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"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§ 26-53),

Town of Greenfield
14 Court Square
Greenfield, MA 01301

is authorized to discharge from the facility located at:

Greenfield Water Pollution Control Plant
384 Deerfield Street (Rear)
Greenfield, MA 01301

to receiving water named:

Deerfield River (MA33-04)

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

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 shall expire at midnight five (5) years from the last day of the month preceding the effective date of the permit.

This permit supersedes the permit issued on October 29, 2002.

This permit consists of 14 pages in Part I including effluent limitations, monitoring requirements, 25 pages in Part II including General Conditions and Definitions, and Attachment A: Freshwater Acute Toxicity Test Procedure and Protocol; Attachment B: Procedures for a pH Adjustment Demonstration Project, Attachment C: Summary of Required Report Submittals.

Signed this 28th day of September, 2011

/S/SIGNATURE ON FILE

_____	_____
Director	Director
Office of Ecosystem Protection	Commonwealth of Massachusetts
Environmental Protection Agency	Massachusetts Wastewater Management Program
Boston, MA	Department of Environmental Protection
	Boston, MA

PART I
A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number 001 to the Deerfield River. The discharge shall be limited and monitored by the permittee as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS						MONITORING REQUIREMENTS[3]	
	Mass Limits			Concentration Limits				
Parameter	**Average Monthly**	**Average Weekly**	**Maximum Daily**	**Average Monthly**	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample[3] Type**
Flow[2]	***	***	***	3.4 MGD	***	Report MGD	Continuous	Recorder
Flow[2]	***	***	***	Report MGD	***	***	Continuous	Recorder
BOD5[4]	801 lbs/day	1201 lbs/day	Report lbs/day	28 mg/l	42mg/l	Report mg/l	3/Week	24-Hour Composite[5]
TSS[4]	801 lbs/day	1201 lbs/day	Report lbs/day	28 mg/l	42 mg/l	Report mg/l	3/Week	24-Hour Composite[5]
pH[1]	6.5 - 8.3 SU SEE PERMIT PAGE 6 OF 14, PARAGRAPH I.A.2.b.						1/Day	Grab
E. Coli (April 1- November 15)[1,6]	***	***	***	126 Colonies/100 ml	***	409 Colonies/100 ml	3/Week	Grab
Total Residual Chlorine (April 1- November 15)[1,7,8,9,10]	***	***	***	0.48 mg/l	***	0.83 mg/l	1/Day	Grab
Total Nitrogen[11]	***	***	***	Report mg/l	***	***	1/Month	24-Hour Composite[5]
Ammonia Nitrogen[11]	***	***	***	Report mg/l	***	***	1/Month	24-Hour Composite[5]
Total Kjeldahl Nitrogen[11]	***	***	***	Report mg/l	***	***	1/Month	24-Hour Composite[5]

Part I.A.1 continued.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS						MONITORING REQUIREMENTS[3]	
	Mass Limits			Concentration Limits				
Parameter	**Average Monthly**	**Average Weekly**	**Maximum Daily**	**Average Monthly**	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample Type**
Total Nitrate[11]	***	***	***	Report mg/l	***	***	1/Month	24-Hour Composite[5]
Total Nitrite[11]	***	***	***	Report mg/l	***	***	1/Month	24-Hour Composite[5]
Total Phosphorus	***	***	***	Report mg/l	***	***	1/Month	24-Hour Composite[5]
Whole Effluent Toxicity [12, 13,14]	Acute LC50 ≥ 100%						2/Year	24-Hour Composite[5]

Sampling Location: Prior to discharge into the Deerfield River, and at a location that provides representative samples of the effluent.

Footnotes:

1. Required for State Certification.

2. Report annual average, monthly average and the maximum daily flow. This limit is an annual average, which shall be reported as a rolling average. The value will be calculated as the arithmetic mean of the monthly average flow for the reporting month and the monthly average flow of the previous eleven months.

3. Effluent sampling shall be of the discharge and shall be collected at the point specified on page 3.

   A routine sampling program shall be developed in which samples are taken at the same location, same time and same days of the week each month. Occasional deviations from the routine sampling program are allowed, but the reason for the deviation shall be documented in correspondence appended to the applicable discharge monitoring report.

   All samples shall be tested using the analytical methods found in 40 CFR §136 or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136.

4. Sampling required for influent and effluent.

5. A 24-hour composite sample will consist of at least twenty four (24) grab samples taken during one consecutive 24 hour period, either collected at equal intervals and combined proportional to flow or continuously collected proportionally to flow.

6. *Escherichia coli (E. coli)* and total residual chlorine limits and monitoring requirements are in effect from April 1 through November 15. The average monthly limit for *E. coli* bacteria is expressed as a geometric mean. Samples for *E. coli* bacteria shall be collected concurrently with a total residual chlorine sample.

7. The total residual chlorine monitoring requirements apply whenever chlorine is added to the treatment process (i.e. TRC sampling is not required if chlorine is not added for disinfection or other purpose).

   The minimum level (ML) for total residual chlorine is defined as 20 ug/l. This value is the minimum level for chlorine using EPA approved methods found in the most currently approved version of Standard Methods for the Examination of Water and Wastewater, Method 4500 CL-E and G. One of these methods must be used to determine total residual chlorine. For effluent limitations less than 20 ug/l, compliance/non-compliance will be determined based on the ML. Sample results of 20 ug/l or less shall be reported as zero on the discharge monitoring report.

8. Chlorination and dechlorination systems shall include an alarm system for indicating system interruptions or malfunctions. Any interruption or malfunction of the chlorine system that may have resulted in levels of chlorine that were inadequate for achieving

effective disinfection, or interruptions or malfunctions of the dechlorination system that may have resulted in excessive levels of chlorine in the final effluent shall be reported with the monthly DMRs. The report shall include the date and time of the interruption or malfunction, the nature of the problem, and the estimated amount of time that the reduced levels of chlorine or dechlorination chemicals occurred.

9. For every day that more than one grab sample is analyzed, the monthly DMR shall include an attachment documenting the individual grab sample results for that day, the date and time of each sample, the analytical method, and a summary of any operational modifications implemented in response to the sample results. This requirement applies to all effluent samples taken, including screening level and process control samples. All test results utilizing an EPA approved analytical method shall be used in the calculation and reporting of the monthly average and maximum daily discharge values submitted on the DMR.

10. Compliance with effluent limits will be determined using the results from grab samples. If the permittee collects and analyzes chlorine residual grab samples more frequently than required by the permit, the results of this monitoring must be included in the calculation and reporting of the data submitted on the DMR.

11. See Part I.B, Special Conditions, for requirements to evaluate and implement optimization of nitrogen removal.

12. The permittee shall conduct acute toxicity tests two (2) times per year and will test the fathead minnow, Pimephales promelas. Toxicity test samples shall be collected during the second week of the months of March and September. The test results shall be submitted by the last day of the month following the completion of the test. The results are due by April 31st and October 31st, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit

Test Dates Second Week of	Submit Results By:	Test Species	Acute Limit LC_{50}
March September	April 31st October 31st	Pimephales promelas (Fathead minnow) See Attachment A	100%

13. The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent (no dilution) shall cause no more than a 50% mortality rate.

14. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall follow procedures outlined in **Attachment A (Toxicity Test Procedure and Protocol) Section IV., DILUTION WATER** in order to obtain individual approval to use an alternate dilution water, or the permittee shall follow the **Self-Implementing Alternative Dilution Water Guidance** which may be used to obtain

automatic approval of an alternative dilution water, including the appropriate species for use with that water. This guidance is found on the EPA, Region I web site at http:www.epa.gov/region1/enforcementandassistance/dmr.pdf. If this guidance is revoked, the permittee shall revert to obtaining individual approval as outlined in **Attachment A**. Any modification or revocation to this guidance will be transmitted to the permittees. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A**.

Part I.A.2.

a. The discharge shall not cause a violation of the water quality standards of the receiving waters.

b. The pH of the effluent shall not be less than 6.5 or greater than 8.3 at any time. If the permittee submits a written request for an adjustment of the pH range, the permittee must conduct a pH adjustment demonstration project following the procedures in **Attachment B** of this Permit.

c. The discharge shall not cause objectionable discoloration of the receiving waters.

d. The effluent shall not contain a visible oil sheen, foam, nor floating solids at any time.

e. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS). The percent removal shall be based on monthly average values.

f. The permittee shall minimize the use of chlorine while maintaining adequate bacterial control, and will seasonally disinfect from April 1st – November 15th each year.

g. The results of sampling for any parameter done in accordance with EPA approved methods above its required frequency must also be reported.

3. All POTWs must provide adequate notice to the Director of the following:

a. Any new introduction of pollutants into that POTW from an indirect discharger which would be subject to section 301 or 306 of the Clean Water Act if it were directly discharging those pollutants; and

b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

c. For purposes of this paragraph, adequate notice shall include information on:

(1) The quantity and quality of effluent introduced into the POTW; and

(2) Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

4. Prohibitions Concerning Interference and Pass Through:

a. Pollutants introduced into a POTW by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.

5. Toxics Control

a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.

b. Any toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been or may be promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

6. Numerical Effluent Limitations for Toxicants

EPA or MassDEP may use the results of the toxicity tests and chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to Section 304(a)(1) of the Clean Water Act (CWA), state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for an pollutants, including but not limited to those pollutants listed in Appendix D of 40 CFR Part 122.

B. SPECIAL CONDITIONS

Within **one year of the effective date of the permit**, the permittee shall complete an evaluation of alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen, and submit a report to EPA and MassDEP documenting this evaluation and presenting a description of recommended operational changes. The methods to be evaluated include, but are not limited to, operational changes designed to enhance nitrification (seasonal and year round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. The permittee shall implement the recommended operational changes so that the mass discharge of total nitrogen does not exceed the existing annual average discharge. The annual average total nitrogen load from this facility is estimated to be 428 lbs/day, based on data reported from 2004 through 2005.

The permittee shall also submit an annual report to EPA and the MassDEP, by **February 1st** each year, that summarizes activities related to optimizing nitrogen removal efficiencies, documents the annual nitrogen discharge load from the facility, and tracks

trends relative to the previous year.

C. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfall listed in Part I A.1. of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs) are not authorized by this permit and shall be reported to EPA and MassDEP in accordance with Section D.1.e(1) of the General Requirements of this permit (24-hour reporting).

Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes DEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at http://www.mass.gov/dep/water/approvals/surffms.htm#sso.

D. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the following terms and conditions:

1. Maintenance Staff

The permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit.

2. Preventative Maintenance Program

The permittee shall maintain an ongoing preventative maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges.

3. Infiltration/Inflow Control Plan:

The permittee shall develop and implement a plan to control infiltration and inflow (I/I) to the separate sewer system. The plan shall be submitted to EPA and MassDEP **within three (3) months of the effective date of this permit** (see page 1 of this permit for the effective date) and shall describe the permittee's program for preventing infiltration/inflow related effluent limit violations, and all unauthorized discharges of wastewater, including overflows and by-passes due to excessive infiltration/inflow. The plan shall specifically address the deficiencies in the previous plan including 1) the inadequate level of funding; 2) a more effective inflow identification and control program focusing on sump pumps and down spouts; 3) the identification and prioritization of areas that will provide increased aquifer recharge as the result of reduction/elimination of

infiltration and inflow to the system and 4) an educational public outreach program for all aspects of I/I control, particularly private inflow.

The plan shall include:

a. An ongoing program, with a five (5) year schedule reflecting the term of the permit, to identify and remove sources of infiltration and inflow. The program shall include the necessary funding level and the source(s) of funding.

b. An inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts. Priority should be given to removal of public and private inflow sources that are upstream from, and potentially contribute to, known areas of sewer system backups and/or overflows.

The I/I Control Plan should include summary lists of Suspected Inflow Sources, a Manhole Inspection Inventory and a Sewer Inspection Inventory.

c. Identification and prioritization of areas that will provide increased aquifer recharge as the result of reduction/elimination of infiltration and inflow to the system.

d. An educational public outreach program for all aspects of I/I control, particularly private inflow. Please provide copies of all public education materials, and clippings of any public outreach via newspapers or other sources.

4. Reporting Requirements:

A summary report of all actions taken to minimize I/I during the previous calendar year shall be submitted to EPA and MassDEP annually by March 31. The summary report shall, at a minimum, include:

a. A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year.

b. Expenditures for any infiltration/inflow related maintenance activities and corrective actions taken during the previous year.

c. A map with areas identified for I/I-related investigation/action in the coming year.

d. A calculation of the annual average I/I, the maximum month I/I for the reporting year.

e. A report of any infiltration/inflow related corrective actions taken as a result of unauthorized discharges reported pursuant to 314 CMR 3.19(20) and reported pursuant to the Unauthorized Discharges section of this permit.

5. Alternate Power Source

In order to maintain compliance with the terms and conditions of this permit, the permittee shall continue to provide an alternative power source with which to sufficiently operate its treatment works (as defined at 40 CFR §122.2).

E. SLUDGE CONDITIONS

1. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices, including EPA regulations promulgated at 40 CFR Part 503, which prescribe "Standards for the Use or Disposal of Sewage Sludge" pursuant to Section 405(d) of the CWA, 33 U.S.C. § 1345(d).

2. If both state and federal requirements apply to the permittee's sludge use and/or disposal practices, the permittee shall comply with the more stringent of the applicable requirements.

3. The requirements and technical standards of 40 CFR Part 503 apply to the following sludge use or disposal practices.

   a. Land application - the use of sewage sludge to condition or fertilize the soil

   b. Surface disposal - the placement of sewage sludge in a sludge only landfill

   c. Sewage sludge incineration in a sludge only incinerator

4. The requirements of 40 CFR Part 503 do not apply to facilities which dispose of sludge in a municipal solid waste landfill. 40 CFR § 503.4. These requirements also do not apply to facilities which do not use or dispose of sewage sludge during the life of the permit but rather treat the sludge (e.g. lagoons, reed beds), or are otherwise excluded under 40 CFR § 503.6.

5. The 40 CFR Part 503 requirements including the following elements:

   - General requirements
   - Pollutant limitations
   - Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
   - Management practices
   - Record keeping
   - Monitoring
   - Reporting

   Which of the 40 C.F.R. Part 503 requirements apply to the permittee will depend upon the use or disposal practice followed and upon the quality of material produced by a

facility. The EPA Region 1 Guidance document, "EPA Region 1 - NPDES Permit Sludge Compliance Guidance" (November 4, 1999), may be used by the permittee to assist it in determining the applicable requirements.[1]

6. The sludge shall be monitored for pollutant concentrations (all Part 503 methods) and pathogen vector attraction reduction (land application and surface disposal) at the following frequency. This frequency is based upon the volume of sewage sludge generated at the facility in dry metric tons per year

less than 290	1/ year
290 to less than1500	1 /quarter
1500 to less than 15000	6 /year
15000 +	1 /month

Sampling of the sewage sludge shall use the procedures detailed in 40 CFR 503.8.

7. Under 40 CFR § 503.9(r), the permittee is a "person who prepares sewage sludge" because it "is … the person who generates sewage sludge during the treatment of domestic sewage in a treatment works …." If the permittee contracts with *another* "person who prepares sewage sludge" under 40 CFR § 503.9(r) – i.e., with "a person who derives a material from sewage sludge" – for use or disposal of the sludge, then compliance with Part 503 requirements is the responsibility of the contractor engaged for that purpose. If the permittee does not engage a "person who prepares sewage sludge," as defined in 40 CFR § 503.9(r), for use or disposal, then the permittee remains responsible to ensure that the applicable requirements in Part 503 are met. 40 CFR §503.7. If the ultimate use or disposal method is land application, the permittee is responsible for providing the person receiving the sludge with notice and necessary information to comply with the requirements of 40 CFR Part 503 Subpart B.

8. The permittee shall submit an annual report containing the information specified in the 40 CFR Part 503 requirements (§ 503.18 (land application), § 503.28 (surface disposal), or § 503.48 (incineration)) by **February 19** (*see also* "EPA Region 1 - NPDES Permit Sludge Compliance Guidance"). Reports shall be submitted to the address contained in the reporting section of the permit. If the permittee engages a contractor or contractors for sludge preparation and ultimate use or disposal, the annual report need contain only the following information:

    - Name and address of contractor(s) responsible for sludge preparation, use or disposal
    - Quantity of sludge (in dry metric tons) from the POTW that is transferred to the sludge contractor(s), and the method(s) by which the contractor will prepare and use or dispose of the sewage sludge.

[1] This guidance document is available upon request from EPA Region 1 and may also be found at: http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf

F. MONITORING AND REPORTING

1. **For a period of one year from the effective date of the permit**, the permittee may either submit monitoring data and other reports to EPA in hard copy form, or report electronically using NetDMR, a web-based tool that allows permittees to electronically submit discharge monitoring reports (DMRs) and other required reports via a secure internet connection. **Beginning no later than one year after the effective date of the permit**, the permittee shall begin reporting using NetDMR, unless the facility is able to demonstrate a reasonable basis that precludes the use of NetDMR for submitting all DMRs and reports. Specific requirements regarding submittal of data and reports in hard copy form and for submittal using NetDMR are described below:

   a. Submittal of Reports Using NetDMR

      NetDMR is accessed from: http://www.epa.gov/netdmr. Within one year of the effective date of the Permit, the permittee shall begin submitting DMRs and reports required under this permit electronically to EPA using NetDMR, unless the facility is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for submitting DMRs and reports ("opt out request").

      DMRs shall be submitted electronically to EPA no later than the 15th day of the month following the completed reporting period. All reports required under the permit shall be submitted to EPA, including the MassDEP Monthly Operations and Maintenance Report, as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA and will no longer be required to submit hard copies of DMRs to MassDEP. However, permittees shall continue to send hard copies of reports other than DMRs (including Monthly Operation and Maintenance Reports) to MassDEP until further notice from MassDEP.

   b. Submittal of NetDMR Opt Out Requests

      Opt out requests must be submitted in writing to EPA for written approval at least sixty (60) days prior to the date a facility would be required under the Permit to begin using NetDMR. This demonstration shall be valid for twelve (12) months from the date of EPA approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to EPA unless the permittee submits a renewed opt out request and such request is approved by EPA. All opt out requests should be sent to the following addresses:

Attn: NetDMR Coordinator
U.S. Environmental Protection Agency, Water Technical Unit
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

and

Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

c. Submittal of Reports in Hard Copy Form

Hard copy DMR submittals shall be completed and postmarked no later than the 15th day of the month following the completed reporting period. MassDEP Monthly Operation and Maintenance Reports shall be submitted as an attachment to the DMRs. Signed and dated originals of the DMRs, and all other reports required herein, shall be submitted to the appropriate State addresses and to the EPA address listed below:

U.S. Environmental Protection Agency
Water Technical Unit
5 Post Office Square, Suite 100 (OES04-4)
Boston, MA 02109-3912

The State Agency addresses are:

Massachusetts Department of Environmental Protection
Western Regional Office
436 Dwight Street
Springfield, MA 01103

Copies of whole effluent toxicity tests and other reports, except DMRs:

Massachusetts Department of Environmental Protection
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

G. STATE PERMIT CONDITIONS

1. This authorization to discharge includes two separate and independent permit authorizations. The two permit authorizations are (i) a federal National Pollutant Discharge Elimination System permit issued by the U.S. Environmental Protection

Agency (EPA) pursuant to the Federal Clean Water Act, 33 U.S.C. §§1251 et seq.; and (ii) an identical state surface water discharge permit issued by the Commissioner of the Massachusetts Department of Environmental Protection (MassDEP) pursuant to the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53, and 314 CMR 3.00. All of the requirements contained in this authorization, as well as the standard conditions contained in 314 CMR 3.19, are hereby incorporated by reference into this state surface water discharge permit.

2. This authorization also incorporates the state water quality certification issued by MassDEP under § 401(a) of the Federal Clean Water Act, 40 C.F.R. 124.53, M.G.L. c. 21, § 27 and 314 CMR 3.07. All of the requirements (if any) contained in MassDEP's water quality certification for the permit are hereby incorporated by reference into this state surface water discharge permit as special conditions pursuant to 314 CMR 3.11.

3. Each agency shall have the independent right to enforce the terms and conditions of this permit. Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of this permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal or otherwise issued in violation of state law such permit shall remain in full force and effect under federal law as a NPDES Permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of federal law, this permit shall remain in full force and effect under state law as a permit issued by the Commonwealth of Massachusetts.

Attachment B

Procedures for a pH Adjustment Demonstration Project

This document describes the procedures to be undertaken by any permittee requesting an adjustment of the pH limits in their NPDES permit. These limits may be adjusted as long as the pH of the effluent remains between 6.0-9.0 (standard units) and the pH of the receiving water remains between 6.5-8.0 or as naturally occurs. Please note that a pH limits adjustment is valid only for the duration of the existing NPDES permit. A subsequent pH limits adjustment demonstration project can be conducted and submitted with a NPDES permit reapplication or anytime thereafter.

Freshwater
For discharges to fresh water receiving waters each demonstration project must be conducted twice over the period of a year, once during the spring months (between March and April when receiving water flows are high) and once during the summer months (between July and August when receiving water flows are low).

Marine Waters
For discharges to marine /estuarine receiving waters the demonstration project must be completed only once during a 1% occurrence spring tide, which is a tide with a maximum range of depths between the high and low tides.

- When the requested pH limit is low (down to 6.0) the study must be conducted when runoff conditions are the greatest (during March/April or October /November) and during the last 2 hours of ebb tide (just before slack low tide).
- When the requested pH limit is high (up to 9.0) the study must be conducted when runoff conditions are lowest (during July and August) and during the last 2 hours of flood tide (just prior to slack high tide.)

The project calls for use of grab and composite samples of the effluent, and grab samples of the receiving water. The procedure is as follows:

1. Calibrate the pH meter using two-point calibration (per the manufacturer's procedure) and verify the calibration using a pH standard close to either pH 6.0 or pH 9.0 (depending on whether you are conducting the pH demonstration project to lower permit limit to pH 6.0 or raise the permit limit to pH 9.0) Record the results on a lab bench sheet. Also record on the lab bench sheet all sampling dates and times, the name of the sampler(s), the name of the analyst(s), and the start and end times for each analysis.

2. Collect a grab and a 24-hour composite sample of the effluent and a grab sample of the receiving water (up gradient of the outfall location). Five liter sample bottles typically suffice. Facilities with secondary treatment by sand filtration or lagoons need not collect a 24-hour composite sample of the effluent because of the relative uniformity of effluent quality.

3. Record the collection date and time for each sample. Work as rapidly as possible to minimize sample holding time.

4. Measure the pH of all samples (effluent grab sample, effluent composite sample, if needed and receiving water grab sample) using the method described in Standard Methods, 18th, 19th, or 20th Edition (or a method allowed in 40 CFR 136), and record the pH of samples on the attached form. The samples must be stirred, but the rate of stirring should minimize the air transfer rate at the air water interface of the sample.

5. Adjust the pH of the effluent sample(s) (either the effleuent grab sample or both the grab and composite effluent samples) to either a pH of 6.0 or 9.0 depending on whether you are seeking to adjust the pH to 6.0 or 9.0. The pH of a sample can be adjusted with either sulfuric acid or sodium hydroxide of such strength that the quantity of reagent does not dilute the sample by more than 0.5%.

6. Taking precautions to minimize sample agitation, mix the receiving water and effluent samples in four separate (glass) containers in the following proportions:
   a. 1 @ the facility's dilution factor
   b. 1 @ 20% above the facility's dilution factor (1.2 x dilution factor)
   c. 1 @ 20% below the facility's dilution factor (0.8 x dilution factor)
   d. 1 @ 40% below the facility's dilution factor (0.6 x dilution factor)

For example, if the facility's dilution factor is 100:1, then the four dilution factors used for the study would be as follows: 100:1, 120:1, 80:1 and 60:1. The volume of each effluent/receiving water mixture should be no less than 500 ml to provide adequate volume for proper mixing and measurement of pH. To calculate the volume of effluent needed to prepare each of the four mixtures, divide the total mixture volume (500 ml) by the dilution factor/ For example, for a dilution factor of 100, divide 500 ml by 100 to calculate the effluent volume that will be needed (5 ml). The 5 ml of effluent should then be diluted (using receiving water) to 500 ml to prepare a mixture representative of the 100:1 dilution factor. The following effluent and receiving water volumes would be combined to prepare each of the four mixtures in the above example:

Dilution Factor	Effluent Volume (ml)	Receiving Water Volume (ml)	Combined Volume (ml)
60	8.33	491.67	500
80	6.25	493.75	500
100	5.0	495.0	500
120	4.17	495.83	500

7. Measure the pH of each mixture per Standard Methods, 18th, 19th or 20th Edition (or a method allowed in 40 CFR 136) and record the information on the attached form.

8. Recheck the calibration of the pH meter by measuring the pH of a standard (again, either pH 6.0 or pH 9.0) and record the information on the lab bench sheet.

9. For discharges to fresh water receiving waters, repeat Steps 1-8 for samples collected during the second season.

10. Submit a report with a copy (or copies) of the attached form (one for each sampling date) and the lab bench sheets to EPA and MassDEP. The report must include a narrative justification for adjusting the pH range and an interpretation/ conclusion about the data.

Attachment B

Date:	Start Time:	End Time:
pH of Receiving Water Grab Sample		(1)
pH of Effluent Grab Sample		(2)
pH of Effluent Composite Sample		(3)

	Effluent Grab Sample	Effluent Composite Sample
pH (after pH adjustment)	(4)	(5)

Serial Dilution		Volume of pH Adjusted Effluent (ml)	Volume of Receiving Water (ml)	Resultant pH Data	
				Effluent Grab/Receiving Water Mixture	Effluent Composite/Receiving Water Mixture
D1: 40% below actual dilution factor	(6)	(10)	(14)	(18)	(22)
D2: 20% below actual design dilution factor	(7)	(11)	(15)	(19)	(23)
D3: at actual design dilution factor	(8)	(12)	(16)	(20)	(24)
D4: 20% above actual design dilution factor	(9)	(13)	(17)	(21)	(25)

(1)Record the pH of a representative upstream receiving water grab sample; for marine waters also note salinity
(2)Record the pH of a representative effluent grab sample
(3)Record the pH of a representative effluent composite sample
(4)Record the pH of the representative effluent grab sample after pH adjustment (should be either pH 6.0 or 9.0)
(5)Record the pH of the representative effluent composite sample after pH adjustment (should be either 6.0 or 9.0)
(6)–(9) Record the four dilutions, and note the volumes used to make up the dilutions (10)-(17); record the resultant pH of each mixture (18)-(25).

Notes/Comments:_____
_____
_____
_____

Summary of Required Report Submittals*

Required Report	Date Due	Submitted by:	Submitted to:
Chlorination System Report (Part I.A.1. Footnote 8)	With monthly DMRs, if interruption or malfunction of the chlorine dosing system occurs (See Footnote 8).	Town of Greenfield	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Western Regional Office 436 Dwight Street Springfield, MA 01103
Whole Effluent Toxicity Test Report (Part I.A.1. Footnote 12)	By April 31st, October 31st of each year	Town of Greenfield	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Western Regional Office 436 Dwight Street Springfield, MA 01103
			MassDEP Division of Watershed Management Surface Water Discharge Permit Program 627 Main Street, 2nd Floor Worcester, MA 01608

Required Report	**Date Due**	**Submitted by:**	**Submitted to:**
Nitrogen Optimization Report (Part I.B)	Within 1 year of the effective date of the permit (See page 1 of permit for effective date).	Town of Greenfield	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Western Regional Office 436 Dwight Street Springfield, MA 01103
			MassDEP Division of Watershed Management Surface Water Discharge Permit Program 627 Main Street, 2nd Floor Worcester, MA 01608
Annual Nitrogen Optimization Report (Part I.B)	By February 1of each year	Town of Greenfield	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Western Regional Office 436 Dwight Street Springfield, MA 01103
			MassDEP Division of Watershed Management Surface Water Discharge Permit Program 627 Main Street, 2nd Floor Worcester, MA 01608

Required Report	**Date Due**	**Submitted by:**	**Submitted to:**
Notification of Sanitary Sewer Overflows (Part I.C)	Oral Report -Within 24 hours of discovery of event Written Report – Within 5 calendar days of discovery of event	Town of Greenfield	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Western Regional Office 436 Dwight Street Springfield, MA 01103
Infiltration/Inflow Control Plan (Part I.D.3)	Within 3 months of the effective date	Town of Greenfield	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Western Regional Office 436 Dwight Street Springfield, MA 01103
Annual I/I Summary Report (Part I. D.4)	Annually by March 31	Town of Greenfield	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Western Regional Office 436 Dwight Street Springfield, MA 01103

Required Report	Date Due	Submitted by:	Submitted to:
Annual Sludge Report (Part I.E.8)	Annually by February 19	Town of Greenfield	U.S. Environmental Protection Agency Water Technical Unit (OES04-SMR) 5 Post Office Square – Suite 100 Boston, MA 02109-3912
			MassDEP Western Regional Office 436 Dwight Street Springfield, MA 01103

* This table is a summary of the reports required to be submitted under this NPDES permit as an aid to the permittee(s). If there are any discrepancies between the permit and this summary, the permittee(s) shall follow the permit requirements.

EPA AND MASSDEP JOINT RESPONSE TO PUBLIC COMMENTS GREENFIELD WATER POLLUTION CONTROL PLANT NPDES PERMIT NO. MA0101214

From July 22, 2010 to August 20, 2010, Region 1 of the United States Environmental Protection Agency ("EPA") and the Massachusetts Department of Environmental Protection ("MassDEP") (together, the "Agencies") solicited public comments on a draft National Pollutant Discharge Elimination System ("NPDES") permit, developed pursuant to an application from the Town of Greenfield, Massachusetts ("Permittee") for the reissuance of its permit to discharge treated wastewater from the Greenfield Water Pollution Control Plant to the designated receiving water, the Deerfield River.

The table of contents below lists each party's comments on the draft permit (essentially reproduced verbatim) and the page on which its comments begin. Each comment is followed by the Agencies' response.

After considering the comments received on the draft permit, EPA has made a final decision to issue the permit authorizing the discharge. In accordance with the provisions of 40 CFR § 124.17, this document briefly describes and responds to the comments received on the draft permit, and explains any provision of the final permit which have been changed from the draft as well as the reasoning supporting those changes. Any clarifications that EPA considers necessary are also included in this document. A copy of the final permit may be obtained by writing or calling Michele Cobban Barden, United States Environmental Protection Agency, 5 Post Office Square, Suite 100, Mail Code:OEP06-1, Boston, Massachusetts, 02109-3912; Telephone (617) 918-1539. Copies of the final permit and the response to comments may also be obtained from the EPA Region 1 website at http://www.epa.gov/region1/npdes/index.html.

A) Comments received from Sandra Shields, DPW Director, Town of Greenfield, dated August 19, 2010.

Comment A.1: *Permit – Page 1: "Board of Selectman" should be replaced with "Mayor of Greenfield". In 2003 Greenfield changed from a town to a city form of government. Despite this fact, the residents did not want the town's name to be changed. Therefore, we are a city headed by a Mayor and a thirteen member City Council, however we are still known as the "Town of Greenfield".*

Response A.1: EPA does not typically include the title of the responsible official(s) on the permit. Therefore we have removed "Board of Selectmen" from the first page, but have not included "Mayor of Greenfield." The change in the municipal government is noted and we will direct future correspondence to the Mayor.

Comment A.2. *Fact Sheet – Section 5.1 – Update. The last paragraph of this section discusses the potential of a 47 MW biomass plant being built in Greenfield and it using treated effluent for cooling water. In June 2010, a town wide referendum vote prohibited the Mayor from entering into a contract with Pioneer Renewal Energy for the sale of the effluent for cooling. Therefore, if the facility is built, which is questionable at this point, it will employ dry cooling and not use effluent from the WPC Plant.*

Response: EPA appreciates the update on the status of the project.

Comment A.3. *Fact Sheet – Page 10, Section 5.2.3.1. The written equation at the end of this section contains a typographical error. The denominator of the equation should read "Design Q" not "River Flow (7Q10)".*

Response: EPA acknowledges the typographical error in the written equation. The numbers used in the dilution calculation are correct.

The fact sheet at 5.2.3.1 should read:

$$\frac{\text{River flow (7Q10)} + \text{Design Flow (Daily average design effluent flow)}}{\text{Design Flow (Daily average design effluent flow)}} = \text{Dilution}$$

Comment A.4. *The Town is requesting a modification of the proposed extension of the chlorination season from March 1 to November 30 to April 1 to November 15 (current existing dates are April 1to October 31). The reasons for this request are as follows:*

- *The purpose of the disinfection is to protect public health. In March, rivers in western Massachusetts are still very high, turbid and fill of debris (trees, logs etc.) and simply not used for recreation. The same is true after mid-November – it is just too cold for recreational activity. In the past the Town has voluntarily extended the chlorination season into the first week or two of November when there has been pleasant weather that would make the use of the rivers probable. This proactive action in the past has displayed the staff's awareness of the public health issue. However we feel that the extension of the season by almost a 30% increase is unnecessary.*

- *Chlorination/dechlorination adds chlorinated hydrocarbons to the receiving streams. To unnecessarily extend the disinfection season increases this addition.*

- *Chlorination/dechlorination is expensive in terms of chemical and labor costs. Increasing the season will increase overall operational costs which could be better used in other areas such as I/I control.*

Response: EPA recognizes the efforts of the Town to protect public health and allow for the recreational use of the river. We agree that recreation is probably not occurring in March. Similarly, we agree that extending the disinfection season until November 15 should be sufficient to encompass the recreational period. Accordingly, the disinfection season in the final permit is April 1 through November 15.

Comment A.5. *The Town is hereby requesting an adjustment of the pH effluent range from 6.5-8.3 to 6.0 to 8.3. The Town has reviewed Section 5.2.4.2.4 of the Fact Sheet and will perform the required pH adjustment demonstration project as set forth in that section.*

Response: EPA acknowledges the comment and has maintained the requirement in the final permit.

Comment A.6. *The Town is requesting further rationale for the 80% flow level "trigger" While I do not know this to be the case, I assume this is placed in permits for cities/towns that are in states of growth and/or sewer expansion as was the case in Greenfield in the early 1970s and in areas such as the Rt 495 corridor. In these cases the 80% threshold would be the logical way to insure cities/towns start the planning process for plant expansions, etc. However, this is not the case in Greenfield. Our population and water use is decreasing, not increasing. Major expansions of the sewer system were*

studied in the 70's and 80's but plans have been permanently shelved due to major obstacles such as river crossings, wetlands, and cost-effectiveness. The Town acknowledges it has an I/I problem and is actively addressing that problem. However, if the plant is operating within its limits and the service area is not, nor projected to be, in state of growth, why is there an arbitrary 80% limit in effect.

Response: EPA recognizes that the 80% flow limit "trigger" policy was developed to address growth issues and to assure that the treatment plant would be capable to adequately treat projected flows. The requirement was included in the draft permit as part of an agreement with MassDEP to include this requirement in all POTW permits in Massachusetts.

EPA understands that the Town is not expecting any growth in the near future and so is not planning any further expansion of the sewer system. Therefore, with the concurrence of MassDEP, we have removed the 80 percent "flow trigger" language from the permit. We note, however, that the City has significant I/I into its collection system, which causes flows to the WPCP to exceed the flow limit. The City must work to control this I/I pursuant to Part 1.D. of the permit (Operation and Maintenance of the Sewer System) to ensure that these flows do not cause violations of effluent limitations. Please see the response to Comment C.4 for further detail.

B) Comments received from Paul E. Stacey, Director, Planning and Standards Division, Bureau of Water Protection and Land Reuse, Connecticut Department of Environmental Protection, dated August 19, 2010.

Comment B.1. *The draft Greenfield WWTP discharge permit demonstrates initial efforts aimed at reducing the amount of nitrogen discharged to LIS from upstream states. It includes a Special Condition for the WWTP to maintain a nitrogen load of approximately 428 pounds/day based on a 2004 and 2005 annual average and requires the WWTP permittee to conduct an evaluation of optimization methods designed to maintain this nutrient load. The draft permit also requires the permittee to submit an annual report that outlines nitrogen removal efficiencies, documents the annual nitrogen load discharged, and tracks trends in the nitrogen load. The CTDEP is pleased that such stipulations targeted at nitrogen loading have been proposed in the draft Greenfield NPDES permit and hopes to see this Special Condition incorporated in the final version.*

Response: EPA acknowledges the comment and has maintained the nitrogen requirements in the final permit.

Comment B.2. *Also noted in the draft WWTP permit is a requirement for monthly monitoring of nitrogen species based on a 24-hour composite. This type of data will serve to refine nitrogen loading estimates to LIS from upstream states and assist the Connecticut Working Group (EPA, NEIWPCC, CT, NY, MA, VT, NH) in determining supportable management actions. However, we also recommend concurrent sampling along the process or treatment chain, especially the influent. Those data will help determine treatment efficiency and, should nutrient removal be required at some time in the future for local or Long Island Sound management, they will be helpful in determining appropriate technologies and management options.*

Response: At this time, Region 1 believes that the level of monitoring in the draft permit is sufficient for the purposes of establishing the quantity of nitrogen discharged from the Greenfield WPCP, and does not believe that requiring additional monitoring requirements would provide significant benefits. This approach is consistent with requirements for EPA Region 1 NPDES permits issued in Massachusetts and New Hampshire. Therefore, the nitrogen monitoring requirements in the final permit have not been changed.

It should be noted that the permittee may conduct additional nitrogen sampling in support of its evaluation of alternative operational procedures that may enhance the nitrogen removal efficiency of the facility.

Comment B.3. *We appreciate the expanding cooperative effort with our neighboring states to resolve the nitrogen-loading problem that Long Island endures and thank you for your attention to these needs.*

Response B.3. EPA acknowledges the comment.

C) Comments received from Andrea F. Donlon, M.S., River Steward, Connecticut River Watershed Council, dated August 19, 2010.

Comment C.1. *The Fact Sheet on page 6 refers to Figures 1 and 2, a locus map of the wastewater treatment plant and a flow train map of the treatment facility. We received these figures directly from you because they were not posted online, and note that the locus map does not contain any information on the location of the discharge into the Deerfield River. It would be helpful to know where outfall 001 is located.*

Response C.1: EPA apologizes that figures 1 and 2 were not included in the online version of the Fact Sheet. As noted on the EPA web site (http://www.epa.gov/region1/npdes/mass.html), "Specific individual

permits may include additional attachments and supporting documentation that are not available electronically. As required by law, EPA maintains an administrative record for each permit it issues at our regional office. To view the administrative record (the legally binding hard copy of the permit) or to obtain hard copies of additional attachments for a specific permit please contact…"

As noted above, the figures were available from EPA in the permit record. Upon request from CRWC, EPA immediately sent copies of the requested figures. The locus map was provided by the permittee as part of its NPDES application.

The fact sheet narrative clearly states that the point of discharge is located just downstream of the confluence of the Deerfield River and the Green River and is approximately 3 feet from shore and between 3 to 10 feet below the surface, depending on river level.

Comment C.2. *On Page 9 of the Fact Sheet, the text refers to the Deerfield #2 dam. This dam is owned by TransCanada, not the New England Power Company. Also, Deerfield #2 and Gardners Fall Dam are not the same dam. Gardners Falls lies upstream of dam #2. The guaranteed minimum release flow from dam #2 is indeed 200 cfs.*

Response: EPA appreciates the clarification. EPA based ownership of the dam on the 1997 FERC license. The misidentification of dam # 2 as the Gardners Fall dam was based on the previous permit and does not change the dilution calculation.

Comment C.3. *We appreciate the detailed attempt to calculate a reasonable estimate of the 7Q10 at the point of discharge on the Deerfield River. However, EPA did not take into account numerous agricultural withdrawals along the river downstream of the #2 dam. Each withdrawal is likely to be less than 100,000 gallons per day, which is the threshold for falling under the Water Management Act permit in Massachusetts. During a dry summer like we are currently experiencing, several farms along the river are drawing out irrigation water. It is impossible to know how much water is being withdrawn, but perhaps EPA could work with the USDA Natural Resources Conservation Service district office to make a reasonable estimate. On the other hand, the Old Deerfield wastewater treatment plant discharges into the Deerfield River, and so you have the addition of that water.*

Response: Relative to the 7Q10 flow of the Deerfield, these agricultural withdrawals are not significant to the dilution calculation. Even if there were ten 100,000 gpd agricultural withdrawals between the USGS Deerfield River near West Deerfield gage, that would reduce the river flow by 1 mgd. Such a reduction would not significantly affect the dilution factor.

The dilution used in the permit was calculated as follows:

River flow (7Q10) = 225 cfs * 0.646272 mgd/cfs = 145.4 mgd
Design Flow = 3.4 mgd

$$\frac{\text{River flow (7Q10)} + \text{Daily average design effluent flow}}{\text{Design Flow}} = \text{Dilution}$$

$$\frac{145.4 \text{ mgd} + 3.4 \text{ mgd}}{3.4 \text{ mgd}} = 43.8$$

If we assumed a reduction of 1 mgd, the dilution would be calculated as follows:

River flow (7Q10) = 225 cfs * 0.646272 mgd/cfs
=145.4 mgd - 1 mgd = 144.4 mgd
Design Flow = 3.4 mgd

$$\frac{144.4 \text{ mgd} + 3.4 \text{ mgd}}{3.4 \text{ mgd}} = 43.5$$

The Old Deerfield Wastewater Treatment facility also does not represent a significant contribution since it is limited at 0.25 mgd.

EPA has maintained the dilution factor used in the draft permit for the calculation of total residual chlorine limits.

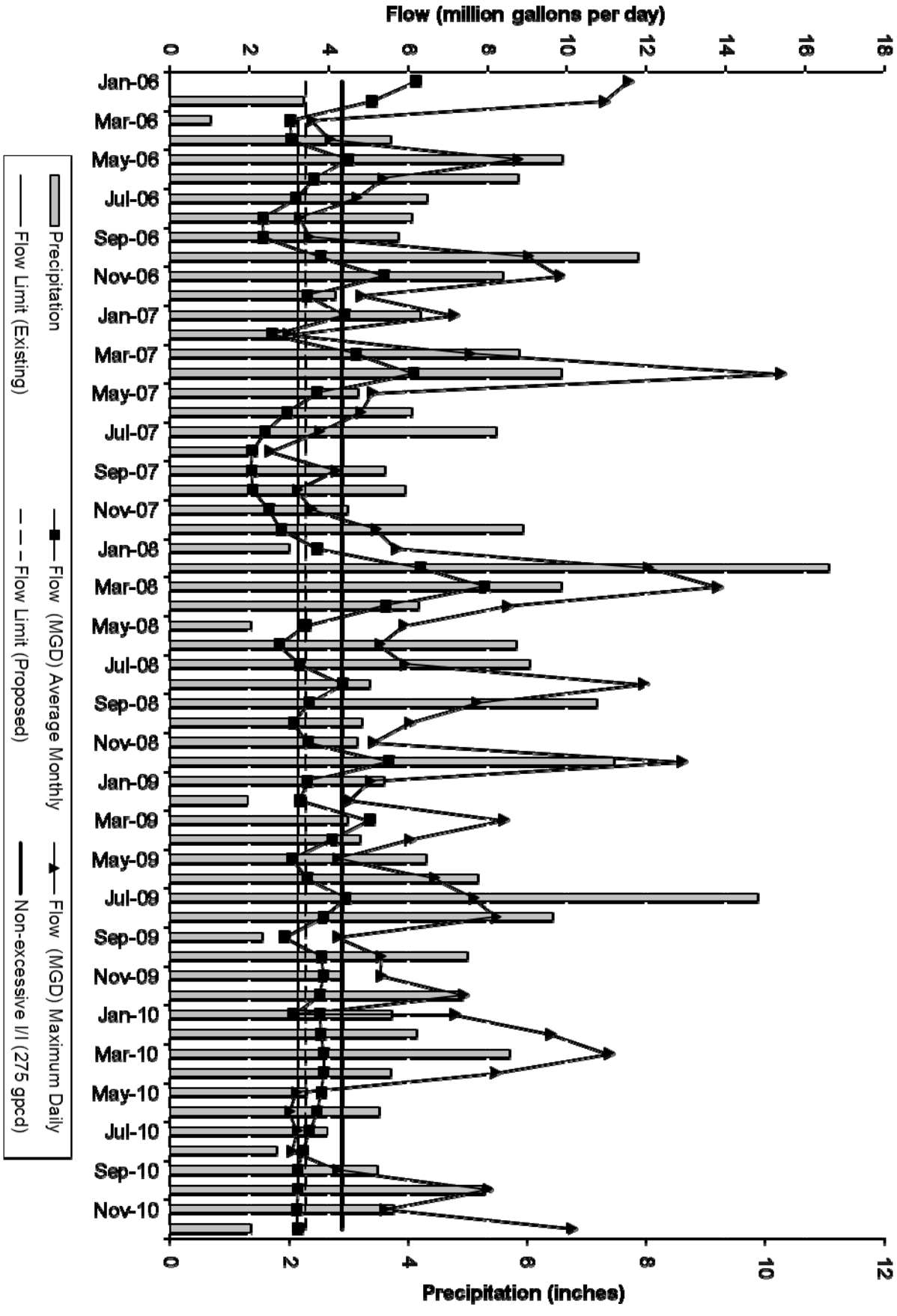
Comment C.4. *Page 10 of the Fact Sheet explains that the average daily design flow of the treatment plant has been increased from 3.2 to 3.4 million gallon per day (MGD). It also states that the permittee is likely to continue to exceed the flow limit of this new permit. We recommend that EPA work into the permit a schedule for compliance with the flow limit for this permit.*

Response: EPA is not condoning the exceedances of the flow limit but simply stating that the exceedances will likely continue in the near future unless there are substantial gains in I/I identification and removal. The new flow limit becomes effective on the effective date of the permit. If the permittee

exceeds the limit, they will be subject to enforcement by EPA. A compliance schedule, as recommended by the commenter, would not be appropriate since compliance schedules are only allowed for new water quality based limits and the flow limit is not a water quality based limit.

EPA has evaluated the flow data reported by the Town of Greenfield and compared it to benchmarks found in EPA regulations (See Figure on Page 9). EPA regulations at 40 CFR §35.2005 (b)(28) define "Non-excessive I/I" as "The maximum total flow rate during storm events which does not result in chronic operational problems related to hydraulic overloading of the treatment works or which does not result in a total flow of more than 275 gallons per capita day (domestic base flow plus infiltration plus inflow)". Using the sewered population (15,700) reported by the Town of Greenfield in its application, the excessive I/I benchmark is 4.3 mgd. The maximum daily values reported between January 2006 and present exceeded this threshold 73 % of the time.

EPA believes the source of the high flows is excessive inflow and infiltration (I/I). The Town has stated that a majority of sewer collection system infrastructure is located in wetlands or wet areas. In response, EPA has modified the I/I requirements in the final permit (See the Response to Comment C.5 for further information).


Flow (million gallons per day)
0
2
4
6
8
10
12
14
16
18
Jan-06
Mar-06
May-06
Jul-06
Sep-06
Nov-06
Jan-07
Mar-07
May-07
Jul-07
Sep-07
Nov-07
Jan-08
Mar-08
May-08
Jul-08
Sep-08
Nov-08
Jan-09
Mar-09
May-09
Jul-09
Sep-09
Nov-09
Jan-10
Mar-10
May-10
Jul-10
Sep-10
Nov-10
Precipitation (inches)
0
2
4
6
8
10
12
Precipitation
Flow (MGD) Average Monthly
Flow (MGD) Maximum Daily
Flow Limit (Existing)
Flow Limit (Proposed)
Non-excessive I/I (275 gpcd)

Comment C.5. *It would be helpful if the Fact Sheet briefly summarized information submitted by the permittee in infiltration and inflow (I/I) reports: what has been accomplished during the life of the existing permit, and what is on the horizon to tackle. We note that with the facility treating about an average of 4.03 MGD (in excess of the permitted flow limit), that amount calculates to a per capita water use of 256.6 gallons per day. It appears the facility may have an I/I issue because of the per capita water use (without lawn watering) is typically much less.*

Response: As stated previously, the Town of Greenfield has acknowledged that it has an Infiltration and Inflow (I/I) problem (See comment A.6.) and that the sewer collection system lies in very wet areas including wetlands. EPA Region 1 has typically addressed I/I problems through standard Operations and Maintenance language included in most POTW permits in Massachusetts. This language was included in the Town's previous permit and the Town has submitted materials in response to those requirements.

The Town of Greenfield submitted a letter dated April 25, 2003 stating that the letter was being submitted "in compliance with Section C3 of the permit (Infiltration/Inflow Control Plan)." The letter included a summary of work done since a prior report and outlined work to be conducted in FY2004 and FY 2005. EPA accepted this letter as the submittal of the I/I Control Plan that was a requirement of the NPDES permit which was effective October 29, 2002.

According to I/I reports submitted by the Town since 2003, the Town has spent approximately $510,000 on I/I from 2003 through 2009. Items included in that estimate include the purchase of flow monitoring equipment, televising of mains, clean/flushing of mains, sewer lining and sewer replacement. This figure does not include additional work done by the Town's DPW crew. A review of individual I/I reports submitted by the Town from 2007 through 2009 indicates that more recent efforts have focused on the repair of sewer manholes, the televising, lining and replacement of mains, and the renewal of aged and failed service connections. The Town also established a Cellar Sump Pump Program; however, only six homeowners have taken advantage of the program.

The Town has made efforts at addressing I/I as required by the current NPDES permit; however the funding level appears inadequate and the I/I Control Plan is lacking in many of the required basic elements such as: 1) the ongoing program to identify and remove sources of infiltration and inflow, including the necessary funding level and the source(s) of funding; 2) the inflow identification and control program focusing on sump pumps and down spouts; 3) the identification and prioritization of areas that will

provide increased aquifer recharge as the result of reduction/elimination of infiltration and inflow to the system and 4) an educational public outreach program for all aspects of I/I control, particularly private inflow.

The annual I/I reports are also lacking in some basic information. For example, the permit currently requires the Town to calculate the annual average I/I and the maximum month I/I for the reporting year and this information is not included in reports for 2007, 2008 and 2009.

Given that current flows exceed the permitted design flow, EPA has modified the I/I portion of the final permit to assure that the deficiencies in the I/I Plan are addressed and the excessive I/I in the system is controlled. This is consistent with the fact sheet which states that "the permittee shall develop an I/I removal program commensurate with the severity of the I/I in their collection system." Flows at the Greenfield WPCP are far in excess of permit limits and guidance values.

Comment C.6. *Section B of the permit requires the permittee to evaluate methods to optimize the removal of nitrogen. We recommend that the second to last sentence be changed to say, "The permittee shall implement the recommended operational changes in order to reduce or, at a minimum, maintain the existing mass discharge loading of total nitrogen."*

Response: EPA recognizes that the language in the draft permit was not clear that the goal of optimization is to maintain discharge loading less than or equal to the current loading. The sentence in question has been changed to "The permittee shall implement the recommended operational changes so that the mass discharge of total nitrogen does not exceed the existing annual average discharge."

Comment C.7. *Section B of the permit stipulates that nitrogen loading should not exceed the existing mass discharge loading of total nitrogen, which has been estimated to be 428 lbs./day based on data reported 2004 through 2005. Phosphorus discharge, however, is not limited in any way. With the increase in permitted flow from 3.2 to 3.4 MGD, and a potential future increase to 4.5 MGD, which means phosphorus loadings will continue to increase with no limit. We think the permit should limit phosphorus discharge loads to those averaged under the 3.2 MGD permit. Though page 20 of the Fact Sheet offers a calculation that there is no reasonable potential for the Greenfield WPCP to cause an excursion of the State Water Quality Standard for phosphorus (a Standard , the Fact Sheet does cite data showing total phosphorus levels of 0.01 mg/L upstream of the outfall and concentrations of 0.16 mg/L downstream of the outfall, with*

the downstream location exceeding Gold Book criteria. The cause of this increase is not given or known, but one has to assume that the wastewater discharge here is a contributor.

Response: As detailed in the fact sheet, there is no reasonable potential for total phosphorus from the Greenfield WPCP to cause an exceedance the Gold Book criterion of 100 ug/l.

The instream concentration of 0.16 mg/l was measured in a 1995 survey. However, this is prior to the upgrade of the treatment facility and relocation of the outfall to the Deerfield River. More recent data, but still prior to the upgrade of the facility and relocation of the outfall, shows lower ambient phosphorus concentrations ranging from 0.02 to 0.11 mg/l. However, the 0.11 mg/l measurement was made during an unusual but undetermined increase in turbidity.

Regulations for technology-based limits only allow for the use of Best Professional Judgment (BPJ) when no effluent limit guidelines (ELGs) apply. In the case of POTWs, the ELGs are the secondary treatment standards, which do not include a guideline for total phosphorus.

Comment C.8. *CRWC supports the increased frequency of nutrient monitoring proposed in the draft permit.*

Response: EPA acknowledges the comment.

Comment C.9. *CRWC appreciates the level of detail provided in the section 11 of the Fact Sheet regarding the Endangered Species Act and the presence of shortnose sturgeon in the Connecticut River near the confluence with the Deerfield River and likely presence in the area at or downstream of the outfall. In order to conservatively protect the shortnose sturgeon as well as resident and migratory fish in the area, our suggestion is that EPA make a modification to the toxicity testing requirements. EPA recently allowed the WPCP to do toxicity testing only twice a year. The frequency should be reinstated to at least four times per year at a minimum, and perhaps chronic toxicity testing should be added. Greenfield does not have any significant industrial users and no industrial pre-treatment program. However, there are small industrial users such as the Baystate Franklin Hospital. Greenfield should be better in touch with the industrial users to find out what pollutants are regularly discharged, and they should look at their daily testing results to understand any trends. Based on this, the permittee should try to time toxicity testing under a "worst case scenario" rather than a best case scenario on the few required days of testing. It*

might even be worth conducting toxicity testing on every day of a week once or twice a year to see if there is any variation in the results.

Response: EPA reduced the WET testing frequency for the Town of Greenfield to two times per year following a review of five years of toxicity test results, all of which were in compliance with the permit limit of an LC50 equal or greater than 100%. There is no evidence of toxicity.

Although the Greenfield WPCP is not required to have a Pretreatment Program because there are no Significant Industrial Users (SIUs) or Categorical Industrial Users (CIUs), that should not infer that the Town is not "in touch" with the industrial users. The Town of Greenfield has Sewer Use Regulations: (http://www.townofgreenfield.org/Pages/GreenfieldMA_DPW/SewerUse) that require that all industrial users obtain an Industrial Discharge Permit before connecting or contributing to the POTW.

EPA has maintained the twice per year WET testing in the final permit.

Other changes: On page 4 of the permit, EPA removed the second sentence in paragraph one of Footnote 3. This sentence required the permittee to obtain written approval from MassDEP and EPA for any changes to the sampling locations specified on page 3 of the permit. EPA believes the requirement to obtain written authorization for changes to sampling locations was not consistent with the requirements of page 3, which only generally identify appropriate sampling locations.

EPA and MassDEP believe that the requirements on Page 3 of the permit are sufficient to ensure the samples are representative, but encourage the permittee to discuss any planned changes in sampling location with EPA and/or MassDEP if there is any question that the new location will provide representative samples.