IN THE MATTER OF

NORTH BERWICK SANITARY DISTRICT	)	MAINE POLLUTANT DISCHARGE
NORTH BERWICK, YORK COUNTY, MAINE	)	ELIMINATION SYSTEM PERMIT
PUBLICLY OWNED TREATMENT PLANT	)	AND
#ME0101885	)	WASTE DISCHARGE LICENSE
#W006267-5L-D-R APPROVAL	)	RENEWAL

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

APPLICATION SUMMARY

The applicant has applied for renewal of Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0101885 / Maine Waste Discharge License (WDL) #W-006267-5L-C-R which was issued on August 14, 2002 for a five-year term. The MEPDES / WDL authorized a variable rate seasonal discharge with a minimum in-stream dilution of 20:1, a maximum discharge of 0.1 million gallons per day (MGD) during January and February, a maximum discharge of 1.0 MGD from March through May as well as from October through December, and no discharge from June through September. Treated sanitary wastewater is discharged to the Great Works River, Class B, in North Berwick, Maine.

PERMIT SUMMARY

This permitting action is similar to the August 14, 2002 MEPDES Permit / Maine WDL in that it is carrying forward the:

1. required daily minimum ambient to effluent dilution of 20:1;
2. 1.0 MGD monthly average discharge flow limit and daily maximum reporting requirement, but revising the period it is in effect to October 1 through May 31 each year;
3. Biochemical oxygen demand (BOD) and total suspended solids (TSS) mass and concentration limits and monitoring requirements;
4. requirements for a minimum of 85% removal of BOD and TSS;
5. Settleable solids daily maximum concentration limit;
6. *E. coli* bacteria monthly average and daily maximum seasonal concentration limits;
7. pH range limit of 6.0 to 9.0 standard units;
8. June 1 through September 30 discharge prohibition to the Great Works River;
9. storage lagoon toe-drain monitoring program; and
10. requirements to maintain a current Operations and Maintenance Plan for the facility.

PERMIT SUMMARY (cont'd)

This permitting action is different from the August 14, 2002 MEPDES Permit / WDL in that it is establishing:

1. revised requirements for monthly average and daily minimum ambient stream flow;
2. monthly average water quality based mass and concentration limits for inorganic arsenic based on facility toxicity testing results, with a schedule of compliance that delays the effective date of the limits until the USEPA approves of a test method for inorganic arsenic, and interim procedures for monitoring and reporting total arsenic;
3. monthly average water quality based mass and concentration limits for Bis(2-ethylexyl)phthalate, cadmium, lead, and thallium based on facility toxicity testing results and monitoring frequencies of twice per year pursuant to an April 2006 Permit Modification and Department rules;
4. acute no observed effect level (ANOEL) water quality based limits for brook trout;
5. requirements to develop Toxicity Reduction Evaluation plans to outline strategies to identify the sources and action items to be implemented to eliminate exceedences of ambient water quality criteria associated with brook trout, arsenic, lead, and thallium testing;
6. whole effluent toxicity (WET), analytical chemistry, and chemical specific (priority pollutant) testing requirements pursuant to Department rules Chapter 530, *Surface Water Toxics Control Program*, Chapter 584, *Surface Water Quality Criteria for Toxic Pollutants*;
7. requirements to report annually on any changes to the influent waste-stream or facility operations that may result in increases in the toxicity of the discharge;
8. 0.1 MGD daily maximum discharge flow limit and monthly average reporting requirement when ice is present on the Great Works River at, or below and within sight of, the USGS river gage;
9. effluent mass limits based on the reduced effluent flow limit and concentration limits based on best practicable treatment requirements during the period when the 0.1 MGD daily maximum flow limit is in effect;
10. minimum monitoring frequency and sample type requirements based on Department best professional judgement (BPJ);
11. a requirement to maintain a current wet weather flow management plan for the facility;
12. a requirement for a Storage Lagoon Sludge Management section within the facility O&M Manual, to address requirements and procedures for monitoring, reporting, and disposal / utilization of NBSD storage lagoon sludge; and
13. revised hydrograph release operational and reporting requirements based on dynamics of a new USGS gage station on the Great Works River.

CONCLUSIONS

BASED on the findings in the attached Fact Sheet dated July 10, 2007 and revised December 20, 2007, and subject to the Conditions listed below, the Department makes the following conclusions:

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

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

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

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

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

    c. The standards of classification of the receiving water body are met or, where the standards of classification of the receiving water body are not met, the discharge will not cause of 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 NORTH BERWICK SANITARY DISTRICT to discharge secondary treated wastewaters to the Great Works River, Class B, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations:

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

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

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

DONE AND DATED AT AUGUSTA, MAINE, THIS 28th DAY OF December, 2007.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:_____
David P. Littell, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application June 13, 2007.

Date of application acceptance June 13, 2007.

Date filed with Board of Environmental Protection _____

This Order prepared by Robert D. Stratton, BUREAU OF LAND & WATER QUALITY

SPECIAL CONDITIONS
A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. The permittee is authorized to discharge treated sanitary wastewater from **OUTFALL #001A** to the Great Works River, for the period **from October 1 through May 31 of each calendar year**. Such discharges shall be limited and monitored by the permittee as specified below. **The discharge is prohibited from June 1 through September 30 of each calendar year.**

Effluent Characteristic	Discharge Limitations							Minimum Monitoring Requirements	
	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Daily Minimum as specified	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Stream Flow[1] *[00061]*	Report CFS *[08]*	---	---	Report CFS *[08]*	---	---	---	Daily When Discharging *[DL/DS]*	Measure *[MS]*
Dilution Factor[2] *{80093]*	---	---	---	20:1 *[1U]*	---	---	---	Daily When Discharging *[DL/DS]*	Calculate *[CA]*

The italicized numeric values bracketed in the table above and on the following pages are code numbers that Department personnel utilize to code the monthly Discharge Monitoring Reports (DMRs). Footnotes are found on Pages 10-14.

SPECIAL CONDITIONS

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

2. The permittee is authorized to discharge treated sanitary wastewater from **OUTFALL #001A** to the Great Works River, for the period **from October 1 through May 31 of each calendar year**. Such discharges shall be limited and monitored by the permittee as specified below, **EXCEPT WHEN ICE IS PRESENT AS DESCRIBED IN TABLE A.3. The discharge is prohibited from June 1 through September 30 of each calendar year.**

Effluent Characteristic	Discharge Limitations						Minimum Monitoring Requirements	
	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Flow[2,3] *[50050]*	1.0 MGD *[03]*	---	Report MGD *[03]*	---	---	---	Continuous *[CN]*	Recorder *[RC]*
BOD_5 *[00310]*	163 lb/day *[26]*	244 lb/day *[26]*	271 lb/day *[26]*	30 mg/L *[19]*	45 mg/L *[19]*	50 mg/L *[19]*	1/Week *[01/07]*	Composite *[24]*
BOD_5 Percent Removal[4] *[81010]*	---	---	---	85% *[23]*	---	---	1/Month *[01/30]*	Calculate *[CA]*
Total Suspended Solids (TSS) *[00530]*	163 lb/day *[26]*	244 lb/day *[26]*	271 lb/day *[26]*	30 mg/L *[19]*	45 mg/L *[19]*	50 mg/L *[19]*	1/Week *[01/07]*	Composite *[24]*
TSS Percent Removal[4] *[81011]*	---	---	---	85% *[23]*	---	---	1/Month *[01/30]*	Calculate *[CA]*
Settleable Solids *[00545]*	---	---	---	---	---	0.3 ml/L *[25]*	5/Week *[05/07]*	Grab *[GR]*
E. Coli Bacteria[5] **May 15 to Sept 30** *[31616]*	---	---	---	64/100 ml[6] *[13]*	---	427/100 ml *[13]*	1/Week *[01/07]*	Grab *[GR]*
pH (Std. Units) *[00400]*	---	---	---	---	---	6.0 – 9.0 SU *[12]*	Daily *[01/01]*	Grab *[GR]*
Arsenic (Total) [7] *[01002]* ***(Upon permit issuance)***	report lb/day *[26]*	---	---	report ug/L *[28]*	---	---	2/Year[9] *[02/YR]*	Composite *[24]*
Arsenic (Inorganic) [8] *[01252]* ***(Upon EPA test method approval)***	0.001 lb/day *[26]*	---	---	0.18 ug/L *[28]*	---	---	2/Year[9] *[02/YR]*	Composite *[24]*
Bis(2-ethylexyl)phthalate *[16770]*	0.098 lb/day *[26]*	---	---	18 ug/L *[28]*	---	---	2/Year[9] *[02/YR]*	Composite *[24]*
Cadmium (Total) *[01027]*	0.006 lb/day *[26]*	---	---	1.2 ug/L *[28]*	---	---	2/Year[9] *[02/YR]*	Composite *[24]*
Lead (Total) *[01051]*	0.03 lb/day *[26]*	---	---	6.3 ug/L *[28]*	---	---	2/Year[9] *[02/YR]*	Composite *[24]*
Thallium (Total) *[01059]*	0.014 lb/day *[26]*	---	---	2.6 ug/L *[28]*	---	---	2/Year[9] *[02/YR]*	Composite *[24]*

The italicized numeric values bracketed in the table above and on the following pages are code numbers that Department personnel utilize to code the monthly DMRs. Footnotes are found on Pages 10-14.

SPECIAL CONDITIONS

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

3. The permittee is authorized to discharge treated sanitary wastewater from **OUTFALL #001A** to the Great Works River, for the period **from October 1 through May 31 of each calendar year**. Such discharges shall be limited and monitored by the permittee as specified below **WHEN ICE IS PRESENT ON THE GREAT WORKS RIVER AT, OR BELOW AND WITHIN SIGHT OF, THE USGS RIVER GAGE**. **The discharge is prohibited from June 1 through September 30 of each calendar year.**

Effluent Characteristic	Discharge Limitations						Minimum Monitoring Requirements	
	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Monthly Average as specified	Weekly Average as specified	Daily Maximum as specified	Measurement Frequency as specified	Sample Type as specified
Flow[2,3] *[50050]*	Report MGD *[03]*	---	0.1 MGD *[03]*	---	---	---	Continuous *[CN]*	Recorder *[RC]*
BOD_5 *[00310]*	25 lb/day *[26]*	38 lb/day *[26]*	42 lb/day *[26]*	30 mg/L *[19]*	45 mg/L *[19]*	50 mg/L *[19]*	1/Week *[01/07]*	Composite *[24]*
BOD_5 Percent Removal[4] *[81010]*	---	---	---	85% *[23]*	---	---	1/Month *[01/30]*	Calculate *[CA]*
Total Suspended Solids (TSS) *[00530]*	25 lb/day *[26]*	38 lb/day *[26]*	42 lb/day *[26]*	30 mg/L *[19]*	45 mg/L *[19]*	50 mg/L *[19]*	1/Week *[01/07]*	Composite *[24]*
TSS Percent Removal[4] *[81011]*	---	---	---	85% *[23]*	---	---	1/Month *[01/30]*	Calculate *[CA]*
Settleable Solids *[00545]*	---	---	---	---	---	0.3 ml/L *[25]*	5/Week *[05/07]*	Grab *[GR]*
pH (Std. Units) *[00400]*	---	---	---	---	---	6.0 – 9.0 su *[12]*	Daily *[01/01]*	Grab *[GR]*
Arsenic (Total) [7] *[01002]* ***(Upon permit issuance)***	report lb/day *[26]*	---	---	report ug/L *[28]*	---	---	2/Year[9]) *[02/YR]*	Composite *[24]*
Arsenic (Inorganic) [8] *[01252]* ***(Upon EPA test method approval)***	0.00015 lb /day *[26]*	---	---	0.18 ug/L *[28]*	---	---	2/Year[9] *[02/YR]*	Composite *[24]*
Bis(2-ethylexyl)phthalate *[16770]*	0.015 lb/day *[26]*	---	---	18 ug/L *[28]*	---	---	2/Year[9] *[02/YR]*	Composite *[24]*
Cadmium (Total) *[01027]*	0.001 lb/day *[26]*	---	---	1.2 ug/L *[28]*	---	---	2/Year[9] *[02/YR]*	Composite *[24]*
Lead (Total) *[01051]*	0.0052 lb /day *[26]*	---	---	6.3 ug/L *[28]*	---	---	2/Year[9] *[02/YR]*	Composite *[24]*
Thallium (Total) *[01059]*	0.002 lb/day *[26]*	---	---	2.6 ug/L *[28]*	---	---	2/Year[9] *[02/YR]*	Composite *[24]*

The italicized numeric values bracketed in the table above and on the following pages are code numbers that Department personnel utilize to code the monthly DMRs. Footnotes are found on Pages 10-14.

SPECIAL CONDITIONS

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

4. Whole Effluent Toxicity, Analytical Chemistry, and Priority Pollutant Testing, Outfall #001A

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

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Whole Effluent Toxicity(10)						
Acute – ANOEL						
Ceriodaphnia dubia (Water flea) [TDA3B]	---	---	---	Report %*[23]*	1/ 2Years *[01/2YR]*	Composite*[24]*
Salvelinus fontinalis (Brook trout) [TDA6F]	---	---	---	5%*[23]*	1 / Year *[01/YR]*	Composite*[24]*
Chronic – CNOEL						
Ceriodaphnia dubia (Water flea) [TBP3B]	---	---	---	Report %*[23]*	1/ 2Years *[01/2YR]*	Composite*[24]*
Salvelinus fontinalis (Brook trout) [TBQ6F]	---	---	---	Report %*[23]*	1/ 2Years *[01/2YR]*	Composite*[24]*
Analytical Chemistry(11,12) [*51477*]	**---**	**---**	**---**	Report ug/L*[28]*	1/ 2Years *[01/2YR]*	Composite/Grab [24]

SCREENING LEVEL - Beginning 12 months prior to permit expiration and lasting through permit expiration and every five years thereafter.

Effluent Characteristic	Discharge Limitations				Minimum Monitoring Requirements	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Whole Effluent Toxicity(10)						
Acute – ANOEL						
Ceriodaphnia dubia (Water flea) [TDA3B]	---	---	---	Report %*[23]*	2 / Year *[02/YR]*	Composite*[24]*
Salvelinus fontinalis (Brook trout) [TDA6F]	---	---	---	5%*[23]*	2 / Year *[02/YR]*	Composite*[24]*
Chronic – CNOEL						
Ceriodaphnia dubia (Water flea) [TBP3B]	---	---	---	Report %*[23]*	2 / Year *[02/YR]*	Composite*[24]*
Salvelinus fontinalis (Brook trout) [TBQ6F]	---	---	---	Report %*[23*	2 / Year *[02/YR]*	Composite*[24]*
Analytical Chemistry(11,12) [*51477*]	**---**	**---**	**---**	Report ug/L*[28]*	1 / Quarter *[01/90]*	Composite/Grab [24]
Priority Pollutant(12) [*50008*]	**---**	**---**	**---**	Report ug/L*[28]*	1 / Year *[01/YR]*	Composite/Grab [24]

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

5. STORAGE LAGOON TOE DRAIN MONITORING, Outfall #002A

The permittee is required to conduct sampling on the outlet to the storage lagoon toe drain (as indicated in Fact Sheet Attachment B) as specified below

Effluent Characteristic — Monitoring Requirements

Parameter	Daily Maximum (units specified)	Measurement Frequency	Sample Type
Flow Rate *[00058]*	Report GPM *[78]*	3/Year(13) *[03/YR]*	Estimate *[ES]*
Specific Conductance *[00095]*	Report (umhos/cm) *[11]*	3/Year(13) *[03/YR]*	Grab *[GR]*
Temperature, °C *[00010]*	Report (°C) *[04]*	3/Year(13) *[03/YR]*	Grab *[GR]*
E. Coli Bacteria *[31616]*	Report # / 100 ml *[13]*	3/Year(13) *[03/YR]*	Grab *[GR]*

The italicized numeric values bracketed in the table above and on the following pages are code numbers that Department personnel utilize to code the monthly DMRs. Footnotes are found on Pages 10-14.

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

Effluent Sampling: All required effluent samples shall be collected at the bottom of the cascade aeration structure, which is the last point of contact before the effluent exits the facility; or another location specified by the Department. Any change in sampling location(s) must be reviewed and approved by the Department in writing. Sampling and analysis must be conducted in accordance with: a) methods approved by 40 Code of Federal Regulations (CFR) Part 136, b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136, or c) as otherwise specified by the Department. Samples that are sent out for analysis shall be analyzed by a laboratory certified by the State of Maine's Department of Health and Human Services.

All detectable analytical test results shall be reported to the Department including results which are detected below the respective reporting limits (RLs) specified by the Department or as specified by other approved test methods. If a non-detect analytical test result is below the respective RL, the concentration result shall be reported as <Y where Y is the detection limit achieved by the laboratory for each respective parameter. Reporting a value of <Y that is greater than an established RL is not acceptable and will be rejected by the Department. For mass, if the analytical result is reported as <Y or if a detectable result is less than a RL, report a <X lbs/day, where X is the parameter specific limitation established in the permit.

Footnotes:

1. **Ambient flow monitoring** – Ambient flow monitoring shall be conducted using the USGS gaging site on the Great Works River upstream of NBSD at the Madison Street Bridge established in 2006, unless formally revised in writing by the Department. Ambient flow monitoring shall only be required when the level of the river is at or below a USGS marker installed at the gage site that designates a 60-cubic feet per second (cfs) river flow and a 40:1 dilution (ambient : effluent) at the 1.0 MGD permitted flow. NBSD shall at all times utilize the most current rating table as indicated by the USGS. A daily log shall be kept listing the date, time, staff gauge reading, estimated stream flow based upon the staff gauge reading and the current USGS rating curve. The log shall be submitted to the Department with the annual Hydrograph Release Status Report (see Special Condition M).

2. **Minimum dilution** - The permittee shall manage its wastewater flows so that it maintains a minimum ambient to effluent dilution ratio of at least 20:1, regardless of discharge flow.

3. **Discharge flow** - The permittee is authorized to discharge wastewater between October 1 and May 31 and prohibited from discharging between June 1 and September 30 each calendar year. When ice is present on the Great Works River at, or below and within sight of, the USGS river gage, the daily maximum flow limit is 0.1 MGD.

SPECIAL CONDITIONS

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

4. **Percent removal** - The treatment facility shall maintain a minimum of 85 percent removal of both BOD_5 and TSS. The percent removal shall be based on a monthly average calculation using influent and effluent concentrations. Compliance shall be based on a twelve-month rolling average of the most recent twelve-month period, excluding months of no discharge. The percent removal limit shall be waived when the monthly average influent concentration is less than 200 mg/L. For instances when this occurs, the facility shall report "*NODI-9*" on the monthly Discharge Monitoring Report.

5. ***E. coli* bacteria** – *E. coli* limits and monitoring requirements are seasonal (May 15 – September 30). The Department reserves the right to require disinfection at anytime of year to protect the health, safety and welfare of the public.

6. **Geometric mean** – The monthly average limitation is a geometric mean limitation and shall be calculated and reported as such.

7. **Arsenic (Total)** – **Beginning upon issuance of this permit and lasting through a date on which the USEPA approves a test method for inorganic arsenic**, the permittee shall sample and analyze the discharge from the facility for total arsenic. The Department's most current reporting limit (RL) for total arsenic is 5 ug/L but may be subject to revision during the term of this permit. All detectable analytical test results shall be reported to the Department including results which are detected below the Department's most current RL at the time of sampling and reporting. Only the detectable results greater than the total arsenic threshold of 0.36 ug/L (See Fact Sheet page 24) or the Department's RL at the time (whichever is higher) will be considered as a possible exceedence of the inorganic limit.

8. **Arsenic (Inorganic)** – The limitations and monitoring requirements for inorganic arsenic are not in effect until the USEPA approves of a test method for inorganic arsenic. See Special Condition K, *Schedule of Compliance – Inorganic Arsenic*, of this permit.

9. **2/Year monitoring** – Monitoring shall be conducted twice per year. One monitoring event shall occur in the 4^{th} quarter of each year, while the second monitoring event shall alternate between the 1^{st} and 2^{nd} quarters in subsequent years.

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

10. **Whole Effluent Toxicity (WET)** - Definitive WET testing is a multi-concentration testing event (a minimum of five dilutions bracketing the acute and chronic critical thresholds of 5% and 5% respectively), which provides a point estimate of toxicity in terms of No Observed Effect Level, commonly referred to as NOEL or NOEC. A-NOEL is defined as the acute no observed effect level with survival as the end point. C-NOEL is defined as the chronic no observed effect level with survival, reproduction and growth as the end points. The critical acute and chronic thresholds were derived as the mathematic inverse of the applicable acute and chronic dilution factors of 20:1 for each.

    a. **Surveillance level testing** - Beginning upon permit issuance and lasting through 12 months prior to permit expiration, the permittee shall conduct surveillance level WET testing. Acute and chronic tests shall be conducted on the water flea (*Ceriodaphnia dubia*) and chronic tests on the brook trout (*Salvelinus fontinalis*) at a frequency of once every two years (1/2 Years), and acute tests on the brook trout at a frequency of once every year (1/Year). Tests shall be conducted in a different calendar quarter each year.

    b. **Screening level testing** - Beginning 12 months prior to permit expiration and lasting through permit expiration and every five years thereafter, the permittee shall conduct screening level WET testing at a minimum frequency of twice per year (2/Year) for both species. There shall be at least six (6) months between testing events. Acute and chronic tests shall 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 shall evaluate test results being submitted and identify to the Department possible exceedences of the critical acute and chronic water quality thresholds of 5% for each. Toxicity tests must be conducted by an experienced laboratory approved by the Department. The laboratory must follow procedures as described in the following U.S.E.P.A. methods manuals.

    a. Short Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Water to Freshwater Organisms, Fourth Edition, October 2002, EPA-821-R-02-013.
    b. Methods for Measuring the Acute Toxicity of Effluent and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, October 2002, EPA-821-R-02-012.

    The permittee is also required to analyze the effluent for the nine (9) parameters specified in the WET chemistry section, and the twelve (12) parameters specified in the Analytical Chemistry section, of the form in Attachment A of this permit each time a WET test is performed.

SPECIAL CONDITIONS

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

11. **Analytical chemistry** – Refers to a suite of twelve (12) chemical tests that consist of ammonia nitrogen (as N), total aluminum, total arsenic, total cadmium, total chromium, total copper, total cyanide, total lead, total nickel, total silver, total zinc and total residual chlorine.

    a. **Surveillance level testing** – Beginning upon permit issuance and lasting through 12 months prior to permit expiration, the permittee shall conduct analytical chemistry testing at a minimum frequency of once every two years (1/2 Years). Tests are to be conducted in a different calendar quarter of each year. It is noted that the testing frequencies for arsenic, Bis(2-ethylexyl)phthalate, cadmium, lead, and thallium are twice per year (2/Year).

    b. **Screening level testing** – Beginning 12 months prior to permit expiration and every five years thereafter, the permittee shall conduct analytical chemistry testing at a minimum frequency of once per calendar quarter (1/Quarter) for four consecutive calendar quarters.

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

    a. **Screening level testing** – Beginning 12 months prior to permit expiration and every five years thereafter, the permittee shall conduct screening level priority pollutant testing at a minimum frequency of once per year (1/Year). It is noted Chapter 530 does not establish routine surveillance level testing priority pollutant testing.

    Priority pollutant and analytical chemistry testing shall be conducted on samples collected at the same time as those collected for whole effluent toxicity tests when applicable. Priority pollutant and analytical chemistry testing shall be conducted using methods that permit detection of a pollutant at existing levels in the effluent or that achieve minimum reporting levels of detection as specified by the Department. See Attachment A of this permit for a list of the Department's reporting levels (RLs) of detection. Test results must be submitted to the Department not later than the next DMR required by the permit provided, however, that the permittee may review the toxicity reports for up to 10 business days of their availability before submitting them. The permittee shall evaluate test results being submitted and identify to the Department, possible exceedences of the acute, chronic or human health AWQC as established in Department rule Chapter 584. For the purposes of Discharge Monitoring Report (DMR) reporting, enter a "1" for yes, testing done this monitoring period or "NODI-9" monitoring not required this period.

SPECIAL CONDITIONS

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

All mercury sampling (1/quarter) required to determine compliance with interim limitations established pursuant to Department rule Chapter 519, shall be conducted in accordance with EPA's "clean sampling techniques" found in EPA Method 1669, Sampling Ambient Water For Trace Metals At EPA Water Quality Criteria Levels. All mercury analysis shall be conducted in accordance with EPA Method 1631, Determination of Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Fluorescence Spectrometry. See Attachment B of this Permit for the Department's report form for mercury results.

13. The outlet to the storage lagoon toe drain shall be monitored during the months of **April, July and October of each calendar year**, with results reported pursuant to Permit Special Condition N.

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. DISINFECTION

Due to the seasonal restrictions on discharge (prohibited from June 1st through September 30th) and the long holding time in the storage lagoon, the NBSD facility does not currently disinfect its effluent. Therefore, this permitting action does not establish effluent limits for TRC nor authorize the use of chlorine products at the facility in such a way that they may enter the facility waste-stream and receiving water.

SPECIAL CONDITIONS

D. TREATMENT PLANT OPERATOR

The wastewater treatment facility must be operated under the direction of a person holding a minimum of a **Grade II** certificate [or Maine Professional Engineer (PE) certificate] pursuant to 32 M.R.S.A., §§ 4171 - 4182. All proposed contracts for facility operation by any person must be approved by the Department before the permittee may engage the services of the contract operator.

E. LIMITATIONS FOR INDUSTRIAL USERS

Pollutants introduced into the wastewater collection and treatment system by a non-domestic source (user) shall not pass through or interfere with the operation of the treatment system.

F. NOTIFICATION REQUIREMENT

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

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

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

3. For the purposes of this section, adequate notice shall include information on:

    a. The quality and quantity of wastewater introduced to the wastewater collection and treatment system; and

    b. Any anticipated change in the quality and quantity of the wastewater to be discharged from the treatment system.

G. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge treated sanitary wastewaters only in accordance with: 1) the permittee's General Application for Waste Discharge Permit, accepted for processing on June 13, 2007; 2) the terms and conditions of this permit; and 3) only from Outfall #001A. Discharges of wastewater from any other point source are not authorized under this permit, and shall be reported in accordance with Standard Condition B(5)(*Bypass*) of this permit.

SPECIAL CONDITIONS

H. WET WEATHER MANAGEMENT PLAN

The treatment facility staff shall maintain a current 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. The plan shall 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 to be adhered to during the events.

The permittee shall review their plan annually and record any necessary changes to keep the plan up-to-date.

I. OPERATIONS AND MAINTENANCE (O&M) MANUAL

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. **The O&M Manual shall include a section devoted to Storage Lagoon Sludge Management, to include annual monitoring and reporting of lagoon sludge levels and procedures for development of and adherence to a sludge disposal/utilization program.**

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.

J. TOXICITY REDUCTION EVALUATION (TRE)

Within forty-five (45) days of the effective date of this permit, *[PCS code 02199]* the permittee shall submit to the Department for review and approval, a TRE plan which outlines a strategy to identify the source(s) and action items to be implemented to eliminate exceedences of ambient water quality criteria associated with the brook trout, arsenic, lead, and thallium testing. The TRE plan for arsenic shall adhere to the Department's December 2007 guidance.

SPECIAL CONDITIONS

K. SCHEDULE OF COMPLIANCE: Inorganic Arsenic

Beginning upon issuance of this permit and lasting through a date on which the USEPA approves a test method for inorganic arsenic, the limitations and monitoring requirements for inorganic arsenic are not in effect. During this time frame, the permittee is required by Special Condition A, *Effluent Limitations and Monitoring Requirements*, of this permit to conduct 2/year sampling and analysis for total arsenic.

Upon receiving written notification by the Department that a test method for inorganic arsenic has been approved by the USEPA, the limitations and monitoring requirements for inorganic arsenic become effective and enforceable and the permittee is relieved of their obligation to sample and analyze for total arsenic.

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

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

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

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

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

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

M. HYDROGRAPH RELEASE OPERATIONAL REQUIREMENTS

The reliability of the “Hydrograph Release” process for discharge control is dependent on several factors including, but not limited to, regular maintenance and calibration of the USGS gauging site, accuracy of the stage discharge relationship (rating) table utilized by the operator, and accurate operator data collection and conversion. (further explained in Fact Sheet Sections 2f and 6b.)

Beginning upon issuance of this permit and lasting through permit expiration, the permittee shall adhere to the following operational requirements for use of the Hydrograph Release system:

SPECIAL CONDITIONS
M. HYDROGRAPH RELEASE OPERATIONAL REQUIREMENTS (cont'd)

1. The permittee shall facilitate the work necessary by USGS to accurately maintain the gage site, anticipated to include conducting 2-4 measurements per year, providing ratings tables and tape-down points to permit NBSD to collect accurate ambient flow data.

2. NBSD shall at all times utilize the most current rating table as indicated by the USGS.

3. There shall be no effluent discharges to the Great Works River between June 1 and September 30 each year.

4. There shall be no effluent discharges to the Great Works River when the ambient to effluent dilution is less than 20:1.

5. **By August 31st of each calendar year,** the permittee must submit a Hydrograph Release status report for review and approval covering from June 1st of the previous year to May 31st of the current year. The status report shall include, but is not limited to, a summary of annual stage measurements performed, current USGS rating curves and stage discharge relationship updates. The report shall also include the daily log of stream flow estimates which lists the date, time, staff gauge reading, estimated stream flow based upon the staff gauge reading and the current USGS rating curve (See Special Condition A footnote (1)). (*PCS Event Codes 90199, 90299, 90399, 90499, 90599*)

N. MONITORING AND REPORTING

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

Maine Department of Environmental Protection
Southern Maine Regional Office
Bureau of Land and Water Quality
312 Canco Road
Portland, Maine 04103

SPECIAL CONDITIONS

O. REOPENING OF PERMIT FOR MODIFICATIONS

Upon evaluation of the tests results or monitoring requirements specified in Special Conditions of this permitting action, new site specific information, or any other pertinent test results or information obtained during the term of this permit, the Department may, at any time, and with notice to the permittee, modify this permit to: (1) include effluent limits necessary to control specific pollutants or whole effluent toxicity where there is a reasonable potential that the effluent may cause water quality criteria to be exceeded; (2) require additional effluent or ambient water quality monitoring if results on file are inconclusive; or (3) change monitoring requirements or limitations based on new information including, but not limited to, new information from ambient water quality studies of the receiving waters.

P. SEVERABILITY

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

ATTACHMENT A

(Whole Effluent Toxicity, Analytical Chemistry, and Chemical Specific Test Reporting Forms and Reporting Limits)

ATTACHMENT B

(Mercury Testing Reporting Form)

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND
MAINE WASTE DISCHARGE LICENSE

FACT SHEET
Date: July 10, 2007
Revised: December 20, 2007

PERMIT NUMBER: #**ME0101885**
LICENSE NUMBER: #**W006267-5L-D-R**

NAME AND MAILING ADDRESS OF APPLICANT:

North Berwick Sanitary District
Attn: Don Buzzell
P.O Box 173
North Berwick, ME 03906-0173

COUNTY: **York County**

NAME AND ADDRESS OF FACILITY:

115 Eastern Avenue
North Berwick, ME 03906-0173

RECEIVING WATER/ CLASSIFICATION: **Great Works River/Class B**
COGNIZANT OFFICIAL AND TELEPHONE NUMBER: **Don Buzzell**
(207) 676-4000

1. APPLICATION SUMMARY:

Application: The applicant has applied for renewal of Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0101885 / Maine Waste Discharge License (WDL) #W-006267-5L-C-R which was issued on August 14, 2002 for a five-year term. The MEPDES / WDL authorized a variable rate seasonal discharge with a minimum in-stream dilution of 20:1, a maximum discharge of 0.1 million gallons per day (MGD) during January and February, a maximum discharge of 1.0 MGD from March through May as well as from October through December, and no discharge from June through September. Treated sanitary wastewater is discharged to the Great Works River, Class B, in North Berwick, Maine.

2. PERMIT SUMMARY

a. Regulatory: On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (USEPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine, excluding areas of special interest to Maine Indian Tribes. On October 30, 2003, after consultation with the U.S. Department of Justice, USEPA extended Maine's NPDES program delegation to all but tribally owned discharges. That decision was subsequently appealed. On August 8, 2007, a panel of the U.S. First Circuit Court of Appeals ruled that Maine's environmental regulatory jurisdiction applies uniformly throughout the State. From January 12, 2001 forward, the program has been referred to as the MEPDES program and permit #ME0101885 (same as NPDES permit number) utilized as the primary reference number for the North Berwick wastewater treatment facility.

b. Conditions: This permitting action is similar to the August 14, 2002 MEPDES Permit / Maine WDL in that it is carrying forward:

1. required daily minimum ambient to effluent dilution of 20:1;
2. 1.0 MGD monthly average discharge flow limit and daily maximum reporting requirement, but revising the period it is in effect to October 1 through May 31 each year;
3. Biochemical oxygen demand (BOD) and total suspended solids (TSS) mass and concentration limits and monitoring requirements;
4. requirements for a minimum of 85% removal of BOD and TSS;
5. Settleable solids daily maximum concentration limit;
6. *E. coli* bacteria monthly average and daily maximum seasonal concentration limits;
7. pH range limit of 6.0 to 9.0 standard units;
8. June 1 through September 30 discharge prohibition to the Great Works River;
9. storage lagoon toe-drain monitoring program; and
10. requirements to maintain a current Operations and Maintenance Plan for the facility.

This permitting action is different from the August 14, 2002 MEPDES Permit / WDL in that it is establishing:

1. revised requirements for monthly average and daily minimum ambient stream flow;
2. monthly average water quality based mass and concentration limits for inorganic arsenic based on facility toxicity testing results, with a schedule of compliance that delays the effective date of the limits until the USEPA approves of a test method for inorganic arsenic, and interim procedures for monitoring and reporting total arsenic;
3. monthly average water quality based mass and concentration limits for Bis(2-ethylexyl)phthalate, cadmium, lead, and thallium based on facility toxicity testing results and monitoring frequencies of twice per year pursuant to an April 2006 Permit Modification and Department rules;
4. acute no observed effect level (ANOEL) water quality based limits for brook trout;
5. requirements to develop Toxicity Reduction Evaluation plans to outline strategies to identify the sources and action items to be implemented to eliminate exceedences of ambient water quality criteria associated with brook trout, arsenic, lead, and thallium testing;

2. PERMIT SUMMARY (cont'd)

6. whole effluent toxicity (WET), analytical chemistry, and chemical specific (priority pollutant) testing requirements pursuant to Department rules Chapter 530, *Surface Water Toxics Control Program*, Chapter 584, *Surface Water Quality Criteria for Toxic Pollutants*;
7. requirements to report annually on any changes to the influent waste-stream or facility operations that may result in increases in the toxicity of the discharge;
8. 0.1 MGD daily maximum discharge flow limit and monthly average reporting requirement when ice is present on the Great Works River at, or below and within sight of, the USGS river gage;
9. effluent mass limits based on the reduced effluent flow limit and concentration limits based on best practicable treatment requirements during the period when the 0.1 MGD daily maximum flow limit is in effect;
10. minimum monitoring frequency and sample type requirements based on Department best professional judgement (BPJ);
11. a requirement to maintain a current wet weather flow management plan for the facility;
12. a requirement for a Storage Lagoon Sludge Management section within the facility O&M Manual, to address requirements and procedures for monitoring, reporting, and disposal / utilization of NBSD storage lagoon sludge; and
13. revised hydrograph release operational and reporting requirements based on dynamics of a new USGS gage station on the Great Works River.

c. History: The most recent relevant regulatory actions include the following:

March 1, 1985 – The Department issued WDL #W006267-45-A-N, for the discharge of "0.23 MGD of untreated sanitary wastewater and upon completion of a new wastewater treatment facility, 0.5 MGD of treated municipal wastewaters". The WDL was issued for a five-year term.

June 30, 1986 - The USEPA issued NPDES permit #ME0101885 with interim and final effluent limitations and monitoring requirements.

April 1987 – North Berwick's new wastewater treatment facility was completed.

September 23, 1987 - The USEPA modified NPDES permit #ME0101885, changing the sample type for BOD and TSS from composite to grab.

December 2, 1996 – The Department issued WDL #W006267-59-B-R to NBSD for a variable rate seasonal discharge with a minimum in-stream dilution of 20:1 and a maximum discharge of 1.0 MGD to the Great Works River. The WDL was issued for a five-year term.

2. PERMIT SUMMARY (cont'd)

August 14, 2002 – The Department issued MEPDES Permit #ME0101885 / Maine WDL #W-006267-5L-C-R for a variable rate seasonal discharge to the Great Works River, with a minimum in-stream dilution of 20:1, a maximum discharge of 0.1 MGD during January and February, a maximum discharge of 1.0 MGD from March through May as well as from October through December, and no discharge from June through September. The MEPDES Permit / Maine WDL was issued for a five-year term.

April 10, 2006 – The Department issued a Modification of WDL #W-006267-5L-C-R / MEPDES Permit #ME0101885 to revise toxicity testing requirements for the North Berwick facility pursuant to Department rule 06-096 CMR, Chapter 530, *Surface Water Toxics Control Program,* and Department rule 06-096 CMR Chapter 584, *Surface Water Quality Criteria for Toxic Pollutants.*

August 2006 – The US Department of the Interior, Geological Survey established a new gaging station on the Great Works River at the Madison Street Bridge in North Berwick, Maine. This gaging site replaced the former site established in 1993 and located downstream at an abandoned railroad crossing at the NBSD facility.

June 13, 2007 - North Berwick submitted a timely application for renewal of its WDL / MEPDES Permit. The application was assigned WDL #W-006267-5L-D-R / MEPDES Permit #ME0101885.

d. Source Description: The NBSD receives sanitary wastewater from a population equivalent of approximately 4,700, including residents, commercial establishments, and schools. The District receives both sanitary and industrial wastewater from a single industrial discharger, Hussey Seating Co. The industrial component represents approximately 2,300 gallons per day or 1% of NBSD's 0.23 MGD average daily design flow. NBSD also receives sanitary wastewater generated at the United Technologies-Pratt Whitney aircraft manufacturing facility. United Technologies-Pratt Whitney's industrial process water is treated by the manufacturer and discharged to the Great Works River upstream of NBSD under a separate MEPDES Permit / WDL.

e. Wastewater Treatment: The NBSD maintains over 8 miles of wastewater collection lines serving the village portion of the Town of North Berwick. The collection system was constructed in 1986 and all system and service lines are constructed of SDR 35 PVC pipe. As a result, the District expects to receive only small amounts of infiltration and inflow into the collection system. The NBSD collection system utilizes six pump stations, with all wastewater flows routed to the main pumping station located off Madison Street. From the Madison Street Pump Station, the wastewater is then pumped to the treatment plant through an approximately 3,600 foot long force main. All connections to the system have been inspected/reviewed, tested, and documented by NBSD personnel.

2. PERMIT SUMMARY (cont'd)

The NBSD provides secondary treatment of sanitary wastewater through a series of aerated facultative lagoons. The treatment facility consists of headworks grit removal, screening, and comminutor structures, followed by three facultative lagoons with bottom diffused aeration, a 37.3 million gallon (MG) storage lagoon (for seasonal holding of 122 days of effluent) and a cascade aeration structure. The NBSD reports that the lagoons are lined with compacted on-site gray marine clay soils. Treated effluent is discharged through a 10-inch diameter pipe that outfalls approximately 2-feet below the mean low water level of the Great Works River. The discharge is regulated by adjusting a motor operated pinch valve based on ambient river flow data to ensure adequate effluent dilution. The treatment system also consists of an optional recirculation system. The NBSD system is designed for an average influent flow of 0.23 MGD with sufficient remaining lagoon capacity to provide for storage of any stormwater flows. The NBSD stores all wastewater between June 1 and September 30 of each year. The NBSD is not designed nor approved to receive septage. The NBSD reports that there are no combined sewer overflow points or emergency overflow pipes within the pump stations on the system. The NBSD further reports that sludge was removed from lagoon #1 and all aeration diffusers replaced as of June 2007.

f. Hydrograph Release and Flow Control:

Under the previous MEPDES Permit, discharge to the Great Works River was prohibited from June 1st to September 30th of each calendar year. This prohibition is being carried forward in this permitting action. During periods of discharge, the flow is regulated through a motorized flow control valve located in manhole "Q". Discharge rates are adjusted according to the Great Works River flow. The actual discharge rate is measured with a magnetic flow meter also located in manhole "Q".

The Great Works River flow rate is estimated by a "stream gauge station" (pressure transducer), which transmits and records the current river level (recorded in % of scale) on a strip chart located in the plant control building. With the strip chart reading and an established relationship between the strip chart reading and the height of a staff gage, the stream flow can be estimated based upon a US Geological Survey (USGS) "rating curve" for the staff gage. The above process was termed by the designer of the treatment plant as a "Hydrograph Release". From 1993-2006, the river gage was located at an abandoned railroad crossing on the bank of the river at the NBSD facility. In August 2006, the USGS installed a new gaging station on the Great Works River upstream of NBSD at the Madison Street Bridge. In maintaining the site, USGS will conduct 2-4 measurements per year and provide ratings tables and tape-down points to permit NBSD to collect accurate ambient flow data. Ambient flow monitoring is required when the level of the river is at or below a USGS marker installed at the gage site that designates a 60-cfs river flow and a 40:1 dilution (ambient:effluent) at the 1.0 MGD permitted flow.

2. PERMIT SUMMARY (cont'd)

The USGS reports that the new gage site is much more accurate at low ambient flows than the former site, thus removing the need to impose lower effluent flow limits during January and February. USGS still cautions that ambient flow will not be accurate, and thus the required minimum dilution not necessarily provided, if ice is on or in the vicinity of the control structure. This caution is addressed in this permitting action through establishment of a reduced daily maximum effluent flow limit during ice conditions, as described herein.

3. CONDITIONS OF THE PERMIT

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

4. RECEIVING WATER QUALITY STANDARDS

Maine law, 38 M.R.S.A § 467§ (16) (B) classifies the Great Works River as a Class B waterway at the point of discharge. Maine law, 38 M.R.S.A., §465-B (3) establishes the classification standards for Class B waters.

5. RECEIVING WATER QUALITY CONDITIONS

The State of Maine 2006 *Integrated Water Quality Monitoring and Assessment Report* (DEPLW0817), prepared pursuant to Sections 303(d) and 305(b) of the Federal Water Pollution Control Act includes the receiving water in the designation *Great Works R, main stem, below Rt. 9 bridge in N Berwick* (Assessment Unit ID ME0106000305_629R) listed in Category 2, Rivers and Streams Attaining Some Designated Uses – Insufficient Information for Other Uses. The listing identifies a 15.23 mile segment of Class B water.
All freshwaters in Maine are listed as only partially attaining the designated use of recreational fishing due to a fish consumption advisory (Category 5-C). The advisory was established in response to elevated levels of mercury in some fish caused by atmospheric deposition. The Department has no information that the NBSD facility causes or adversely contributes to the incomplete attainment statuses of the Great Works River. Regarding the mercury related consumption advisory in the receiving water, compliance with the interim mercury limits established pursuant to Department rule, 06-096 CMR Chapter 519 and as described in Fact Sheet Section 6.k constitutes compliance with ambient water quality limits.

5. RECEIVING WATER QUALITY CONDITIONS (cont'd)

If it is determined that non-attainment conditions exist in the receiving water and that NBSD causes or contributes to those conditions, this permitting action may be reopened pursuant to Permit Special Condition O and effluent limitations, monitoring and operational requirements, and/or wastewater treatment requirements adjusted accordingly.

6. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

a. Flow: In the 1996 WDL renewal and 2002 MEPDES Permit / WDL, the Department established a variable rate discharge limit based upon maintaining a minimum in-stream dilution ratio of 20:1, and also established a maximum discharge flow of 1.0 MGD. The 20:1 dilution was to be maintained through the use of the "Hydrograph Release" process described above. Since the "Hydrograph Release" process was not deemed to be accurate when ice was on the river or for flows less than 8 cfs, the 1996 WDL also restricted discharge flow to a maximum of 0.1 MGD between January 1 and March 15 or when flows were less than 8 cfs (the lowest reading on the streamside staff gauge). The 2002 Permit/WDL revised the low discharge period to between January 1 and February 29. [Note: A discharge of 0.1 MGD at a 7Q10 flow of 3.4 cfs equals approximately a 20:1 dilution]. Wastewater discharges to the Great Works River were prohibited between June 1 and September 30 each year.

The Department reviewed Discharge Monitoring Report (DMR) data for NBSD for the period of October 2002 through February 2007 and found the following information:

Time Frame	Value	Limit (MGD)	Range (MGD)	Average (MGD)
Jan – Feb	Monthly Avg	Report only	0.074-0.094	0.086
Jan – Feb	Daily Maximum	0.1	0.080-0.22	0.11
Mar-May, Oct–Dec	Monthly Avg	1.0	0.88-0.57	0.28
Mar-May, Oct–Dec	Daily Maximum	Report only	0.09-1.22	0.54
Year (excl Jun-Sep)	Monthly Avg	---	0.07-0.57	0.23
Year (excl Jun-Sep)	Daily Maximum	---	0.08-1.22	0.42

As described above, In August 2006, the USGS installed a new gaging station on the Great Works River for collecting accurate ambient flow data. The USGS reports that the new gage site is much more accurate at low ambient flows than the former site, thus removing the need to automatically impose lower effluent flow limits during January and February or when flows were below the lowest markings on the prior gage (8 cfs), preventing accurate ambient flow observations. USGS still cautions that ambient flow will not be accurate if ice is on or in the vicinity of the control structure. This permitting action is carrying forward the minimum required ambient to effluent dilution of 20:1, establishing a monthly average effluent flow limit of 1.0 MGD from January 1 through May 31 and October 1 through December 31 each year, and carrying forward the prohibition of discharging wastewater to the Great Works River between June 1 and September 30. Based on USGS' continued but reduced concerns with accurate flow measurement during ice conditions, this permitting action establishes a 0.1 MGD daily maximum effluent flow limit when ice is present on the Great Works River at, or below and within sight of, the USGS river gage.

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

b. Stream Flow Measurements: The reliability of the "Hydrograph Release" process for discharge control is dependent on several factors including, but not limited to, regular maintenance and calibration of the USGS gauging site, accuracy of the stage discharge relationship (rating) table utilized by the operator, and accurate operator data collection and conversion. Ambient flow monitoring requirements have been revised in this permitting action so that they shall only be required when the level of the river is at or below a USGS marker installed at the gage site that designates a 60 cfs river flow and a 40:1 dilution (ambient : effluent) at the 1.0 MGD permitted flow.

Beginning upon issuance of this permit and lasting through permit expiration, the permittee shall adhere to the following operational requirements for use of the Hydrograph Release system, as described in Permit Special Condition M:

1. The permittee shall facilitate the work necessary by USGS to accurately maintain the gage site, anticipated to include conducting 2-4 measurements per year, providing ratings tables and tape-down points to permit NBSD to collect accurate ambient flow data.
2. NBSD shall at all times utilize the most current rating table as indicated by the USGS.
3. There shall be no effluent discharges to the Great Works River between June 1 and September 30 each year.
4. There shall be no effluent discharges to the Great Works River when the ambient to effluent dilution is less than 20:1.
5. By August 31st of each calendar year, the permittee must submit a Hydrograph Release status report for review and approval covering from June 1st of the previous year to May 31st of the current year. The status report shall include, but is not limited to, a summary of annual stage measurements performed, current USGS rating curves and stage discharge relationship updates. The report shall also include the daily log of stream flow estimates which lists the date, time, staff gauge reading, estimated stream flow based upon the staff gauge reading and the current USGS rating curve.

c. Dilution Factors – The Department determines dilution factors associated with a discharge in accordance with protocols established in Department Regulation Chapter 530, *Surface Water Toxics Control Program*. The protocols for freshwater discharges require the Department to perform a statistical evaluation on the potential toxicity of the effluent at low flow conditions (normally average low flows of 1Q10 and 7Q10). In previous permitting actions, NBSD was required to maintain its discharge such that it also maintained a daily minimum ambient to effluent dilution of 20:1 between October 1 and December 31 as well as between March 1 and May 31 each year. The required minimum dilution was not specified between January 1 and February 29, when ambient flows were assumed to be difficult to measure due to either ice conditions or river flows below the 8 cfs measuring capacity of the gage site in place previously. However, the minimum dilution was actually in effect by default as the daily maximum flow limit of 0.1 MGD between January 1 and February 29 was back-calculated using the 7Q10 flow of 3.4 cfs in order to maintain the same 20:1 dilution. The Department reviewed Discharge Monitoring Report (DMR) data for NBSD for the period of October 2002 through February 2007 and found the following information:

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

Time Frame	Minimum Limit	Range (x:1)	Average (x:1)
Mar – May	20:1	66-434	191.3
Oct - Dec	20:1	20-517	162.2
Mar-May, Oct–Dec	20:1	20-517	175.4

The USGS reports that the new (2006) gage site is much more accurate at low ambient flows than the former site, thus removing the need to impose lower effluent flow limits during January and February. Based on this, this permitting action is establishing the 20:1 minimum dilution from October 1 through May 31 each year, corresponding to the period during which discharge to the Great Works River is permitted. For purposes of the Chapter 530 statistical evaluation, the following dilution factors are applicable:

Acute = 20:1 (5%) **Chronic = 20:1 (5%)**
Harmonic Mean = 20:1 (5%)

d. Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS) **–** The previous permitting action established seasonal monthly average, weekly average and daily maximum concentration and mass limits for BOD and TSS, as follow pursuant to the noted time windows:

BOD & TSS Concentration Limits

	Month Avg.	Weekly Avg.	Daily Max.
Oct. 1 – May 31	30 mg/L	45 mg/L	50 mg/L

BOD & TSS Mass Limits

	Month Avg.	Weekly Avg.	Daily Max.
Oct 1 - Dec 31 + Mar 1-May 31	163 lbs/day	244 lbs/day	271 lbs/day
Jan 1 – Feb 29	25 lbs/day	38 lbs/day	42 lbs/day

The monthly average and weekly average concentration limits of 30 mg/L and 45 mg/L respectively, were based on secondary treatment requirements in Department rule Chapter 525 (3)(III). The daily maximum concentration limit of 50 mg/L is based on Department best practicable treatment (BPT) requirements common to all permits for publicly owned treatment works permitted by the Department. The mass limits for the October – December and March – May window were based on the concentration limits specified and a discharge flow of 0.65 MGD as established in the 1996 WDL. The mass limits for the January – February window were based on the applicable concentration limits and a discharge flow of 0.1 MGD, designed to ensure a minimum dilution of 20:1 during low flow / ice conditions, as described above. The mass limits were calculated as follows.

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

October 1 – December 31 + March 1 – May 31:

Monthly average: (0.65 MGD)(8.34 lbs/gal)(30 mg/L) = 163 lbs/day
Weekly average: (0.65 MGD)(8.34 lbs/gal)(45 mg/L) = 244 lbs/day
Daily maximum: (0.65 MGD)(8.34 lbs/gal)(50 mg/L) = 271 lbs/day

January 1 – February 29:

Monthly average: (0.1 MGD)(8.34 lbs/gal)(30 mg/L) = 25 lbs/day
Weekly average: (0.1 MGD)(8.34 lbs/gal)(45 mg/L) = 38 lbs/day
Daily maximum: (0.1 MGD)(8.34 lbs/gal)(50 mg/L) = 42 lbs/day

The previous permit also established a calendar year average percent removal of 85 percent for BOD and TSS pursuant to Department Rules Chapter 525(3)(III)(a&b)(3).

The Department reviewed Discharge Monitoring Report (DMR) data for NBSD for the period of October 2002 through February 2007 and found the following information:

BOD CONCENTRATION

Time Frame	Value	Limit (mg/L)	Range (mg/L)	Average (mg/L)
Jan – Feb	Monthly Avg	30	10-30	18.2
Jan – Feb	Weekly Avg	45	12-34	21.4
Jan – Feb	Daily Maximum	50	12-34	22.1
Mar-May, Oct–Dec	Monthly Avg	30	2-33	16.1
Mar-May, Oct–Dec	Weekly Avg	45	6-45	21.3
Mar-May, Oct–Dec	Daily Maximum	50	6-45	21.8
Year (excl Jun-Sep)	Monthly Avg	30	2-33	16.7
Year (excl Jun-Sep)	Weekly Avg	45	6-45	21.3
Year (excl Jun-Sep)	Daily Maximum	50	6-45	21.9

BOD MASS

Time Frame	Value	Limit (lbs/day)	Range (lbs/day)	Avg (lbs/day)
Jan – Feb	Monthly Avg	25	7-20	12.8
Jan – Feb	Weekly Avg	38	9-23	15.9
Jan – Feb	Daily Maximum	42	9-23	16.0
Mar-May, Oct–Dec	Monthly Avg	163	5-125	37.8
Mar-May, Oct–Dec	Weekly Avg	244	8-154	58.3
Mar-May, Oct–Dec	Daily Maximum	271	7-154	58.0
Year (excl Jun-Sep)	Monthly Avg	---	5-125	30.8
Year (excl Jun-Sep)	Weekly Avg	---	8-154	46.2
Year (excl Jun-Sep)	Daily Maximum	---	7-154	46.3

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

TSS CONCENTRATION

Time Frame	Value	Limit (mg/L)	Range (mg/L)	Average (mg/L)
Jan – Feb	Monthly Avg	30	9-19	12.4
Jan – Feb	Weekly Avg	45	12-27	16.1
Jan – Feb	Daily Maximum	50	12-27	16.1
Mar-May, Oct–Dec	Monthly Avg	30	1-34	13.4
Mar-May, Oct–Dec	Weekly Avg	45	2-48	19.8
Mar-May, Oct–Dec	Daily Maximum	50	2-48	20.0
Year (excl Jun-Sep)	Monthly Avg	30	1-34	13.1
Year (excl Jun-Sep)	Weekly Avg	45	2-48	18.8
Year (excl Jun-Sep)	Daily Maximum	50	2-48	19.1

TSS MASS

Time Frame	Value	Limit (lbs/day)	Range (lbs/day)	Avg (lbs/day)
Jan – Feb	Monthly Avg	25	6-17	9.6
Jan – Feb	Weekly Avg	38	8-17	11.6
Jan – Feb	Daily Maximum	42	3-21	12.3
Mar-May, Oct–Dec	Monthly Avg	163	2-108	30.5
Mar-May, Oct–Dec	Weekly Avg	244	3-152	52.0
Mar-May, Oct–Dec	Daily Maximum	271	3-152	51.2
Year (excl Jun-Sep)	Monthly Avg	---	2-108	24.7
Year (excl Jun-Sep)	Weekly Avg	---	3-152	40.4
Year (excl Jun-Sep)	Daily Maximum	---	3-152	40.4

As noted above, the previous January – February low effluent discharge limit is no longer necessary as the new (2006) USGS gage site on the Great Works River is much more accurate at low ambient flows than the former site. Therefore, BOD and TSS limits previously established for the Oct – Dec and Mar – May window are being established from October 1 through May 31 each year, corresponding to the period during which discharge to the Great Works River is permitted. Because of USGS concerns with gage site measurement accuracy, the effluent limits previously established during January – February are being established when ice is present on the Great Works River at, or below and within sight of, the USGS river gage.

This permitting action is carrying forward the requirement of 85% removal for BOD and TSS pursuant to Department rule Chapter 525(3)(III)(a&b)(3) except in the circumstances where the monthly average influent concentration is less than 200 mg/L. Monitoring frequencies for BOD and TSS of 1/Week in the previous licensing action are being carried forward, and percent removal monitoring frequencies of 1/month established, based on facility effluent quality and Department best professional judgement.

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

e. Settleable Solids: The previous permitting action established a daily maximum concentration limit of 0.3 ml/L (considered by the Department to be representative of BPT) with a monitoring frequency of 1/Day. The limitation is being carried forward in this permitting action but the monitoring frequency is being reduced to 5/Week as a review of the DMR data for the period October 2002 through February 2007 which indicates the permittee has reported 0.0 mL/L every month for said period, except for one in which <0.1 was reported.

f. *Escherichia coli* Bacteria (*E. coli*): The previous permitting action contained a seasonal (May 15 – September 30) monthly average (geometric mean) limit of 64 colonies/100 ml and a daily maximum (instantaneous) limit of 427 colonies/100 ml, based on the State's Water Classification Program for Class B waters found at Maine law, 38 M.R.S.A. §465 (3)(b). As NBSD does not discharge to the Great Works River between June 1 and September 30, the facility has limited DMR data for the seasonal *E. coli* limits between the October 2002 to February 2007 window reviewed. Past DMR data indicates that the monthly average bacteria levels have ranged from <10 colonies / 100 ml with an arithmetic mean of <24 colonies / 100 ml. The DMR data indicates that the daily maximum bacteria levels have ranged from 22 colonies / 100 ml to 157 colonies / 100 ml with an arithmetic mean of 78 colonies/100 ml. The limits described above and the previous 1/week monitoring frequency are being carried forward in this permitting action.

g. pH: The previous permitting action established a BPT pH range limitation of 6.0 –9.0 standard units pursuant to Department rule found at Chapter 525(3)(III)(c). The limitation range is being carried forward in this permitting action. The DMR data for the period October 2002 to February 2007 indicates the permittee has been in compliance with the pH range limitation 100% of the time in said period.

h. Total Residual Chlorine (TRC): Due to the seasonal restrictions on discharge (prohibited from June 1st through September 30th) and the long holding time in the storage lagoon, the NBSD facility does not currently disinfect its effluent. Therefore, this permitting action does not establish effluent limits for TRC nor authorize the use of chlorine products at the facility in such a way that they may enter the facility waste-stream and receiving water.

i. Total Phosphorus: MEPDES Permits / Maine WDLs for discharges to freshwaters in Maine typically establish water quality based effluent limitations and monitoring requirements for total phosphorus due to the adverse effects of excess phosphorus on aquatic life and habitats. For rivers and streams, those requirements are typically seasonal, in effect from June through September. As NBSD does not discharge wastewater to the Great Works River between June 1 and September 30, no requirements for phosphorus are being established.

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

j. Total Ammonia Nitrogen, Total Copper: The previous permitting action established monthly average mass and concentration limits for total ammonia nitrogen of 43 lbs/day and 78 mg/L and for total copper of 0.05 lbs/day and 90 ug/L, with 1/year monitoring requirements. These limits were based on statistical evaluations of NBSD's Whole Effluent Toxicity and Chemical Specific Testing results in 2002, that indicated reasonable potentials to exceed the chronic ambient water quality criteria for both ammonia and copper. The previously established requirements are being replaced with ones based on current statistical evaluations of NBSD's Whole Effluent Toxicity and Chemical Specific Testing results, as indicated below.

k. Mercury: Pursuant to Maine law, 38 M.R.S.A. §420 and Department rule, 06-096 CMR Chapter 519, *Interim Effluent Limitations and Controls for the Discharge of Mercury*, the Department issued a *Notice of Interim Limits for the Discharge of Mercury* to the permittee thereby administratively modifying WDL # W006267-5L-C-R by establishing interim monthly average and daily maximum effluent concentration limits of 7.0 parts per trillion (ppt) and 10.5 ppt, respectively, and a minimum monitoring frequency requirement of four tests per year for mercury. The interim mercury limits were scheduled to expire on October 1, 2001. However, effective June 15, 2001, the Maine Legislature enacted Maine law, 38 M.R.S.A. §413, sub-§11 specifying that interim mercury limits and monitoring requirements remain in effect. It is noted that the mercury effluent limitations have not been incorporated into Special Condition A, *Effluent Limitations And Monitoring Requirements*, of this permit as the limits and monitoring frequencies are regulated separately through Maine law, 38 M.R.S.A. §413 and Department rule Chapter 519. The interim mercury limits remain in effect and enforceable and modifications to the limits and/or monitoring frequencies will be formalized outside of this permitting document pursuant to Maine law, 38 M.R.S.A. §413 and Department rule Chapter 519.

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

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

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 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 (1)(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 and the facility's required daily minimum dilution of 20:1, the North Berwick facility falls into the Level II frequency category as the facility has a chronic dilution factor ≥20:1 but <100:1. Chapter 530(1)(D)(1) specifies that surveillance and screening level testing requirements are as follows:

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

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

Screening level testing – Beginning 12 months prior to permit expiration and lasting through permit expiration and every five years thereafter.

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

See Attachment C of this Fact Sheet for a summary of the WET test results and Attachment D of this Fact Sheet for a summary of the chemical-specific test dates.

Department rule Chapter 530(D)(3)(c) states *"…dischargers in Levels II may be reduce surveillance testing for individual WET species or chemicals to once every other year (1/2 Years) provided testing in the preceding 60 months does not indicate any reasonable potential for exceedences."*

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

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

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

WET Evaluation

On August 27, 2007, the Department conducted a statistical evaluation on the most recent 60 months of WET tests results on file at the Department. The statistical evaluation indicated that the discharge from the North Berwick wastewater treatment facility had one exceedence (brook trout) of, and one reasonable potential (RP) to exceed (fathead minnow), the critical acute water quality thresholds for the WET species tested. The evaluation indicated no exceedences or RPs to exceed the critical chronic water quality thresholds for the WET species tested. The Department's evaluation revealed that the acute RP to exceed result was in error, as it was based on a 25% acute ambient low flow, which is not applicable to the North Berwick discharge. However, the exceedence of the acute water quality threshold of 5% (mathematical inverse of the 20:1 dilution factor) appears accurate with a test result of <5% on 4/2/07. Acute effluent limits are being established in Permit Special Condition A.4.

As required in Permit Special Condition J, within forty-five (45) days of the effective date of this permit, the permittee shall submit to the Department for review and approval, a toxicity reduction evaluation (TRE) plan which outlines a strategy to identify the source(s) and action items to be implemented to eliminate exceedences of ambient water quality criteria associated with brook trout.

As for testing frequencies, Chapter 530 §(2)(D)(3)(c) states in part that for Level II facilities "*…may reduce WET and chemical testing to once every other year provided that testing in the preceding 60 months does not indicate any reasonable potential for exceedences."* Based on the results of the August 27, 2007 statistical evaluation, the permittee qualifies for the testing reduction for water fleas, but not for brook trout acute testing. As a result, this permitting action is establishing surveillance level testing as follows:

Beginning upon issuance of this permit and lasting through 12 months prior to permit expiration.

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

Species	WET Testing Acute	WET Testing Chronic
Water flea	1 / 2 Years	1 / 2 Years
Brook trout	1 / Year	1 / 2 Years

Surveillance level tests are to be conducted in a different calendar quarter of each year.

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

Beginning 12 months prior to the expiration date of the permit and lasting through permit expiration and every five years thereafter, the permittee shall conduct screening level WET testing as follows:

Level	WET Testing
II	2/Year

There shall be at least six months between testing events.

Chemical specific testing evaluation

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

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

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

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

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

One aspect of the new Chapter 530 rule found in Section 4(F) is evaluating toxic pollutant impacts on a watershed basis. Section 4(F) states, "*Where there is more than one discharge into the same fresh or estuarine receiving water or watershed, the Department shall consider the cumulative effects of those discharges when determining the need for and establishment of the level of effluent limits. The Department shall calculate the total allowable discharge quantity for specific pollutants, less the water quality reserve and background concentration, necessary to achieve or maintain water quality criteria at all points of discharge, and in the entire watershed."* The Department is currently working to construct a computer program model to conduct this analysis. Until such time the model is complete and a multi-discharger statistical evaluation can be conducted, the Department is evaluating the impact of NBSD's discharge assuming it is the only discharger to the river. Should the multi-discharger evaluation indicate there are parameters that exceed or have a reasonable potential to exceed applicable AWQC, this permit may be reopened pursuant to Special Condition O, *Reopening of Permit For Modifications*, to incorporate additional limitations and or revise monitoring requirements.

On August 27, 2007, the Department conducted a statistical evaluation on the most recent 60 months of chemical specific test results on file with the Department in accordance with the statistical approach outlined in Chapter 530. The statistical evaluation indicated the discharge has five (5) test results for ammonia that have an RP to exceed the chronic AWQC; five (5) test results for arsenic that exceed the human health consumption criteria for water and organisms; one (1) test result for bis(2-ethylexyl)phthalate that has an RP to exceed both the human health consumption criteria for organisms and the human health consumption criteria for water and organisms; one (1) test result for cadmium that has an RP to exceed the chronic AWQC; ten(10) test results for copper that exceed acute AWQC, one (1) test result for lead that exceeds chronic AWQC; and one (1) test result for thallium that exceeds the human health consumption criteria for water and organisms. The statistical evaluation further revealed mass-based exceedences for arsenic (HHWO), copper (acute AWQC), lead (chronic AWQC), and thallium (HHWO). Upon examination, the Department found a number of these results to be false.

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

Regarding the results for ammonia, the default analysis is based on ambient conditions consisting of a pH of 7 standard units and a temperature of 25 degrees Celsius. However, the NBSD is only permitted to discharge wastewater to the Great Works River from October 1 through May 31 when ambient temperatures are cooler than the default temperature. Therefore, the Department made a best professional judgement (BPJ) determination that a more applicable ambient temperature for the testing time is 20ºC. Assuming a pH of 7 s.u. and an ambient temperature of 20ºC, the chronic AWQC is increased to 4.15 mg/L. This re-analysis reveals no RPs to exceed AWQC during the time of year the ammonia levels in Fact Sheet Attachment D were discharged. Regarding the exceedences of acute AWQC for copper, the Department noted that these results were based on a 25% acute ambient low flow, which is not applicable to the North Berwick discharge. The statistical evaluation indicated no RPs to exceed acute AWQC using the proper acute ambient low flow value. The same is the case for the copper mass-based exceedence of acute AWQC. Regarding the lead mass-based exceedence of chronic AWQC, the Department noted that the statistical evaluation used an effluent flow value of 0.5 MGD. The origin of this value is unknown, as Permit Compliance System records of Discharge Monitoring Report data indicate a monthly average effluent flow of 0.1566 MGD and a daily maximum effluent flow of 0.2898 MGD for the December 2003 testing period. These flow values have been confirmed by NBSD. Recalculating the lead mass loading value utilizing the monthly average flow for the testing period yields no exceedence of chronic AWQC. All other test results indicated appear to be accurate. All other parameters evaluated do not exceed or have a reasonable potential to exceed acute, chronic or human health AWQC. Based on the 08/27/07 statistical evaluation, the AWQC and critical reasonable potentials to exceed AWQC thresholds are as follows:

Parameter	AWQC / Human Health Criteria		RP / E threshold
Arsenic	Human Health (W/O):	0.012 ug/L	0.18 ug/L (E)
Bis(2-ethylexyl)phthalate	Human Health (O):	1.19 ug/L	5.31 ug/L (RP)(W/O also)
Cadmium	Chronic:	0.08 ug/L	0.8 ug/L (RP)
Lead	Chronic:	0.41 ug/L	6.3 ug/L (E)
Thallium	Human Health (W/O):	0.17 ug/L	2.59 ug/L (E)

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

Based on the criteria above, the following test results in the most recent 60-months have a reasonable potential to exceed or exceed AWQC or human health criteria.

Date	Parameter	Test result
12/12/03	Arsenic	1.0 ug/L (E)
04/11/03	Arsenic	1.0 ug/L (E)
05/15/03	Arsenic	2.0 ug/L (E)
10/10/03	Arsenic	2.0 ug/L (E)
03/19/03	Arsenic	3.0 ug/L (E)
12/12/03	Bis(2-ethylexyl)phthalate	11.0 ug/L (RP)
12/12/03	Cadmium	1.0 ug/L (RP)
12/12/03	Lead	7.0 ug/L (E)
12/01/06	Thallium	17.0 ug/L (E)

As required in Permit Special Condition J, within forty-five (45) days of the effective date of this permit, the permittee shall submit to the Department for review and approval, a TRE plan which outlines a strategy to identify the source(s) and action items to be implemented to eliminate exceedences of ambient water quality criteria associated with arsenic, lead, and thallium.

Chapter 530 §(3)(D) states "Expression of effluent limits. Where the need for effluent limits has been determined, limits derived from acute water quality criteria must be expressed as daily maximum values. Limits derived from chronic or human health criteria must be expressed as monthly average values." Therefore, this permit establishes monthly average end-of-pipe (EOP) mass and concentration limits for arsenic, bis(2-ethylexyl)phthalate cadmium, lead, and thallium. The derivation for these limits is as follows:

Arsenic

EOP concentration = [Dilution factor x 0.75 x AWQC] + [0.25 x AWQC]
HHWO Criteria = 0.012 ug/L Harmonic Mean dilution factor = 20:1

HM/Chronic EOP = [20 x 0.75 x 0.012 ug/L] + [0.25 x 0.012 ug/L] = 0.18 ug/L

Based on a flow of 0.65 MGD as used in other effluent limits, EOP mass limits are as follows:

Parameter	Calculated EOP Concentrations	Monthly Avg. Mass Limit	Daily Maximum
Arsenic	0.18 ug/L	0.001 lbs/day	N/A

Calculation: Chronic - $\frac{(0.18 \text{ ug/L})(8.34)(0.65 \text{ MGD})}{1000 \text{ ug/mg}}$ = 0.001 lbs/day

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

Bis(2-ethylexyl)phthalate

EOP concentration = [Dilution factor x 0.75 x AWQC] + [0.25 x AWQC]
HHO Criteria = 1.19 ug/L Harmonic Mean dilution factor = 20:1

HM/Chronic EOP = [20 x 0.75 x 1.19 ug/L] + [0.25 x 1.19 ug/L] = 18.15 ug/L

Based on a flow of 0.65 MGD as used in other effluent limits, EOP mass limits are as follows:

Parameter	Calculated EOP Concentrations	Monthly Avg. Mass Limit	Daily Maximum
Bis(2-ethylexyl)phthalate	18.15 ug/L	0.098 lbs/day	N/A

Calculation: Chronic - $\frac{(18.15 \text{ ug/L})(8.34)(0.65 \text{ MGD})}{1000 \text{ ug/mg}} = 0.098$ lbs/day

Cadmium

EOP concentration = [Dilution factor x 0.75 x AWQC] + [0.25 x AWQC]
Chronic AWQC = 0.08 ug/L Chronic dilution factor = 20:1

Chronic EOP = [20 x 0.75 x 0.08 ug/L] + [0.25 x 0.08 ug/L] = 1.2 ug/L

Based on a flow of 0.65 MGD as used in other effluent limits, EOP mass limits are as follows:

Parameter	Calculated EOP Concentrations	Monthly Avg. Mass Limit	Daily Maximum
Cadmium	1.2 ug/L	0.006 lbs/day	N/A

Calculation: Chronic - $\frac{(1.2 \text{ ug/L})(8.34)(0.65 \text{ MGD})}{1000 \text{ ug/mg}} = 0.006$ lbs/day

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

Lead

EOP concentration = [Dilution factor x 0.75 x AWQC] + [0.25 x AWQC]
Chronic AWQC = 0.41 ug/L Chronic dilution factor = 20:1

Chronic EOP = [20 x 0.75 x 0.41 ug/L] + [0.25 x 0.41 ug/L] = 6.25 ug/L

Based on a flow of 0.65 MGD as used in other effluent limits, EOP mass limits are as follows:

Parameter	Calculated EOP Concentrations	Monthly Avg. Mass Limit	Daily Maximum
Lead	6.25 ug/L	0.03 lbs/day	N/A

Calculation: Chronic - $\frac{(6.25 \text{ ug/L})(8.34)(0.65 \text{ MGD})}{1000 \text{ ug/mg}}$ = 0.03 lbs/day

Thallium

EOP concentration = [Dilution factor x 0.75 x AWQC] + [0.25 x AWQC]
HHWO Criteria = 0.17 ug/L Harmonic Mean dilution factor = 20:1

HM/Chronic EOP = [20 x 0.75 x 0.17 ug/L] + [0.25 x 0.17 ug/L] = 2.6 ug/L

Based on a flow of 0.65 MGD as used in other effluent limits, EOP mass limits are as follows:

Parameter	Calculated EOP Concentrations	Monthly Avg. Mass Limit	Daily Maximum
Thallium	2.6 ug/L	0.001 lbs/day	N/A

Calculation: Chronic - $\frac{(2.6 \text{ ug/L})(8.34)(0.65 \text{ MGD})}{1000 \text{ ug/mg}}$ = 0.014 lbs/day

For the period of reduced maximum effluent flow when ice is present on the Great Works River at, or below and within sight of, the USGS river gage, mass limits are calculated as above but with the 0.1 MGD effluent flow inserted. This yields mass limits as follow: arsenic (0.00015 lbs/day), bis(2-ethylexyl)phthalate (0.015 lbs/day), cadmium (0.001 lbs/day), lead (0.0052 lbs/day), and thallium (0.002 lbs/day).

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

Chapter 530 §(3)(D)(1) states "*For specific chemicals, effluent limits must be expressed in total quantity that may be discharged and in effluent concentration. In establishing concentration, the Department may increase allowable values to reflect actual flows that are lower than permitted flows and/or provide opportunities for flow reductions and pollution prevention provided water quality criteria are not exceeded. With regard to concentration limits, the Department may review past and projected flows and set limits to reflect proper operation of the treatment facilities that will keep the discharge of pollutants to the minimum level practicable."*

The Department often establishes concentration limits based on a factor of 1.5 to provide operational flexibility when discharging at less than permitted flows. However, NBSD controls its discharge through use of the wastewater lagoon in order to meet the required minimum dilution. This results in the potential for exposure of aquatic life to toxic pollutants at the ambient water quality criteria level for extended periods. In order to ensure protection of aquatic life and designated uses of the receiving water, this permitting action establishes concentration limits as described above, without the 1.5 multiplier.

Chapter 530 does not establish specific monitoring frequencies for parameters that exceed or have a reasonable to exceed AWQC. This permitting action is establishing the monitoring requirement frequencies for the parameters above based on BPJ given the timing, frequency and severity of the exceedences and reasonable potentials to exceed AWQC. For arsenic, bis(2-ethylexyl)phthalate, cadmium, lead, and thallium, the Department is establishing the monitoring frequencies at 2/year based on best professional judgment that routine surveillance level monitoring is sufficient to determine on-going compliance with the AWQC.

With the exceptions of arsenic, bis(2-ethylexyl)phthalate, cadmium, lead, and thallium, monitoring frequencies for priority pollutant and analytical testing established in this permitting action are based on the Chapter 530 rule. Chapter 530 §(2)(D)(3)(c) states in part that for Level II facilities, the Department "*…may reduce WET and chemical testing to once every other year provided that testing in the preceding 60 months does not indicate any reasonable potential for exceedences."* It is noted Chapter 530 §(2)(D)(1) does not require priority pollutant testing during the surveillance level testing years. Based on the results of the 08/27/07 statistical evaluation, the permittee qualifies for the reduced testing. Therefore, surveillance level analytical chemistry is being established as follows:

Beginning upon issuance of this permit and lasting through 12 months prior to permit expiration.

Level	Analytical Chemistry
II	1/2 Years

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

For screening level testing, Chapter 530 §(2)(D)(1) requires that beginning 12 months prior to the expiration date of the permit, chemical testing shall be conducted at a frequency of 1/Year for priority pollutant testing and 1/Quarter for analytical chemistry. Therefore, screening level chemical is being established as follows:

Screening level testing – Beginning 12 months prior to permit expiration and lasting through permit expiration and every five years thereafter.

Level	Priority Pollutant Testing	Analytical Chemistry
II	1 per year	4 per year

It is noted however that if future WET or chemical testing indicates the discharge exceeds critical water quality thresholds or AWQC, this permit will be reopened pursuant to Special Condition O, *Reopening of Permit For Modification*, to establish applicable limitations and monitoring requirements. In addition, if future test results of concern fall outside the 60-month evaluation timeframe or a sufficient number of tests removes the reasonable potential to exceed AWQC, the permittee may request a modification of the permit to remove applicable limitations and or reduce the monitoring frequency.

Total / Inorganic Arsenic: The Department notes that special circumstances surround the establishment of effluent limits and monitoring requirements for arsenic. Department rule Chapter 530 (C)(6) states:

> *All chemical testing must be carried out by approved methods that permit detection of a pollutant at existing levels in the discharge or that achieve detection levels as specified by the Department. When chemical testing results are reported as less then, or detected below the Department's specified detection limits, those results will be considered as not being present for the purposes of determining exceedences of water quality criteria.*

The USEPA has not approved a test method for inorganic arsenic as of the date of issuance of this permit. Therefore, there is no way for the permittee to formally demonstrate compliance with the monthly average water quality based mass and concentration limits for inorganic arsenic established in this permitting action. As a result, Special Condition K, *Schedule of Compliance* of this permit establishes a schedule of compliance for the limitations and monitoring requirements for inorganic arsenic beginning upon issuance of this permit and lasting through the date in which the USEPA approves a test method for inorganic arsenic. Once a test method is approved, the Department will notify the permittee in writing and the limitations and monitoring requirements for inorganic arsenic become effective thereafter.

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

As of the date of this permitting action, the Department has limited data on the percentage of inorganic arsenic (approximately 50%) in total arsenic test results. Based on a literature search conducted by the Department, the inorganic fraction can range from 1% - 99% depending on the source of the arsenic. Generally speaking, ground water supplies derived from bedrock wells will likely to tend to have higher fractions of inorganic arsenic (As^{+3}- arsentite and/or As^{+5}- arsenate) than one may find in a food processing facility where the inorganic fraction is low and the organic fraction (arsenobetaine, arsenoribosides) is high. Until the Department and the regulated community in Maine develops a larger dataset to establish statistically defensible ratios of inorganic and organic fractions in total arsenic test results, the Department is making a rebuttable presumption that the effluent contains a ratio of 50% inorganic arsenic and 50% organic arsenic in total arsenic results.

Being that the only approved test methods for compliance with arsenic limits established in permits is for total arsenic, the Department converted the water quality based end-of pipe monthly average concentration value of 0.18 ug/L for inorganic arsenic calculated above into an equivalent total arsenic threshold (assuming 50% of the total arsenic is inorganic arsenic). This results in a total arsenic end-of-pipe monthly average concentration threshold of 0.36 ug/L. The calculation is as follows:

$$\frac{\text{0.18 ug/L inorganic arsenic}}{\text{0.5 ug/L inorganic arsenic/ 1.0 ug/L total arsenic}} = \text{0.36 ug/L total arsenic}$$

Therefore, a total arsenic value greater than 0.36 ug/L is potentially exceeding the water quality based end-of pipe monthly average concentration value of 0.18 ug/L for inorganic arsenic. However, the Department's most current reporting limit (RL) for total arsenic is 5 ug/L and may be subject to revision during the term of this permit. All detectable analytical test results shall be reported to the Department including results which are detected below the Department's most current RL at the time of sampling and reporting. Only the results greater than the total arsenic threshold of 0.36 ug/L or the Department's RL at the time of sampling (whichever is higher) will be considered a potential exceedence of the inorganic limit of 0.18 ug/L.

If a test result is determined to be a potential exceedence, the permittee shall submit a toxicity reduction evaluation (TRE) to the Department for review and approval within 45 days of receiving the test result of concern from the laboratory. Contact the Department's compliance inspector for a copy of the Department's December 2007 guidance on conducting a TRE for arsenic.

Maine law, 38 M.R.S.A., §414-A(2), Schedules of Compliance states "*Within the terms and conditions of a license, the department may establish a schedule of compliance for a final effluent limitation based on a water quality standard adopted after July 1, 1977. When a final effluent limitation is based on new or more stringent technology-based treatment requirements, the department may establish a schedule of compliance consistent with the time limitations permitted for compliance under the Federal Water Pollution Control Act, Public Law 92-500, as amended. A schedule of compliance may include interim and final*

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

dates for attainment of specific standards necessary to carry out the purposes of this subchapter and must be as short as possible, based on consideration of the technological, economic and environmental impact of the steps necessary to attain those standards."

Special Condition K, *Schedule of Compliance*, of this permit establishes a schedule as follows:

> *Beginning upon issuance of this permit and lasting through a date on which the USEPA approves a test method for inorganic arsenic, the limitations and monitoring requirements for inorganic are not in effect. During this time frame, the permittee is required by Special Condition A, Effluent Limitations and Monitoring Requirements, of this permit to conduct 2/year sampling and analysis for total arsenic.*
>
> *Upon receiving written notification by the Department that a test method for inorganic arsenic has been approved by the USEPA, the limitations and monitoring requirements for inorganic arsenic become effective and enforceable and the permittee is relieved of their obligation to sample and analyze for total arsenic.*

Department rule Chapter 523, Waste Discharge License Conditions, § Section 7, *Schedules of Compliance* sub-§3, *Interim dates,* states in part, "*if a permit establishes a schedule of compliance which exceeds 1 year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.*

> *(i) The time between interim dates shall not exceed 1 year, except that in the case of a schedule for compliance with standards for sewage sludge use and disposal, the time between interim dates shall not exceed six months.*
>
> *(ii)If the time necessary for completion of any interim requirement (such as the construction of a control facility) is more than 1 year and is not readily divisible into stages for completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.*

Special Condition A, *Effluent Limitations and Monitoring Requirements*, of this permit requires that beginning upon issuance of this permit and lasting through USEPA approval of a test method for inorganic arsenic, the permittee shall conduct 2/year monitoring for total arsenic. Should the test method approval for inorganic arsenic extend more than one year from the date of the issuance of this permit, the sampling and analysis for total arsenic will serve to satisfy the interim requirements specified by Department rule, Chapter 523, *Waste Discharge License Conditions,* Section 7, *Schedules of Compliance,* Sub-section 3, *Interim dates.*

m. Disposal of Septage Waste: The NBSD is not designed nor approved to receive septage into the wastewater treatment facility.

7. STORAGE LAGOON TOE DRAIN MONITORING

The previous permitting action contained requirements for monitoring of the storage lagoon toe drain in order to monitor the potential effects of lagoon leakage, even though the potential for leaks is expected to be minimal due to the low-permeable nature of the on-site marine clay (reference report by Haley & Aldrich, Inc January 21, 1985). These requirements are being carried forward in this permitting action and have been coded so that the results will be reported on the monthly Discharge Monitoring Reports and data stored in the EPA Permit Compliance System (PCS).

8. DISCHARGE IMPACT ON RECEIVING WATER QUALITY

As permitted, the Department has determined the existing water uses will be maintained and protected and the discharge will not cause or contribute to the failure of the water body to meet standards for Class B classification.

9. PUBLIC COMMENTS

Public notice of this application was made in the Foster's Daily Democrat newspaper on or about June 6, 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 public hearing, pursuant to Chapter 522 of the Department's rules.

10. DEPARTMENT CONTACTS

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

Robert D. Stratton
Division of Water Quality Management
Bureau of Land and Water Quality
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017

Telephone (207) 287-6114
Fax (207) 287-3435
email: Robert.D.Stratton@maine.gov

11. RESPONSE TO COMMENTS

During the period of July 10, 2007 through August 9, 2007, the Department solicited comments on the proposed draft Maine Pollutant Discharge Elimination System Permit / Maine Waste Discharge License to be issued to the North Berwick Sanitary District for the proposed discharge. On August 9, 2007, the Department received comments on the proposed draft MEPDES Permit / Maine WDL from Wright-Pierce Consultants, on behalf of the NBSD. Wright-Pierce's comments and the Department's responses are included below.

Comment 1: Storage Lagoon Sludge Management. Wright-Pierce states, "*This permit requires the NBSD to develop a Storage Lagoon Sludge Management section for the WWTP O&M Manual. MEDEP should provide guidance (checklist) on what should be included in the Storage Lagoon Sludge Management section and guidance on what needs to be contained in an annual report*".

Response 1: Permit Special Condition I contains language that states, "***The O&M Manual shall include a section devoted to Storage Lagoon Sludge Management, to include annual monitoring and reporting of lagoon sludge levels and procedures for development of and adherence to a sludge disposal/utilization program.***" The previous permitting action contained Special Condition K, Lagoon Sludge Levels, which stated, "*By **January 1, 2003**…, the permittee shall submit for review and approval proposed procedures for an annual sludge monitoring and a sludge disposal/utilization program plan*". The Department believes that the language in the present Special Condition I is quite clear and that these requirements should already be in place pursuant to Special Condition K of the previous permitting action. However, the Department's compliance inspector will assist the permittee with this issue if necessary.

Comment 2: E. coli Bacteria Sampling. In reference to the seasonal *E. coli* limit in effect from May 15 – September 30 each year, Wright-Pierce states, "*Due to seasonal discharge, E. coli bacteria sampling is only applicable from 5/15 through 5/31. Change time requirement or change Footnote 5 to state that E. coli bacteria is required during any week in which an effluent discharge from the WWTP occurs*".

Response 2: The timing of the limit is derived from state law, 38 MRSA, Section 465-B(3), the standards for Class B waters, which state, "*Between May 15th and September 30th, the number of Escherichia coli bacteria of human origin in these waters may not exceed a geometric mean of 64 per 100 milliliters or an instantaneous level of 427 per 100 milliliters*". Wright-Pierce is correct that the NBSD's seasonal discharge and the seasonal *E. coli* limit only overlap between May 15 and May 31 under existing discharge restrictions and state statute. However, the changes requested can not be incorporated.

Comment 3: Ambient River Flow Monitoring. Wright-Pierce suggests that ambient river flow monitoring be required only within the lower range of the USGS rating curve and made suggestions regarding procedures and methods for observations and measurements.

Response 3: The Department previously discussed this suggestion with the NBSD and USGS and incorporated it in this permitting action, found at Permit Special Condition A (footnotes) and Fact Sheet Sections 2f and 6b. Further details regarding data collection methods can be determined by the Department's compliance inspector in consultation with USGS.

Comment 4: Lagoon Flow Releases and Limit Derivation. Wright-Pierce suggests that two footnotes contained in the previous permitting action be carried forward in this permitting action. Footnote #6 stated, "*The Department may authorize additional flow on a daily basis in order to protect the integrity of the District's storage lagoon.*" Footnote #8 stated, "*Mass limits for BOD and TSS are based on a discharge flow of 0.65 MGD and the applicable concentration limits.*"

Response 4: The Department is not carrying forward either of these two footnotes, as explained earlier to the NBSD. Regarding the previous Footnote #6, the NBSD's effluent flow is seasonally restricted and limited as established in this permitting action. The NBSD is expected to comply with the provisions of its MEPDES Permit / Maine WDL. The Department points Wright-Pierce to Permit Special Condition G, Unauthorized Discharges, which states, "*The permittee is authorized to discharge treated sanitary wastewaters only in accordance with: 1) the permittee's General Application for Waste Discharge Permit, accepted for processing on June 13, 2007; 2) the terms and conditions of this permit; and 3) only from Outfall #001A. Discharges of wastewater from any other point source are not authorized under this permit, and shall be reported in accordance with Standard Condition B(5)(Bypass) of this permit.*" The Department also "*…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*" and requires the annual review and maintenance of a Wet Weather Management Plan for the facility (Permit Special Condition H) as well as the annual review and maintenance of an Operations and Maintenance Manual (Permit Special Condition I) to provide for appropriate and consistent facility management and to prevent catastrophic events. If, after compliance with these and other provisions of the MEPDES Permit / Maine WDL and appropriate and consistent facility management, unforeseeable conditions threaten the integrity of the facility, the Department's compliance inspector should be consulted.

Regarding the previous Footnote #8, information regarding the origin and derivation of effluent limits is contained in Fact Sheet Section 6.

Comment 5: Toxicity Reduction Evaluation (TRE) for Arsenic. Wright-Pierce states, "*A TRE is required for arsenic, but Attachment C* (which contained the guidance for conducting the TRE) *was not submitted with the June 10, 2007 Draft for review and comment by the District. Testing is required for total arsenic but there is no established limit. Only inorganic arsenic has an established limit but there is no approved test method*".

Response 5: No draft documents were issued on June 10, 2007. Attachment C, which contained the Draft Maine Department of Environmental Protection Guidance for Conducting Toxicity Reduction Evaluation (TRE) For Arsenic (DEPLW0272-B2003, April 13, 2007), was included in the June 20, 2007 Preliminary Draft MEPDES Permit / Maine WDL and the July 10, 2007 Proposed Draft MEPDES Permit / Maine WDL that was mailed to the NBSD and other recipients. Perhaps Wright-Pierce is thinking of the electronic copies of each draft that the Department distributed at the same time they were mailed to provide the permittee with a longer period to review them. Electronic copies did not contain attachments. However,

the cover memo for each electronic draft noted that attachments were provided with the mailed copies.

In December 2007, the Department finalized its guidance for conducting TREs for arsenic. Issuance of this permitting action was delayed pending completion of the guidance, which addresses the concerns raised by Wright-Pierce.

Comment 6: Inorganic Arsenic Test Method. In Fact Sheet Section 6.l, the Department acknowledges that "*The USEPA has not approved a test method for inorganic arsenic as of the date of issuance of this permit. Therefore, there is no way for the permittee to formally demonstrate compliance with the monthly average water quality based mass and concentration limits for inorganic arsenic established in this permitting action. As a result, Special Condition K, Schedule of Compliance of this permit establishes a schedule of compliance for the limitations and monitoring requirements for inorganic arsenic beginning upon issuance of this permit and lasting through the date in which the USEPA approves a test method for inorganic arsenic. Once a test method is approved, the Department will notify the permittee in writing and the limitations and monitoring requirements for inorganic arsenic become effective thereafter*." In the interim, the Department established a reporting requirement for total arsenic, for which there is an approved methodology, but not an effluent limit.

Wright-Pierce requests "*…a copy of a draft of the analytical method proposed at this time by EPA for the District's review. If none currently exists then the District requests that this requirement be added later per Special Condition O of the Permit (*Reopening of Permit For Modification*). The only know(*n*) EPA approved test for Arsenic in water is Method 1632. Is this the method to be used to determine total arsenic in wastewater effluent?"*

Response 6: The Department's Guidance for Conducting Toxicity Reduction Evaluation (TRE) For Arsenic (DEPLW0272-B2003, December 19, 2007), addresses the procedures to be used regarding arsenic testing. The draft guidance was provided to numerous parties including Wright-Pierce and the NBSD and was the basis for the final guidance.

Comment 7: Chapter 530(2)(D)(4) Certification. Pursuant to requirements in Department Rule Chapter 530, Permit Special Condition L requires that facilities subject to toxicity testing requirements, and for which reduced testing requirements have been established, report annually on three factors. One of those factors is, "*Changes in industrial manufacturing processes contributing wastewater to the treatment works that may increase the toxicity of the discharge.*"

Wright-Pierce states, "*This will require the District to obtain annually a certification from each industrial manufacturing facility in Town*".

Response 7: The Department believes it is advisable for all wastewater treatment facilities to maintain a familiarity with the composition of their influent wastewater to ensure that they are providing appropriate and adequate wastewater treatment to result in compliance with their effluent limitations and attainment of receiving water quality standards and designated uses. Publicly Owned Treatment Works undertake pre-treatment agreements with their wastewater contributors for this purpose. As described, this requirement is established pursuant to Department Rule Chapter 530 for all facilities that have been granted reduced toxicity testing requirements, such as the NBSD, to demonstrate the appropriateness of continuing reduced testing requirements. The NBSD is expected to comply with this requirement. However, the method by which the NBSD shall determine if there have been changes in manufacturing processes that may affect effluent toxicity is not specified in this permitting action. Instead, the NBSD and each manufacturer may develop an appropriate methodology.

Comment 8: Hydrograph Release Operational Requirements. Wright-Pierce states, "*The staff gage established by the USGS cannot be used by District staff to determine river flows within the permitted discharge flow range. Also, the lowest elevation on the staff gage is still above the elevation of the rebar used to visually monitor river flow. Please revise the first paragraph of the section as the accuracy of the USGS rating curve at the low range will be determined based on field measurements, not the staff gage*".

Response 8: The referenced paragraph has been revised to specify use of the USGS gauging site, which includes any reference marks established by USGS, and not just the staff gage.

Comment 9: Hydrograph Release Operational Requirements. Permit Special Condition M.3, states, "*There shall be no effluent discharges to the Great Works River between June 1 and September 30 each year*". In reference Wright-Pierce states, "*Delete as it is not applicable to the Hydrograph Release Operational Requirements*".

Response 9: The referenced language is an updating of similar information that was contained in the *Hydrograph Release Operational Requirements* section of the previous permitting action. The Department is proposing no change.

Comment 10: Facility Maintenance. Based on information contained in the NBSD's permit renewal application, Fact Sheet Section 2.e. stated, "*The NBSD further reports that it is removing sludge from lagoon #1 and replacing all aeration diffusers at the time of this permitting action*". Wright-Pierce reports that the referenced facility maintenance was completed as of June 10, 2007.

Response 10: The referenced section has been amended accordingly.

Comment 11: Ambient River Flow Monitoring. Wright-Pierce requests that language in Fact Sheet Section 2.f related to ambient river flow monitoring be revised as requested in Comment 3, above.

Response 11: The referenced section has been amended.

Comment 12: Stream Flow Measurements / Hydrograph Release Process. Wright-Pierce requests that language in Fact Sheet Section 6.b be revised as requested in Comments 3 and 8 above.

Response 12: The referenced section has been amended.

Comment 13: E. coli Bacteria. Wright-Pierce requests that language in Fact Sheet Section 6.f be revised as requested in Comment 2 above.

Response 13: The referenced section has not been amended for reasons noted in Response 2 above.

Comment 14: Priority Pollutants, Arsenic Criterion. Wright-Pierce states that it has reviewed EPA National Water Quality Criteria (2006) and found an HHWO arsenic criterion of 0.018 ug/L, not 0.012 ug/L as the Department used. Wright-Pierce asks where the Department obtained its value.

Response 14: As stated in the first paragraph of Fact Sheet Section 6.l, "*Department Rules, 06-096 CMR Chapter 530, Surface Water Toxics Control Program, and Chapter 584, Surface Water Quality Criteria for Toxic Pollutants set forth ambient water quality criteria (AWQC) for toxic pollutants and procedures necessary to control levels of toxic pollutants in surface waters.*" The criterion used by the Department is found in Chapter 584, which was adopted on October 9, 2005. As Maine's criteria are more stringent than EPA's, Chapter 584 takes precedence and the criterion used by the Department and cited above is correct.

Comment 15: Priority Pollutants, Bis (2-ethylhexyl) phthalate Criterion. Wright-Pierce states that it has reviewed EPA National Water Quality Criteria (2006) and found a Bis (2-ethylhexyl) phthalate criterion of 1.2 ug/L, not 1.19 ug/L as the Department used. Wright-Pierce asks where the Department obtained its value.

Response 15: The criterion used by the Department is found in Department Rule, 06-096 CMR Chapter 584, which was adopted on October 9, 2005. As Maine's criteria are more stringent than EPA's, Chapter 584 takes precedence and the criterion used by the Department and cited above is correct.

Comment 16: Priority Pollutants, Cadmium Criterion. Wright-Pierce states that it has reviewed EPA National Water Quality Criteria (2006) and found a Cadmium criterion of 0.25 ug/L, not 0.08 ug/L as the Department used. Wright-Pierce asks where the Department obtained its value.

Response 16: The criterion used by the Department is found in Department Rule, 06-096 CMR Chapter 584, which was adopted on October 9, 2005. As Maine's criteria are more stringent than EPA's, Chapter 584 takes precedence and the criterion used by the Department and cited above is correct.

Comment 17: Priority Pollutants, Copper Criterion. Wright-Pierce states that it has reviewed EPA National Water Quality Criteria (2006) and found a Copper criterion of 9 ug/L, not 2.36 ug/L as the Department used. Wright-Pierce asks where the Department obtained its value.

Response 17: The criterion used by the Department is found in Department Rule, 06-096 CMR Chapter 584, which was adopted on October 9, 2005. As Maine's criteria are more stringent than EPA's, Chapter 584 takes precedence and the criterion used by the Department and cited above is correct. The Department notes that effluent copper limits established in earlier draft permits based on a Reasonable Potential to exceed chronic AWQC have been removed in this final permit as the test result of concern now falls outside of the 60-month review period.

Comment 18: Priority Pollutants, Lead Criterion. Wright-Pierce states that it has reviewed EPA National Water Quality Criteria (2006) and found a Lead criterion of 2.5 ug/L, not 0.41 ug/L as the Department used. Wright-Pierce asks where the Department obtained its value.

Response 18: The criterion used by the Department is found in Department Rule, 06-096 CMR Chapter 584, which was adopted on October 9, 2005. As Maine's criteria are more stringent than EPA's, Chapter 584 takes precedence and the criterion used by the Department and cited above is correct.

ATTACHMENT A

(Facility Location Maps)

ATTACHMENT B

(Facility Site Plans)

ATTACHMENT C

(Whole Effluent Toxicity Reports)

ATTACHMENT D

(Chemical Specific Testing Reports)