STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JANET T. MILLS
GOVERNOR

MELANIE LOYZIM
COMMISSIONER

March 8, 2024

Mr. Michael Tibbetts
Superintendent
Berwick Sewer District
P.O. Box 15
Berwick, ME. 03901

RE: Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0101397
Maine Waste Discharge License (WDL) Application #W000566-5M-E-R
Proposed Draft MEPDES Permit

Dear Mr. Tibbetts:

Attached is a proposed draft MEPDES permit and Maine WDL which the Department proposes to issue as a final document after opportunity for your review and comment. By transmittal of this letter, you are provided with an opportunity to comment on the proposed draft permit and its special and standard conditions. If it contains errors or does not accurately reflect present or proposed conditions, please respond to this Department so that changes can be considered.

By copy of this letter, the Department is requesting comments on the proposed draft permit from various state and federal agencies and from any other parties who have notified the Department of their interest in this matter.

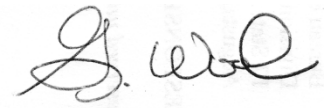
The comment period begins today, Friday, March 8, 2024, and ends on Monday, April 8, 2024. All comments on the proposed draft permit must be received in the Department of Environmental Protection office on or before the close of business **Monday, April 8, 2024.** Failure to submit comments in a timely fashion may result in the proposed draft/license permit document being issued as drafted.

Comments in writing should be submitted to my attention at the following address:

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

If you have any questions regarding the matter, please feel free to call me at 287-7693 or e-mail me at gregg.wood@maine.gov

Sincerely,



Gregg Wood
Division of Water Quality Management
Bureau of Water Quality

Enc.

cc: Fred Gallant, DEP/CMRO
Lori Mitchell, DEP/CMRO
Laura Crossley, DEP/CMRO
Holly Ireland, DEP/CMRO
Lynne Jennings, USEPA
Ellen Weitzler, USEPA
Michael Cobb, USEPA
Maine IFW
Maine DMR
Stergios Spanos, NH DES
Hayley Franz, NH DES
Thomas Irwin, CLF
Melissa Paly, GB-Piscataqua Waterkeeper

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

DEPARTMENT ORDER

IN THE MATTER OF

BERWICK SEWER DISTRICT	)	MAINE POLLUTANT DISCHARGE
BERWICK, YORK COUNTY, MAINE	)	ELIMINATION SYSTEM PERMIT
PUBLICLY OWNED TREATMENT WORKS	)	AND
ME0101397	)	WASTE DISCHARGE LICENSE
W000566-6D-E-R **APPROVAL**	)	**RENEWAL**

Pursuant to the provisions of the *Federal Water Pollution Control Act*, Title 33 USC, Section 1251, et. seq. and *Conditions of Licenses* Maine law 38 M.R.S., Section 414-A et seq., and applicable regulations, the Department of Environmental Protection (Department) has considered the application of the BERWICK SEWER DISTRICT (BSD/permittee), with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

APPLICATION SUMMARY

The BSD has submitted a timely and complete application to the Department for the renewal of combination Maine Pollutant Discharge Elimination System (MEPDES) permit/Waste Discharge License (WDL) #W000566-5M-C-R which was issued by the Department on January 22, 2003 for a five-year term. The WDL authorized the discharge of up to a monthly average flow of 1.1 million gallons per day (MGD) of secondary treated sanitary waste waters and tannery process waste waters from a publicly owned treatment works to the Salmon Falls River, Class C, in Berwick, Maine. In January of 2009, the Prime Tanning Company permanently shutdown the tannery. It is noted the Salmon Falls River is an interstate waterway and is classified as a Class B waterway in the State of New Hampshire. See **Attachment A** of this Fact Sheet for an aerial photograph depicting the location of the treatment facility and outfall.

PERMIT SUMMARY

A summary of the limitations and monitoring requirements in this permitting action include:

1. Carrying forward the monthly average flow limit of 1.1 MGD based on the dry weather design capacity of the wastewater treatment facility.

PERMIT SUMMARY (cont'd)

2. Carrying forward the summertime water quality-based mass and concentration limits for BOD_5 and TSS limits which were based on recommendations in the approved 2004 TMDL for the Salmon Falls River. This permit is establishing more stringent wintertime technology-based mass and concentration limits based on 06-096 CMR Chapter 525(3)(III), for secondary treatment domestic waste water given the tannery is permanently shut down. The wintertime mass limits and concentration in the previous permit were based on a weighted mass of domestic waste water plus tannery waste water.

3. Carrying forward the technology based monthly average and or daily maximum limitations for settleable solids, pH and total residual chlorine.

4. Establishing more stringent technology based monthly average and daily maximum *E. coli.* bacteria limitations pursuant to revisions to Maine law, 38 M.R.S. § 465(3)(B), amended February 16, 2018, with a reduction in the monthly average limitation to 100 colonies/100 ml and the daily maximum limit to 236 colonies/100 ml which are being established in this permit. These limitations are more stringent than the State of New Hampshire's Class B standards. The limitations remain in effect on a year-round basis at the request of the State of New Hampshire.

5. Carrying forward a seasonal (June 1 – September 30) daily minimum dissolved oxygen requirement in the effluent which is based on recommendation in the TMDL in an effort to improve dissolved oxygen levels in the receiving water.

6. Carrying forward summertime only water-quality monthly average mass and concentration limits for total phosphorus based on recommendations in the TMDL.

7. Carrying forward the water-quality based monthly average and daily maximum mass and concentration limits for total chromium based on anti-backsliding provisions in federal regulations.

8. Carrying forward seasonal monthly average and weekly average water quality-based mass and concentration limits for ammonia based on recommendations in the TMDL.

9. Establishing monthly average and daily maximum water quality-based mass limitations for total zinc as the most recent statistical evaluation of the previous five years of total zinc data indicates the discharge has a reasonable potential to exceed the acute and chronic ambient water quality criteria (AWQC) for total zinc.

PERMIT SUMMARY (cont'd)

10. Carrying forward the monthly average water quality based whole effluent toxicity (WET) limitation for brook trout based on anti-backsliding provisions in federal regulations.

11. Establishing a seasonal (April – October) rolling average water quality based total nitrogen mass limitation consistent with the U.S. Environmental Protection Agency (EPA) General Permit for nitrogen loading to Great Bay in New Hampshire.

12. Carrying forward Special Condition B (K in this permit), *Ambient Water Quality Monitoring*, as the facility has been participating in said monitoring for twenty years with results still indicating there are sporadic periods of time during the summer months that indicate the receiving water has excursions of dissolved oxygen standards.

13. Eliminating the requirement to maintain a formal pretreatment program given the tannery has been shut down since 2009.

14. Reducing the monitoring frequencies for BOD, TSS, settleable solids, *E. coli* bacteria and total residual chlorine based on USEPA and Department guidance on monitoring frequency reductions.

CONCLUSIONS

BASED on the findings in the attached **PROPOSED DRAFT** Fact Sheet dated March 8, 2024, subject to the Conditions listed below, the Department makes the following conclusions:

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

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

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

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

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

    c. Where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;

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

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

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

ACTION

THEREFORE, the Department APPROVES the above noted application of the BERWICK SEWER DISTRICT to discharge secondary treated waste waters to the Salmon Falls River, Class C (Maine) Class B (New Hampshire), 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. This permit becomes effective upon the date of signature below and expires at midnight five (5) years after that date. If a renewal application is timely submitted and accepted as complete for processing prior to the expiration of this permit, the terms and conditions of this permit and all subsequent modifications and minor revisions thereto remain in effect until a final Department decision on the renewal application becomes effective. [*Maine Administrative Procedure Act*, 5 M.R.S.A. § 10002 and *Rules Concerning the Processing of Applications and Other Administrative Matters*, 06-096 CMR 2(21)(A) (last amended June 9, 2018)].

DONE AND DATED AT AUGUSTA, MAINE, THIS _____DAY OF _____2024.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:_____
Melanie Loyzim, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application December 20, 2007.

Date of application acceptance January 3, 2008.

Date filed with Board of Environmental Protection _____

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

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge **secondary treated** sanitary waste waters to the Salmon Falls River via Outfall #001A. Such treated waste water discharges are limited to and must be monitored by the permittee as specified below.

Effluent Characteristic	Discharge Limitations						Monitoring Requirements	
	Monthly Average lb/day	Weekly Average lb/day	Daily Maximum lb/day	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Flow *[50050]*	---	---	---	1.10 MGD *[03]*	---	Report MGD *[03]*	Continuous *[CN]*	Recorder *[RC]*
Biochemical Oxygen Demand *[00310]*								
June 1 – September 30	87 #/day *[26]*	131 #/day *[26]*	146 #/day *[26]*	10 mg/L *[19]*	15 mg/L *[19]*	17 mg/L *[19]*	2/Week *[02/07]*	Composite *[24]*
October 1 – May 31	275 #/day *[26]*	413 #/day *[26]*	459 #/day *[26]*	30 mg/L *[19]*	45 mg/L *[19]*	50 mg/L *[19]*	2/Week *[02/07]*	Composite *[24]*
Total Suspended Solids *[00530]*								
June 1 – September 30	126 #/day *[26]*	190 #/day *[26]*	212 #/day *[26]*	14 mg/L *[19]*	21 mg/L *[19]*	23 mg/L *[19]*	2/Week *[02/07]*	Composite *[24]*
October 1 – May 31	275 #/day *[26]*	413 #/day *[26]*	459 #/day *[26]*	30 mg/L *[19]*	45 mg/L *[19]*	50 mg/L *[19]*	2/Week *[02/07]*	Composite *[24]*
Settleable Solids *[00545]*	---	---	---	---	---	0.3 ml/L *[25]*	3/Week *[03/07]*	Grab *[GR]*
E. Coli Bacteria *[31633]* *Year-round*	---	---	---	100/100 ml(1) *[13]*	---	236/100 ml *[13]*	2/Week *[02/07]*	Grab *[GR]*
Total Residual Chlorine(2) *Year round [50060]*	---	---	---	0.1 mg/L *[19]*	---	0.3 mg/L *[19]*	4/Week *[04/07]*	Grab *[GR]*
pH (Std. Unit) *[00400]*	---	---	---	---	---	6.0 – 9.0 *[12]*	1/Day *[01/07]*	Grab *[GR]*

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge **secondary treated** sanitary waste waters to the Salmon Falls River via Outfall #001A. Such treated waste water discharges are limited to and must be monitored by the permittee as specified below.

Effluent Characteristic	Discharge Limitations						Monitoring Requirements	
	Monthly Average lb/day	**Weekly Average** lb/day	**Daily Maximum** lb/day	**Monthly Average** as specified	**Weekly Average** as specified	**Daily Maximum** as specified	**Measurement Frequency** as specified	**Sample Type** as specified
Dissolved Oxygen *[00300]* *June 1 – September 30*	---	---	---	---	---	≥6.5 mg/L(3) *[19]*	Continuous *[99/99]*	Recorder *[RC]*
Total Phosphorus(4) *[00665]* *May 1 – September 30*	4.4 #/day *[26]*	---	---	0.75 mg/L *[19]*	---	Report mg/L *[19]*	3/Week *[03/07]*	Grab *[GR]*
Total Chromium *[01034]*	9.1 #/day *[26]*	---	13 #/day *[26]*	1.5 mg/L *[19]*	---	2.0 mg/L *[19]*	1/Year *[01/YR]*	Composite *[24]*
Ammonia (Total) *[00610]* *June 1 – September 30* *October 1 – May 31*	--- 147 #/Day *[26]*	65 #/Day ---	--- Report #/Day *[26]*	--- 16 mg/L *[19]*	7.0 mg/L *[19]* ---	--- Report mg/L *[19]*	3/Week *[03/07]* 3/Week *[03/07]*	Grab *[GR]* Grab *[GR]*
Total Zinc *[01034]*	2.9 #/day *[26]*	---	2.5 #/day *[26]*	Report ug/L *[28]*	---	Report ug/L *[28]*	1/Year *[01/YR]*	Composite *[24]*
Mercury (Total) (5) *[71900]*				5.2 ng/L *[3M]*	---	7.7 ng/L *[3M]*	1/Year *[01/YR]*	Grab *[GR]*

SPECIAL CONDITIONS

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

OUTFALL #001A – Effluent

Effluent Characteristic	Discharge Limitations			Minimum Monitoring Requirements		
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Total Kjeldahl Nitrogen (as N) (*Year round*) *[00625]*	Report lbs/day *[26]*	Report lbs/day *[26]*	Report mg/L *[19]*	Report mg/L *[19]*	1/Week *[01/07]*	Composite *[24]*
Nitrate + Nitrite Nitrogen (as N) (*Year round*) *[00630]*	Report lbs/day *[26]*	Report lbs/day *[26]*	Report mg/L *[19]*	Report mg/L *[19]*	1/Week *[01/07]*	Composite *[24]*
Total Nitrogen (as N) **(6)** *[00600]* (*Year round*)	Report lbs/day *[26]*	Report lbs/day *[26]*	---	---	1/Week *[01/07]*	Calculate *[CA]*
Total Nitrogen (as N) ***Seasonal rolling average*** *[00600]* ***(April – October) Begin calendar year 2024***	31 lbs/day **(7)** *[26]*	---	---	---	1/Month *[01/30]*	Calculate *[CA]*

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

SURVEILLANCE LEVEL TESTING – Beginning upon permit issuance and lasting through 24 months prior to permit expiration (Years 1, 2 & 3 of the term of the permit) and commencing again 12 months prior to permit expiration (Year 5 of the term of the permit), the permittee must conduct surveillance level testing as follows:

Effluent Characteristic	Discharge Limitations						Monitoring Requirements	
	Monthly Average	Weekly Average	Daily Maximum	Monthly Average	Weekly Average	Daily Maximum	Measurement Frequency	Sample Type
Whole Effluent Toxicity (WET) (8)								
A-NOEL								
Ceriodaphnia dubia [TDA3B]	---	---	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
Salvelinus fontinalis [TDA6F]	---	---	---	---	---	Report % [23]	1/Year [01/YR]	Composite [24]
C-NOEL								
Ceriodaphnia dubia [TBP3B]	---	---	---	---	---	Report% [23]	1/Year [01/YR]	Composite [24]
Salvelinus fontinalis [TBQ6F]	---	---	---	---	---	5.6% [23]	1/Year [01/YR]	Composite [24]
Chemical Specific(9,11) *[50008]*	---□	---	---	---	---	Report ug/L *[28]*	1/Year *[01/YR]*	Composite/ Grab *[24/GR]*

SCREENING LEVEL TESTING – Beginning 24 months prior to permit expiration and lasting through 12 months prior to permit expiration (Year 4 of the term of the permit) and every five years thereafter if a timely request for renewal has been made and the permit continues in force, or is replaced by a permit renewal containing this requirement, the permittee must conduct screening level testing as follows:

Whole Effluent Toxicity (WET) (8)								
A-NOEL								
Ceriodaphnia dubia [TDA3B]	---	---	---	---	---	Report % [23]	4/Year [01/90]	Composite [24]
Salvelinus fontinalis [TDA6F]	---	---	---	---	---	Report % [23]	4/Year [01/90]	Composite [24]
C-NOEL								
Ceriodaphnia dubia [TBP3B]	---	---	---	---	---	Report % [23]	4/Year [01/90]	Composite [24]
Salvelinus fontinalis [TBQ6F]	---	---	---	---	---	5.6 % [23]	4/Year [01/90]	Composite [24]
Chemical Specific(9,11) *[50008]*	---□	---	---	---	---	Report ug/L *[28]*	4/Year *[01/90]*	Composite/ Grab *[24/GR]*
Priority Pollutant (10,11) *[50008]*	---	---	---			Report ug/L *[28]*	1/Year *[01/YR]*	Composite/Grab *[24]*

SPECIAL CONDITIONS

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

Footnotes:

Sampling Locations:

Influent sampling for BOD_5 and TSS shall be sampled at the headworks of the facility prior to the Parshall flume.

Effluent sampling for all parameters shall be sampled for after the last treatment component of the process including dechlorination. Any change in sampling location must be approved by the Department in writing.

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 must be analyzed by a laboratory certified by the State of Maine's Department of Health and Human Services for waste water. Samples that are analyzed by laboratories operated by waste discharge facilities licensed pursuant to *Waste discharge licenses***,** 38 M.R.S. § 413 are subject to the provisions and restrictions of *Maine Comprehensive and Limited Environmental Laboratory Certification Rules***,** 10-144 CMR 263 (last amended April 1, 2010). If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136 or as specified in this permit, all results of this monitoring must be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report.

In accordance with 40 CFR § 122.44(i)(1)(iv), the permittee must monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O, for the analysis of pollutants or pollutant parameters (except WET). A method is "sufficiently sensitive" when: 1) The method minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or 2) The method has the lowest ML of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O for the measured pollutant or pollutant parameter. The term "minimum level" refers either to the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in the following ways: they may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor.

SPECIAL CONDITIONS

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

Footnotes:

(1) ***E. coli* bacteria** - This is a geometric mean limitation and all values reported on the DMR shall reported as a geometric mean.

(2) **TRC Monitoring** – Monitoring for TRC is only required when elemental chlorine or chlorine-based compounds are in use for effluent disinfection. The permittee must utilize approved test methods that are capable of bracketing the TRC limitation in this permit.

(3) **Dissolved Oxygen** - The limitation of 6.5 mg/L (ppm) is a minimum limitation not a daily maximum limitation.

(4) **Total Phosphorus –** Total phosphorus monitoring must be performed in accordance with **Attachment A** of this permit entitled, *Protocol For Total P Sample Collection and Analysis for Waste Water – June 1, 2014*, unless otherwise specified by the Department.

(5) **Mercury –** The permittee must conduct all mercury sampling required by this permit or required to determine compliance with interim limitations established pursuant to 06-096 CMR 519 in accordance with the USEPA's "clean sampling techniques" found in USEPA Method 1669, *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels*. All mercury analysis must be conducted in accordance with USEPA Method 1631, *Determination of Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Fluorescence Spectrometry.* For a mercury test results reporting form, select "Whole effluent Toxicity, Chemistry and Mercury Reporting forms" at https://www.maine.gov/dep/water/wd/municipal_industrial/index.html . Compliance with the monthly average limitation established in Special Condition A of this permit will be based on the cumulative arithmetic mean of all mercury tests results that were conducted utilizing sampling Method 1669 and analysis Method 1631E on file with the Department for this facility.

6. **Total nitrogen (as N) – Monthly** – The permittee is required to report the monthly average and daily maximum mass and concentrations for each month by adding the total kjeldahl nitrogen values to the nitrate + nitrite nitrogen values.

SPECIAL CONDITIONS

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

Footnotes:

7. **Total Nitrogen** - The limit is a seasonal mass limit (in units of average pounds per day) and must be reported as a rolling average. The value will be calculated as the arithmetic mean of the monthly average load (in lb/day) for the reporting month and the monthly average loads (in lb/day) of the previous six months from April 1st through October 31st of each year (i.e., rolling 7-month average). For example, the rolling average load for April 2025 will be the average of the monthly average loads for April 2025 and May through October of 2024.

   Total Nitrogen concentration shall be calculated from the sum of total kjeldahl nitrogen (TKN) and nitrate + nitrite analyses of concurrently collected samples. The method used for each parameter must have a minimum level (ML) less than or equal to 0.25 mg/L. If any results are below the ML, a value of zero for that parameter shall be used for calculating total nitrogen. The results of these analyses shall be used to calculate both the concentration and mass loadings of total nitrogen. The total nitrogen monthly average mass loading reported each month shall be calculated as follows: Total Nitrogen (lb/day) = average monthly total nitrogen concentration (mg/L) * average monthly flow (MGD) * 8.345. Each composite sample will consist of at least twenty-four (24) grab samples taken during one consecutive 24-hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportional to flow. See **Attachment B** of this permit for the Department's protocol entitled, *Protocol For Nitrogen Sample Collection and Analysis For Waste Water Effluent*.

8. **Whole Effluent Toxicity (WET)** – Definitive WET testing is a multi-concentration testing event (a minimum of five dilutions bracketing the critical acute and chronic thresholds of 5.6%) 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 and reproduction for the water flea, survival and growth for the trout, and fertilization for the sea urchin 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 17.9:1, for the discharge to the Salmon Falls River. See https://www.maine.gov/dep/water/wd/municipal_industrial/index.html for a copy of the Department's WET reporting form.

   a. **Surveillance level testing –** Beginning upon permit issuance and lasting through 24 months prior to permit expiration (Years 1, 2 & 3 of the term of the permit) and commencing again 12 months prior to permit expiration (Year 5 of the term of the permit), the permittee must conduct surveillance level testing at a minimum frequency of once per year (reduced testing) for the water flea (*Ceriodaphnia dubia*) and the brook trout (*Salvelinus fontinalis*). Tests must be conducted in a different calendar quarter each testing event.

SPECIAL CONDITIONS

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

Footnotes:

b. **Screening level testing –** Beginning 24 months prior to permit expiration and lasting through 12 months prior to permit expiration (Year 4 of the term of the permit) and every five years thereafter if a timely request for renewal has been made and the permit continues in force, or is replaced by a permit renewal containing this requirement, the permittee must conduct screening level testing at a minimum frequency of once per quarter for both species. Acute and chronic tests must be conducted on the water flea (*Ceriodaphnia dubia*) and the brook trout (*Salvelinus fontinalis*).

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 must evaluate test results being submitted and identify to the Department possible exceedances of the critical acute and chronic water quality thresholds of 5.6% respectively. See https://www.maine.gov/dep/water/wd/municipal_industrial/index.html for WET reporting forms.

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 as modified by Department protocol for salmonids. See **Attachment C** of this permit for the Department protocol.

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 must be reported each time a WET test is performed. Reporting forms can be found at: https://www.maine.gov/dep/water/wd/municipal_industrial/index.html, under *Whole Effluent Toxicity, Chemistry, and Mercury Reporting Forms.* Each time a WET test is performed, the permittee must sample and analyze for the parameters in the WET Chemistry and the Analytical Chemistry section of the reporting forms.

SPECIAL CONDITIONS

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

Footnotes:

9. **Analytical chemistry** – See reporting forms found at: https://www.maine.gov/dep/water/wd/municipal_industrial/index.html, for a list of the analytical chemistry parameters.

    a. **Surveillance level testing** – Beginning upon permit issuance and lasting through 24 months prior to permit expiration (Years 1, 2 & 3 of the term of the permit) and commencing again 12 months prior to permit expiration (Year 5 of the term of the permit), the permittee must conduct surveillance level analytical chemistry testing at a minimum frequency of once per year (reduced testing). Tests must be conducted in a different calendar quarter each testing event.

    b. **Screening level testing** – Beginning 24 months prior to permit expiration and lasting through 12 months prior to permit expiration (Year 4 of the term of the permit) and every five years thereafter if a timely request for renewal has been made and the permit continues in force, or is replaced by a permit renewal containing this requirement, the permittee must conduct screening level analytical chemistry testing at a minimum frequency of once per calendar quarter for four consecutive calendar quarters.

10. **Priority pollutant testing**

    a. **Surveillance level testing** – Priority pollutant testing is not required for this facility pursuant to Department rule 06-096 CMR Chapter 530, § 2(D)(1).

    b. **Screening level testing** - Beginning 24 months prior to permit expiration and lasting through 12 months prior to permit expiration (Year 4 of the term of the permit) and every five years thereafter if a timely request for renewal has been made and the permit continues in force, or is replaced by a permit renewal containing this requirement, the permittee must conduct screening level priority pollutant testing at a minimum frequency of once per year.

11. **Analytical chemistry and priority pollutant tests** - Testing must 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 must 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.

SPECIAL CONDITIONS

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

Footnotes:

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 must evaluate test results being submitted and identify to the Department, possible exceedances of the acute, chronic or human health AWQC as established in *Surface Water Quality Criteria for Toxic Pollutants*, 06-096 CMR 584 (amended February 16, 2020). For the purposes of DMR reporting, enter a "1" for yes, testing done this monitoring period or "N9" monitoring not required this period.

B. NARRATIVE EFFLUENT LIMITATIONS

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

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

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

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

C. TREATMENT PLANT OPERATOR

The person in responsible charge of the treatment facility must be operated by a person holding a minimum of a Maine **Grade IV** certificate (or Registered Maine Professional Engineer) pursuant to *Sewerage Treatment Operators*, 32 M.R.S. §§ 4171-4182 and *Regulations for Wastewater Operator Certification*, 06-096 CMR 531 (effective July 24, 2023). 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 in accordance with: 1) the permittee's General Application for Waste Discharge Permit, accepted for processing on January 3, 2008; 2) the terms and conditions of this permit; and 3) only from Outfall #001A. Discharges of waste water from any other point source are not authorized under this permit, and must be reported in accordance with Standard Condition D(1)(f), *Twenty-four hour reporting*, of this permit.

SPECIAL CONDITIONS

E. LIMITATIONS FOR INDUSTRIAL USERS

Pollutants introduced into the waste water collection and treatment system by a non-domestic source (user) must not pass through or interfere with the operation of the treatment system. The permittee must conduct an Industrial Waste Survey (IWS) at any time a new industrial user proposes to discharge within its jurisdiction, an existing user proposes to make a significant change in its discharge, or, at an alternative minimum, once every permit cycle and report the results to the Department. The IWS must identify, in terms of character and volume of pollutants, any Significant Industrial Users discharging into the POTW subject to Pretreatment Standards under section 307(b) of the federal Clean Water Act, 40 CFR Part 403 (general pretreatment regulations) or *Pretreatment Program*, 06-096 CMR 528 (last amended March 17, 2008).

F. NOTIFICATION REQUIREMENT

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

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

2. Any substantial change in the volume or character of pollutants being introduced into the waste water collection and treatment system.

3. 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.

G. WET WEATHER FLOW MANAGEMENT PLAN

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

SPECIAL CONDITIONS

G. WET WEATHER FLOW MANAGEMENT PLAN (cont'd)

Within 90 days of completion of new and or substantial upgrades of the waste water treatment facility, the permittee must submit to the Department for review and comment, a new or revised Wet Weather Management Plan which conforms to Department guidelines for such plans. The revised plan must include operating procedures for a range of intensities, address solids handling procedures (including septic waste and other high strength wastes if applicable) and provide written operating and maintenance procedures during the events. **The permittee must review their plan annually** and record any necessary changes to keep the plan up to date.

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 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.

I. DISPOSAL OF TRANSPORTED WASTES IN WASTEWATER TREATMENT FACILITY

During the effective period of this permit, the permittee is authorized to receive and introduce into the treatment process or solids handling stream **a maximum of 70,000 gallons per day** of transported waste, subject to the following terms and conditions:

1. **"**Transported wastes" means any liquid non-hazardous waste delivered to a wastewater treatment facility by a truck or other similar conveyance that has different chemical constituents or a greater strength than the influent described on the facility's application for a waste discharge license. Such wastes may include, but are not limited to septage, industrial wastes or other wastes to which chemicals in quantities potentially harmful to the treatment facility or receiving water have been added.

SPECIAL CONDITIONS

I. DISPOSAL OF TRANSPORTED WASTES IN WASTEWATER TREATMENT FACILITY (cont'd)

2. The character and handling of all transported wastes received must be consistent with the information and management plans provided in application materials submitted to the Department.

3. At no time shall the addition of transported wastes cause or contribute to effluent quality violations. Transported wastes may not cause an upset of or pass through the treatment process or have any adverse impact on the sludge disposal practices of the wastewater treatment facility.

   Wastes that contain heavy metals, toxic chemicals, extreme pH, flammable or corrosive materials in concentrations harmful to the treatment operation must be refused. Odors and traffic from the handling of transported wastes may not result in adverse impacts to the surrounding community. If any adverse effects exist, the receipt or introduction of transported wastes into the treatment process or solids handling stream shall be suspended until there is no further risk of adverse effects.

4. The permittee must maintain records for each load of transported wastes in a daily log which must include at a minimum the following.

   (a) The date
   (b) The volume of transported wastes received;
   (c) The source of the transported wastes;
   (d) The person transporting the transported wastes;
   (e) The results of inspections or testing conducted;
   (f) The volumes of transported wastes added to each treatment stream; and
   (g) The information in (a) through (d) for any transported wastes refused for acceptance.

   These records must be maintained at the treatment facility for a minimum of five years.

5. The addition of transported wastes into the treatment process or solids handling stream must not cause the treatment facility's design capacity to be exceeded. If, for any reason, the treatment process or solids handling facilities become overloaded, introduction of transported wastes into the treatment process or solids handling stream must be reduced or terminated in order to eliminate the overload condition.

6. Holding tank wastewater from domestic sources to which no chemicals in quantities potentially harmful to the treatment process have been added shall not be recorded as transported wastes but should be reported in the treatment facility's influent flow.

SPECIAL CONDITIONS

I. DISPOSAL OF TRANSPORTED WASTES IN WASTEWATER TREATMENT FACILITY (cont'd)

7. During wet weather events, transported wastes may be added to the treatment process or solids handling facilities only in accordance with a current Wet Weather Flow Management Plan approved by the Department that provides for full treatment of transported wastes without adverse impacts.

8. In consultation with the Department, chemical analysis is required prior to receiving transported wastes from new sources that are not of the same nature as wastes previously received. The analysis must be specific to the type of source and designed to identify concentrations of pollutants that may pass through, upset or otherwise interfere with the facility's operation.

9. Access to transported waste receiving facilities may be permitted only during the times specified in the application materials and under the control and supervision of the person responsible for the wastewater treatment facility or his/her designated representative.

10. The authorization is subject to annual review and, with notice to the permittee and other interested parties of record, may be suspended or reduced by the Department as necessary to ensure full compliance with Chapter 555 of the Department's rules and the terms and conditions of this permit.

SPECIAL CONDITIONS

J. AMBIENT RIVER MONITORING

Beginning upon written notification by the Department, the permittee must participate in an annual summer period (July 1 – September 30) Salmon Falls River Monitoring Program as recommended by the approved phased TMDL. The program will consist of periodic collection and analysis of river samples which will assist the New Hampshire Department of Environmental Services (NHDES) and MEDEP in evaluating whether water quality standards are being achieved. The permittee must adhere to the most current approved study plan, entitled *Salmon Falls River Work Plan Compliance Monitoring for Phased TMDL, May 2000,* including quality assurance/quality control (QA/QC) provisions provided by the MEDEP and NHDES. **By December 1st of each calendar year** the permittee must submit to the EPA, MEDEP, NHDES, and all other participating dischargers, an annual report ***(PCS code 030MS)*** of the results of the ambient monitoring conducted during the summer period of that year.

The monitoring plan shall consist of the following:

Permittee	RM	Location	Parameter	Frequency
Berwick SD	3.3	SF16 - Above Lower Great Falls Dam	DO [1] Temperature [1] Chlorophyl a [2] TP, PO4-P	2/Month[3]
Berwick SD - 2 mo. Somersworth WPCF- 2 months	3.0	SF15 - Bridge above Somersworth WWTP	DO [1] Temperature	2/Month[3]
Somersworth WPCF	1.1	SF11 - Above Rollinsford Dam	DO [1] Temperature Chlorophyl a [2] TP, PO4-P	2/Month[3]
Rollinsford WWTP	0.1	SF7 - Above South Berwick Dam	DO [1] Temperature Chlorophyl a [2] TP, PO4-P	2/Month[3]
South Berwick SD	-1.2	SF4 – Hamilton House Site	DO [1] Temperature Chlorophyl a [2] TP, PO4-P salinity	2/Month[3]

SPECIAL CONDITIONS

J. AMBIENT RIVER MONITORING (cont'd)

Footnotes:

(1) DO and temperature readings will be taken as one (1) meter profiles from surface to bottom.
(2) Chlorophyll a will be sampled as a two meter integrated core sample.

(3) Sampling shall be conducted before 8:00 AM.

The inclusion of the monitoring requirements in the table above for the Somersworth, Rollinsford and South Berwick facilities are for informational purposes only. The BSD is not responsible for oversight of the monitoring requirements for these facilities.

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

By December 31 of each calendar year, the permittee must provide the Department with a certification describing any of the following that have occurred since the effective date of this permit ***[ICIS Code 75305]***: See **Attachment B** of the Fact Sheet for an acceptable certification form to satisfy this Special Condition.

(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.

In addition, in the comments section of the certification form, the permittee must provide the Department with statements describing;

(d) Increases in the type or volume of hauled wastes accepted by the facility.

The Department reserves the right to reinstate routine (surveillance level) testing or other toxicity testing if new information becomes available that indicates the discharge may cause or have a reasonable potential to cause exceedances of ambient water quality criteria/thresholds.

SPECIAL CONDITIONS

K. MONITORING AND REPORTING

Electronic Reporting

NPDES Electronic Reporting, 40 C.F.R. 127, requires MEPDES permit holders to submit monitoring results obtained during the previous month on an electronic discharge monitoring report to the regulatory agency utilizing the USEPA electronic system.

Electronic Discharge Monitoring Reports (DMRs) submitted using the USEPA NetDMR system, must be:

1. Submitted by a facility authorized signatory; and
2. Submitted no later than **midnight on the 15th day of the month** following the completed reporting period.

Documentation submitted in support of the electronic DMR may be attached to the electronic DMR. Toxics reporting must be done using the DEP Toxsheet reporting form. An electronic copy of the Toxsheet reporting document must be submitted to your Department compliance inspector as an attachment to an email. In addition, a hardcopy form of this sheet must be signed and submitted to your compliance inspector, or a copy attached to your NetDMR submittal will suffice.

L. REOPENING OF PERMIT FOR MODIFICATIONS

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 anytime and with notice to the permittee, modify this permit to: (1) include effluent limits necessary to control specific pollutants or whole effluent toxicity where there is a reasonable potential that the effluent may cause water quality criteria to be exceeded: (2) require additional monitoring if results on file are inconclusive; or (3) change monitoring requirements or limitations based on new information.

M. 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

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

Approved Analytical Methods: EPA 200.7 (Rev. 44), 365.1 (Rev. 2.0), (Lachat), 365.3, 365.4; SM 3120 B, 4500-P B.5, 4500-P E, 4500-P F, 4500-P G, 4500-P H; ASTM D515-88(A), D515-88(B); USGS I-4471-97, 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 B

Protocol for Nitrogen Sample Collection and Analysis for Waste Water Effluent

Approved Analytical Methods (from Table 1 B of Part 136 per the 2012 Method Update Rule): (laboratory must be certified for any method performed)

Total Kjeldahl Nitrogen (TKN):

Manual digestion and distillation or gas diffusion followed by any of the following	SM4500-Norg B-97 or C-97 and SM4500-NH3 B-97.		ASTM D3590-02 (06) (A)	I-4515-9145
Titration	SM4500-NH3 C-97		ASTM D3590-89, 02 (A)	973.48.3
Nesslerization			ASTM D1426-08 (A)	
Electrode	SM4500-NH3 D-97 or E-97		ASTM D1426-08 (B)	
Semi-automated phenate	EPA 350.1 Rev. 2.0 (1993)		SM4500-NH3 G-97 or H-97	
Manual phenate, salicylate, or other substituted phenols in Berthelot reaction based methods	SM4500-NH3 F-1997			
Automated methods for TKN that do not require manual digestion				
Automated phenate, salicylate, or other substituted phenols in Berthelot reaction based methods colorimetric (auto digestion and distillation)	EPA 351.1 (1978)			I-4551-788
Semi-automated block digestor colorimetric (distillation not required)	EPA 351.2, Rev. 2.0 (1993)	SM4500-Norg D-97	ASTM D3590-02 (06) (B)	I-4515-9145

Nitrate + Nitrite (NO3 + NO2):

Cadmium reduction, Manual		SM4500-NO3 E-00	ASTM D3867-04 (B)	
Cadmium reduction, Automated, or	EPA 353.2, Rev. 2.0 (1993)	SM4500-NO3 F-00	ASTM D3867-04(A)	I-4545-852
Automated hydrazine		SM4500-NO3 H-00		
Ion chromatography	EPA 300.0, Rev. 2.1 (1993) and EPA 300.1, rev. 1.0 (1997)	SM4110 B-00 or C-00	ASTM D4327-03	993.303
CIE/UV		SM4140 B-97	ASTM D6508-00 (05)	ASTM D6508, Rev. 2

Sample Collection: The Maine DEP is requesting that nitrogen 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 H_2SO_4. 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.

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 nitrogen. Preserve this sample as described above.

ATTACHMENT C

Salmonid Survival and Growth Test

The Salmonid survival and growth test must follow the procedures for the fathead minnow larval survival and growth tests detailed in USEPA's freshwater acute and chronic methods manuals (see references above) with the following modifications:

Species - Brook Trout, *Salvelinus fontinalis*, or other salmonid approved by the Department.

Age - Less than six months old for the first test each year and less than twelve months for subsequent tests.

Size - The largest fish must not be greater than 150% of the smallest.

Loading Rate - < 0.5 g/l/day

Feeding rate - 5% of body weight 3 times daily (15%/day)

Temperature - 12° ± 1°C

Dissolved Oxygen - 6.5 mg/l ,aeration if needed with large bubbles (> 1 mm diameter) at a rate of <100/min

Dilution Water - Receiving water upstream of discharge (or other ambient water approved by the Department)

Dilution Series - A minimum of 5 effluent concentrations (including the instream waste concentrations bracketing acute and chronic dilutions calculated pursuant to Section D); a receiving water control; and control of known suitable water quality

Duration - Acute = 48 hours
- Chronic = 10 days minimum

Test acceptability - Acute = minimum of 90% survival in 2 days - Chronic = minimum of 80% survival in 10 days; minimum growth of 20 mg/gm/d dry weight in controls, (individual fish weighed, dried at 100°C to constant weight and weighed to 3 significant figures)

CONTENTS

A. GENERAL PROVISIONS

1. **General compliance**. All discharges shall be consistent with the terms and conditions of this permit; any changes in production capacity or process modifications which result in changes in the quantity or the characteristics of the discharge must be authorized by an additional license or by modifications of this permit; it shall be a violation of the terms and conditions of this permit to discharge any pollutant not identified and authorized herein or to discharge in excess of the rates or quantities authorized herein or to violate any other conditions of this permit.

2. Other materials. Other materials ordinarily produced or used in the operation of this facility, which have been specifically identified in the application, may be discharged at the maximum frequency and maximum level identified in the application, provided:

(a) They are not

(i) Designated as toxic or hazardous under the provisions of Sections 307 and 311, respectively, of the Federal Water Pollution Control Act; Title 38, Section 420, Maine Revised Statutes; or other applicable State Law; or
(ii) Known to be hazardous or toxic by the licensee.

(b) The discharge of such materials will not violate applicable water quality standards.

3. Duty to comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of State law and the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

(a) The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act, and 38 MRSA, §420 or Chapter 530.5 for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.
(b) Any person who violates any provision of the laws administered by the Department, including without limitation, a violation of the terms of any order, rule license, permit, approval or decision of the Board or Commissioner is subject to the penalties set forth in 38 MRSA, §349.

4. Duty to provide information. The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

5. Permit actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

6. Reopener clause. The Department reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedule of compliance or other provisions which may be authorized under 38 MRSA, §414-A(5).

7. Oil and hazardous substances. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject under section 311 of the Federal Clean Water Act; section 106 of the Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980; or 38 MRSA §§ 1301, et. seq.

8. Property rights. This permit does not convey any property rights of any sort, or any exclusive privilege.

9. Confidentiality of records. 38 MRSA §414(6) reads as follows. "Any records, reports or information obtained under this subchapter is available to the public, except that upon a showing satisfactory to the department by any person that any records, reports or information, or particular part or any record, report or information, other than the names and addresses of applicants, license applications, licenses, and effluent data, to which the department has access under this subchapter would, if made public, divulge methods or processes that are entitled to protection as trade secrets, these records, reports or information must be confidential and not available for public inspection or examination. Any records, reports or information may be disclosed to employees or authorized representatives of the State or the United States concerned with carrying out this subchapter or any applicable federal law, and to any party to a hearing held under this section on terms the commissioner may prescribe in order to protect these confidential records, reports and information, as long as this disclosure is material and relevant to any issue under consideration by the department."

10. Duty to reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.

11. Other laws. The issuance of this permit does not authorize any injury to persons or property or invasion of other property rights, nor does it relieve the permittee if its obligation to comply with other applicable Federal, State or local laws and regulations.

12. Inspection and entry. The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the EPA Administrator), upon presentation of credentials and other documents as may be required by law, to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
(d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

B. OPERATION AND MAINTENACE OF FACILITIES

1. General facility requirements.

(a) The permittee shall collect all waste flows designated by the Department as requiring treatment and discharge them into an approved waste treatment facility in such a manner as to

maximize removal of pollutants unless authorization to the contrary is obtained from the Department.

(b) The permittee shall at all times maintain in good working order and operate at maximum efficiency all waste water collection, treatment and/or control facilities.

(c) All necessary waste treatment facilities will be installed and operational prior to the discharge of any wastewaters.

(d) Final plans and specifications must be submitted to the Department for review prior to the construction or modification of any treatment facilities.

(e) The permittee shall install flow measuring facilities of a design approved by the Department.

(f) The permittee must provide an outfall of a design approved by the Department which is placed in the receiving waters in such a manner that the maximum mixing and dispersion of the wastewaters will be achieved as rapidly as possible.

2. Proper operation and maintenance. 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. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

3. Need to halt or reduce activity not a defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. Bypasses.

(a) Definitions.

(i) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

(ii) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

(b) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (c) and (d) of this section.

(c) Notice.

(i) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

(ii) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D(1)(f), below. (24-hour notice).

(d) Prohibition of bypass.

(i) Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:

(A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
(B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
(C) The permittee submitted notices as required under paragraph (c) of this section.

(ii) The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three conditions listed above in paragraph (d)(i) of this section.

6. Upsets.

(a) Definition. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

(b) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph (c) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

(c) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(i) An upset occurred and that the permittee can identify the cause(s) of the upset;
(ii) The permitted facility was at the time being properly operated; and
(iii) The permittee submitted notice of the upset as required in paragraph D(1)(f) , below. (24 hour notice).
(iv) The permittee complied with any remedial measures required under paragraph B(4).

(d) Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

C. MONITORING AND RECORDS

1. General Requirements. This permit shall be subject to such monitoring requirements as may be reasonably required by the Department including the installation, use and maintenance of monitoring equipment or methods (including, where appropriate, biological monitoring methods). The permittee shall provide the Department with periodic reports on the proper Department reporting form of monitoring results obtained pursuant to the monitoring requirements contained herein.

2. Representative sampling. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. If effluent limitations are based wholly or partially on quantities of a product processed, the permittee shall ensure samples are representative of times when production is taking place. Where discharge monitoring is required when production is less than 50%, the resulting data shall be reported as a daily measurement but not included in computation of averages, unless specifically authorized by the Department.

3. Monitoring and records.

(a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

(b) Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years, the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

(c) Records of monitoring information shall include:

(i) The date, exact place, and time of sampling or measurements;
(ii) The individual(s) who performed the sampling or measurements;
(iii) The date(s) analyses were performed;
(iv) The individual(s) who performed the analyses;
(v) The analytical techniques or methods used; and
(vi) The results of such analyses.

(d) Monitoring results must be conducted according to test procedures approved under 40 CFR part 136, unless other test procedures have been specified in the permit.

(e) State law provides that any person who tampers with or renders inaccurate any monitoring devices or method required by any provision of law, or any order, rule license, permit approval or decision is subject to the penalties set forth in 38 MRSA, §349.

D. REPORTING REQUIREMENTS

1. Reporting requirements.

(a) Planned changes. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(i) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or

(ii) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under Section D(4).

(iii) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;

(b) Anticipated noncompliance. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(c) Transfers. This permit is not transferable to any person except upon application to and approval of the Department pursuant to 38 MRSA, § 344 and Chapters 2 and 522.

(d) Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(i) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Department for reporting results of monitoring of sludge use or disposal practices.

(ii) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136 or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Department.

(iii) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Department in the permit.

(e) Compliance schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

(f) Twenty-four hour reporting.

(i) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance

has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(ii) The following shall be included as information which must be reported within 24 hours under this paragraph.

(A) Any unanticipated bypass which exceeds any effluent limitation in the permit.
(B) Any upset which exceeds any effluent limitation in the permit.
(C) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit to be reported within 24 hours.

(iii) The Department may waive the written report on a case-by-case basis for reports under paragraph (f)(ii) of this section if the oral report has been received within 24 hours.

(g) Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs (d), (e), and (f) of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (f) of this section.

(h) Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

2. Signatory requirement. All applications, reports, or information submitted to the Department shall be signed and certified as required by Chapter 521, Section 5 of the Department's rules. State law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan or other document filed or required to be maintained by any order, rule, permit, approval or decision of the Board or Commissioner is subject to the penalties set forth in 38 MRSA, §349.

3. Availability of reports. Except for data determined to be confidential under A(9), above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. As required by State law, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal sanctions as provided by law.

4. Existing manufacturing, commercial, mining, and silvicultural dischargers. In addition to the reporting requirements under this Section, all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Department as soon as they know or have reason to believe:

(a) That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(i) One hundred micrograms per liter (100 ug/l);
(ii) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
(iii) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with Chapter 521 Section 4(g)(7); or
(iv) The level established by the Department in accordance with Chapter 523 Section 5(f).

(b) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following ``notification levels'':

(i) Five hundred micrograms per liter (500 ug/l);
(ii) One milligram per liter (1 mg/l) for antimony;
(iii) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with Chapter 521 Section 4(g)(7); or
(iv) The level established by the Department in accordance with Chapter 523 Section 5(f).

5. Publicly owned treatment works.

(a) All POTWs must provide adequate notice to the Department of the following:

(i) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA or Chapter 528 if it were directly discharging those pollutants.
(ii) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
(iii) For purposes of this paragraph, adequate notice shall include information on (A) the quality and quantity of effluent introduced into the POTW, and (B) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

(b) When the effluent discharged by a POTW for a period of three consecutive months exceeds 80 percent of the permitted flow, the permittee shall submit to the Department a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.

E. OTHER REQUIREMENTS

1. Emergency action - power failure. Within thirty days after the effective date of this permit, the permittee shall notify the Department of facilities and plans to be used in the event the primary source of power to its wastewater pumping and treatment facilities fails as follows.

(a) For municipal sources. During power failure, all wastewaters which are normally treated shall receive a minimum of primary treatment and disinfection. Unless otherwise approved, alternate power supplies shall be provided for pumping stations and treatment facilities. Alternate power supplies shall be on-site generating units or an outside power source which is separate and independent from sources used for normal operation of the wastewater facilities.

(b) For industrial and commercial sources. The permittee shall either maintain an alternative power source sufficient to operate the wastewater pumping and treatment facilities or halt, reduce or otherwise control production and or all discharges upon reduction or loss of power to the wastewater pumping or treatment facilities.

2. Spill prevention. (applicable only to industrial sources) Within six months of the effective date of this permit, the permittee shall submit to the Department for review and approval, with or without conditions, a spill prevention plan. The plan shall delineate methods and measures to be taken to prevent and or contain any spills of pulp, chemicals, oils or other contaminates and shall specify means of disposal and or treatment to be used.

3. **Removed substances.** Solids, sludges trash rack cleanings, filter backwash, or other pollutants removed from or resulting from the treatment or control of waste waters shall be disposed of in a manner approved by the Department.

4. **Connection to municipal sewer.** (applicable only to industrial and commercial sources) All wastewaters designated by the Department as treatable in a municipal treatment system will be cosigned to that system when it is available. This permit will expire 90 days after the municipal treatment facility becomes available, unless this time is extended by the Department in writing.

F. DEFINITIONS. For the purposes of this permit, the following definitions shall apply. Other definitions applicable to this permit may be found in Chapters 520 through 529 of the Department's rules

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For bacteria, the average shall be the geometric mean.

Average monthly discharge limitation means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. Except, however, bacteriological tests may be calculated as a geometric mean.

Average weekly discharge limitation means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best management practices ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Composite sample means a sample consisting of a minimum of eight grab samples collected at equal intervals during a 24 hour period (or a lesser period as specified in the section on monitoring and reporting) and combined proportional to the flow over that same time period.

Continuous discharge means a discharge which occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities.

Daily discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the day.

Discharge Monitoring Report ("DMR") means the EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by approved States as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA's.

Flow weighted composite sample means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab sample means an individual sample collected in a period of less than 15 minutes.

Interference means a Discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

(1) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
(2) Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Maximum daily discharge limitation means the highest allowable daily discharge.

New source means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

(a) After promulgation of standards of performance under section 306 of CWA which are applicable to such source, or
(b) After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal.

Pass through means a discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Permit means an authorization, license, or equivalent control document issued by EPA or an approved State to implement the requirements of 40 CFR parts 122, 123 and 124. Permit includes an NPDES general permit (Chapter 529). Permit does not include any permit which has not yet been the subject of final agency action, such as a draft permit or a proposed permit.

Person means an individual, firm, corporation, municipality, quasi-municipal corporation, state agency, federal agency or other legal entity.

Point source means any discernible, confined and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft, from which pollutants are or may be discharged.

Pollutant means dredged spoil, solid waste, junk, incinerator residue, sewage, refuse, effluent, garbage, sewage sludge, munitions, chemicals, biological or radiological materials, oil, petroleum products or byproducts, heat, wrecked or discarded equipment, rock, sand, dirt and industrial, municipal, domestic, commercial or agricultural wastes of any kind.

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly owned treatment works ("POTW") means any facility for the treatment of pollutants owned by the State or any political subdivision thereof, any municipality, district, quasi-municipal corporation or other public entity.

Septage means, for the purposes of this permit, any waste, refuse, effluent sludge or other material removed from a septic tank, cesspool, vault privy or similar source which concentrates wastes or to which chemicals have been added. Septage does not include wastes from a holding tank.

Time weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected over a constant time interval.

Toxic pollutant includes any pollutant listed as toxic under section 307(a)(1) or, in the case of sludge use or disposal practices, any pollutant identified in regulations implementing section 405(d) of the CWA. Toxic pollutant also includes those substances or combination of substances, including disease causing agents, which after discharge or upon exposure, ingestion, inhalation or assimilation into any organism, including humans either directly through the environment or indirectly through ingestion through food chains, will, on the basis of information available to the board either alone or in combination with other substances already in the receiving waters or the discharge, cause death, disease, abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction, or physical deformations in such organism or their offspring.

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole effluent toxicity means the aggregate toxic effect of an effluent measured directly by a toxicity test.

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

AND

MAINE WASTE DISCHARGE LICENSE

PROPOSED DRAFT FACT SHEET

Date**: March 8, 2024**

PERMIT NUMBER: **ME0101397**
LICENSE NUMBER: **W000566-6D-E-R**

NAME AND ADDRESS OF APPLICANT*:*

BERWICK SEWER DISTRICT
Powderhouse Road, P.O. Box 15
Berwick, ME. 03901

COUNTY: **York County**

NAME AND ADDRESS WHERE DISCHARGE OCCURS:

BERWICK SEWER DISTRICT
Powderhouse Road
Berwick, Maine

OUTFALL COORDINATES: **N 43.25393 W 70.84261**

RECEIVING WATER/CLASSIFICATION: **Salmon Falls River, Maine - Class C**
New Hampshire - Class B

COGNIZANT OFFICIAL AND TELEPHONE NUMBER*:* **Mr. Michael Tibbetts**
Superintendent
Tel: (207) 698-5740
E-mail: *bsd.mtibbetts@gmail.com*

1. APPLICATION SUMMARY

a. Application - The BSD has submitted a timely and complete application to the Department for the renewal of combination Maine Pollutant Discharge Elimination System (MEPDES) permit/Waste Discharge License (WDL) #W000566-5M-C-R which was issued by the Department on January 22, 2003 for a five-year term. The WDL authorized the discharge of up to a monthly average flow of 1.1 million gallons per day (MGD) of secondary treated sanitary waste waters and tannery process waste waters from a publicly owned treatment works to the Salmon Falls River, Class C, in Berwick, Maine. In January of 2009, the Prime Tanning Company permanently shutdown the tannery down. It is noted the Salmon Falls River is an interstate waterway and is classified as a Class B waterway in the State of New Hampshire. See **Attachment A** of this Fact Sheet for an aerial photograph depicting the location of the treatment facility and outfall.

1. APPLICATION SUMMARY (cont'd)

b. Source Description: The Berwick Sewer District collects and treats domestic waste water from approximately 1000 domestic users within the District's boundaries. The District operates and maintains three (3) pump stations and 14.5 miles of collection piping. The District also receives and treats up to 70,000 gallons per day of septage brought in by from private septage haulers. The collection system is a separated system with no combined sewer overflow (CSO) points.

c. Waste water treatment: The BSD facility is currently designed to treat up to 1.1 MGD on a monthly average basis. Treatment consists of two primary clarifiers, three aeration tanks with fine bubble aeration and three secondary sedimentation tanks. Treated waste waters are disinfected using sodium hypochlorite and then de-chlorinated using sodium bisulfite prior to being discharged the receiving water via an outfall pipe that is submerged and discharges a few feet beyond the riverbank. All aspects of treatment are controlled and monitored with SCADA. Septage is screened and held in an aerated holding tank and slowly added to the treatment plant through SCADA over 24-hour periods. The secondary treated wastewater is discharged to the Salmon Falls River via and 18-inch diameter pipe that terminates in the center of the receiving water below the Lower Great Falls dam.

Sludge is sent to a holding tank and then dewatered with an incline screw press and hauled off site for disposal by private contract.

2. PERMIT SUMMARY

a. Terms and conditions: A summary of the limitations and monitoring requirements in this permitting action include:

1. Carrying forward the monthly average flow limit of 1.1 MGD based on the dry weather design capacity of the waste water treatment facility.

2. Carrying forward the summertime water quality-based mass and concentration limits for BOD_5 and TSS limits which were based on recommendations in the approved 2004 TMDL for the Salmon Falls River. This permit is establishing more stringent wintertime technology-based mass and concentration limits based on 06-096 CMR Chapter 525(3)(III), for secondary treatment domestic waste water given the tannery is permanently shut down. The wintertime mass limits and concentration in the previous permit were based on a weighted mass of domestic waste water plus tannery waste water.

3. Carrying forward the technology based monthly average and or daily maximum limitations for settleable solids, pH and total residual chlorine.

2. PERMIT SUMMARY (cont'd)

4. Establishing more stringent technology based monthly average and daily maximum *E. coli.* bacteria limitations pursuant to revisions to Maine law, 38 M.R.S. § 465(3)(B), amended February 16, 2018, with a reduction in the monthly average limitation to 100 colonies/100 ml and the daily maximum limit to 236 colonies/100 ml which are being established in this permit. The limitations are more stringent than the State of New Hampshire's Class B standards. The limitations remain in effect on a year-round basis at the request of the State of New Hampshire.

5. Carrying forward a seasonal (June 1 – September 30) daily minimum dissolved oxygen requirement on the effluent which is based on recommendation in the TMDL in an effort to improve dissolved oxygen levels in the receiving water.

6. Carrying forward summertime only monthly average mass and concentration limits for total phosphorus based on recommendations in the TMDL.

7. Carrying forward the water-quality based monthly average and daily maximum mass and concentration limits for total chromium based on anti-backsliding provisions in federal regulations.

8. Carrying forward seasonal monthly average and weekly average water quality-based mass and concentration limits for ammonia based on recommendations in the TMDL.

9. Establishing monthly average and daily maximum water quality-based mass limitations for total zinc as the most recent statistical evaluation of the previous five years of total zinc data indicates the discharge has a reasonable potential to exceed the acute and chronic ambient water quality criteria (AWQC) for total zinc.

10. Carrying forward the monthly average water quality based whole effluent toxicity (WET) limitation for brook trout based on anti-backsliding provisions in federal regulations.

11. Establishing a seasonal (April – October) rolling average water quality based total nitrogen mass limitation consistent with the U.S. Environmental Protection Agency (EPA) General Permit for nitrogen loading to Great Bay in New Hampshire.

2. PERMIT SUMMARY (cont'd)

12. Carrying forward Special Condition B (K in this permit), *Ambient Water Quality Monitoring*, as the facility has been participating in said monitoring for twenty years with results still indicating there are sporadic periods of time during the summer months that indicate the receiving water has excursions of dissolved oxygen standards.

13. Eliminating the requirement to maintain a formal pretreatment program given the tannery has been shut down since 2009.

14. Reducing the monitoring frequencies for BOD, TSS, settleable solids, *E. coli* bacteria and total residual chlorine based on USEPA and Department guidance on monitoring frequency reductions.

b. Licensing/permitting history:

October 21, 1985 - The Department issued a renewal of the Waste Discharge License (WDL) to the Berwick Sewer District for treatment and discharge of up to 1.1 MGD of combined municipal and tannery derived waste waters to the Salmon Falls River.

September 25, 1991 – The EPA issued a renewal of NPDES permit #ME0101397 for the treatment and discharge of up to 1.1 MGD of combined municipal and tannery derived waste waters to the Salmon Falls River.

June 4, 1993 – The EPA issued a Findings of Violation and Order for Compliance to the BSD for exceedances of acute Whole Effluent Toxicity (WET) limits and ordered the completion of a Toxicity Identification Evaluation (TIE) and a Toxicity Reduction Evaluation (TRE).

1994 to 1995 - Berwick SD developed plans for the expansion of the waste water treatment facility to include a single stage nitrification process to reduce ammonia which was identified as being the cause of the toxicity problem. The nitrification process was implemented in the spring of calendar year 1997.

March 1996 – The BSD submitted an application to the EPA to renew NPDES permit #ME0101397.

January 1999 - The Maine Board on Environmental Protection held a public hearing regarding a phased Total Maximum Daily Load (TMDL) and Use Attainability Analysis (UAA) prepared by the Department for a 5.5 mile segment of the Salmon Falls River.

2. PERMIT SUMMARY (cont'd)

March 10, 1999 – The Maine Board of Environmental Protection (BEP) issued a recommendation to the Maine State Legislature to reclassify a 5.5 mile segment of the Salmon Falls River from a Class B to Class C waterway.

September 1999 – The 5.5 mile segment of the Salmon Falls River recommended for reclassification by the BEP was reclassified from a Class B to Class C waterway.

November 22, 1999 - In accordance with §303(d) of the Clean Water Act and 40 CFR Part 130, the EPA approved a Total Maximum Daily Load (TMDL) for ammonia, biochemical oxygen demand (BOD_5) and total phosphorus for the Salmon Falls River. The TMDL was prepared in cooperation with the New Hampshire Department of Environmental Services (NHDES).

November 24, 2020 – The US Environmental Protection Agency issued final NPDES General Permit # NHG58A000 entitled, *National Pollutant Discharge Elimination System (NPDES) Great Bay Total Nitrogen General Permit for Waste Water Treatment Facilities in New Hampshire*.

January 12, 2001 – The USEPA grated the State of Maine authorization to administer the NPDES permit program in Maine.

January 25, 2001 – The EPA issued a renewal of NPDES permit #ME0101397 which implemented the recommendations of the 11/22/99 TMDL.

February 14, 2001 – The EPA modified the 1/25/01 NPDES permit by granting the BSD additional time to come into compliance with the final permit limits as recommended in the 11/22/99 TMDL. The compliance date was revised from June 1, 2003 to June 1, 2005.

February 26, 2001 – The BSD's largest industrial contributor of flow and pollutant loading (90%) to the waste water treatment facility, Prime Tanning Company, appealed the issuance of the 1/25/01 NPDES permit. The Prime Tanning Company's objections included; 1) that the EPA failed to consider public comments addressing water quality based effluent limits, 2) that the EPA failed to provide adequate justification for the phosphorus mass limitations, 3) that the EPA acted arbitrarily and capriciously when it imposed mass limitations and minimum dissolved oxygen limitations based on inadequate data, 4) that the NPDES permit improperly limited both pollutant mass and pollutant concentrations, 5) that the EPA did not provide a reasoned basis for the dissolved oxygen requirement, and 6) that the EPA did not justify the final limitations for TSS.

June 7, 2001 – The EPA withdrew NPDES permit #ME0101397 issued to the BSD on 1/25/01 which in turn nullified the 1/26/01 appeal of the permit by the Prime Tanning Company.

January 22, 2003 - The Department issued combination MEPDES permit #ME0101397/ WDL #W000566-5M-C-R renewal for a five-year term.

2. PERMIT SUMMARY (cont'd)

December 20, 2007 – The BSD submitted a timely and complete application to the Department to renew the 1/22/2003 MEPDES permit/WDL.

July 5, 2011 – The Department issued permit/license modification MEPDES permit #ME0101397/ WDL #W000566-5M-F-M that eliminated effluent limitations and monitoring requirements for oil and grease; and reduced the monitoring frequency requirement for chromium to once per calendar quarter.

August 31, 2017 - The Department issued permit/license modification MEPDES permit #ME0101397/ WDL #W000566-5M-H-M that increased the quantity of transported received at the waste water treatment facility from 11,000 gpd to 50,000 gpd.

3. CONDITIONS OF PERMITS

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

4. RECEIVING WATER QUALITY STANDARDS

Maine law, 38 M.R.S., Section 467(16)(a)(2) states that the Salmon Falls River at the point of discharge is classified as a Class C waterway. Maine law, 38 M.R.S. § 465(4) describes the standards for Class C waters as follows;

A. Class C waters must be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; agriculture; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; navigation; and as a habitat for fish and other aquatic life.

B. Class C waters must be of sufficient quality to support all species of fish indigenous to those waters and to maintain the structure and function of the resident biological community. The dissolved oxygen content of Class C water may not be less than 5 parts per million or 60% of saturation, whichever is higher, except that in identified salmonid spawning areas where water quality is sufficient to ensure spawning, egg incubation and survival of early life stages, that water quality sufficient for these purposes must be maintained. In order to provide additional protection for the growth of indigenous fish, the following standards apply.

(1) The 30-day average dissolved oxygen criterion of a Class C water is 6.5 parts per million using a temperature of 22 degrees centigrade or the ambient temperature of the water body, whichever is less, if:

4. RECEIVING WATER QUALITY STANDARDS (cont'd)

(a) A license or water quality certificate other than a general permit was issued prior to March 16, 2004 for the Class C water and was not based on a 6.5 parts per million 30-day average dissolved oxygen criterion; or

(b) A discharge or a hydropower project was in existence on March 16, 2005 and required but did not have a license or water quality certificate other than a general permit for the Class C water.

This criterion for the water body applies to licenses and water quality certificates issued on or after March 16, 2004.

(2) In Class C waters not governed by subparagraph (1), dissolved oxygen may not be less than 6.5 parts per million as a 30-day average based upon a temperature of 24 degrees centigrade or the ambient temperature of the water body, whichever is less. This criterion for the water body applies to licenses and water quality certificates issued on or after March 16, 2004.

The department may negotiate and enter into agreements with licensees and water quality certificate holders in order to provide further protection for the growth of indigenous fish. Agreements entered into under this paragraph are enforceable as department orders according to the provisions of sections 347-A to 349.

Between April 15th and October 31st, the number of Escherichia coli bacteria in Class C waters may not exceed a geometric mean of 100 CFU or MPN per 100 milliliters over a 90-day interval or 236 CFU or MPN per 100 milliliters in more than 10% of the samples in any 90-day interval. The board shall adopt rules governing the procedure for designation of spawning areas. Those rules must include provision for periodic review of designated spawning areas and consultation with affected persons prior to designation of a stretch of water as a spawning area.

C. Discharges to Class C waters may cause some changes to aquatic life, except that the receiving waters must be of sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community. For the purpose of allowing the discharge of aquatic pesticides or chemicals approved by the department and conducted by the department, the Department of Inland Fisheries and Wildlife or an agent of either agency to restore biological communities affected by an invasive species, the department may find that the discharged effluent will not cause unacceptable changes to aquatic life as long as the materials and methods used will ensure the support of all species of indigenous fish and the structure and function of the resident biological community and will allow restoration of nontarget species.

4. RECEIVING WATER QUALITY STANDARDS (cont'd)

Pursuant to New Hampshire law and code administrative rules, water quality standards for Class B waters in relevant parts are as follows:

General Water Quality Criteria.

(a) The presence of pollutants in the surface waters shall not justify further introduction of pollutants from point or nonpoint sources, alone or in any combination.

(b) Once classified, state surface waters shall retain their legislated classification until such time as they are reclassified in accordance with RSA 485-A:10, even if they fail to meet any or all of the general, class-specific, or toxic criteria contained in this part.

(c) Unless otherwise specifically allowed by a statute, rule, order, or permit, the following physical, chemical, and biological criteria shall apply to all surface waters:

(1) All surface waters shall be free from substances in kind or quantity that:

a. Settle to form harmful benthic deposits;

b. Float as foam, debris, scum or other visible substances;

c. Produce odor, color, taste or turbidity that is not naturally occurring and would render the surface water unsuitable for its designated uses;

d. Result in the dominance of nuisance species; or

e. Interfere with recreational activities;

(2) The level of radioactive materials in all surface waters shall not be in concentrations or combinations that would:

a. Be harmful to human, animal or aquatic life or the most sensitive designated use;

b. Result in radionuclides in aquatic life exceeding the recommended limits for consumption by humans; or

c. Exceed limits specified in EPA's national drinking water regulations or subtitle Env-Dw, whichever are more stringent; and

(3) Tainting substances shall not be present in concentrations that individually or in combination are detectable by taste and odor tests performed on the edible portions of aquatic organisms.

4. RECEIVING WATER QUALITY STANDARDS (cont'd)

Water Use Classifications; Designated Uses.

(a) All surface waters shall be classified as provided in RSA 485-A:8, based on the standards established therein for class A and class B waters. Each classification shall identify the most sensitive use it is intended to protect.

(b) All surface waters shall be restored to meet the water quality criteria for their designated classification including existing and designated uses, and to maintain the chemical, physical, and biological integrity of surface waters.

(c) All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters.

Dissolved Oxygen

(b) Unless high or low flows are caused by naturally occurring conditions, surface water quantity shall be maintained at levels that protect existing uses and designated uses class B waters shall have a dissolved oxygen content of:

(1) At least 75% of saturation, as specified in RSA 485-A:8, II, based on a daily average; and

(2) An instantaneous minimum dissolved oxygen concentration of at least 5 mg/l.

(c) In areas identified by the New Hampshire fish and game department (NHF&G) as cold water fish spawning areas of species whose early life stages are buried in the gravel on the bed of the surface water, the 7 day mean dissolved oxygen concentration shall be at least 9.5 mg/l and the instantaneous minimum dissolved oxygen concentration shall be at least 8 mg/l for the period from October 1 of one year to May 14 of the next year, provided that the time period shall be extended to June 30 for a specific discharge to a specific waterbody if modeling done in consultation with the NHF&G determines the extended period is necessary to protect spring spawners or late hatches of fall spawners, or both.

(d) Unless naturally occurring or subject to (a), above, surface waters within the top 25 percent of depth of thermally unstratified lakes, ponds, impoundments, and reservoirs or within the epilimnion shall contain a dissolved oxygen content of at least 75 percent saturation, based on a daily average and an instantaneous minimum dissolved oxygen content of at least 5 mg/l. Unless naturally occurring, the dissolved oxygen content below those depths shall be consistent with that necessary to maintain and protect existing and designated uses.

(e) As specified in RSA 485-A:8, III, waters in a temporary partial use area established under RSA 485-A:8, II as a surface water that is receiving a combined sewer overflow discharge shall contain not less than 5 parts per million of dissolved oxygen for the duration of the discharge and up to 3 days following cessation of the discharge.

4. RECEIVING WATER QUALITY STANDARDS (cont'd)

Bacteria

Class B other than designated beach areas - Not more than:

(1) A geometric mean based on at least 3 samples obtained over a 60-day period of 126 E. coli per 100 milliliters, unless naturally occurring; or

(2) 406 E. coli per 100 milliliters in any one sample, unless naturally occurring.

5. RECEIVING WATER CONDITIONS

The Salmon Falls River forms the boundary between Maine and New Hampshire for its entire length of more than 40 miles. The headwaters of the river are at Milton Pond. In the tidal estuary, its name changes to the Piscataqua River and similarly forms the state boundary for more than 10 miles. Flow for the entire river is highly regulated. There are four dams in the first 5 riverine miles which include South Berwick (RM 0.0), Rollinsford (RM 1.1), Lower Great Falls (RM 3.4) and Somersworth (RM 4.9). Two of these dams, South Berwick and Lower Great Falls, have historically generated peaking power and regulated river flow in a store and release mode. Both Berwick's and Somersworth's effluents discharge to the Rollinsford impoundment and Rollinsford's effluent discharges to the South Berwick impoundment. South Berwick's effluent discharges just below the South Berwick dam at head of tide and Dover's effluent discharges in the estuary about 5 miles below head of tide. The Town of Milton discharges to the river just below Spaulding Pond at about 20 miles

In the mid to late 1980's, it became evident that a dissolved oxygen problem existed in the estuary since random sampling always indicated some non-attainment of Maine's Class SB standards of 85% of saturation. Dissolved oxygen levels as low as 35% of saturation have been measured. This also violates New Hampshire's Class B standard of 75% of saturation.

A Waste Load Allocation Study was developed in 1994 to determine the source of the problem and possible solutions to correct the problem. As a result of recommendations of the Waste Load Allocation, additional field work was undertaken in 1995 with the intention of fine tuning model results for an eventual Total Maximum Daily Load (TMDL) for this waterway. Further water quality studies were done in 1998 which confirmed the continued violation of Maine and New Hampshire water quality standards.

a(1) Total Maximum Daily Load (TMDL) - On November 22, 1999, in accordance with § 303(d) of the Clean Water Act and 40 CFR Part 130, EPA approved a TMDL for ammonia, biochemical oxygen demand and total phosphorus for the Salmon Falls River. The TMDL was prepared by the Maine Department of Environmental Protection. As a result of that action, the NPDES permits issued by the EPA in early calendar year 2001 to waste water treatment facilities in Milton, NH, Berwick ME. (subsequently withdrawn), Somersworth, NH, Rollinsford, NH, and South Berwick, ME. were limited to the load allocations recommended in the TMDL, specifically Table 12 (as revised) and Table 13 (as revised) which are reproduced on the pages that follow.

5. RECEIVING WATER CONDITIONS

Table 12. Revised: Phased TMDL for the Salmon Falls River – Applies in Summer					
Phase 1 of TMDL	Design Flow (MGD)	NH3 (lb/day)	Ultimate CBOD (lb/day)	BOD5 (lb/day)	Total Phosphorus (TP) (lb/day)
Natural Background NPS (upstream of Milton)	16.4	3	424	N/A	1.2
Milton, NH	0.1	See note 1.	See note 1.	See note 1.	2 (2)
Tributary NPS (from Milton to Lower Great Falls dam)	2.1	0.2	56	N/A	0.4
Allowable Loads at Lower Great Falls (LGF) Dam (3,4)	18.6	3.2	480	---	3
Berwick, ME	1.1	65	429	131	4.4
Somersworth, NH	2.4	143	225	285	9.5
Rollinsford, NH	0.15	18	38	24	1.2
Tributary NPS (Lower Great Falls Dam to the S. Berwick Dam)	0.3	0.1	1	N/A	0.1
South Berwick, ME	0.6	71	228	95	4.8
Great Works River	9.8	N/A	N/A	N/A	2.4
Reserve Capacity (~ 5% of Point Source Loads)	---	16	50	28	1.3
Total = TMDL (4)	---	316	1451	---	26.7

5. RECEIVING WATER CONDITIONS (cont'd)

Table 12 – Footnotes:

(1) Milton loadings for NH3 and Ultimate CBOD (UCBOD) are not shown because data suggest that Milton's impact for these pollutants at the LGF dam is relatively insignificant. This is due to the high dilution at Milton (165:1), its distance from the LGF dam (over 15 miles) and the assimilation of NH3 and UCBOD, which are non-conservative substances.

(2) The TP loading for Milton is primarily based on holding current loadings to prevent possible localized excursions of DO water quality standards just downstream of the WWTF. Including a future reserve of 0.2 lb/day, the total TP load at this location is approximately 2.2 lb/day.

(3) Loadings are based on the average of measured values in the LGF impoundment. To prevent possible excursions of DO downstream of the LGF dam (which was the primary focus of modeling efforts for this study) it is important to maintain loadings at or below those shown during summer low flow conditions. For NH3 and UCBOD, measured concentrations were fairly consistent from upstream of Milton to the LGF dam and are believed to be primarily due to natural sources. However, for reasons stated in footnote a above, the river can actually handle higher loadings of NH3 and UCBOD than shown in the upper portions of the river as long as they do not cause violations of local DO standards or significantly impact the loadings shown at the LGF impoundment. The loading shown for TP accounts for losses of upstream TP due to uptake and settling.

(4) The primary focus of modeling for this study was from the LGF dam downstream. Consequently, the TMDL shown is equal to the sum of the allowable loads at the LGF dam (which does not include upstream loads which do not reach the LGF dam due to assimilation or settlement) and all loads downstream of the dam. If the upstream assimilated or settled loads were included, the TMDL would be higher.

5. RECEIVING WATER CONDITIONS (cont'd)

Table 13. Revised: Recommended Permit Limits for Phase 1 of TMDL

A. Mass Limits	Summer					Winter
	Total Phosphorus* (lb/day) Mo. Ave.	BOD5/TSS (lb/day) Mo. Ave.	BOD5/TSS (lb/day) Wk. Ave.	BOD5/TSS (lb/day) Daily Max	Ammonia (lb/day) Wk. Ave.	Ammonia (lb/day) Mo. Ave.
Milton, NH	2.0	25	37.6	41.7	none	none
Berwick, ME	4.4	87	131	146	65	147**
Somersworth, NH	9.5	190	285	317	143	321**
Rollinsford, NH	1.2	16	24	27	none	none
S. Berwick, ME	4.8	63	95	106	none	none
Limits Apply	5/1 - 9/30	6/1 - 9/30				10/1 - 5/31

B. Concentration Limits	Summer					Winter
	Total Phosphorus (ppm) Mo. Ave.	DO (ppm) Daily Min.	BOD5 / TSS (ppm) Mo. Ave.	BOD5 / TSS (ppm) Wk. Ave.	BOD5 / TSS(ppm) Daily Max	Ammonia (ppm) Mo. Ave.
Milton, NH	none	None	30	45	50	none
Berwick, ME	0.5	$\geq$ 6.5	10	15	17	16**
Somersworth, NH	0.5	$\geq$ 6.5	10	15	17	16**
Rollinsford, NH	1.0	None	14	20	22	none
S. Berwick, ME	1.0	None	14	20	22	none
Limits Apply	5/1 - 9/30	6/1 - 9/30				10/1 - 5/31

** These winter limits are based on the most stringent state standard currently in effect in ME and NH: ME's use of the 1992 EPA chronic AWQC of 2.7 ppm NH3 @ pH 7 and a temperature of 10ºC.

5. RECEIVING WATER CONDITIONS (cont'd)

Other TMDL Recommendations

1. Include performance based TSS in point source limits. Require effluent DO limits of no less than 6.5 ppm for the Berwick and Somersworth WWTFs.

2. Non-Point sources – Implement BMPs on Great Works River Watershed as a priority. Implement BMPs throughout Salmon Falls Watershed, where feasible.

3. Implement simultaneous top and bottom releases from dams, where feasible, during low flow periods to minimize stratification of the bottom layers with emphasis on the Lower Great Falls, Rollinsford, and South Berwick Dams.

4. Ensure dams are operated at run-of-river during low flow periods.

5. Where possible, minimize water withdrawals during low flow conditions.

6. Re-evaluate TMDL after five years. If non-compliance of water quality standards continues to occur, modify the TMDL.

a(2) – Great Bay General Permit (GP) for Total Nitrogen – In addition to approving the 1999 TMDL, the USEPA issued a GP for Great Bay Total Nitrogen to address non-compliance with water quality standards in Great Bay. The GP cited the BSD discharge as one of 17 municipal discharges in the watershed that were causing or contributing to the non-attainment. Though the GP only pertained to the facilities in New Hampshire where the USEPA has permitting authority, the USEPA expects the state of Maine to establish total nitrogen limits in accordance with the Waste Load allocation established in the GP.

For a more in-depth discussion on the non-compliance issues in Great Bay, see **Attachment C** of this Fact Sheet for excerpts from the Fact Sheet associated with GP.

6. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

b. Flow - The previous permit established a monthly average limit of 1.1 MGD that is being carried forward in this permitting action and is representative of the dry weather design flow of the existing waste water treatment facility.

A review of the Discharge Monitoring Report (DMR) data for the period January 2019 – July 2023 indicates values have been reported as follows:

Flow (DMRs = 54)

Value	Limit (MGD)	Range (MGD)	Mean (MGD)
Monthly Average	1.1	0.20 – 0.50	0.29
Daily maximum	Report	0.20 – 0.80	0.40

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

c. Dilution Factors: - Dilution factors associated with the discharge from the BSD's waste water treatment facility were derived in accordance with freshwater protocols established in Department Rule Chapter 530.5, *Surface Water Toxics Control Program*, October of 1994. Chapter 530.5 (D)(4)(a) states that analyses using numeric acute criteria for aquatic life must be based on ¼ of the 1Q10 stream design flow to prevent substantial acute toxicity within any mixing zone. The 1Q10 is lowest one day flow over a ten0-year recurrence interval. The regulation goes on to say that where it can be demonstrated that a discharge achieves rapid and complete mixing with the receiving water by way of an efficient diffuser or other effective method, analyses may use a greater proportion of the stream design, up to including all of it. Based on Department information as to the mixing characteristics of the discharge with the receiving water, the Department has made the determination that the discharge receives rapid and complete mixing with the receiving water. Therefore, the full the 1Q10 is applicable in acute statistical evaluations pursuant to Department Rule Chapter 530. With a permitted treatment plant flow of 1.1 MGD, dilution calculations are:

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

$$\text{Acute: 1Q10} = 28.7 \text{ cfs} \Rightarrow \frac{(28.7 \text{ cfs})(0.6464) + 1.1 \text{ MGD}}{1.1 \text{ MGD}} = 17.9{:}1$$

$$\text{Chronic: 7Q10} = 28.7 \text{ cfs} \Rightarrow \frac{(28.7 \text{ cfs})(0.6464) + (1.1 \text{ MGD})}{1.1 \text{ MGD}} = 17.9{:}1$$

$$\text{Harmonic Mean:} = 86.1 \text{ cfs} \Rightarrow \frac{(86.1 \text{ cfs})(0.6464) + (1.1 \text{ MGD})}{1.1 \text{ MGD}} = 51.6{:}1$$

The 7Q10 and 1Q10 receiving water low flow value of 28.7 cfs was derived as part of the 11/22/99 TMDL. The value was derived using the Lamrey River gage (with 60 years of record) to prorate the unregulated incremental drainage between Milton and Berwick and then added this value to the 7Q10 flow at the USGS gage at Milton of 25.4 cfs (derived by the New Hampshire USGS using a Log Pearson type three statistical distribution).

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

d. Biochemical Oxygen Demand (BOD_5) & Total suspended solids (TSS) – The previous permit establish BOD & TSS limitations as follows:

	Mass			Concentration		
	Mon Avg	Week Avg	Daily Max	Mon Avg	Week Avg	Daily Max
Biochemical Oxygen Demand [*00310]*						
June 1 – September 30	87 #/day[	131 #/day	146 #/day	10 mg/L	15 mg/L	17 mg/L
October 1 – May 31	560 #/day	---	1,000 #/day	65 mg/L	---	110 mg/L
Total Suspended Solids [*00530]*						
June 1 – September 30	126 #/day	190 #/day	212 #/day	14 mg/L	21 mg/L	23 mg/L
October 1 – May 31	560 #/day	---	1,000 #/day	65 mg/L	---	110 mg/L

The italicized text below is the basis for the limitations as described in the Fact Sheet of the previous permit.

Seasonal mass and concentration limits for BOD were established for Tier II (effective October 1, 2005) based on the 11/22/99 TMDL that were deemed necessary to achieve dissolved oxygen standards in the receiving waters. The Tier II winter limits were carried from the Tier I limits that derived from a combination of tannery effluent guidelines found in federal regulation 40 CFR 425.41 Subpart D – Retan-Wet Finish –Sides for a production of 121,000 lbs per day of Retan-Wet Finish-Sides plus a domestic flow of 0.35 MGD. The summer BOD mass limits of 87 lbs/day, 131 lbs/day and 146 lbs/day (monthly average, weekly average and daily maximum respectively) were established based on recommendations in the TMDL.

As for TSS, the previous permit established the same limitations for BOD and TSS as a reduction in one generally results in an equal reduction in the other. However, given the substantial pollutant loading from a categorical industry such as Prime Tanning, other criteria were be taken into consideration in establishing TSS limits. Federal regulation 40 CFR 425.41 Subpart D – Retan-Wet Finish established BPT for BOD and TSS. The regulation established TSS production-based criteria as being approximately 1.45 times higher than BOD_5 criteria. Therefore, in keeping with the BPT methodology of establishing TSS limits in federal regulation, the previous permit established summer (June 1 – September 30) TSS limits 1.45 times higher than the BOD_5 and were deemed protective of water quality standards. The Tier II summer TSS mass limits were calculated to be 126 lbs/day, 190 lbs/day and 212 lbs/day (monthly average, weekly average and daily maximum). For the winter (October 1 – May 31) TSS mass limits were established equivalent to winter BOD limits as a best professional judgment of the treatment technology needed to be achieve the BOD limits would also achieve similar TSS limits as is the practice for municipal dischargers.

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

All BOD and TSS concentration limits were derived by back calculating a concentration from the applicable mass limits and a permitted flow of 1.1 MGD. Average effluent concentrations for the period 1998 - 1999 for the BSD have been in the 20 to 30 mg/l range for BOD and in the 30 to 40 mg/l range for TSS. The Tier II winter period BOD and TSS limits are the same as the Tier I technology-based winter limits.

A review of the Discharge Monitoring Report (DMR) data for the period January 1, 2019 – July 2023 indicates seasonal values have been reported as follows:

Winter time (October 1 – May 31)

BOD Mass (DMRs=37)

Value	Limit (lbs/day)	Range (lbs/day)	Average (lbs/day)
Monthly Average	560	10-92	40
Daily Maximum	1,000	16-220	70

BOD Concentration (DMRs= 37)

Value	Limit (mg/L)	Range (mg/L)	Average (mg/L)
Monthly Average	65	6-26	15
Daily Maximum	110	12-76	27

Summertime (June 1 – September 30)

BOD Mass (DMRs= 18)

Value	Limit (lbs/day)	Range (lbs/day)	Average (lbs/day)
Monthly Average	87	5-38	13
Weekly Average	131	6-68	18
Daily Maximum	146	8=80	24

BOD Concentration (DMRs= 18)

Value	Limit (mg/L)	Range (mg/L)	Average (mg/L)
Monthly Average	10	4-18	7
Weekly Average	15	4-32	10
Daily Maximum	17	4-37	13

Winter time (October 1 – May 31)

TSS Mass (DMRs=37)

Value	Limit (lbs/day)	Range (lbs/day)	Average (lbs/day)
Monthly Average	560	13-52	30
Daily Maximum	1,000	22-118	56

TSS Concentration (DMRs=37)

Value	Limit (mg/L)	Range (mg/L)	Average (mg/L)
Monthly Average	65	6-26	15
Daily Maximum	110	9-76	22

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

Summertime (June 1 – September 30)

TSS Mass (DMRs=18)

Value	Limit (lbs/day)	Range (lbs/day)	Average (lbs/day)
Monthly Average	126	8-21	14
Weekly Average	190	8-29	18
Daily Maximum	212	12-34	23

TSS Concentration (DMRs=18)

Value	Limit (mg/L)	Range (mg/L)	Average (mg/L)
Monthly Average	14	5-11	7
Weekly Average	21	6-13	9
Daily Maximum	23	7-17	12

With the permanent closure of the tannery in 2009, the wintertime mass and concentrations limitations must be reduced to monthly and weekly average BOD_5 and TSS best practicable treatment (BPT) concentration limits of 30 mg/L and 45 mg/L respectively, that are based on secondary treatment requirements of the Clean Water Act of 1977 §301(b)(1)(B) as defined in 40 CFR 133.102 and Department rule Chapter 525(3)(III). The maximum daily BOD_5 and TSS concentration limits of 50 mg/L are based on a Department best professional judgment of BPT. All three concentration limits are being established in this permitting action.

Monthly average, weekly average and daily maximum BOD_5 and TSS mass limits of 275 lbs./day, 413 lbs./day and 459 lbs./day, respectively, based the monthly average discharge flow limit of 1.1 MGD and the applicable concentration limits which are being carried forward in this permitting action and were derived as follows:

Monthly average mass limit: (30 mg/L)(8.34 lbs./gallon)(1.1 MGD) = 275 lbs./day
Weekly average mass limit: (45 mg/L)(8.34 lbs./day)(1.1 MGD) = 413 lbs./day
Daily maximum mass limit: (50 mg/L)(8.34 lbs./day)(1.1 MGD) = 459 lbs./day

As for the summertime mass and concentration limits, the limitations in the previous permitting action are being carried forward in this permit as they are based on the 1999 TMDL. See page 12 of this Fact Sheet for the numeric summertime limitation.

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

The EPA recommends the use of a document entitled, "*Interim Guidance for Performance Based Reductions of NPDES Permit Monitoring Frequencies"* (USEPA 1996) as the basis for determining reduced monitoring frequencies. Monitoring requirements are not considered effluent limitations under section 402(o) of the Clean Water Act and therefore, anti-backsliding prohibitions would not be triggered by reductions in monitoring frequencies. In addition, the Department has supplemented the EPA guidance with its own guidance entitled, *Performance Based Reduction of Monitoring Frequencies - Modification of EPA Guidance Released April 1996* (Maine DEP May 22, 2014). Both documents are being utilized to evaluate the compliance history for each parameter regulated by the previous permit to determine if a reduction in the monitoring frequencies is justified.

The EPA Guidance indicates "…*the basic premise underlying a performance-based reduction approach is that maintaining a low average discharge relative to the permit limits results in a low probability of the occurrence of a violation for a wide range of sampling frequencies*." The monitoring frequency reductions in EPA's guidance were designed to maintain approximately the same level of reported violations as that experienced with the existing baseline sampling frequency in the permit. To establish baseline performance the long term average (LTA) discharge rate for each parameter is calculated using the most recent two-year data set of monthly average effluent data representative of current operating conditions. The LTA/permit limit ratio is calculated and then compared to the matrix in Table I of EPA's guidance to determine the potential monitoring frequency reduction. It is noted Table I of EPA's guidance was derived from a probability table that used an 80% effluent variability or coefficient of variation (cv). The permitting authority can take into consider even further reductions in the monitoring frequencies if the actual cv for the facility is significantly lower than the default 80% utilized by the EPA in Table I.

In addition to the parameter-by-parameter performance history via the statistical evaluation cited above, the EPA recommends the permitting authority shall take into consideration the facility enforcement history and the parameter-by-parameter compliance history and factors specific to the State or facility. If the facility has already been given monitoring reductions due to superior performance, the baseline may be a previous permit.

Though EPA's 1996 Guidance recommends evaluation of the most current two-years of effluent data for a parameter, the Department is considering the most current 55 months of data (January 2019 – July 2023) as it is representative of the timeframe from the last monitoring frequency reduction to the present for a number of parameters. The review of the seasonal monitoring data for BOD and TSS on pages 15 and 16 of this Fact Sheet indicates the ratios (expressed in percent) of the long term effluent average to the monthly average limits can be calculated as follows:

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

BOD

June 1 – September 30
Long term average = 13 lbs/day
Monthly average limit = 87 lbs/day
Current monitoring frequency = 3/Week

Ratio = 13 lbs/day / 87 lbs/day = 15%

October 1 – May 31
Long term average = 40 lbs/day
Monthly average limit = 560 lbs/day
Current monitoring frequency = 3/Week

Ratio = 40 lbs/day / 560 lbs/day = 7%

TSS

June 1 – September 30

Long term average = 14 lbs/day
Monthly average limit = 126 lbs/day
Current monitoring frequency = 3/Week

Ratio = 14 lbs/day / 126 lbs/day = 11%

October 1 – May 31

Long term average = 30 lbs/day
Monthly average limit = 560 lbs/day
Current monitoring frequency = 3/Week

Ratio = 30 lbs/day / 560 lbs/day = 5%

According to Table I of the EPA Guidance, a 3/Week monitoring requirement can be reduced to 1/Week given all four ratios calculated above are <25%. However the Department's guidance limits the reduction to no more than 50% of current frequency. Therefore, both the winter and summer monitoring frequencies for BOD and TSS are being reduced to 2/Week in this permitting action.

d. Settleable Solids - The previous licensing action established a technology based daily maximum concentration limit 0.3 ml/L for settleable solids as a Department best professional judgment of best practicable treatment (BPT) for settleable solids along with a 5/Week monitoring frequency. The limitation is being carried forward in this permit.

SS Concentration (DMRs=54)

Value	Limit (ml/L)	Range (ml/L)	Average (ml/L)
Daily Maximum	0.3	0.0 – 0.3	0.021

Department rule Chapter 525(3)(III) does not establish monitoring frequencies for regulated parameters. Based on the exemplary record for the period January 2019 – July 2023 (n=1,650) with no excursions of the limitation and given the ratio between the long-term average and permit limitation is <25%, the Department is reducing the monitoring frequency from 5/Week to 3/Week to meet the Department's guidance of no greater than a 50% reduction.

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

f. *E. coli* bacteria - The previous permit established year-round monthly average and daily maximum *E. coli* coliform bacteria limits of 126 colonies/100 ml and 406 colonies/100 ml respectively based on the *E.coli* bacteria standards for Class B waters in the state of New Hampshire at that time. Maine law, 38 MRS, §465(4) has been revised since issuance of the previous permit and establishes monthly average (geometric mean) and daily maximum *E. coli*. bacteria standards for Class C waters of 100 colonies/100 ml and 236 colonies/100 ml. The timeframe in state statute in which the limitations apply has also been expanded from May 15th – September 30th has been expanded to April 15th – October 31st.The State of New Hampshire's monthly average (geometric mean) and daily maximum *E. coli*. bacteria standards for Class B waters remains at 126 colonies/100 ml and 406 colonies/100 ml. The previous permit established a 3/Week monitoring frequency.

A summary of the effluent *E. coli* bacteria data as reported on the DMRs submitted to the Department for the period January 2019 – July 2023 is as follows:

***E coli*. bacteria (DMRs = 54)**

Value	Limit (col/100 ml)	Range (col/100 ml)	Mean (col/100 ml)
Monthly Average	126	1 - 37	10
Daily Maximum	406	2 - 365	93

Being that the Salmon Falls River is an interstate waters, the more stringent of the two State's water quality standard are being established in this permit. Therefore, this permit establishes year-round (at the request of the state of New Hampshire) monthly average and daily maximum *E. coli* bacteria limits of 100 colonies/100 ml and 236 colonies/100 ml.

Department rule Chapter 525(3)(III) does not establish monitoring frequencies for regulated parameters. Based on the exemplary record for the period January 2019 – July 2023 with no excursions of the limitation and given the ratio between the long-term average and permit limitation is <25%, the Department is reducing the monitoring frequency from 3/Week to 2/Week to meet the Department's guidance of no greater than a 50% reduction.

g. Total Residual Chlorine - Limits on total residual chlorine (TRC) are specified to ensure that ambient water quality standards are maintained and that BPT technology is being applied to the discharge that requires dichlorination before discharge. The previous permit established technology-based monthly average and daily maximum BPT limits of 0.1 mg/L and 0.3 mg/L respectively, that are being carried forward in this permit. The previous permit established a 1/Day monitoring frequency. Water quality-based thresholds for TRC can be calculated as follows:

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

Parameter	Acute Criteria	Chronic Criteria	Acute Dilution	Chronic Dilution	Acute Limit	Chronic Limit
Chlorine	19 ug/L	11 ug/L	17.9:1	17.9:1	0.34 mg/L	0.20 mg/L

Example calculation: Acute – 0.019 mg/L (17.9) = 0.34 mg/L

In the case of the BSD facility, the calculated acute water quality-based threshold is higher than 0.3 mg/l, thus the BPT limit of 0.3 mg/L is being carried forward as a daily maximum limit. As for the monthly average limitation, the Department's BPT limitation is 0.1 mg/L. Being that the calculated chronic water quality-based limit is higher than the BPT limit of 0.1 mg/L, the BPT limit is being carried forward as a monthly average in this permitting action.

A summary of the effluent total residual chlorine data as reported on the DMRs submitted to the Department for the period January 2019 – July 2023 is as follows:

Total residual chlorine (DMRs = 54)

Value	Limit (mg/L)	Range (mg/L)	Mean (mg/L)
Monthly Average	0.1	0.0 – 0.1	0.09
Daily Maximum	0.3	0.1 – 0.3	0.28

Department rule Chapter 525(3)(III) does not establish monitoring frequencies for regulated parameters. Based on the exemplary record for the period January 2019 – July 2023 with no excursions of the limitation and given the ratio between the long-term average and permit limitation is <25%, the Department is reducing the monitoring frequency from 1/Day to 4/Week to meet the Department's guidance of no greater than a 50% reduction.

h. pH Range- The previous permit established a pH range limitation of 6.0 – 9.0 standard units pursuant to a Department rule found at Chapter 525(3)(III)(c) along with a 1/Day monitoring requirement. The limits were considered BPT and are being carried forward in this permit.

A review of the monthly DMR data for the period January 2019 – July 2023 indicates the following:

pH (DMRs = 45)

Value	Limit (su)	Minimum (su)	Maximum (su)
Range	6.0 – 9.0	4.9*	7.8

* There were five excursions below the 6.0 su limit ranging from 4.9 su – 5.7 su

Given the excursions, this permit is carrying forward the monitoring frequency of 1/Day.

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

i. Oil and Grease – The January 22, 2003 permit renewal established a year-round daily maximum limit of 100 lbs/day based on 40 CFR Part 425.41 Subpart D as calculated in the table in Section 6(d) of this Fact Sheet due to the input of the Prime Tanning waste stream. This 2003 permit also established a daily maximum concentration limit of 15 mg/L that was a Department best practicable treatment limit for oil and grease and was considered the threshold at which oil/grease creates an oil sheen on the surface of a waterbody. Both the mass and concentration limitations were removed from the permit in a permit modification dated July 5, 2011, due to the closure of Prime Tanning in 2009.

j. Total Phosphorus – Text in the 11/22/99 TMDL stated that 1995 data indicates that 89.9% of the total phosphorus loading to the 5.5 mile segment of the Salmon Falls River addressed in the TMDL is due to point sources while the balance of 9.1% is from non-point sources. For point source discharges, the percentage are as follows:

Milton – 3.9% Berwick – 38.5% Somersworth – 34.8%
Rollingsford – 3.7% South Berwick – 9%

Beginning May 1, 2004, the 2003 permit established seasonal (May 1 – September 30) monthly average mass and concentration limits of 4.4 lb/day and 0.75 mg/L respectively that are being carried forward in this permit. The monitoring frequency was established at 3/Week. The mass limit was based on recommendations in the TMDL and the concentration limit was a limit that was negotiated between the Department and Prime Tanning with the BSD acknowledging the negotiated limit**.** No phosphorous limits or monitoring are established in the winter months (October 1 – April 30) as the algal growth in the receiving waters (contributing to dissolved oxygen depletion) that is promoted by the introduction of phosphorus is limited to the summer months.

A review of the monthly DMR data for the period May 2019 – July 2023 indicates the following:

Total phosphorus Mass (DMRs = 23)

Value	Limit (lbs/day)	Range (lbs/day)	Mean (lbs/day)
Monthly Average	4.4	0.6 – 1.5	0.92

Total phosphorus Concentration (DMRs = 23)

Value	Limit (mg/l)	Range (mg/L)	Mean (mg/L)
Monthly Average	0.75	0.30 – 0.59	0.47
Daily Maximum	Report	0.50 – 2.60	1.03

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

Department rule Chapter 525(3)(III) does not establish monitoring frequencies for regulated parameters. Evaluation of the test results obtained between January 2019 – June 2023, indicates the ratio between the long-term average and permit limitation is <25%, the EPA guidance states that 3/Week monitoring frequency can be reduced to 1/Week. However, Department guidance does not authorize a permit writer to reduce the monitoring frequency for a water quality- based parameter. Therefore the 3/Week monitoring frequency is being carried forward in this permit renewal.

k. Total Chromium – The Fact Sheet of the previous permit contained the following discussion (in italics) on derivation of the mass and concentration limits for chromium.

The previous licensing action established monthly average and daily mass limits of 9.7 lbs/day and 13 lbs/day respectively, with a daily maximum concentration limit of 2.0 mg/L. The derivation of the limits is unknown. The calculated technology-based limits based on 40 CFR Part 425.41 (Subpart D) yields allowable mass loadings of 9.4 lbs/day as a monthly average and 27 lbs/day as a daily maximum [see section 6(d) of this Fact Sheet]. Water quality-based limits (utilizing EPA's 1986 ambient water quality criteria) may be calculated as 9.1 lbs/day and 76 lbs/day respectively utilizing an acute and chronic dilution factor of 17.9:1 and 1.1 MGD. For Tier I and Tier II, this permitting action is establishing the most stringent limitations of those cited above. Therefore, a monthly average water quality-based mass limit of 9.1 lbs/day is being established and a daily maximum mass limit of 13 lbs/day is being established based on anti-backsliding provisions of federal regulations. A monthly average concentration limit of 1.5 mg/L was derived by back-calculating from the applicable mass limit and the permitted flow of 1.1 MGD and then multiplied the result by a factor of 1.5. See the discussion in section 6(n) of this Fact Sheet. As for the daily maximum concentration of 2.0 mg/L, it is being carried forward from the previous licensing action based on anti-backsliding provisions in federal regulations.

Based on federal anti-backsliding provisions, this permit is carrying forward the limitations as follows:

Total chromium

Value	Mass (lbs/day)	Concentration (mg/L)
Monthly Average	9.1	1.5
Daily Maximum	13	2.0

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

A review of the monthly DMR data for the period January 2019 – July 2023 indicates the following:

Total chromium Mass (DMRs = 16)

Value	Limit (lbs/day)	Range (lbs/day)	Mean (lbs/day)
Monthly Average	9.1	0.0 – 2.6	0.16
Daily Maximum	13	0.0 – 2.6	0.16

Total chromium Concentration (DMRs = 16)

Value	Limit (mg/L)	Range (mg/L)	Mean (mg/L)
Monthly Average	1.5	0.0 – 1.1	0.07
Daily Maximum	2.0	0.0 – 1.1	0.07

A July 5, 2011, permit modification reduced the monitoring frequency for total chromium from 1/Week to 1/Quarter given the closure of Prime Tanning. Given the permittee has been discharging consistently at levels that are greater than an order of magnitude lower than the limitations, this permit is reducing the monitoring frequency to 1/Year.

l. Ammonia-Total- The previous permit established summer weekly average limit (June 1 – September 30) of 65 lb/day beginning June 1, 2006 based on the BOD modeling component of the TMDL. The summer concentration limit of 7.0 mg/L was derived by back calculating from the mass limit of 65 lbs/day and the monthly average flow limit of 1.1 MGD. The previous permit established a monitoring frequency of 3/Week.

The monthly average winter limit of 147 lbs/day beginning September 30, 2005 was based upon the TMDL using a chronic AWQC of 2.7 mg/l (pH 7 and temperature of 10^{o} C) taking into consideration the discharges from Somersworth and Berwick facilities, including background concentrations. The winter total ammonia concentration limit of 16 mg/l was back-calculated from the mass limit and a permit flow limit of 1.1 MGD. Based on federal anti-backsliding provisions, this permit is carrying forward the limitations.

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

A review of the DMR data for the period January 2019 – July 2023 indicates values have been reported as follows:

Summertime (June – September)

Total Ammonia Mass (DMRs = 18)

Value	Limit (lbs/day)	Range (lbs/day)	Mean (lbs/day)
Weekly Average	65	0.2-84	10

Total Ammonia Concentration (DMRs = 18)

Value	Limit (mg/L)	Range (mg/L)	Mean (mg/L)
Weekly Average	7.0	0.1-39	5

Wintertime (October – May)

Total Ammonia Mass (DMRs = 37)

Value	Limit (lbs/day)	Range (lbs/day)	Mean (lbs/day)
Monthly Average	147	1-71	25
Daily Maximum	Report	3-90	34

Total Ammonia Concentration (DMRs = 37)

Value	Limit (lbs/day)	Range (lbs/day)	Mean (lbs/day)
Monthly Average	16	0.3-24	8
Daily Maximum	Report	0.8-40	13

As with total phosphorus, Department guidance does not authorize a permit writer to reduce the monitoring frequency for a water quality-based parameter. Therefore the 3/Week monitoring frequency is being carried forward in this permit renewal.

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

m. Dissolved Oxygen – The 2003 permit required the BSD to maintain a seasonal (June 1 – September 30) dissolved oxygen level in the effluent that is greater than or equal to 6.5 mg/L (ppm) along with a continuous monitoring requirement. The limit was based on a recommendation in the 11/22/99 TMDL and is being carried forward in this permit. No wintertime minimum dissolved oxygen limit is imposed.

A review of the DMR data for the period June 2019 – July 2023 indicates values have been reported as follows:

Dissolved Oxygen (DMRs = 16)

Value	Limit (mg/L)	Range (mg/L)	Mean (mg/L)
Daily Maximum	>6.5 mg/L	6.0* – 9.8	8.1

* One excursion in June 2020

As with total phosphorus and ammonia, Department guidance does not authorize a permit writer to reduce the monitoring frequency for a water quality-based parameter. Therefore, the continuous monitoring frequency is being carried forward in this permit renewal.

n. Whole Effluent Toxicity (WET) and Chemical Specific Testing: The regulatory background for this requirement is as follows:

Maine law, 38 M.R.S. § 414-A and 38 M.R.S. § 420 prohibit the discharge of effluents containing substances in amounts that would cause the surface waters of the State to contain toxic substances above levels set forth in Federal Water Quality Criteria as established by the USEPA.

Department rule 06-096 CMR 584 sets forth AWQC for toxic pollutants and procedures necessary to control levels of toxic pollutants in surface waters.

Department rule 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, protected and narrative and numeric water quality criteria are met.

WET, priority pollutant and analytical chemistry testing as required by Department rule Chapter 530, is included in this permit in order to fully characterize the effluent. This permit also provides for reconsideration of effluent limits and monitoring schedules after evaluation of toxicity testing results. The monitoring schedule includes consideration of results currently on file, the nature of the wastewater, existing treatment and receiving water characteristics.

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

WET monitoring is required to assess and protect against impacts upon water quality and designated uses caused by the aggregate effect of the discharge on specific aquatic organisms. Acute and chronic WET tests are performed on invertebrate and vertebrate species. Priority pollutant and analytical chemistry testing is required to assess the levels of individual toxic pollutants in the discharge, comparing each pollutant to acute, chronic, and human health AWQC as established in Department rule Chapter 584

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

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

Department rule Chapter 530(2)(D) specifies the criteria to be used in determining the minimum monitoring frequency requirements for WET, priority pollutant and analytical chemistry testing. Based on the Chapter 530 criteria, the permittee's facility falls into the Level I frequency category as the facility has a chronic dilution factor of < 20:1. Chapter 530(2)(D)(1) specifies that routine screening and surveillance level testing requirements are as follows:

Surveillance Level Testing – Beginning upon issuance of the permit and lasting through 24 months prior to permit expiration (Years 1, 2 & 3 of the term of the permit) and commencing again 12 months prior to permit expiration (Year 5 of the term of the permit).

Level	WET Testing	Priority pollutant testing	Analytical chemistry
I	2 per year	None required	4 per year

Screening Level Testing – Beginning 24 months prior to permit expiration and lasting through 12 months prior to permit expiration (Year 4 of the term of the permit) and every five years thereafter if a timely request for renewal has been made and the permit continues in force, or is replaced by a permit renewal containing this requirement.

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

Department rule Chapter 530(D)(3)(c) states in part, "Dischargers in Level I may reduce surveillance testing to one WET or specific chemical series per year provided that testing in the preceding 60 months does not indicate any reasonable potential for exceedance as calculated pursuant to section 3(E)."

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

A review of the data on file with the Department indicates that to date, the permittee has fulfilled the WET and chemical-specific testing requirements of Chapter 530.

> Chapter 530 §(3)(E) states, "*For effluent monitoring data and the variability of the pollutant in the effluent**,** the Department shall apply the statistical approach in Section 3.3.2 and Table 3-2 of USEPA's "Technical Support Document for Water Quality-Based Toxics Control" (USEPA Publication 505/2-90-001, March, 1991, EPA, Office of Water, Washington, D.C.) to data to determine whether water-quality based effluent limits must be included in a waste discharge license. Where it is determined through this approach that a discharge contains pollutants or WET at levels that have a reasonable potential to cause or contribute to an exceedance of water quality criteria, appropriate water quality-based limits must be established in any licensing action.*"
>
> Chapter 530 § 3 states, *"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. "In determining if effluent limits are required, the Department shall consider all information on file and effluent testing conducted during the preceding 60 months. However, testing done in the performance of a Toxicity Reduction Evaluation (TRE) approved by the Department may be excluded from such evaluations."*

<u>WET testing</u>

The previous permit established a limitation 5.6% for the brook trout (<u>*Salvelinus fontinalis*</u>) as WET data from 1997-2003 indicated the discharge from the BSD had three data points that exceeded the chronic ambient water quality threshold of 5.6% (based on the mathematical inverse of the chronic dilution factor of 17.9:1). A monitoring frequency of 2/Year (equivalent to surveillance level monitoring) was established.

On September 13, 2023, the Department conducted an updated statistical WET evaluation on the most current 60-months of data for the BSD. The evaluation indicates there are no WET results for the water flea (*Ceriodaphnia dubia*) or the brook trout (<u>*Salvelinus fontinalis*</u>) that exceeded or had a reasonable potential to exceed the critical acute or chronic threshold of 5.6%. However, the limitation for the brook trout is being carried forward in this permit based on the federal anti-backsliding provisions.

Therefore, the reduced surveillance testing frequency of 1/Year has been established for the water flea and the brook trout. Screening level testing begins 24 months prior to permit expiration and lasting through 12 months prior to permit expiration (Year 4 of the term of the permit) and every five years thereafter if a timely request for renewal has been made and the permit continues in force, or is replaced by a permit renewal containing this requirement.

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

Chemical Specific testing

The only metal limitation in the 2003 permit was total chromium. The permit established monthly average and daily maximum mass and concentration limitations for total chromium based on the rationale in Section 6(k) of this Fact Sheet and the fact that a Chapter 530 statistical evaluation conducted on data from 1997-2003 indicated the discharge from the BSD facility had three (3) test results for total chromium that had a reasonable potential to exceed the chronic AWQC for total chromium.

On September 13, 2023, the Department conducted an updated statistical evaluation on analytical chemistry and priority pollutant data the most current 60-months of data for the BSD. The evaluation indicates the only pollutant that has a reasonable potential to exceed applicable AWQC is zinc. A test result of 180 ug/L on 7/13/2020 has a reasonable potential to exceed both the acute and chronic AWQC for total zinc.

In May 2012, Maine law 38 M.R.S. §464 (4)(K) was enacted which reads as follows, "*Unless otherwise required by an applicable effluent limitation guideline adopted by the department, any limitations for metals in a waste discharge license may be expressed only as mass-based limits."* There are no applicable effluent limitation guidelines adopted by the Department or the USEPA for metals from a publicly owned treatment works.

Segment allocation methodology

Historical Average:

For the segment allocation methodology, the historical average quantity (mass) for each pollutant of concern for each facility is calculated utilizing the arithmetic mean of the concentrated values reported for each pollutant, a conversion factor of 8.34 lbs/gallon and the monthly average permit limit for flow. The historical mass discharged for each pollutant for each facility is mathematically summed to determine the total mass discharged for each pollutant in the watershed. Based on the individual dischargers historical average each discharger is assigned a percentage of the whole which is then utilized to determine the percent of the segment allocation for each pollutant for each facility. For the permittee's facility, historical averages for aluminum were calculated as follows:

Zinc (Total)

Mass limits

Mean concentration (n=7) = 81 ug/L or 0.081 mg/L
Permit flow limit = 1.1 MGD
Historical average mass = (0.081 mg/L)(8.34)(1.1 MGD) = 0.74 lbs/day

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

The 9/13/2023 statistical evaluation indicates the historical average mass of zinc discharged by the permittee's facility is 68% of the zinc discharged by the facilities on the Salmon Falls River and its tributaries. Therefore, the permittee's segment allocation for zinc is calculated as 68% of the acute and chronic assimilative capacities (AC) of the river at South Berwick, the most downstream facility on the Salmon Falls River. The Department has calculated acute and chronic assimilative capacities of 3.7 lbs/day and 4.3 lbs/day respectively for zinc at South Berwick. The acute and chronic assimilative capacities at South Berwick were calculated based on 90% of the applicable AWQC (taking into consideration the 10% reduction to account for background, 0% reduction for reserve) and the critical low flows (1Q10 = 24.9 cfs, 7Q10 = 29.0 cfs). The calculations for zinc are as follows:

Acute

1Q10 @ South Berwick = 24.8 cfs or 16.0 MGD
AWQC = 30.6 ug/L
30.6 ug/L(0.90) = 27.5 ug/L or 0.0275 mg/L

Acute AC = (16.0 MGD)(8.34 lbs/gal)(0.0275 mg/L) = 3.67 lbs/day

Therefore, the mass segment allocation for zinc for the permittee can be calculated as follows:

Monthly average: (Acute assimilative capacity mass)(% of total zinc discharged)
(3.67 lbs/day)(0.68) = **2.5 lbs/day**

Chronic:

7Q10 @ South Berwick = 29 cfs or 18.8 MGD
AWQC = 30.6 ug/L
30.6 ug/L(0.90) = 27.5 ug/L or 0.0275 mg/L

Chronic AC = (18.7 MGD)(8.34 lbs/gal)(0.0275 mg/L) = 4.3 lbs/day

Therefore, the mass segment allocation for zinc for the permittee can be calculated as follows:

Monthly average: (Acute assimilative capacity mass)(% of total zinc discharged)
(4.3 lbs/day)(0.68) = **2.9 lbs/day**

The testing frequencies established in Special Condition A of this permit are based on a Department best professional judgment taking into consideration the frequency, severity and timing of the exceedance(s) and or reasonable potential to exceed AWQC. Given there is only one test result of concern and five subsequent test results with no reasonable potential, the Department is making a best professional judgment to establish a monitoring frequency of 1/Year which is equivalent to the surveillance level monitoring frequency established in Chapter 530.

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

As for the remaining chemical specific elements/compounds, the 9/13/2023 statistical evaluation indicates there are no exceedances or RP to exceed AWQC. Therefore, this permitting action is establishing a surveillance level monitoring frequency of 1/Year until 24 months prior to the expiration date of the permit at which time the frequency reverts back to a screening level testing of 1/Quarter. See Special Condition A, *Effluent Limitations and Monitoring Requirements*, of this permit.

o. Nitrogen – This permit is establishing a rolling seasonal average (April – October) limit of 31 lbs/day based on a waste load allocation developed by the USEPA in the issuance of the National Pollutant Discharge Elimination System (NPDES) Great Bay Total Nitrogen General Permit (GBTN GP) For Wastewater Treatment Facilities in New Hampshire (NPDES General Permit: NHG58A000) dated November 24, 2020.

The text that follows includes relevant parts of the GBTN Fact Sheet and the Response to Comments associated with the final permit as follows:

Background

The Great Bay estuary is composed of a network of tidal rivers, inland bays, and coastal harbors. The Estuary extends inland from the mouth of the Piscataqua River between Kittery, Maine and New Castle, New Hampshire to Great Bay proper and the Upper Piscataqua River. Over forty New Hampshire communities are entirely or partially located within the coastal watershed. The estuary receives treated wastewater effluent from 17 publicly owned treatment works (13 in New Hampshire and 4 in Maine). Great Bay is one of only 28 "estuaries of national significance" under the National Estuary Program (NEP), which was established in 1987 by amendments to the Clean Water Act to identify, restore and protect estuaries along the coasts of the United States.

The Great Bay estuary encompasses Great Bay proper and Little Bay, which are fed by the Winnicut, Squamscott, Lamprey, Oyster, and Bellamy Rivers. Other parts of the estuary include the Upper Piscataqua River (fed by the Cocheco, Salmon Falls, and Great Works Rivers), the Lower Piscataqua River, Portsmouth Harbor, and Little Harbor/Back Channel. The Great Bay Estuary is unusual because of its inland location, more than five miles up the Piscataqua River from the ocean**.** It is a popular location for kayaking, birdwatching, commercial lobstering, recreational oyster harvesting, and sportfishing for rainbow smelt, striped bass, and winter flounder.

The Great Bay estuary is a tidally-dominated embayment with estuarine waters covering approximately 21 square miles with 144 miles of shoreline. Tidal height ranges from 8.9 feet at the mouth of the estuary to 6.6 feet at Dover Point. Because of strong tidal currents and mixing, vertical stratification of the estuary is limited. However, partial stratification may occur during periods of intense freshwater runoff particularly at the upper tidal reaches of rivers entering the estuary.

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

Estuaries, especially large, productive ones like Great Bay, are extremely significant aquatic resources. An estuary is a partially enclosed coastal body of water located between freshwater ecosystems (lakes, rivers, and streams; freshwater and coastal wetlands; and groundwater systems) and coastal shelf systems where freshwater from the land measurably dilutes saltwater from the ocean. This mixture of water types creates a unique transitional environment that is critical for the survival of many species of fish, birds, and other wildlife. Estuarine environments are among the most productive on earth, creating more organic matter each year than comparably sized areas of forest, grassland, or agricultural land (EPA, 2001).

Maintaining water quality within an estuary is important for many reasons. Estuaries provide a variety of habitats such as shallow open waters, freshwater and saltwater marshes, sandy beaches, mud and sand flats, rocky shores, oyster reefs, tidal pools, and seagrass beds. Birds, mammals, fish, and other wildlife depend on estuarine habitats as places to live, feed, and reproduce. Many species of fish and shellfish rely on the sheltered waters of estuaries as protected places to spawn. Moreover, estuaries also provide a number of recreational values such as swimming, boating, fishing, and bird watching. In addition, estuaries have an important commercial value since they serve as nursery grounds for two thirds of the nation's commercial fish and shellfish, and support tourism drawing on the natural resources that estuaries supply (EPA, 1998). Consequently, EPA believes sound environmental policy favors a pollution control approach that is both protective and undertaken expeditiously to prevent degradation of these critical natural resources.

Because estuaries are the intermediary between oceans and land, both of these geographic features influence their physical, chemical, and biological properties. In the course of flowing downstream through a watershed to an estuary, tributaries pick up materials that wash off the land or are discharged directly into the water by land-based activities. Eventually, the materials that accumulate in the tributaries are delivered to estuaries. The types of materials that eventually enter an estuary largely depend on how the land is used. Undisturbed land, for example, will discharge fewer pollutants than an urban center or areas with large amounts of impervious cover. Accordingly, an estuary's overall health can be heavily impacted by surrounding land use.

Unlike free-flowing rivers, which tend to flush out sediments and pollutants relatively quickly, an estuary will often have a lengthy retention period as up-estuary saltwater movement interacts with down-estuary freshwater flow (EPA, 2001). Estuaries are particle-rich relative to coastal systems and have physical mechanisms that tend to retain particles. These suspended particles mediate many activities (*e.g.*, absorbing and scattering light, or absorbing hydroscopic materials such as phosphate and toxic contaminants). New particles enter with river flow and may be resuspended from the bottom by tidal currents and wind-wave activity. Many estuaries are naturally nutrient-rich because of inputs from the land surface and geochemical and biological processes that act as "filters" to retain nutrients within estuaries (EPA, 2001). Consequently, waterborne pollutants, along with contaminated sediment, may remain in the estuary for a long time, magnifying their potential to adversely affect the estuary's plants and animals.

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

Scientific Literature & Reports

A growing body of technical and scientific literature describes the Great Bay estuary as an estuary in environmental decline because of nutrient overloading. In 1999, the National Oceanic and Atmospheric Administration (NOAA) released the "National Estuarine Eutrophication Assessment: Effects of Nutrient Enrichment in the Nation's Estuaries," which undertook to comprehensively assess the scale, scope, and characteristics of nutrient enrichment and eutrophic conditions in the nation's estuaries with the goal of developing a national strategy to limit nutrient enrichment problems. The assessment was based primarily on the results of the National Estuarine Eutrophication Survey, conducted by NOAA from 1992 to 1997, but was supplemented by information on nutrient inputs, population projections, and land use drawn from a variety of sources. It covers 138 estuaries, representing over 90 percent of the estuarine surface area of the coterminous United States. That report concluded that "By the year 2020, eutrophication symptoms are expected to worsen in about one-third of the systems, primarily due to increased nutrient inputs from population increases and the growth of the aquaculture industry. Of these estuaries, St. Croix River/Cobscook Bay, Great Bay, and Plum Island Sound are expected to worsen the most." (NOAA, 1999)

Additionally, NOAA's 1997 Estuarine Eutrophication Survey, Volume 3: North Atlantic Region noted, "In Great Bay, chlorophyll-a concentrations range from low to high and turbidity from low to medium. Nuisance and toxic algal blooms have an impact on biological resources in subareas of the mixing and seawater zones. Nitrogen and phosphorus concentrations are medium. There are no observations of anoxia, however hypoxia is reported in small subarea of the mixing zone. SAV coverage ranges from very low to high." (NOAA, 1997). A decade later, NOAA published *Effects of Nutrient Enrichment in the Nation's Estuaries: A Decade of Change* as an update to the earlier report. This 2007 report evaluated many of the influencing factors and determined the "susceptibility" to nitrogen-induced eutrophication of each estuary, the "overall eutrophic condition" of each estuary, and the "future outlook" for each estuary. Great Bay was characterized as "moderately susceptible" to nitrogen-induced eutrophication and as having a "moderate" overall eutrophic condition. The 2007 report also notes that "susceptibility can be used to forecast not only the extent to which eutrophic symptoms may occur, but also what symptoms may potentially occur. For example, in some shallow lagoonal systems, additional nutrients will result in increased macroalgal abundance rather than high concentrations of phytoplankton/chlorophyll *a* (Nobre et al. 2005)." As significant portions of the Great Bay Estuary are considered shallow, it is unsurprising that the report indicates the "eutrophic symptoms" of Great Bay as "low" for chlorophyll-a and "high," the worst characterization possible in the report, for macroalgae. Moreover, based on this information NOAA categorized the "future outlook" for Great Bay as "large deterioration," the worst characterization possible in the report. NOAA concluded as follows: "In Great Bay, increases in dissolved inorganic nitrogen have occurred over the past 20 years. Increases in chlorophyll-a and turbidity have been identified with

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

augmented eutrophication in the inner estuary. As a result, eelgrass biomass has declined by 70% in the last 10 years and the occurrence of nuisance macroalgae is becoming more evident. Primary symptoms are high but problems with more serious secondary symptoms are still not being expressed. Nutrient related symptoms observed in the estuary are likely to substantially worsen." (NOAA, 2007). In addition to federal agencies, individual National Estuary Programs, including the Piscataqua Region Estuaries Partnership (PREP), have collected, compiled and analyzed monitoring data to produce "State of the Estuary" reports (typically issued every 3-5 years). These NEP "State of the Estuary" reports are critical because they depict status and trends in the estuaries' environmental conditions. To gauge an estuary's health, each NEP develops environmental indicators – "specific, measurable markers that help assess the condition of the environment and how it changes over time." (NHEP, 2003) The environmental indicators relating to excessive levels of nutrients include dissolved oxygen, total nitrogen, and eelgrass. PREP has released five State of the Estuary Reports, each of which detail a trend of increasing nitrogen-related impairments in the Great Bay estuary.

In its 2003 report, the Partnership noted, "[d]espite the increasing concentrations of nitrate + nitrite in the estuary, there have not been any significant trends for the typical indicators of eutrophication: dissolved oxygen and chlorophyll-a concentrations. Therefore, the load of nitrate + nitrite to the bay appears to have not yet reached the level at which the undesirable effects of eutrophication occur." [4] The 2006 report concluded that "more indicators suggest that the ecological integrity of the estuaries is under stress or may soon be heading toward a decline." It observed that "Dissolved oxygen concentrations consistently fail to meet state water quality standards in the tidal tributaries to the Great Bay Estuary." Additionally, the report cautioned, "[n]itrogen concentrations in Great Bay have increased by 59 percent in the past 25 years. Negative effects of excessive nitrogen, such as algae blooms and low dissolved oxygen levels, are not evident. However, the estuary cannot continue to receive increasing nitrogen levels indefinitely without experiencing a lowering of water quality and ecosystem changes."

[4] An earlier report—The State of New Hampshire's Estuaries (New Hampshire Estuary Project, 2000) indicates that declining water quality, in part due to nutrient overloading, has been a concerning trend for a decade or more.

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

In the 2009 report, eleven of 12 environmental indicators show negative or cautionary trends – up from seven indicators classified this way in 2006. According to the 2009 report, nitrogen is increasing and eelgrass is decreasing within the estuary. The total nitrogen load to the Great Bay Estuary has increased by 42% in the last five years. In Great Bay, the concentrations of dissolved inorganic nitrogen, a major component of total nitrogen, have increased by 44% in the past 28 years. Eelgrass cover in Great Bay has declined by 37% between 1990 and 2008 and has disappeared from the tidal rivers, Little Bay, and the Upper Piscataqua River. Dissolved oxygen is currently exhibiting a cautionary trend. While dissolved oxygen standards are rarely violated in the bays and harbors, they are often violated in the tidal rivers. The negative effects of the increasing nutrient loads on the estuary system are evident in the decline of water clarity, eelgrass habitat loss, and failure to meet water quality standards for dissolved oxygen concentrations in tidal rivers (PREP, 2009).

The 2009 report notes that the most pressing threats to the estuaries relate to population growth and the associated increases in nutrient loads and non-point source pollution (PREP, 2009). Watershed-wide development has created new impervious surfaces at an average rate of nearly 1,500 acres per year. In 2005, there were 50,351 acres of impervious surfaces in the watershed, which is 7.5 percent of the watershed's land area. Nine of the 40 sub-watersheds contained over 10 percent impervious cover, indicating the potential for degraded water quality and altered storm water flow. Land consumption per person, a measure of sprawling growth patterns, continues to increase (PREP, 2009).

The 2013 State of the Estuary (SOE) report for the Great Bay Estuary evaluated 22 key indicators of the health of the estuary. Of the 22 indicators, 15 are classified as having cautionary or negative conditions or trends, while 7 show positive conditions or trends. The overall assessment concludes that there is reason to be concerned about the health of our estuary, and that increased efforts to study and restore our estuaries are needed. "At this time the Great Bay Estuary exhibits many of the classic symptoms of too much nitrogen: low dissolved oxygen in tidal rivers, increased macroalgae growth, and declining eelgrass" (SOE 2013, pg. 12). Additionally, the report indicates that "…there have been persistent and numerous violations of the dissolved oxygen standards at stations in the tidal rivers that flow into the estuaries" (SOE 2013, pg. 18).

Eelgrass (*Zostera marina*) is the base of the estuarine food web in the Great Bay Estuary. Healthy eelgrass beds filter water and stabilize sediments (Short and Short, 1984) and provide habitat for fish and shellfish (Duarte, 2001; Heck et al., 2003). While eelgrass is only one species in the estuarine community, the presence of eelgrass is critical for the survival of many species. Loss of eelgrass habitat changes the species composition of the estuary, resulting in a detrimental difference in the aquatic community. In particular, if eelgrass habitat is lost, the estuary will likely be colonized by macroalgae species which do not provide the same habitat functions as eelgrass (Short et al., 1995; Hauxwell et al., 2003; McGlathery et al, 2007).

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

According to the 2013 SOE report, "[d]ata indicate a long-term decline in eelgrass since 1996 that is not related to wasting disease." Additionally, the report notes that "There are also indications, based on estimates of the density of the eelgrass beds, that the remaining beds contain fewer plants and, therefore, provide less habitat." Statistically significant declines in eelgrass have been observed in Great Bay proper and the Piscataqua River as well as downstream in Little Harbor and Portsmouth Harbor. The loss of eelgrass results in increased suspended sediments which block light penetration and can lead to further eelgrass losses. "When this habitat is lost, the sediments are more easily stirred up by wind and waves." (SOE 2013, pgs. 20 & 22).

The 2018 SOE report expanded its evaluation to 24 indicators of a healthy estuary, including social indicators for the first time. Of the 24 indicators, 14 are classified as having a cautionary or negative trend or status, while 6 show a positive trend or status and 4 are too new to establish trends of any kind. Nutrient loading is categorized as either "point source" or "non-point source," the former showing a positive trend and the latter showing a cautionary trend. On the positive side, it is encouraging that low rainfall and nitrogen loading reductions at several WWTFs during 2012-2016 resulted in a 26% reduction of nitrogen loading from 2009-2011 levels. However, the report notes that "[s]ince the human population and impervious cover continue to increase, nitrogen management remains a high priority." Further stating that "[n]utrient loading is a critical stressor. Although we have been making impressive improvements since 2012, nutrients remain of high concern, particularly during rainy years where more runoff leads to increased loading." (SOE 2018, pgs. 6 & 16)

Despite some reductions in nitrogen loading, eelgrass loss continues to have a negative trend with eelgrass acreage in 2016 (1,625 acres) only 54% of the PREP goal of 2,900 acres by 2020. The 2018 report states that "[e]elgrass in the Great Bay Estuary shows an overall decline and, more importantly, a clear deterioration in its ability to recover from episodic stress." The report notes that the "main causes of temperate (between the tropics and the polar regions) seagrass loss are nutrient loading, sediment deposition, sea-level rise, high temperature, introduced species, biological disturbance (*e.g.*, from crabs and geese), and wasting disease. Toxic contaminants such as herbicides that are used on land can also stress eelgrass. All of these causes are plausible in the Great Bay Estuary and many magnify each other to stress eelgrass and make habitats less resilient. Proactive actions to increase resilience for eelgrass habitat are critical as climate science predicts an increase of stressful events, such as extreme storms with increased rains and higher winds." (SOE 2018, pgs. 6 & 24)

Additional scientific literature confirms that cultural eutrophication from increased nitrogen loads to estuaries has been shown to be a major cause of seagrass disappearance worldwide (Burkholder et al., 2007; Short and Wyllie-Echeverria, 1996). Increasing nitrogen concentrations in shallow estuaries favor the proliferation of ephemeral macroalgae over seagrasses and other perennial submerged aquatic vegetation (McGlathery et al., 2007; Fox et al., 2008). Macroalgae have lower light requirements in

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

high nutrient environments (Fox et al. 2008). The proliferation of macroalgae species can be responsible for eelgrass loss due to shading and changes in water chemistry near the sediments (Hauxwell et al., 2001; Hauxwell et al., 2003). When macroalgae forms dense mats on the sediment surface, it can prevent the re-establishment of eelgrass in these areas (Short and Burdick, 1996).

Receiving Water Quality Violations

Great Bay and many of the rivers that feed it are approaching or have reached their assimilative capacity for nitrogen and are suffering from the adverse impacts of human-derived nutrient over-enrichment, including cultural eutrophication. The impacts of excessive nutrients are evident throughout the Great Bay estuary, including the Piscataqua River.

New Hampshire classifies the Great Bay estuary as a class B water. Per New Hampshire water quality standards (NHWQS), "[a]ll surface waters shall be restored to meet the water quality criteria for their designated classification including existing and designated uses, and to maintain the chemical, physical, and biological integrity of surface waters. All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters." Env-Wq 1703.01(b) & (c). Class B waters must also meet the numeric water quality criterion of at least 75% of dissolved oxygen saturation (daily average) and an instantaneous minimum of 5 mg/L of dissolved oxygen. Env-Wq 1703.07.

Furthermore, they must satisfy the following narrative water quality criteria:

- All surface waters shall support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region. Env-Wq 1703.19(a).
-
- Class B waters shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring. Existing discharges containing phosphorus or nitrogen, or both, which encourage cultural eutrophication shall be treated to remove the nutrient(s) to ensure attainment and maintenance of water quality standards. Env-Wq 1703.14(b) & (c).

"Cultural eutrophication" is defined in the NHWQS as "the human-induced addition of wastes that contain nutrients to surface waters, resulting in excessive plant growth or a decrease in dissolved oxygen, or both." Env-Wq 1702.15. Section 303(d) of the Clean Water Act requires states to identify those waterbodies that are not expected to meet surface water quality standards after implementation of technology-based controls. Therefore ,New Hampshire has developed a Comprehensive Assessment Listing Methodology (CALM)[5] to determine the

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

impairment status for nutrient-related parameters such as chlorophyll-a, DO (concentration and percent saturation), estuarine bioassessments (eelgrass), water clarity (light attenuation coefficient) and total nitrogen.

Based upon this listing methodology, the Great Bay estuary, including its tributaries, have been included on the State of New Hampshire's Section 303(d) list. New Hampshire's 2012 Section 303(d) list includes significant nutrient-related impairments throughout the Great Bay estuary as presented in Table 2 of the GBTN GP Fact Sheet. See Attachment C of this Fact Sheet for a copy of Table 2.

EPA acknowledges that the specific subset of water quality impairments in each assessment zone in Table 2 may be unique from other nearby assessment zones and, as with any estuary, certain assessment zones may be considered more susceptible than others to elevated nitrogen loads. EPA notes, however, that the entire Great Bay estuary is a single estuarine system characterized by different levels of mixing of the same source waters, continual exchange of waters among estuarine segments, the same sources for sediment, and the same climatic conditions. Given that there are 50 individual impairments throughout the estuary listed in Table 2 of the GBTN GP (Attachment C of this Fact Sheet), it is apparent that the entire estuary is suffering from significant and pervasive nutrient-related impacts which are not isolated to the most susceptible areas.

Federal regulation 40 C.F.R. § 122.44(d)(1)(i) states that a permit limit must be established for any pollutant that "may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." As detailed in the *Nitrogen Threshold* and *Reasonable Potential Analysis* sections below, EPA has determined—and NHDES has concurred—that the overall nitrogen loading to the Great Bay estuary has exceeded the estuary's assimilative capacity. Given the tidal nature of the estuary, all significant discharges of nitrogen throughout the watershed (including the 13 WWTFs subject to the GBTN GP and four individual permits in Maine) are clearly contributing to this excessive load and are, therefore, contributing to a variety of excursions of water quality standards. There is ample evidence that nitrogen has a reasonable potential to contribute to those impairments. Based on this reasonable potential determination, these discharges must receive effluent limits.

Further evidence of broad water quality impairment due to nutrient over-enrichment is the declining trend of eelgrass throughout the estuary. As clearly discussed in the *Scientific Literature and Reports* section above, the Great Bay estuary has been experiencing severe declines in eelgrass acreage for many years. During this period the Great Bay estuary lost 1300 acres, or nearly half of its eelgrass acreage. Additionally, all eelgrass has been lost in the tidal tributaries feeding into the Great Bay Estuary and in the upper Piscataqua River.

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

More specifically, the majority of eelgrass loss has taken place in locations of greater depth
(> 1.3 meters below mean tide level) within the estuary. Although nutrient loadings impact light attenuation at all depths, eelgrass is less sensitive to nutrient loading in areas of the estuary that are shallower because those meadows are able to receive their light requirements during low tides when the shoots are exposed directly to the sun. Clearly, the impact of nutrient loading on light penetration and eelgrass coverage is more crucial at locations of greater depth as reflected in the trends below. This further supports the determination that nutrient loadings to the Great Bay estuary are contributing to water quality impairments, especially in areas of greater depth.

Nitrogen Threshold

Under the federal regulations implementing the NPDES program, permit issuers are required to determine whether a given point source discharge "causes, has the reasonable potential to cause, or contributes to" an exceedance of the narrative or numeric criteria set forth in state water quality standards. *See* 40 C.F.R. § 122.44(d)(1)(ii). If a discharge is found to cause, have the reasonable potential to cause, or contribute to an exceedance of a numeric or narrative state water quality criterion, NPDES regulations implementing section 301(b)(1)(C) provide that a permit must contain effluent limits as necessary to achieve state water quality standards. *See* 40 C.F.R. §§ 122.44(d)(1), 122.44(d)(5) (providing in part that a permit must incorporate any more stringent limits required by CWA § 301(b)(1)(C)).

The regulatory mechanism used by permit writers to interpret narrative water quality criteria and establish numeric water quality-based effluent limits is set forth at 40 C.F.R. § 122.44(d)(1)(vi). Where a state has not established a numeric water quality criterion for a specific chemical pollutant that is present in the effluent at a level that causes or has a reasonable potential to cause a violation of narrative water quality standards, the permitting authority must establish effluent limits in one of three ways: (i) based on a "calculated numeric criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and fully protect the designated use"; (ii) on a "case-by-case basis" using CWA § 304(a) recommended water quality criteria, supplemented as necessary by other relevant information; or (iii) in certain circumstances, based on an "indicator parameter." Federal regulation found at 40 C.F.R. § 122.44(d)(1)(vi)(A)-(C). EPA in this case relied upon subsection (A) to translate the relevant narrative criterion into a numeric limit.

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

When establishing water quality-based effluent limitations in the absence of numeric criteria for phosphorus and nitrogen, EPA looks to a wide range of materials, including nationally recommended criteria, supplemented by other relevant materials, such as EPA technical guidance and information published under Section 304(a) of the CWA, peer-reviewed scientific literature, and site-specific surveys and data. 40 C.F.R. § 122.44(d)(1)(vi)(A)

Below is a summary of several scientific studies evaluating nitrogen loading rates necessary to protect estuarine environments, along with other information, which form the basis for demonstrating what level of nitrogen will "attain and maintain applicable narrative water quality criteria and will fully protect the designated use." 40 C.F.R. § 122.44(d)(1)(vi)(A)

One study confirmed the sensitivity of seagrass meadows to nitrogen loading in order to examine the possible role of coastal fringing wetlands to protect seagrass meadows from land-derived nitrogen loads. Data from over 30 diverse estuaries worldwide were evaluated, including the Great Bay estuary. This study observed a "50% -100% reduction in seagrass production and habitat area as land-derived N loads exceed 100 kg N ha^{-1} yr^{-1}." The study further notes that nitrogen loading of 20-100 kg ha^{-1} yr^{-1} is the "critical range" where fringing wetlands may intercept and retain a sufficient portion of the land-derived nitrogen load to protect seagrass meadows. However, above 100 kg ha^{-1} yr^{-1}, wetland retention of nitrogen is below 10% due to the fringing marshes being "overwhelmed" by high loads. (Valiela & Cole, 2002).

A second study evaluated the role of nitrogen in eelgrass loss in temperate estuaries and the effect of light limitation imposed by algae. This study evaluated the specific role of opportunistic algae, including epiphytes and macroalgae, on light attenuation limiting newly recruiting eelgrass shoots. The study, referencing Valiela & Cole 2002, concludes with a management recommendation, as follows: "watersheds should be developed or managed such that land-derived [nitrogen] loads are kept low. The threshold value necessary for eelgrass preservation is difficult to establish accurately, since many factors may influence land-derived nitrogen loading and fate in estuaries (*i.e.*, retention by surrounding marsh, water residence time: Valiela et al., 2000a, 2001), but the present results and others (Valiela et al. 2000b, Valiela & Cole 2002) suggest that eelgrass is likely to decline substantially at values < 30 to 100 kg N ha^{-1} yr^{-1}." (Hauxwell et al., 2003)

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

A third study evaluated the relationship between eelgrass extent and watershed-derived nitrogen loading for 62 estuarine embayments in New England. This study concluded that "area-normalized nitrogen inputs are proportional to eelgrass loss and that the data exhibit threshold behavior." More specifically, the estuaries could be grouped into three loading categories (*i.e.*, < 50 kg ha^{-1} yr^{-1}, 51-99 kg ha^{-1} yr^{-1}, and ≥ 100 kg ha^{-1} yr^{-1}) resulting in various levels of eelgrass loss. In the category between 51 and 99 kg ha^{-1} yr^{-1} the "ability of eelgrass to thrive diminishes markedly" and with loading rates above 100 kg ha^{-1} yr^{-1} "eelgrass is essentially absent." (Latimer & Rego, 2010) EPA recognizes that the Great Bay Estuary is much larger than the embayments evaluated in this study, but notes that the Great Bay Estuary is comprised of many smaller sections that are comparable to the embayments evaluated in this study.

The susceptibility and eutrophic characteristics of Great Bay described in the 2007 NOAA report, referenced above, as well as the inclusion of Great Bay itself in the Valiela & Cole 2002 study of comparable estuaries, confirm that the recommended nutrient thresholds presented in the scientific literature are applicable to the Great Bay estuary. Although there is some variability of the "critical range" of nutrient loads presented in these studies (*e.g.*, 50-100, 20-100, 30-100 kg N ha^{-1} yr^{-1}), there is a clear maximum threshold of 100 kg ha^{-1} yr^{-1}, above which eelgrass is unable to thrive and significant or complete loss is inevitable.

Given the range of potential thresholds set forth in the literature, EPA has chosen to adopt the maximum loading rate as an initial threshold to protect the Great Bay estuary from "large deterioration" and to restore the estuary to a healthy condition. EPA notes that any threshold in the range presented in the scientific literature above (*i.e.*, 20/30/50 to 100 kg ha^{-1} yr^{-1}) would fall within a zone of relevant literature values. As the literature suggests, a threshold even lower than 100 kg ha^{-1} yr^{-1} may be necessary in the future if the system does not fully recover once brought into compliance with this initial threshold. EPA has chosen the least stringent threshold within the "critical range" as a reasonable next step in an adaptive management approach.

EPA views adaptive management as an approach to natural resource management that emphasizes learning through management where knowledge is incomplete, and when, despite inherent uncertainty, managers and policymakers must act. Unlike a traditional trial and error approach, adaptive management has explicit structure, including a careful elucidation of goals, identification of alternative management objectives, and procedures for the collection of data followed by evaluation and reiteration. The process is iterative, and serves to reduce uncertainty, build knowledge and improve management over time in a goal-oriented and structured process. Consistent with this approach, EPA has chosen the above threshold to be a reasonable next step to reach the goal of achieving water quality standards, including the restoration of healthy eelgrass, throughout the estuary.

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

EPA stresses the importance of achieving this threshold while implementing a robust monitoring program to assess the health of the estuary in response to nitrogen load reductions. Both required load reductions and monitoring requirements are described in detail below. EPA notes the inherent uncertainty of achieving water quality standards by selecting the high end of the range of potential thresholds and emphasizes that a more stringent threshold may be necessary in the future, should the system not fully recover once the higher threshold is achieved.

For comparison, this threshold of 100 kg ha^{-1} yr^{-1} is empirically consistent with recent water quality improvements that have been observed in a much larger estuary, Narragansett Bay. Like Great Bay, Narragansett Bay is an estuary with significant tidal and riverine inputs and exhibits complex flow patterns and mixing dynamics. In recent years, EPA, MassDEP and the Rhode Island Department of Environmental Management (RIDEM) have undertaken extensive efforts to address significant nutrient-related water quality impacts by reducing nitrogen loads to the system. While the surface area of the estuary is much larger than that of Great Bay (197.5 sq. mi compared to 21 sq.mi), the area-normalized nitrogen loading rate is quite comparable. In 2000-2004, the loading rate to Narragansett Bay was 157.6 kg ha^{-1} yr^{-1}. This loading rate corresponded to significant DO and chlorophyll impairments and contributed to eelgrass loss throughout the estuary (NBEP 2017). "The decline [of seagrass] was caused by stressors such as nutrient enrichment and physical disturbances (*e.g.*, dredging, removal through boating or other activities, and storms), as well as by a seagrass disease outbreak in the 1930s that caused extensive losses along the Atlantic coast (Costa 1988, Short et al. 1993, Doherty 1995, Kopp et al. 1995)." (NBEP 2017, at 224) Based on effective nutrient management throughout the estuary in recent years, the nitrogen loading rate in 2013-2015 dropped to 80.1 kg ha^{-1} yr^{-1}, a 49% reduction from 2000-2004 levels. Corresponding with the loading rate dropping below 100 kg ha^{-1} yr^{-1}, water quality improvements have been observed in dissolved oxygen and chlorophyll-a levels and seagrass levels have generally rebounded (NBEP 2017; Oviatt et al. 2017). "Between 2006 and 2012 seagrass acreage increased by 37 percent in areas of Narragansett Bay that were mapped both years…." (NBEP 2017, at 231) "The recent gains in seagrass acreage in Narragansett Bay likely stemmed from improved water quality. A reduction in nutrient loading from local wastewater treatment facilities (see 'Nutrient Loading' chapter) likely reduced epiphyte coverage on seagrass leaves, phytoplankton blooms, and macroalgae growth, improving water clarity (see 'Water Clarity' chapter). Improved water clarity allows light to penetrate to greater depths, allowing seagrass beds to flourish and expand into deeper waters.

EPA notes that in the case of the Narragansett Bay estuary, further nitrogen reductions are still required to address nutrient-related water quality impairments that continue to exist in certain sections of the estuary (*e.g.*, Mount Hope Bay and the Taunton River estuary). Furthermore, rising water temperatures in southern New England pose additional stress on the continued recovery of eelgrass in Narragansett Bay, and may be

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

responsible for the 7 percent decline in seagrass acreage between 2012 and 2016. Although seagrass acreage is still well above 2006 levels, further nitrogen reductions may be necessary to off-set the negative effects of rising temperatures. While Narragansett Bay and Great Bay have some obvious distinctions, the comparison supports the conclusion that a loading threshold of 100 kg ha^{-1} yr^{-1} in larger estuaries with riverine inputs and complex flow patterns and mixing dynamics is a reasonable goal as part of an adaptive management approach.

In summary, the three scientific studies described above, the comparison to Narragansett Bay, and site-specific reports, analyses and conclusions which confirm the applicability to the Great Bay estuary constitute a consistent and reasonable basis for the 100 kg ha^{-1} yr^{-1} nitrogen loading threshold to protect water quality standards. EPA's analysis does not rely on any single study or comparison as the sole basis for this approach but relies on a broad understanding of available literature and site-specific data in Great Bay as well as comparable estuaries. More specifically, the first two scientific studies (i.e., Valiela & Cole, 2002 and Hauxwell et al., 2003) provide a threshold of area-normalized nitrogen loads for entire estuaries. This threshold is clearly applicable to the Great Bay Estuary based on Great Bay's specific inclusion in the study. The third scientific study (*i.e.*, Latimer & Rego, 2010), provides a smaller scale analysis by evaluating estuarine embayments and concludes that area-normalized nitrogen loading to such embayments must also not exceed the same upper threshold. Finally, the comparison to Narragansett Bay acts to provide a direct comparison on a larger scale that actual area-normalized nitrogen load reductions similar to those proposed in this permit have been effective towards achieving water quality standards. This comparison confirms that such an approach is justified and that it is reasonable to expect a similar result in the Great Bay estuary. This is particularly true given that the 2007 NOAA report discussed above characterizes both Great Bay and Narragansett Bay with the same degree of susceptibility to nitrogen-induced eutrophication (*i.e.*, "moderately susceptible"). While any one of these lines of support may be sufficient to establish the threshold of 100 kg ha^{-1} yr^{-1} as a reasonable target, the fact that they each independently reinforce the same threshold gives EPA confidence that this threshold, as part of an adaptive management approach, is an effective means to protect eelgrass and achieve water quality standards throughout the Great Bay Estuary.

Finally, given the impacts of overall water quality on eelgrass health, EPA expects that nutrient reductions necessary to effectively restore and protect eelgrass will also bring the Great Bay estuary into attainment of water quality standards for all other nutrient-related impairments (*i.e.*, chlorophyll-a, dissolved oxygen and light attenuation). Accordingly, the GBTN GP is requiring a robust ambient monitoring for eelgrass and each of these water quality parameters as part of this adaptive management approach. EPA notes that once water quality standards are met consistently for all nutrient-related parameters throughout the Great Bay estuary, no further nitrogen loading reductions will be necessary (assuming that nitrogen loads do not increase from that level because of significant changes in land use, weather, atmospheric deposition or other reasons that can affect water quality).

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

Reasonable Potential Analysis

Given the numeric threshold chosen above, EPA must determine whether the discharge of nitrogen is at a level which will cause, have the reasonable potential to cause, or contribute to an excursion of water quality standards. The words "contribute to" indicate that nitrogen need not be the sole cause of any potential violation of a state standard. *See* 54 Fed. Reg. 23,868, 23,873 (June 2, 1989). As described in the scientific literature section above, nutrient loading is one of several factors noted in the 2017 SOE report that "magnify each other to stress eelgrass and make habitats less resilient," contributing to the water quality impairments throughout the Great Bay estuary. EPA emphasizes that the factors "magnify[ing] each other" would make the estuary more sensitive to nutrient loading, resulting in a greater need to limit nutrient loading rather than alleviating the need for nutrient controls.

To assess reasonable potential, EPA evaluated recent nitrogen loadings into the Great Bay estuary for comparison with the chosen threshold. The 2018 SOE report indicated that the average loading rate from 2012-2016 was approximately 150 kg ha^{-1} yr^{-1} to the Great Bay estuary. While this estimate included most nitrogen sources throughout the Great Bay watershed, it did not include the full contribution of point source and non-point source nitrogen loadings in the Lower Piscataqua River (LPR) sub-basin of the estuary. Loads from WWTFs into the LPR described in the 2018 SOE report were only partially accounted for based on delivery factors to the upper sections of the estuary; the full WWTF load into the estuary (*i.e.*, giving all discharges directly into the GBE a delivery factor of 100%) results in approximately 82.4 kg ha^{-1} yr^{-1}. Table 4 of the GBTN GP Fact Sheet describes these WWTF loads from 2012-2016. Note that the total load of 2,717.1 lb/day converts to 82.7 kg ha^{-1} yr^{-1}. See Attachment D of this Fact Sheet for copy of Table #4.

Additionally, non-point source and stormwater point source loads from the LPR were not included in the 2018 SOE report. Therefore, EPA referred to the NHDES 2014 Great Bay Non-Point Source Study to determine the 2009-2011 average non-point source and stormwater point source loading rate of approximately 9.1 kg ha^{-1} yr^{-1} from the LPR sub-basin. Primarily due to lower rainfall during 2012-2016 (35.2in/yr) than in 2009-2011 (46.9 in/yr), the non-point source and stormwater point source load (not including the LPR) reduced proportionally from 139.2 kg ha^{-1} yr^{-1} in 2009-2011 to 100.0 kg ha^{-1} yr^{-1} in 2012-2016. By applying the same proportional reduction to the known non-point source and stormwater point source load from the LPR of 9.1 kg ha^{-1} yr^{-1}, the resulting LPR contribution was determined to be approximately 6.6 kg ha^{-1} yr^{-1} for 2012-2016. Adding this load to the known non-point source and stormwater point source load from the rest of

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

the watershed, results in a total non-point source and stormwater point source load of 106.6 kg ha^{-1} yr^{-1}. Therefore, the total average loading rate from the entire Great Bay watershed to the Great Bay estuary in 2012-2016 was calculated to be approximately 189.3 kg ha^{-1} yr^{-1} (*i.e.*, 106.6 plus 82.7), well above the 100 kg ha^{-1} yr^{-1} threshold.

Based on recent permitting efforts and collaboration with NHDES and the Great Bay municipalities as well as the four Maine municipalities, several of the WWTFs have seen recent and ongoing plant upgrades and efforts to optimize nitrogen removal, including Rochester, Portsmouth, Dover, Exeter, Durham, Newmarket and Newington. EPA notes that these recent and anticipated load reductions account for approximately 40 kg ha^{-1} yr^{-1} total load reduction from 2012-2016 levels. These reductions are substantial and are expected to benefit the water quality of the estuary. However, without further reductions the total loading rate is expected to remain well above the 100 kg ha^{-1} yr^{-1} threshold. This substantial exceedance of the maximum threshold set forth in the literature paired with significant water quality impairments throughout the estuary (see Table 2 of the GNTN GP, Attachment C in this Fact Sheet), clearly indicate that nitrogen loads exceed the assimilative capacity of the estuary. Therefore, EPA concludes that all significant discharges of nitrogen into the Great Bay estuary, have the reasonable potential to cause or contribute to system-wide violations of water quality standards. This specifically includes the discharge of treated municipal wastewater from the 17 WWTFs located throughout the Great Bay watershed.

To the extent recent or ongoing nitrogen reductions will achieve compliance with the limitations set forth in the GBTN GP for specific WWTFs and the individual Maine permits, EPA notes that the issuance of the GBTN GP will act to "lock in" these reductions to ensure that loads do not increase in the future.

Effluent Limitations

To achieve acceptable nitrogen loads consistent with the established nutrient threshold, significant point source and non-point source reductions are necessary. An evaluation of existing loads from all 17 WWTFs in the watershed indicated that approximately 85% of the WWTF load from 2012-2016 was from the largest 7 WWTFs (design flow > 2 mgd) and the remaining fraction was from the smaller 10 WWTFs (design flow < 2 mgd)[6]. Based on this analysis, EPA determined that the most environmentally-beneficial and cost-effective reductions in nitrogen should be applied to the largest WWTFs. To achieve the necessary WWTF reductions, the 7 largest dischargers are given annual TN load limits based on 2012-2016 average annual flow and an effluent TN concentration of 8 mg/L. EPA selected the basis of 8 mg/L at average flows for these largest facilities because this is considered the level of treatment achievable at most of the existing facilities without requiring major upgrades in the near future. The remaining 10 smaller dischargers were to be given annual TN load limits based on 2012-2016 average annual

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

flows and available average effluent TN concentrations (*i.e.*, a "hold the load" requirement). However, in the final permit, EPA modified the expression of the limits from being an annual average to seasonal limits applied as a 7- month rolling average from April through October of each year. In section F(1) of the Response to Comments attached to the final GBTN GP, EPA responded as follows:

Some comments requested that the limits be adjusted from annual to seasonal and apply only during the growing season because the winter load is environmentally less important and it is challenging to treat nitrogen in the winter months. Additionally, some comments proposed alternate long-term 60 targets that are seasonally based. EPA agrees that the loading during the summer months has a more significant environmental impact than the loading during the winter months. EPA proposed annual average limits in the Draft General Permit for several reasons. First, to be consistent with the underlying scientific target of 100 kg ha-1 yr-1, EPA determined that both the POTW effluent limits and the nonpoint source and stormwater point source loads should be expressed as annual averages. Second, EPA points out on page 27 of the Fact Sheet that in order to comply with these annual average limits, the POTWs will likely need to reduce the growing season load well below the annual average and that EPA expects this to further benefit the estuary during the growing season. In light of the comments received, EPA has reevaluated this position. EPA recognizes that there is potential for the long-term target to be reevaluated and updated in a future permit reissuance, and that other potential targets may be based on seasonal averages rather than annual averages. Additionally, one primary objective of EPA's adaptive management permitting approach is to give the municipalities flexibility in achieving the most cost-effective nitrogen reductions that will maximize the benefit to water quality throughout Great Bay as expeditiously as possible. Given the large scope of nitrogen reductions and the limited resources available from the municipalities to achieve such reductions, EPA agrees that it is expedient to focus those resources on nitrogen reductions that will have the most benefit. For example, some commenters expressed that designing and constructing larger tanks would be necessary to optimize nitrogen removal in colder months. EPA agrees that this type of expense would not maximize the effectiveness of the municipalities limited resources. While reducing the winter load may have some benefit, EPA has determined that it would be more beneficial to the environment at this time to redirect resources from the winter months and apply them to achieving even more overall reductions during the growing season. Therefore, EPA has changed the Final General Permit to include seasonal limits applied as a 7- month rolling average from April through October of each year. However, EPA will continue to require year-round monitoring. This monitoring will ensure EPA has sufficient data to evaluate seasonal and annual loads in comparison to all potential loading-based or concentration-based targets proposed in the future. See Part II.B.5 above. To calculate these seasonal load limits while maintaining the overall objectives of the permitting approach, EPA has decided to base the limits on the same effluent concentrations used in the Draft General Permit while updating the effluent flow data to include data only from the growing season for the most recent 5-year period. Therefore, the limits in the Final Permit are based on average flows from April through October of 2015 through 2019.

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

Based on the increased ability of WWTFs to remove nitrogen in warmer weather, EPA expects that seasonal variation will occur resulting in lower point source loads in the warmer months and higher point source loads in the colder months. This seasonal variation is expected to further benefit the Great Bay estuary during the most critical months of the growing season, when nitrogen loads are expected to have the most impact on water quality.

Table 4 in EPA's Fact Sheet of the GBTN GP (see Attachment D of this Fact Sheet) presents the waste load allocations for all 17 WWTFs to achieve the chosen threshold. It is noted EPA's footnote for the Maine facilities (Kittery, Berwick, North Berwick and South Berwick) discharges in the state of Maine. Because EPA is not the permitting authority in the state of Maine, these facilities are not subject to this GBTN GP. EPA expects the Maine Department of Environmental Management to regulate nitrogen discharges from these facilities. Table 4 in EPA's Fact Sheet calculated the Berwick Sewer District load allocation by using a daily average flow of 0.21 MGD for the period 2012 – 2016 and an effluent concentration of 16.7 mg/L during the same period of time. The calculation is as follows:

$$(0.21 \text{ MGD})(8.34 \text{ lbs/gal})(16.7 \text{ mg/L}) = 29 \text{ lbs/day}$$

To be consistent with EPA's final GBTN GP, the final permit limit for the Berwick Sewer District was based on updated average discharge flows during the growing season (April-October) for the period 2015-2019 to calculate the final TN allocation. For Berwick Sewer District, the daily average flow was 0.225 MGD. With a TN concentration of 16.7 mg/L and a flow of 0.225 MGD, the final TN limitation is 31 lbs/day. The calculation is as follows:

$$(0.225 \text{ MGD})(8.34 \text{ lbs/gal})(16.7 \text{ mg/L}) = 31 \text{ lbs/day}$$

It is noted that if the Berwick Sewer District realized its full permit flow, the effluent concentration would need to be at the limit of treatment technology for total nitrogen. The calculation is as follows

$$\frac{31 \text{ lbs/day}}{8.34 \text{ lbs/day}(1.1 \text{ MGD})} = 3.4 \text{ mg/L}$$

Non-Point Source and Stormwater Point Source Nitrogen

While the discharge of nitrogen from the 17 WWTFs represents a significant portion of the controllable nitrogen load into the Great Bay estuary, non-point sources and stormwater point sources of pollution still represent the majority of the nitrogen load. EPA has engaged in extensive discussions with NHDES and with Great Bay permittees, and both the state and the permittees have made it clear that they favor an approach that includes both achievable reductions at WWTFs and significant reductions in non-point

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

source and stormwater point source nitrogen loads. On October 21, 2019, NHDES sent a letter to EPA regarding *An Adaptive Nutrient Management Strategy for the Great Bay Estuary*. In this letter, NHDES highlights the importance of restoring the Great Bay estuary through an adaptive management approach designed to address both point sources and non-point sources of nitrogen and supports the use of the 100 kg ha^{-1} yr^{-1} numeric loading threshold as an appropriate translation of the state's narrative water quality standards. Accordingly, the GBTN GP and the four individual Maine permits include achievable WWTF limits and describes optional measures to reduce non-point source and stormwater point source loads to achieve the numeric loading threshold.

The total WWTF allocations above represent a delivered nitrogen load of 1,161 lb/day, or 35.4 kg ha^{-1} yr^{-1}. This leaves 64.6 kg ha^{-1} yr^{-1} for non-point source and stormwater point source loads in order to achieve the overall 100 kg ha^{-1} yr^{-1} loading threshold. As mentioned above, non-point source and stormwater point source loads between 2012 to 2016 averaged 106.6 kg ha^{-1} yr^{-1}. This would indicate a non-point source and stormwater point source load reduction of approximately 39% (in addition to the point source loadings described above) is necessary to achieve the overall loading threshold. However, non-point source and stormwater point source loads are highly correlated to annual rainfall and rainfall in 2012 to 2016 was below average (40.9 in/yr, in Durham, NH from 2012-2016). EPA would expect the non-point source and stormwater point source load to increase proportionally as rainfall returns to average levels in the future. To account for this, EPA normalized the 2012 to 2016 average non-point source and stormwater point source load to average rainfall (45.2 in/yr, in Durham, NH from 1988- 2017), resulting in a non-point source and stormwater point source load of approximately 117.0 kg ha^{-1} yr^{-1}. Given this normalized load, the necessary non-point source and stormwater point source reduction is approximately 45% to achieve the chosen threshold.

EPA notes that the 2017 New Hampshire Small Municipal Separate Storm Sewer System General Permit (the MS4 GP) authorizes stormwater discharges from 18 municipalities within the Great Bay Watershed; nine of these municipalities will also be subject to the GBTN GP. The requirements of the MS4 GP include stormwater best management practices such as post-development stormwater ordinance requirements; fertilizer, grass cutting, and leaf litter management on municipal property; more frequent street sweeping and/or leaf litter collection programs in areas discharging to the nitrogen impaired waters; public education to target nutrient sources; nitrogen source identification in stormwater catchments; and tracking of structural stormwater control nitrogen reductions. The GBTN GP does not include requirements contained in the NH MS4 GP. The Maine MS4 permit issued in October 2020 for the four municipalities in Maine also does not contain GBTN GP requirements. EPA and the State of Maine anticipate that the next reissuance of the MS4 GPs will likely contain updated nitrogen control requirements for all communities covered under the MS4 GP based on data

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

gathered through the Adaptive Management Ambient Monitoring Program of the GBTN GP, current impairment status of waterbodies, relevant stormwater reductions of TN necessary to meet water quality standards, stormwater control performance, and any other relevant information to ensure the requirements of the NH and Maine MS4 GPs result in the attainment of water quality standards in the Great Bay estuary. In addition, EPA and the state of Maine will consider incorporating a requirement in a future reissuance of the MS4 GP for all permitted municipalities within the Great Bay watershed to contribute equitably to the Adaptive Management Ambient Monitoring Program described in the GBTN GP.

EPA has determined, in the context of inherent scientific uncertainty and technical complexity, that the numeric limitations and optimization requirements for the WWTFs through the GBTN GP and Maine individual permits, along with significant non-point source and stormwater point source reductions which are planned to occur outside the requirements of this permit, will ensure that the discharges do not cause or contribute to violations of applicable water quality standards, including narrative water quality standards for nutrients, in accordance with Section 301(b)(1)(C) of the CWA.

As for non-point source reduction, the waste load allocation calls for a 45% reduction in the watershed contributing to Great Bay. The Town of Berwick is a regulated municipal separate storm sewer (MS4) municipality via the Maine MS4 General permit issued on October 21, 2020. With the implementation and compliance with the six Minimum Control Measures (MCMs), the Department anticipates a reduction in the total nitrogen being conveyed to Great Bay.

p. Ambient River Monitoring: The 2003 permit required summertime ambient river monitoring for dissolved oxygen, temperature, chlorophyl a, total phosphorus and ortho-phosphate. Berwick SD was responsible for monitoring twice per month just above (0.1 miles) the Lower Great Falls Dam. BSD also split monitoring with Somersworth (2 months each) for DO and temperature monitoring at the Bridge above the Somersworth WWTP. The ambient monitoring condition were derived from recommendations in the TMDL. Although the TMDL concluded that water quality conditions would be met after some changes in dam operational controls and after the dischargers achieve the TMDLs, there remained some uncertainty. Ambient monitoring at critical locations during prior water quality monitoring studies was needed to verify that the standards were being achieved. The monitoring plan was incorporated into the State and federal permits for each of the four other direct dischargers to the Salmon Falls River. Each of the four other dischargers was required to monitor one nearby site.

The permittee has been participating in an annual summertime (July 1 – September 30) ambient water quality monitoring program required by Special Condition B, *Ambient River Monitoring*, of the 2003 permit. The 20 years of monitoring data indicates that There are still sporadic excursions of the dissolved oxygen standards for the receiving water.

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

Therefore, the Department is carrying forward Special Condition B (K in this permit), *Ambient River Monitoring*, of the previous permit given the sporadic excursions of the dissolved oxygen standards for the receiving water.

7. PRETREATMENT

The 2003 permit required the permittee to administer a pretreatment program based on the authority granted under Federal regulations 40 CFR §122.44(j), 40 CFR Part 403 and section 307 of the Federal Water Pollution Control Act (Clean Water Act) and Department rule Chapter 528, Pretreatment Program. The permittee's pretreatment program received EPA approval on July 19, 1985 and as a result, appropriate pretreatment program requirements were incorporated into the previous National Pollutant Discharge Elimination System (NPDES) permit which were consistent with that approval and federal pretreatment regulations in effect when the permit was issued.

With the closure of Prime Tanning in 2009, the State of Maine's pretreatment coordinator issued a letter to the BSD on August 6, 2009, relieving the BSD from there obligations to maintain a pretreatment program. Therefore, this permit is not carrying forward the pretreatment conditions from the previous permit.

8. ANTI-BACKSLIDING

Federal regulation 40 CFR, §122(l) contains the criteria for what is often referred to as the anti-backsliding provisions of the Federal Water Pollution Control Act (Clean Water Act). In general, the regulation states that except for provisions specified in the regulation, effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards or conditions in the previous permit. Applicable exceptions include (1) material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation and (2) information is available which was not available at the time of the permit issuance (other than revised regulations, guidance or test methods) and which would justify the application of less stringent effluent limitations at the time of permit issuance.

All terms and conditions in this permit are equally as stringent as the previous permit issued on January 22, 2003, or have been modified based on new information such as the closure of the tannery.

9. ANTI-DEGRADATION/DISCHARGE IMPACT ON RECEIVING WATER QUALITY

After full implementation of the TMDL for the five municipal treatment facilities and changes in dam operational controls to improve water quality, the EPA, MEDEP and the NHDHS anticipate water quality standards for ME and NH will be attained. Should future instream sampling data indicate that more stringent limitations are necessary to attain standards, this permit will reopened per Special Condition M of this permit to incorporate appropriate limitations and monitoring requirements. 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 waterbody to meet standards for Maine's Class C or New Hampshire's Class B classification.

10. PUBLIC COMMENTS

Public notice of this application was made in the Fosters Daily Democrat newspaper on or about December 18, 2007. The Department receives public comments on an application until the date a final agency action is taken on that application. Those persons receiving copies of draft permits shall have at least 30 days in which to submit comments on the draft or to request a

11. DEPARTMENT CONTACTS

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

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

12. RESPONSE TO COMMENTS

Reserved until the close of the formal 30-day public comment period.

ATTACHMENT A


Berwisk SD
Write a description for your map.
Legend
Berwick Iron & Metal Recycling
Berwick Sewer District
Power House Rd
Berwick Iron & Metal Recycling
236
Worster Brook
Berwick Sewer District
Buffumsville Rd
Salmon Falls River
Google Earth
Image Landsat / Copernicus
N
1000 ft


Berwick SD
Write a description for your map.
Legend
Berwick Iron & Metal Recycling
Berwick Sewer District
Berwick Sewer District
Google Earth
Image Landsat / Copernicus
N
200 ft

ATTACHMENT B

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAPTER 530.2(D)(4) CERTIFICATION

MEPDES#_____Facility Name_____

Since the effective date of your permit, have there been;		NO	YES Describe in comments section
1	Increases in the number, types, and flows of industrial, commercial, or domestic discharges to the facility that in the judgment of the Department may cause the receiving water to become toxic?	☐	☐
2	Changes in the condition or operations of the facility that may increase the toxicity of the discharge?	☐	☐
3	Changes in storm water collection or inflow/infiltration affecting the facility that may increase the toxicity of the discharge?	☐	☐
4	Increases in the type or volume of hauled wastes accepted by the facility?	☐	☐

COMMENTS:

Name (printed): _____

Signature:_____Date: _____

This document must be signed by the permittee or their legal representative.

This form may be used to meet the requirements of Chapter 530.2(D)(4). This Chapter requires all dischargers having waived or reduced toxic testing to file a statement with the Department describing changes to the waste being contributed to their system as outlined above. As an alternative, the discharger may submit a signed letter containing the same information.

Scheduled Toxicity Testing for the next calendar year

Test Conducted	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
WET Testing	□	□	□	□
Priority Pollutant Testing	□	□	□	□
Analytical Chemistry	□	□	□	□
Other toxic parameters [1]	□	□	□	□

Please place an "X" in each of the boxes that apply to when you will be conducting any one of the three test types during the next calendar year.

[1] This only applies to parameters where testing is required at a rate less frequently than quarterly.

ATTACHMENT C

- 2012 Nutrient-Related Water Quality Impairments in the Great Bay Estuary

Assessment Zone	Chlorophyll-a	DO (mg/L)	DO (% Sat)	Estuarine Bioassessments (eelgrass)	Water Clarity (Light Attenuation Coefficient)	Total Nitrogen
Squamscott River South	5-P	5-P	5-M			5-P
Squamscott River North	5-P	5-P		5-P	5-P	5-P
Lamprey River North	5-M	5-P	5-M			5-M
Lamprey River South	5-M			5-P	5-P	5-P
Winnicut River				5-P		
Great Bay				5-P	5-M	5-M
Little Bay				5-P	5-M	5-M
Oyster River	5-M	5-P	5-M	5-P	5-P	5-P
Bellamy River				5-P		5-P
Cocheco River	5-M					5-P
Salmon Falls River	5-P	5-P	5-M			5-M
Upper Piscataqua River				5-P	5-P	5-P
Lower Piscataqua River North				5-P		
Lower Piscataqua River South				5-P		
Portsmouth Harbor				5-P	5-M	5-M
Little Harbor/Back Channel				5-P	5-M	5-M
Sagamore Creek				5-P		

5-P indicates a water quality designation of "Impaired, Poor Water Quality"
5-M indicates a water quality designation of "Impaired, Marginally Below Criteria"

ATTACHMENT D

Table 4 - Annual Nitrogen Load Allocations

WWTF	TN Load Allocations (lb/day)	Delivery Factor (%)	Actual Load to GBE (lb/day)
Rochester	198	75.56	149.8
Portsmouth	269	100	269.2
Dover	164	100	163.9
Exeter	108	100	107.6
Durham	60	100	59.8
Kittery[1]	60	100	60.2
Somersworth	96	94.94	91.1
Pease ITP	87	100	87.4
Berwick[1]	29	94.55	27.3
North Berwick[1]	47	51.56	24.3
Newmarket	35	100	34.8
South Berwick[1]	14	100	13.9
Epping	37	58.2	21.8
Newington	16	100	15.6
Rollinsford	12	98.96	11.4
Newfields	16	100	16.0
Milton	11	65.7	7.1
Total	1,259	---	1,161

[1] Kittery, Berwick, North Berwick and South Berwick WWTFs discharge in the state of Maine. Because EPA is not the permitting authority in the state of Maine, these facilities are not subject to this general permit. EPA expects the Maine Department of Environmental Management to regulate nitrogen discharges from these facilities.