluations.

A summary of the discharge flow data as reported on the monthly Discharge Monitoring Reports (DMRs) for the period of October 2003 through June 2008 is as follows:

Discharge Flow	Minimum	Maximum	Arithmetic Mean	# DMRs
Monthly Average	0.007 MGD	0.033 MGD	0.024 MGD	56
Daily Maximum	0.018 MGD	0.073 MGD	0.046 MGD	56

- b. Dilution Factors: Dilution factors associated with the permitted discharge flow of 0.040 MGD were derived in accordance with 06-096 CMR 530(4)(A) and were calculated as follows:

$$\text{Mod. Acute: } \frac{1}{4} \text{ 1Q10} = 263.25 \text{ cfs} \Rightarrow \frac{(263.25 \text{ cfs})(0.6464) + 0.040 \text{ MGD}}{0.040 \text{ MGD}} = 4,255:1$$

$$\text{Acute: 1Q10} = 1,053 \text{ cfs} \Rightarrow \frac{(1,053 \text{ cfs})(0.6464) + 0.040 \text{ MGD}}{0.040 \text{ MGD}} = 17,017:1$$

$$\text{Chronic: 7Q10} = 2,010 \text{ cfs} \Rightarrow \frac{(2,010 \text{ cfs})(0.6464) + 0.040 \text{ MGD}}{0.040 \text{ MGD}} = 32,483:1$$

$$\text{Harmonic Mean} = 4,399 \text{ cfs} \Rightarrow \frac{(4,399.0 \text{ cfs})(0.6464) + 0.040 \text{ MGD}}{0.040 \text{ MGD}} = 71,089:1$$

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

It is noted that the modified acute and acute dilution factors calculated above are higher than those calculated in the previous permitting action as a result of correctly utilizing the facility's monthly average design flow (0.040 MGD) rather than the previous daily maximum discharge flow limit of 0.080 MGD.

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.

BTWD's discharge pipe terminates on the bank of Androscoggin River and is therefore not considered to achieve rapid and complete mixing with the receiving water. Consequently, the Department is utilizing the default stream flow of 1/4 of the 1Q10 in acute evaluations.

- c. **TSS:** The previous permitting action established, and this permitting action is carrying forward, monthly average and daily maximum concentration limits of 30 mg/L and 60 mg/L, respectively, based on Department best professional judgment of best practicable treatment for discharges from drinking water treatment facilities in Maine. The previous permitting action established monthly average and daily maximum mass limits of 10.0 lbs./day and 40.0 lbs./day, respectively, for TSS, based on the concentration limits specified above and the respective monthly average and daily maximum discharge flow limits of 0.040 MGD and 0.080 MGD. This methodology is inconsistent with the derivation of limits for other POTWs in that the design flow for the facility should be utilized to calculate both the monthly average and daily maximum mass limits. Therefore, this permitting action is carrying forward the monthly average mass limit for TSS and is revising the daily maximum mass limit based on the following calculations. With a monthly average flow limit of 0.040 MGD, concentration limits specified above, and a conversion factor of 8.34 lbs/gallon of water monthly average and daily maximum mass limits for TSS were derived as follows:

Monthly Average Mass: $(30 \text{ mg/L})(8.34 \text{ lbs./gallon})(0.040 \text{ MGD}) = 10.0 \text{ lbs./day}$

Daily Maximum Mass: $(60 \text{ mg/L})(8.34 \text{ lbs./gallon})(0.040 \text{ MGD}) = 20.0 \text{ lbs./day}$

A summary of TSS data as reported on the monthly DMRs for the period of October 2003 through June 2008 is as follows:

TSS	Minimum	Maximum	Arithmetic Mean	# DMRs
Monthly Average	3.21 lbs./day	28.4 lbs./day	10 lbs./day	55
	21 mg/L	93 mg/L	58 mg/L	55
Daily Maximum	5.04 lbs./day	34.6 lbs./day	14 lbs./day	55
	33 mg/L	116 mg/L	66 mg/L	55

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

This permitting action is carrying forward a minimum monitoring frequency requirement of twice per month for TSS based on Department best professional judgment.

- d. Settleable Solids: The previous permitting action established, and this permitting action is carrying forward, a daily maximum concentration limit of 0.3 ml/L for settleable solids, which is considered a best practicable treatment limitation (BPT) for discharges from drinking water treatment facilities in Maine.

A summary of settleable solids data as reported on the monthly DMRs for the period of October 2003 through June 2008 (# DMRs = 56) indicates the daily maximum settleable solids concentration discharge has been less than 0.1 ml/L 100% of the time.

This permitting action is carrying forward the minimum monitoring frequency requirement once per week for settleable solids based on Department best professional judgment.

- e. Total Iron: The previous permitting action established a quarterly monitoring and reporting requirement for total iron as BTWD uses an ion exchange system to reduce the iron concentration in the raw water and then regenerates the units to remove accumulated iron.

A summary of quarterly total iron data as reported on the DMRs for the period of October 2003 through June 2008 (# tests = 17) indicates effluent levels of total iron have ranged from 6.1 mg/L to 222 mg/L with an arithmetic mean of 108 mg/L.

The USEPA has established a chronic freshwater aquatic life based water quality criterion of 1.0 mg/L and a human health water and organism (HHWO) consumption-based criterion of 0.3 mg/L for iron, however there is no published acute aquatic life based water quality criterion for iron. Neither the Department nor the USEPA has established BPT standards for the discharge of iron from drinking water treatment facilities in Maine. Based on the dilution factors determined above, the chronic water quality based and HHWO based thresholds may be calculated as follows:

Chronic Criterion	HHWO Criterion	Chronic & Harmonic Mean Dilution Factors	Calculated	
			Chronic Limit	HHWO Limit
1.0 mg/L	0.3 mg/L	32,483:1 (C) 71,089:1 (Harmonic)	32,483 mg/L	21,327 mg/L

Based on the calculated chronic and human health-based water quality thresholds determined above and the effluent test results summarized above, the Department is making a best professional judgment determination that the amount of total iron present in the effluent will not adversely affect receiving water quality or human health. Therefore, this permitting action is eliminating total iron monitoring for this facility.

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

- f. Total Manganese: The previous permitting action established a quarterly monitoring and reporting requirement for total manganese as BTWD uses an ion exchange system to reduce the manganese concentration in the raw water and then regenerates the units to remove accumulated manganese.

A summary of quarterly total manganese data as reported on the DMRs for the period of October 2003 through June 2008 (# tests = 17) indicates effluent levels of total manganese have ranged from 0.2 mg/L to 24.5 mg/L with an arithmetic mean of 12 mg/L.

The USEPA has established a human health water and organism (HHWO) consumption-based criterion for manganese of 0.05 mg/L. There are no established aquatic life based water quality criteria for manganese and neither the Department nor the USEPA has established BPT standards for the discharge of manganese from drinking water treatment facilities in Maine. Based on the dilution factors determined above, the human health-based thresholds may be calculated as follows:

HHWO Criterion	Harmonic Mean Dilution Factor	Calculated HHWO Limit
0.05 mg/L	71,089:1	3,554 mg/L

Based on the calculated human health-based water quality thresholds determined above and the effluent test results summarized above, the Department is making a best professional judgment determination that the amount of total manganese present in the effluent will not adversely affect receiving water quality or human health. Therefore, this permitting action is eliminating total manganese monitoring for this facility.

- g. pH: The previous permitting action established a pH range limit of 6.0 – 8.5 standard units (SU). In this permitting action, the pH range limit is being revised to 6.0 – 9.0 SU, which is considered by the Department as BPT and is consistent with limits established for other POTWs in Maine.

A summary of pH data as reported on the monthly DMRs for the period of October 2003 through June 2008 (# DMRs = 56) indicates the facility has on four occasions reported pH results less than 6.0 SU during said reporting period (97% compliance).

This permitting action is carrying forward a minimum monitoring frequency requirement of once per week for pH based on Department best professional judgment. This permitting action is carrying forward from the April 30, 2008 minor permit revision the following sampling location and protocol for pH: “Monitoring for pH shall be conducted through a grab sample collected during the midpoint of the initial 15-minute backwash phase of the regeneration cycle.”

7. 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 Androscoggin River to meet standards for Class C classification.

8. PUBLIC COMMENTS

Public notice of this application was made in the *Times Record* newspaper on or about September 15, 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).

9. DEPARTMENT CONTACTS

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

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Bureau of Land & Water Quality
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10. RESPONSE TO COMMENTS

During the period of October 8, 2008, through November 7, 2008, the Department solicited comments on the proposed draft Maine Pollutant Discharge Elimination System Permit to be issued to the Brunswick and Topsham Water District for the proposed discharge. The Department did not receive comments on the draft permit; therefore, a Response to Comments was not prepared.