**AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §1251 et seq.; the "CWA"),

**The City of Manchester, New Hampshire**

is authorized to discharge from the Wastewater Treatment Plant located at:

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| **300 Winston Street<br>Manchester, New Hampshire<br>03103** | **and** | **15 Combined Sewer Overflows (CSOs)** |

to receiving waters named:

**Merrimack River – Outfall 001 (Wastewater Treatment Plant) and CSO Outfall Nos. 011, 018, 031, 044, 045, 046, 047, 050, 052, 053, 055; (Hydrologic Basin Code 01070006)**
**Piscataquog River – CSOs 039 and 051; (Hydrologic Basin Code 01070006)**
**Tannery Brook (also known as Baker Brook) – CSO 043; (Hydrologic Basin Code 01070006)**
**Ray Brook – CSO 054; (Hydrologic Basin Code 01070006)**

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein including, but not limited to, conditions requiring the proper operation and maintenance of the Manchester Wastewater Treatment Plant collection system.

The Town of Goffstown, the Town of Bedford and the Town of Londonderry are co-permittees for activities required in Part I.B. (Unauthorized Discharges), Part I.C. (Operation and Maintenance of the Sewer System), and Part I.D. (Alternate Power Source). The responsible municipal departments are:

| | | |
|---|---|---|
| **Town of Goffstown, Chairman<br>Goffstown Sewer Commission<br>16 Main Street<br>Goffstown, NH 03045** | **Town of Bedford<br>Town Manager<br>24 North Amherst Road<br>Bedford, NH 03110** | **Town of Londonderry<br>Town Manager<br>268 B Mammoth Road<br>Londonderry, NH 03053** |

This permit will become effective on the first day of the calendar month immediately following sixty days after signature.

This permit expires at midnight, five (5) years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on September 25, 2008.

This permit consists of **Part I** (24 pages including effluent limitations and monitoring requirements); **Attachment A** (USEPA Region 1 Freshwater Acute Toxicity Test Procedure and Protocol, February 2011, 8 pages); **Attachment B** (USEPA Region 1 Freshwater Chronic Toxicity Test Procedure and Protocol, March 2013, 7 pages); **Attachment C** (USEPA Region 1 Reassessment of Technically Based Industrial Discharge Limits, 9 pages); **Attachment D** (USEPA Region 1 NPDES Permit Requirement for Industrial Pretreatment Annual Report, 2 pages) ); **Attachment E** (CSO Discharge Points, 1 page) and **Part II (**25 pages including NPDES Part II Standard Conditions).

Signed this 11th day of February, 2015

/S/SIGNATURE ON FILE

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Ken Moraff, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency (EPA)
Region I
Boston, Massachusetts

Each pollutant generally includes an acute aquatic life criterion to protect against short term effects, such as death, and a chronic aquatic life criteria to protect against long term effects, such as poor reproduction or impaired growth. New Hampshire adopted these "Gold Book" criteria, with certain exceptions, and included them as part of the State's Surface Water Quality Regulations adopted on December 10, 1999. EPA uses these pollutant specific criteria along with available dilution in the receiving water to determine a pollutant specific draft permit limit.

1. 7Q10 Flow and Available Dilution

The available dilution of the receiving water is determined by using the facility's design flow of 34 mgd and the annual 7-day mean low flow at the 10 year recurrence interval (7Q10) in the receiving water just above the treatment plant's outfall. The available dilution is reduced by 10 percent to account for the State's assimilative capacity reserve rule pursuant to NH Surface Water Quality Regulations Env-Wq 1705.01.

Manchester's POTW is located immediately downstream of a U.S. Geological Survey's gauging station (USGS Gage No. 01092000) on the Merrimack River near Goffs Falls, below Manchester with no significant surface water inflows between the POTW and the gauging station. Therefore, the 7Q10 flow at the facility ($Q_{001}$) is set as identical to the 7Q10 flow at the gauging station ($Q_{Gage}$), as follows. This 7Q10 value of **638.7 cfs** is based on gage data from 1941 – 2006 and is the same as the 7Q10 value used in the 2008 permit.

The dilution factor is then calculated using the following equation:

$$\text{Dilution Factor} = [(Q_{001} + Q_{PDF}) / (Q_{PDF})] \times 0.9$$

where:

$Q_{001}$ = 7Q10 flow of the Merrimack River upstream of Outfall 001 = 638.7 cfs
$Q_{PDF}$ = Treatment plant design flow = 34 mgd = 52.6 cfs
0.9 = Factor to reserve 10% of assimilative capacity.

$$\text{Dilution Factor} = [(638.7 + 52.6) / (52.6)] \times 0.9 = \mathbf{11.82}$$

This dilution factor is the same as in the 2008 permit and is applied in some of the analyses below.

2. Total Residual Chlorine

The New Hampshire water quality standards specify the chronic and acute aquatic-life criteria for total residual chlorine (TRC) as 0.011 mg/l and 0.019 mg/l, respectively, for freshwater; and 0.0075 mg/l and 0.013 mg/l, respectively, for marine water. Based upon available dilution, applicable TRC limits would be a monthly average limit of 0.13 mg/l (0.011 mg/l * 11.82) and a daily maximum limit of 0.22 mg/l (0.019 mg/l * 11.82).

The limitations and requirements pertaining to TRC in the draft permit are the same as those in the 2008 permit and are therefore consistent with the antibacksliding requirements of 40 CFR § 122.44(l).

**AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §1251 et seq.; the "CWA"),

**Winnipesaukee River Basin Program Wastewater Treatment Plant**

is authorized to discharge from the Wastewater Treatment Plant located at

**528 River Street**
**Franklin, New Hampshire 03235**

to receiving waters named

**Merrimack River (Hydrologic Basin Code: 01070002)**

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein including, but not limited to, conditions requiring the proper operation and maintenance of the Winnipesaukee River Basin Program Wastewater Treatment Plant collection system.

The Towns of Belmont, Center Harbor, Franklin, Gilford, Laconia, Meredith, Northfield, Sanbornton and Tilton, and the NH Department of Administrative Services Lakes Region Facility (as listed in Attachment A of the permit) are co-permittees for activities required in Part I.B. (Unauthorized Discharges), Part I.C. (Operation and Maintenance of the Sewer System) and Part I.D. (Alternate Power Source). Each co-permittee is subject to the requirements of these Parts only for those portions of the collection system it owns and operates.

This permit will become effective on the first day of the calendar month immediately following sixty days after signature.

This permit and the authorization to discharge expire at midnight five years from the last day of the month preceding the effective date.

This permit supersedes the permit issued on June 19, 2009.

This permit consists of **Part I (**20 pages including effluent limitations and monitoring requirements); **Attachment A** (Co-permittees); **Attachment B** (USEPA Region 1 Freshwater Acute Toxicity Test Procedure and Protocol, February 2011, 8 pages); **Attachment C** (USEPA Region 1 Reassessment of Technically Based Industrial Discharge Limits, 9 pages); **Attachment D** (USEPA Region 1 NPDES Permit Requirement for Industrial Pretreatment Annual Report, 2 pages) and **Part II (**NPDES Part II Standard Conditions, 25 pages).

Signed this 4th day of October, 2016.

**/S/ SIGNATURE ON FILE**

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Kenneth Moraff, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency (EPA)
Region I
Boston, Massachusetts

It should be noted that during 2016 the State of New Hampshire is in the process of revising certain State's water quality standards found at Env-Wq 1700 (Surface Water Quality Standards), including some criteria used in this draft permit. A public hearing was held on June 21st and the comment period expires on July 22, 2016. If the revisions to these standards is finalized and approved by EPA before the final issuance of the final permit, then EPA anticipates that the applicable State of New Hampshire's revised water quality standards found in Env-Wq 1700 shall be incorporated into the final permit. EPA invites comments pertaining to this issue.

1. 7Q10 Flow and Available Dilution

The available dilution of the receiving water is determined by using the facility's design flow of 11.5 mgd and the annual 7-day mean low flow at the 10 year recurrence interval (7Q10) in the receiving water just above the treatment plant's outfall. The available dilution is reduced by 10 percent to account for the State's assimilative capacity reserve rule pursuant to NH Surface Water Quality Regulations Env-Wq 1705.01.

The 2009 permit used a dilution factor of 24.2. This was based upon the treatment plant design flow of 11.5 mgd (17.8 cfs) and a 7Q10 at the Franklin Junction Gage of 477.83 cfs plus 0.34 cfs from the intervening area between the gage and the treatment plant (total 7Q10 flow equaling 478.17 cfs). The dilution factor has been revised to 25.8 based on a recalculation of the 7Q10 at the Franklin Junction Gage (492 cfs) for a period of record 1943 to 2014. The new total upstream 7Q10 flow is 492.34 cfs. The revised dilution factor based on this revised upstream 7Q10 is 25.8. The revised dilution factor has been used to calculate water quality based limits for the current draft permit. The calculation of the dilution factor can be found in Attachment D.

2. Total Chlorine Residual

The New Hampshire water quality standards specify the chronic and acute aquatic-life criterion for chlorine as 0.011 mg/l and 0.019 mg/l, respectively, for freshwater; and 0.0075 mg/l and 0.013 mg/l, respectively, for marine water. The total residual chlorine (TRC) limits in the 2009 permit, based on available dilution, were a monthly average limit of 0.27 mg/l (0.011 mg/l * 24.2) and a daily maximum limit of 0.46 mg/l (0.019 mg/l * 24.2). Although ultraviolet light as used most of the time for disinfection, the permittee maintained consistent compliance with these limits when chlorine was used. See Attachment B.

Based upon the revised available dilution presented above, applicable TRC limits were recalculated to be a monthly average limit of 0.28 mg/l (0.011 mg/l * 25.8) and a daily maximum limit of 0.49 mg/l (0.019 mg/l * 25.8). However, based on anti-backsliding regulations found at 40 CFR 122.44(l)(2) the more stringent limitations in the 2009 permit are carried forward in the draft permit.