AUTHORIZATION TO DISCHARGE UNDER
THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM


Springfield Water and Sewer Commission
250 M Street Extension
Agawam, MA 01001

is authorized to discharge from a facility located at

West Parish Filters Water Treatment Plant
1515 Granville Road
Westfield, MA 01085

to receiving water named

Cook’s Brook, confluence to Little River (MA32-36)
Westfield River Watershed

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

This permit shall become effective on the first day of the calendar month following 60 days after signature. If no comments are received, this permit shall become effective upon signature.

This permit and the authorization to discharge expire at midnight, five (5) years from the last day of the month preceding the effective date.

This permit supersedes the coverage by the Final NPDES General Permits for Water Treatment Facility Discharges in the Commonwealth of Massachusetts issued on November 15, 2000.

This permit consists of 12 pages in Part I including effluent limitations, monitoring requirements, and 25 pages in Part II including General Conditions and Definitions.

Signed this day of

Stephen S. Perkins, Director
Office of Ecosystem Protection
Environmental Protection Agency
Region I
Boston, MA

David Ferris, Director
Massachusetts Wastewater Management Program
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA
PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through the expiration date, the Permittee is authorized to discharge filter backwash through Outfall Serial Number 001 to Cook’s Brook, tributary to Little River. Such discharge shall: 1) be limited and monitored by the Permittee as specified below; and 2) not cause a violation of the State Surface Water Quality Standards of the receiving water.

<table>
<thead>
<tr>
<th>Effluent Characteristic</th>
<th>Discharge Limitation</th>
<th>Monitoring Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Monthly</td>
<td>Maximum Daily</td>
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<tr>
<td>Flow</td>
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<tr>
<td>Aluminum, Total Recoverable6,7</td>
<td>Report µg/L</td>
<td>Report µg/L</td>
</tr>
</tbody>
</table>

Footnotes:
1 The composite samples shall consist of at least 4 grab samples collected at approximately equal intervals on a flow weighted basis during the time at which the discharge is entering the receiving water after the start of a backwash cycle. The timing of grab samples for pH shall correspond with the timing of composite sampling for TSS and aluminum.
2 Requirement for State Certification.
3 pH analyses conducted for the weekly monitoring requirements may also be submitted to satisfy the sampling requirements for pH as required in Part I.C.1. so long as the timing of the grab sample for pH coincides with the timing of grab samples collected for the other water quality parameters.
4 The pH of the effluent shall be in the range of 6.5 to 8.3 standard units but not more than 0.5 standard units outside of the naturally occurring range. There shall be no change from natural background conditions that would impair any use assigned to the class of the receiving water.
5 If addition of chemicals is required to achieve pH limitations, such chemicals may be used, provided that they are identified through subsequent communications with MassDEP and EPA. EPA, with MassDEP approval, may expand the pH range on a case-by-case basis when conditions warrant it. See Part I.A.11. for requirements of the Best Management Practices plan.

6 The minimum level (ML) for analysis of Total Recoverable Aluminum shall be no greater than 20 ug/L. The ML is not the minimum level of detection, but rather the lowest point on the curve used to calibrate the test equipment for the pollutant of concern. Sample results at or below the ML shall be reported as zero on the discharge monitoring report.

7 Aluminum shall be monitored at Outfall 001 according to the monitoring requirements listed in Part I.A.1. above. The collection of aluminum samples from locations determined in the Aluminum Minimization Program shall be collected according to the relevant monitoring schedule.
PART I.A. (continued)

2. The discharge shall not cause a violation of the water quality standards of the receiving water.
3. Any discharge of floating solids, foam, visible oil sheen, or settleable solids is prohibited.
4. The discharge shall not cause objectionable discoloration of the receiving water.
5. The effluent shall not contain materials in concentrations or in combinations which are hazardous or toxic to aquatic life or which would impair the uses designated by the classification of the receiving water.
6. Pollutants which are not limited by this permit, but which have been specifically disclosed in the permit application, may be discharged up to the frequency and level disclosed in the application, provided that such discharge does not violate Section 307 or 311 of the Clean Water Act (CWA) or applicable state water quality standards.
7. 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.
8. This permit shall be modified, or revoked and reissued to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
   a. contains different conditions or is otherwise more stringent than any effluent limitation in this permit; or
   b. controls any pollutant not limited by this permit. If the permit is modified or reissued, it shall be revised to reflect all currently applicable requirements of the Act.
9. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe (40 CFR §122.42):
   a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels”:
      i. One hundred micrograms per liter (100 ug/l);
      ii. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR §122.21(g)(7); or
      iii. Any other notification level established by the Director in accordance with 40 CFR §122.44(f) and Massachusetts regulations.
   b. That any activity has occurred or will occur which would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels”:
      i. Five hundred micrograms per liter (500 μg/l);
      ii. One milligram per liter (1 mg/l) for antimony;
      iii. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR §122.21(g)(7); or
      iv. Any other notification level established by the Director in accordance with 40 CFR §122.44(f) and Massachusetts regulations.
c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

10. 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.

   a. The Permittee shall develop, implement, and maintain a Best Management Practices (BMP) Plan designed to reduce or prevent the discharge of pollutants in wastewater to waters of the United States. The BMP Plan shall be a written document that is consistent with the terms of the permit and identifies and describes the BMPs employed by the facility in operating wastewater controls.
   b. The BMP Plan shall be completed or updated and certified by the Permittee within 90 days after the effective date of this permit. The Permittee shall certify the BMP Plan has been prepared, that it meets the requirements of this permit, and that it reduces the pollutants discharged in wastewater to the extent practicable. The BMP Plan and certification shall be signed in accordance with the requirements identified in 40 CFR §122.22. A copy of the BMP Plan and certification shall be maintained at the facility and made available to EPA and MassDEP upon request.
   c. The Permittee shall amend and update the BMP Plan within 14 days for any changes at the facility affecting the BMP Plan. Such changes may include, but are not limited to changes in the design, construction, operation, or maintenance of the facility, which have a significant effect on the potential for the discharge of pollutants to the waters of the United States. The amended BMP Plan shall be certified as described in Part I.A.11(b) above.
   d. The Permittee shall certify at least annually that the facility is in compliance with the BMP Plan. If the facility is not in compliance with any aspect of the BMP Plan, the annual certification shall state the non-compliance and the remedies which are being undertaken. Such annual certifications also shall be signed in accordance with the requirements identified in 40 CFR §122.22. The Permittee shall keep a copy of the current BMP Plan and all BMP Plan certifications (the initial certification, re-certifications, and annual certifications) signed during the effective period of this permit at the facility and shall make it available for inspection by EPA and MassDEP.
   e. The BMP Plan shall include, at a minimum, the following items:
      i. A description of the pollution control equipment and procedures used to control the discharge to surface waters of suspended solids, floating solids, foam,
visible oil sheen, and settleable solids, in order to comply with the permit requirements.

ii. Preventative maintenance procedures for the pollution control equipment to ensure that equipment failures are avoided.

iii. A description of where the solid material removed is to be placed, stored, or disposed of as well as the techniques used to prevent the removed solids from re-entering the surface waters from any on-site storage. If the material is to be removed from the site, describe who receives the material and its method of disposal and/or reuse.

iv. A record of the following information for all water additives used at the facility, (Water additives include chemicals used for coagulation, pH neutralization, dechlorination, control of biological growth, control of corrosion and scale in water pipes, etc.):

   1. Product name, chemical formula, and manufacturer of the additive;
   2. Purpose or use of the additive;
   3. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each additive;
   4. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the additive;
   5. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

v. A description of the training to be provided for employees to assure they understand the goals, objectives, and procedures of the BMP Plan, the requirements of the NPDES Permit, and their individual responsibilities for complying with the goals and objectives of the BMP Plan and the NPDES permit.

vi. Documentation of operational and preventive maintenance activities, equipment inspections, procedure audits, and personnel training. Also, records collected at the time of sampling must be maintained at the facility so that an inspector may verify that the sampling was properly conducted. All documentation of BMP Plan activities shall be kept at the facility for at least three years and provided to EPA or MassDEP upon request.

f. In addition, the Permittee shall develop and implement a residuals management plan for the lagoon settling system which includes BMPs for backwash water residuals discharged from the facility.

   i. The management plan shall include, to the maximum degree practicable:

      i. an examination of alternate procedures or improvements to current procedures that would increase the efficiency of solids removal prior to the wastewater discharge to surface waters;
ii. an evaluation of using coagulants which do not contain aluminum;

iii. a characterization of the backwash water entering the existing two-lagoon settling system, the existing residuals in the lagoons, and the remaining capacity in the lagoons; and

iv. the procedures for handling Facility Wastes outlined in the most current issuance of Chapter 5 of the MassDEP Guidelines for Public Water Systems (Part 5.10.2.).

v. To the extent the Permittee determines any of the procedures are impracticable, the management plan should provide an evaluation and explanation to support this determination.

B. UNAUTHORIZED DISCHARGES
This permit authorizes the Permittee to discharge only in accordance with the terms and conditions of this permit and only from the outfalls listed in Part I.A.1 of this permit. Discharges of wastewater from any other point sources which are not authorized by this permit or other NPDES permits shall be reported in accordance with Section D.1.e.(1) of the Standard Conditions of this permit (twenty-four hour reporting).

C. SPECIAL CONDITIONS AND REQUIREMENTS
1. Aluminum Minimization Program
   a. The Permittee shall develop, implement, and maintain an aluminum minimization program (“Minimization Program”) designed to evaluate and minimize the discharge of aluminum to surface waters from the Plant.
   b. Within 90 days of the effective date of the permit, the Permittee shall prepare and submit to EPA and MassDEP a proposal to study the potential for exceedances of the aluminum chronic State Water Quality Standard (WQS) resulting from the discharge of aluminum from the Plant to the Westfield River watershed and means by which the Permittee can mitigate these exceedances.
   c. The Minimization Program shall include, at a minimum:
      i. the specific procedures used to minimize the discharge of aluminum to surface waters while maintaining compliance with the Safe Drinking Water Act (SDWA) requirements, including 40 CFR §141.135, for removal of contaminants during treatment of raw water for drinking (e.g. baffles, filter press etc.); and
      ii. any standards that can be incorporated into the design of the Plant to minimize the discharge of aluminum. If the implementation of any design standards is impracticable, the minimization program should provide an evaluation and explanation.

1 The Commonwealth of Massachusetts Department of Environmental Protection Bureau of Resource Protection Drinking Water Program, Guidelines and Policies for Public Water Supplies.
http://www.mass.gov/dep/water/laws/policies.htm#dwguid
explanation to support this determination. Explanations may include space restrictions, retrofitting requirements, and/or lack of necessity due to low concentrations of aluminum or alternate, equally adequate, design measures.

d. The Permittee shall certify the Minimization Program has been completed, that it meets the requirements of this permit, and that it reduces the pollutants discharged in wastewater to the extent practicable. The Minimization Program and certification shall be signed in accordance with the requirements identified in 40 CFR §122.22. A copy of the Minimization Program and certification shall be maintained at the facility and made available to EPA and MassDEP upon request.

e. The Minimization Program shall include, to the maximum degree practicable, collecting, presenting and evaluating in-stream water data relevant to the attainment of State WQS for aluminum, information regarding the sources of aluminum in the watershed, information regarding the contributory loads of aluminum to the watershed, and an evaluation of the variation and distribution of aluminum levels in the watershed.

f. The Permittee shall conduct watershed streams and reservoir sampling for aluminum to determine:
   i. where aluminum is present;
   ii. if the source(s) of aluminum is natural or manmade (include rainwater and discharges); and
   iii. if the source(s) is manmade, determine if it can be minimized.

h. The Permittee shall conduct sampling for aluminum at the Plant site to determine:
   i. the source(s) of aluminum entering Cook’s Brook;
   ii. if the source(s) of aluminum is natural or manmade (include rainwater and discharges);
   iii. if the source(s) is manmade, determine if it can be minimized; and
   iv. estimates of the flow(s) associated with the aluminum source(s).
i. The Permittee shall conduct sampling for water quality parameters associated with aluminum toxicity for locations described in Parts I.C.1.g. and I.C.1.h. above. This includes grab samples collected for the following parameters, at a minimum:
   i. Temperature, reported in degrees Fahrenheit;
   ii. pH, reported in Standard Units;
   iii. TSS, reported in mg/L;
   iv. Dissolved Organic Carbon as a sum of carbonate (CO3), bicarbonate (HCO3), and carbonic acid (H2CO3), reported in mg/L;
   v. Total aluminum, reported in mg/L;
   vi. Total calcium, magnesium, sodium and potassium (major cations), reported in mg/L;
   vii. Sulfate (SO4) and total residual chlorine (major anions), reported in mg/L;
   viii. Alkalinity, reported in mg/L; and
   ix. Sulfide, reported in mg/L.

j. Sampling shall be completed at a frequency of at least monthly until a representative sample set has been obtained to complete a final study report, but no longer than 24 months. The collection of samples from locations determined in the Aluminum Minimization Program shall coincide with the monitoring schedule in Part I.A.1.

k. Within 30 months of the effective date of the permit, the Permittee shall submit the final study report to EPA and MassDEP.

2. Aluminum Optimization Plan
   a. The Permittee shall develop, implement, and maintain a Stage 2 Disinfection By-products rule optimization plan (“Optimization Plan”) designed to determine the minimum aluminum based coagulant dosage required to reduce dissolved organic matter for Stage 2 DBP compliance and ensure proper operation of the rapid sand filters for turbidity removal. The results should achieve the Springfield Water and Sewer Commission’s long-term goal for use of aluminum based coagulant limited to the warmer temperature months (about 6 months) when chlorine dosages and DBPs are at their highest.

b. The plan must allow for process optimization and saturation of the distribution system with lower DBP precursor water. Therefore, the coagulation/flocculation Optimization Plan must include:
   i. Completing full scale trials, during warm and cold weather, to optimize turbidity and organics removal;
   ii. Determining the amount of backwash water necessary to optimize rapid sand filter performance; and
iii. Evaluating the aluminum based coagulant(s) recommended by the UMass Research Study\(^2\).

c. Within 30 months of the effective date of the permit, the Permittee shall prepare and submit to EPA and DEP, a summary of the optimization activities and coagulation/flocculation results.

3. Chronic and acute toxicity test(s) shall be performed by the Permittee upon request by EPA and/or MassDEP. Any testing shall be performed in accordance with EPA’s toxicity protocol, a copy of which will be provided at the time of the request. Toxicity test protocols may be viewed at: [http://www.epa.gov/region1/npdes/epa_attach.html#epa](http://www.epa.gov/region1/npdes/epa_attach.html#epa).

D. REOPENER CLAUSE
This permit may be modified, or revoked and reissued, on the basis of new information in accordance with 40 CFR §122.62.

E. MONITORING AND REPORTING
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 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](http://www.epa.gov/netdmr). Within one year of the effective date of this 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 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 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 this 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

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\(^2\) The Springfield Water and Sewer Commission with the Department of Civil and Environmental Engineering at UMass-Amherst conducted four consecutive coagulant research projects beginning in 2008.
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  
Monitoring results shall be summarized for each calendar month and reported on separate hard copy Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15th day of the month following the completed reporting period. Signed and dated originals of the DMRs, and all other reports or notifications required herein or in Part II shall be submitted to the Director at the following address:

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

Duplicate signed copies of all reports or notifications required above except DMRs shall be submitted to the State at the following addresses:

Massachusetts Department of Environmental Protection – Western Regional Office  
Bureau of Waste Prevention  
436 Dwight Street, Suite 402  
Springfield, MA 01103

and

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

Any verbal reports, if required in Parts I and/or II of this permit, shall be made to both EPA New England and to MassDEP.
F. STATE PERMIT CONDITIONS

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 C.M.R. 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.

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.

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.
FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES PERMIT NUMBER: MA0040482

PUBLIC NOTICE START AND END DATES: June 8, 2012 thru July 7, 2012

NAME AND MAILING ADDRESS OF APPLICANT:

Springfield Water and Sewer Commission
250 M Street Extension
Agawam, MA 01001

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

West Parish Filters Water Treatment Plant
1515 Granville Road
Westfield, MA 01085

RECEIVING WATER: Cook’s Brook, tributary to Little River (Segment MA32-36)
Westfield River Watershed

RECEIVING WATER CLASSIFICATION: B

SIC CODES: 4941 (Water Supply)
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Attachments:

Attachment A: West Parish Filters Water Treatment Plant Topographic Map
Attachment B: Discharge Monitoring Report (DMR) Data
Attachment C: West Parish Filters Water Treatment Plant Schematic
Attachment D: West Parish Filters Water Treatment Plant Schematic of Water Flow
Attachment E: Calculation of Estimated 7Q10 and Dilution Factor for Outfall 001
1. Proposed Action, Type of Facility, and Discharge Location

The above-named applicant has applied to the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) for the issuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge their process water into the designated receiving water. The West Parish Filters Water Treatment Plant (hereinafter referred to as “the Plant”) is a water treatment plant located in Westfield, MA. The Plant is supplied with water from the Cobble Mountain and Borden Brook reservoirs. The Plant provides water for the greater Springfield metropolitan area including Springfield, Agawam, Longmeadow, East Longmeadow and Ludlow; it also provides a back-up-supplemental supply for Southwick, Westfield and West Springfield.

On September 17, 1987, EPA and MassDEP issued an individual NPDES Final Permit (MA00005487) to the Plant for the discharge of wastewater through Outfall 001 to Cook’s Brook, tributary to Little River in Westfield, MA. The Final Permit was terminated July 11, 1995. On this same date, the Plant received general permit coverage (MAG640023) under the NPDES Potable Water Treatment Facility General Permit (“General Permit”), issued on December 9, 1994. On November 15, 2000, the final issuance of a new General Permit superseded the 1994 General Permit. The Plant applied for coverage by and received authorization to discharge under the 2000 General Permit on January 30, 2001. Coverage by the 2000 General Permit has been administratively continued at the Plant.

On March 1, 2011, the Plant submitted an individual permit application because the Plant anticipates exceeding the General Permit’s maximum daily flow limit of 1.0 MGD. EPA deemed the application form complete and conducted a site visit on May 10, 2011.

2. Receiving Water Description

The facility discharges through Outfall 001 to Cook’s Brook, tributary to the Little River (Segment MA32-36). MassDEP classifies this segment of the Little River as Class B (cold water fishery). The Little River is a tributary to the Westfield River (see Attachment A).

The Little River segment MA32-36 is listed as a Category 5 “Water Requiring a TMDL” on the Final Massachusetts Year 2010 Integrated List of Waters (CWA Sections 303d and 305b). This segment of the Little River is impaired for siltation. The 2001 Water Quality Assessment Report for the Westfield River Watershed identifies the Plant’s filter backwash discharge as the suspected source of impairment.2

3. Summary of Monitoring Data

A quantitative description of the effluent parameters based on the permit application and recent Discharge Monitoring Report (DMR) data from January 31, 2006 through March 31, 2012 is provided in a summary of the DMR (Attachment B).

In addition to the aforementioned data, the Plant submitted the following effluent data in its individual permit application.

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<th>Effluent Characteristic</th>
<th>Units</th>
<th>Maximum Daily Value</th>
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<tr>
<td>Flow</td>
<td>MGD</td>
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<tr>
<td>Total Suspended Solids (TSS)</td>
<td>mg/l</td>
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<tr>
<td>pH</td>
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<tr>
<td>Total Residual Chlorine</td>
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4. Permit Limitations and Conditions
The permit effluent limitations and the monitoring requirements may be found in the Draft Permit.

5. Permit Basis: Statutory and Regulatory Authority
The effluent limitations, monitoring requirements, and any implementation schedule, if required, may be found in Part 1.A.1 (“Effluent Limitations and Monitoring Requirements”) of the Draft Permit.

5.1 General Requirements
The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting. The NPDES Draft Permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and applicable State regulations. The regulations governing the EPA NPDES permit program are generally found at 40 CFR §§ 122, 124, 125, and 136. In this permit, EPA considered (a) technology-based requirements, (b) water quality-based requirements, and (c) all limitations and requirements in the current/existing permit, when developing the permit limits.

5.2 Technology-Based Requirements
Subpart A of 40 CFR §125 establishes criteria and standards for the imposition of technology-based treatment requirements in permits under Section 301(b) of the CWA, including the application of EPA promulgated effluent limitations and case-by-case determinations of effluent limitations under Section 402(a)(1) of the CWA.

Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (see 40 CFR §125 Subpart A) to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. In general, technology-based effluent guidelines for non-POTW facilities must be complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989 (see 40 CFR §125.3(a)(2)). Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA cannot be authorized by a NPDES permit.
EPA has not promulgated technology-based National Effluent Guidelines for the Water Supply industry (SIC 4941) in 40 CFR Subchapter N Parts 425 through 471. In the absence of technology-based effluent guidelines, the permit writer is authorized under Section 402(a)(1)(B) of the CWA to establish effluent limitations on a case-by-case basis using Best Professional Judgment (BPJ).

5.3 Water Quality-Based Requirements

Section 301(b)(1)(C) of the CWA requires that effluent limitations based on water quality considerations be established for point source discharges when such limitations are necessary to meet state or federal water quality standards that are applicable to the designated receiving water. This is necessary when technology-based limitations would interfere with the attainment or maintenance of water quality in the receiving water.

Under Section 301(b)(1)(C) of the CWA and EPA regulations, NPDES permits must contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal water quality standards. Water quality standards consist of three parts: (1) beneficial designated uses for a water-body or a segment of a water-body; (2) numeric and/or narrative water quality criteria sufficient to protect the assigned designated use(s); and (3) anti-degradation requirements to ensure that once a use is attained it will not be degraded. The Massachusetts Surface Water Quality Standards (WQSs), found at 314 CMR 4.00, include these elements. The State will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained or attained. These standards also include requirements for the regulation and control of toxic constituents and require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless site specific criteria are established.

The Draft Permit must limit any pollutant or pollutant parameter (conventional, non-conventional, and toxic) that is or may be discharged at a level that causes or has the "reasonable potential" to cause or contribute to an excursion above any water quality standard (40 CFR §122.44(d)). An excursion occurs if the projected or actual in-stream concentration exceeds an applicable water quality criterion. In determining "reasonable potential," EPA considers: (1) existing controls on point and non-point sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from the permit's re-issuance application, monthly discharge monitoring reports (DMRs), and State and Federal Water Quality Reports; (3) sensitivity of the indicator species used in toxicity testing; (4) known water quality impacts of processes on waste waters; and (5) where appropriate, dilution of the effluent in the receiving water.

Section 303(d) of the Federal Clean Water Act (CWA) requires states to identify those water bodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and, as such require the development of total maximum daily loads (TMDL). For the purposes of this Draft Permit, the receiving water at the Plant is Cook’s Brook, which is tributary to Little River (MA 32-36).
5.4 Anti-Backsliding
Anti-backsliding as defined in 40 CFR §122.44(l)(1) requires reissued permits to contain limitations as stringent as or more stringent than those of an permit, unless the circumstances allow application of one of the defined exceptions to this regulation.

5.5 Anti-Degradation
The Commonwealth of Massachusetts' anti-degradation provisions found in 314 CMR 4.04 ensure that provisions in 40 CFR §131.12 are met. These provisions ensure that all existing uses in the receiving water, along with the level of water quality necessary to protect those existing uses, are maintained and protected. The effluent limits in the Draft Permit should ensure that provisions in 314 CMR 4.04 are met. The State is also asked to certify that the anti-degradation provisions in State law are met.

6. Explanation of the Permit’s Effluent Limitations

6.1 Facility Information
The main features of the Plant are chemical feed facilities, rapid-mix and flocculation units, dual-media filter beds, a control building, and two settling lagoons (Attachments C). Liquid chemicals including alum and caustic soda are stored in bulk storage tanks. These chemicals are fed with metering pumps located in the control building. Dry chemicals including polymers are stored in drums or bags. They are dumped into hoppers or mixing tanks of the dry feeds in the control building. The dissolved chemicals are then pumped to points of application. Lime, which is delivered dry, is conditioned with water and then fed as slurry, using metering pumps.

Drinking water treatment at the Plant consists of pretreatment and filtration. The pretreatment section contains fourteen units, each consisting of two rapid-mix basins in series followed by two flocculator units in series. Coagulating chemicals, which contain aluminum, are added at the rapid-mix basins. The flow in turn passes to the flocculators, where gentle agitation allows larger, more readily filtered flocculants to build up. The flocculated water is collected in two channels and carried to the filters. The filter building houses six double-bay filters. The filter media used at the Plant are composed of fifteen inches of silica sand topped with 24 inches of anthracite coal. In order to clean trapped impurities from the filters, the filters are equipped with an air and water backwash system.

The wastewater generated at the facility consists of backwash water from the rapid and slow sand filters, with the majority of wastewater generated from the rapid sand filters (Attachment D). Generally, two rapid backwashes are conducted each day. During the summer months when water production increases, three backwashes per day are performed when necessary. Each backwash requires about 1 hour 45 minutes to complete and uses about 300,000 gallons of filtered water. In contrast, each of the ten slow sand filters is cleaned once per year during the period between November 1 and June 1. Each slow sand filter takes 2 or 3 weeks (8-hour shift, 5 days per week) to clean and uses about 60,000 gallons of water per day for the cleaning process.

Two man-made settling lagoons are located east of the control building. Backwash water first flows to the upper settling lagoon, then to the lower settling lagoon. The upper and lower settling lagoons have surface areas of three acres and one acre, respectively, and are sloped to a maximum depth of 14
feet. The residuals discharge from the rapid sand filters and enter the upper lagoon through a six-foot-wide open channel, and discharge from the slow sand filters and enter the upper lagoon through a pipe.

As described above, the Plant submitted an application for an individual permit on March 1, 2011. EPA conducted a site visit on May 10, 2011 and confirmed during the visit that the Plant would like to resume using aluminum-based coagulants for natural organic matter (NOM) removal in order to meet EPA’s Stage 2 Disinfection Byproduct Rule, which the Plant must satisfy in 2012. Currently, the Plant only uses an organic polymer prior to filtration. The Plant has conducted several studies in coordination with the Department of Civil and Environmental Engineering at UMass-Amherst (“UMass”) and the studies have indicated that using aluminum-based coagulants is the most effective method of increasing NOM removal. However, with use of aluminum-based coagulants, the Plant anticipates an increase in the backwash volume over the general permit maximum daily flow limit of 1.0 MGD. Greater volume is required to flush the aluminum-based coagulants from the filters during the backwashing process. Therefore, the Plant has requested an individual NPDES permit.

6.2 Permitted Outfall and Dilution Factor
The Plant discharges via Outfall 001 to Cook’s Brook, tributary to Little River, which is a Class B freshwater water body. As described above, the Little River is a Category 5 “Water Requiring a TMDL.” The Little River is impaired for siltation.

Since the Draft Permit does not require any water quality based limits (see Section 7, below), the use of a dilution factor is not necessary at this time. However, EPA has calculated and provided the appropriate dilution factor for this facility should it be necessary to determine water quality based limits in the future.

Title 314 CMR 4.03(3)(a) requires that effluent dilution be calculated based on the receiving water lowest observed mean river flow for seven consecutive days, recorded over a 10-year recurrence interval, or 7-day 10-year low flow (7Q10) (see Attachment E). EPA has determined a dilution factor of 1 for the discharge based on U.S. Geological Survey (USGS) flow data for the nearest USGS station to the Plant along the Westfield River (number 01183500).

7. Derivation of Effluent Limits under the Federal CWA and the Commonwealth of Massachusetts’ Water Quality Standards

7.1 Flow
DMR data from January 31, 2006 through March 31, 2012 (Appendix B) indicates that the maximum reported flow is 1 MGD and the minimum flow is 0.73 MGD.

As described above, the Plant will begin using aluminum-based coagulants instead of organic polymers and anticipates exceeding a flow of 1.0 MGD. In the absence of flow data based on using aluminum-based coagulants at the Plant, the Draft Permit contains average monthly reporting requirements for flow. The volume of filter backwash water required typically does not exceed five percent of a Plant’s production capacity. The Plant’s production capacity is 60 MGD. Therefore, the Draft Permit contains a maximum daily flow limit of 3.0 MGD.
7.2 **Total Suspended Solids (TSS)**

DMR data from January 31, 2006 through March 31, 2012 (Appendix B) indicates that the maximum monthly average and maximum daily reported TSS are 14 mg/L and 27 mg/L, respectively.

The Plant’s General Permit includes a monthly average TSS limit of 30 mg/l and maximum daily TSS limit of 50 mg/l. These limitations were established using best professional judgment (BPJ) pursuant to Section 402(a)(1) of the CWA. The limits are based upon the TSS concentrations estimated to be achievable by using sedimentation ponds to treat filter backwash and other wastewaters from potable water treatment facilities.

As described above, the portion of the Little River below the confluence with Cook’s Brook is impaired by siltation attributed to the Plant. As a result, the Draft Permit contains monthly average and maximum daily TSS limitations of 15 mg/l and 30 mg/l, respectively. These limits are based on Plant performance.

7.3 **pH**

DMR data from January 31, 2006 through March 31, 2012 (Appendix B) indicates that the pH ranges from 6.4 SU to 8.9 SU.

The effluent limits for pH in the Draft Permit are consistent with Massachusetts WQSs. Cook’s Brook, a tributary to Little River is a Class B water body. Therefore, the Draft Permit contains a pH range of 6.5-8.3 SU, and specifies that the pH cannot change the naturally occurring pH range by more than 0.5 SU.

7.4 **Total Residual Chlorine (TRC)**

DMR data from January 31, 2006 through August 31, 2010 indicates that total residual chlorine has not been detected in the discharge from the facility.

The Plant chlorinates the filtered water prior to delivery to the distribution system to minimize or eliminate pathogens. The water used to backwash the filters comes directly from the Plant’s wet well and is not chlorinated. Since TRC monitoring and limits only apply to discharges of water which have been previously chlorinated or which contain residual chlorine, the Draft Permit does not contain water quality based effluent limits for TRC.

7.5 **Aluminum**

7.5.1 **Total Aluminum**

In order to meet EPA’s new Drinking Water Stage 2 Disinfectant/Disinfection By-products Rule (June 2012), the facility needs to improve the removal of dissolved organics (DBP precursors). In the fall of 2008 the Springfield Water and Sewer Commission (the “Commission”) began the first of four consecutive research projects with the Department of Civil and Environmental Engineering at UMass-Amherst to determine a new coagulant capable of providing the desired level of treatment. Laboratory and limited full scale field studies confirmed that an aluminum based coagulant provides meaningful additional removals.
The Plant submitted aluminum sample results as part of their Notice of Intent (NOI) for coverage under the General Permit on March 17, 2010. These data included six effluent samples, two samples of Cook’s Brook upstream of the discharge, and six samples of the source water collected between January and March 2010.

<table>
<thead>
<tr>
<th>Date</th>
<th>Aluminum Effluent (µg/L)</th>
<th>Aluminum Cook’s Brook (µg/L)</th>
<th>Aluminum Source Water (µg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/27/2010</td>
<td>210</td>
<td>140</td>
<td>61</td>
</tr>
<tr>
<td>2/3/10</td>
<td>120</td>
<td>-</td>
<td>Not detected</td>
</tr>
<tr>
<td>2/10/10</td>
<td>150</td>
<td>-</td>
<td>Not detected</td>
</tr>
<tr>
<td>2/17/10</td>
<td>55</td>
<td>-</td>
<td>Not detected</td>
</tr>
<tr>
<td>2/24/10</td>
<td>77</td>
<td>-</td>
<td>Not detected</td>
</tr>
<tr>
<td>3/3/10</td>
<td>120</td>
<td>84</td>
<td>Not detected</td>
</tr>
</tbody>
</table>

The Plant also submitted aluminum data collected during the aluminum-based coagulant trial for half of the Plant during the summer of 2010. The following aluminum data represents the discharge from the lower settling lagoon.

<table>
<thead>
<tr>
<th>Date</th>
<th>Aluminum (µg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/4/10</td>
<td>230</td>
</tr>
<tr>
<td>8/11/10</td>
<td>260</td>
</tr>
<tr>
<td>8/18/10</td>
<td>240</td>
</tr>
</tbody>
</table>

Since these data were collected before or during limited field studies, they are not representative of an “optimized” disinfection plan. The Plant’s overall goal, with regard to coagulant usage, is to find the minimum aluminum based coagulant dosage to reduce dissolved organic matter for Stage 2 DBP compliance, while simultaneously operating the rapid sand filters for proper turbidity removal. The Commission’s long-term goal for the aluminum based coagulant is to only use it during the warmer temperature months (about 6 months) when chlorine dosages and DBPs are at their highest.

Additionally, data characterizing aluminum levels of the intake and receiving water is limited.

For the reasons cited above, EPA is not establishing a numerical aluminum limit in the permit at this time. The Draft Permit contains reporting requirements for average monthly and maximum daily total recoverable aluminum. The Draft Permit also requires that the Permittee institute a number of Best Management Practices (see Section 7.6 below) designed to minimize and/or eliminate aluminum from the Plant.
7.5.2 Aluminum Minimization

West Parish Filters was designed to use alum as a primary coagulant. Aluminum coagulant was used for a short period after the facility upgraded to rapid sand filtration in 1974. The original NPDES discharge permit was an individual permit with no limitations on backwash flow or aluminum discharge. In 1994 the Commission requested to be covered under a General Permit which limited backwash flow to 1.0 MGD or less.

In the fall of 2008 the Commission began the first of four consecutive research projects with the Department of Civil and Environmental Engineering at UMass-Amherst to determine a new coagulant which would improve removal of dissolved organics (DBP precursors). Laboratory and limited full scale field studies confirmed that an aluminum based coagulant would provide meaningful additional removals but additional backwash water would be necessary to clean the filters. In February, 2011 the Commission submitted an Individual NPDES Permit application requesting an increase in the daily volume of backwash water in the event the facility needed to revert to use of alum coagulant to comply with the Stage 2 Disinfection By-products rule.

In addition, limited sampling data indicates that the natural background level of aluminum may be higher than the current chronic limit of 87 µg/L. Therefore, Part I.C.1. of the Draft Permit requires that the Permittee develop and implement an aluminum minimization program. The program will evaluate the discharge of aluminum to surface waters from the facility, and investigate background conditions with respect to aluminum in the watershed. The aluminum minimization program includes the following:

1. Identifying specific procedures used to minimize the discharge of aluminum to surface waters;
2. Identifying any design standards that can be incorporated into the design of the Plant to minimize the discharge of aluminum;
3. Sampling watershed streams and reservoir for aluminum; and
4. Sampling the Water Treatment Plant Site for aluminum.

7.5.3 Water Quality Parameters

Part I.C.1. of the Draft Permit also requires that the Permittee conduct a study of background aluminum levels within the watershed to determine the quantity, the cause (natural background or manmade), the sources, and potential ways to minimize levels. As part of this study, the Permittee is required to evaluate water quality parameters related to the toxicity of aluminum. Sampling locations include the source water reservoir, the discharge, the area immediately upstream of the discharge, and the downstream area beyond the influence of the discharge for aluminum-related water quality parameters. These parameters include the following:

1. Temperature, pH, TSS, Dissolved Organic Carbon, conventional pollutant influences;
2. Total recoverable aluminum, the target toxic pollutant;
3. Total calcium, magnesium, sodium and potassium representing major cations;
4. Sulfate and total residual chlorine representing major anions; and
5. Alkalinity, Sulfide, as indicators.
This requirement is based on Massachusetts WQSs, which state that “in establishing water quality based effluent limitations the Department shall take into consideration natural background conditions and existing discharges. Discharges shall be limited or prohibited to protect existing uses and not interfere with the attainment of designated uses in downstream and adjacent segments” (see 314 CMR § 4.03 (1)(a)). EPA does not have adequate information regarding the aluminum levels in the effluent, or upstream and downstream in the Little River watershed to establish effluent limitations in accordance with these requirements.

Furthermore, physical and chemical conditions can affect the toxicity of metals like aluminum. In 314 CMR § 4.05(e) Massachusetts requires that for “pollutants not otherwise listed in 314 CMR § 4.00, the National Recommended Water Quality Criteria: 2002, EPA 822R-02-047, November 2002 published by EPA pursuant to Section 304(a) of the Federal Water Pollution Control Act, are the allowable receiving water concentrations for the affected waters, unless the Department establishes a site specific criterion.” Aluminum has not been “otherwise listed” in 314 CMR 4.00 and no site-specific criteria for the Westfield River or its tributaries have been developed for this pollutant. In addition, the criteria document indicates that the use of Water-Effect Ratio might be appropriate for aluminum for the following reasons:

1. The value of 87 µg/l is based on a toxicity test with the striped bass in water with pH = 6.5–6.6 and hardness <10 mg/L. Data in "Aluminum Water-Effect Ratio for the 3M Plant Effluent Discharge, Middleway, West Virginia" (May 1994) indicate that aluminum is substantially less toxic at higher pH and hardness, but the effects of pH and hardness are not well quantified at this time;
2. In tests with the brook trout at low pH and hardness, effects increased with increasing concentrations of total aluminum even though the concentration of dissolved aluminum was constant, indicating that total recoverable is a more appropriate measurement than dissolved, at least when particulate aluminum is primarily aluminum hydroxide particles. In surface waters, however, the total recoverable procedure might measure aluminum associated with clay particles, which might be less toxic than aluminum associated with aluminum hydroxide; and
3. EPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 µg/L of aluminum, when either total recoverable or dissolved is measured.

As a result, the Draft Permit requires the Permittee to collect information concerning the relationship between the aluminum being discharged and its impact on water quality. This is based on Massachusetts discharge permit requirements found in 314 CMR 3.11 (11) (e) which allow permit conditions that include monitoring, recording and reporting the quality of receiving waters. EPA is including a “reopener” clause, which specifies that EPA may institute a permit limit, if necessary, based on information obtained during the study period.

### 7.5.4 Aluminum Optimization

Due to the backwash water flow limitation of 1.0 MGD in the current General Permit, the Plant has not been able to optimize coagulant addition or properly evaluate full-scale filter performance. Therefore, Part I.A.1 of the Permit allows a daily maximum volume of backwash water of 3.0 MGD, which will allow the Commission to properly complete full-scale coagulant trials for compliance with
both the Stage 2 Disinfectant/Disinfection By-products Rule and the NPDES Discharge Permit to Cook’s Brook.

Part I.C.2. of the Draft Permit requires the Permittee to develop, implement, and maintain a Stage 2 Disinfection By-products rule optimization plan (“Optimization Plan”) designed to determine the minimum aluminum based coagulant dosage required to comply with the Stage 2 DBP rule and comply with the effluent limitations in Part I.A.1. The Optimization Plan includes:

1. Process optimization and saturation of the distribution system with lower DBP precursor water;
2. Completing full scale trials, during warm and cold weather, to optimize turbidity and organics removal;
3. Determining the amount of backwash water necessary to optimize rapid sand filter performance; and
4. Evaluating the aluminum based coagulant(s) recommended by the UMass study.

7.6 Whole Effluent Toxicity Testing
Massachusetts has narrative criteria in their water quality regulations (See Massachusetts 314 CMR 4.05(5)(e)) that prohibits toxic discharges in toxic amounts. Excepting chemicals used for pH neutralization and/or dechlorination, the Draft Permit prohibits the addition of toxic materials or chemicals to the discharge and prohibits the discharge of pollutants in amounts that would be toxic to aquatic life.

7.7 Best Management Practices (BMPs)
The Draft Permit contains new requirements for the Permittee to develop, implement, and maintain a Best Management Practices (BMP) Plan for wastewater discharges from the Plant. The purpose of the BMP Plan is to prevent or minimize the concentration of pollutants (biological, chemical and physical) in the wastewater discharged to surface waters. The new BMP Plan will ensure that not only is the drinking water produced by the Plant safe for human consumption, but also that the wastewater produced by the Plant does not adversely impact the quality of the receiving water.

The BMP Plan includes specific language requiring the implementation of an aluminum minimization program. This program must include the procedures used for the removal of sludge and the procedures used to minimize the discharge of aluminum to surface waters, while maintaining compliance with the Safe Drinking Water Act (SDWA) requirements, including 40 CFR §141.135, for removal of contaminants during treatment of raw water for drinking. Based on aluminum sampling results, additional best management practices required include an evaluation of using non-aluminum based coagulants, a description of alternate procedures or improvements to increase the efficiency of solids and/or aluminum removal, and a consideration of the design standards used for devices that treat residuals.

Therefore, the Draft Permit requires that the Permittee develop a BMP Plan with BMPs that are selected and implemented to satisfy effluent limitations. The BMP Plan includes the following:
1. A description of the pollution control equipment and procedures;
2. Preventative maintenance procedures for the pollution control equipment;
3. A description of where the solid material removed is to be placed, stored, or disposed of as well as the techniques used to prevent the removed solids from re-entering the surface waters;
4. A record of all water additives (including amounts) used for coagulation, pH neutralization, dechlorination, control of biological growth, control of corrosion and scale, or similar chemicals;
5. A description of the training to be provided for employees to assure they understand the goals, objectives, and procedures of the BMP Plan, the requirements of the NPDES Permit, and their individual responsibilities for complying with the goals and objectives of the BMP Plan and the NPDES permit;
6. Documentation of operational and preventive maintenance activities, equipment inspections, procedure audits, personnel training and sampling calculations; and
7. Characterization and management of backwash water residuals discharged from the facility.

EPA’s BMP menu found at: http://www.epa.gov/npdes/menuofbmeps/menu.htm may be used in the development of BMPs.

8. Essential Fish Habitat (EFH)
Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA’s actions or proposed actions that it funds, permits, or undertakes, may adversely impact any essential fish habitat, such as waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity (16 U.S.C. § 1802(10)). “Adversely impact” means any impact which reduces the quality and/or quantity of EFH (50 CFR §600.910(a)). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species’ fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions. Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. §1855(b)(1)(A)) EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

EPA has determined that Cook’s Brook and the confluence with the Little River is not covered by the EFH designation for riverine systems at Latitude 42° 07’ 01” Longitude 72° 49’ 08” as determined by the NOAA EFH Mapper. However, the Little River is a tributary of the Westfield River, which ultimately flows into the Connecticut River. The Connecticut River system has been designated as EFH for Atlantic salmon (Salmo salar). The last remnant stock of Atlantic salmon indigenous to the Connecticut River is believed to have been extirpated by the early 1800’s. However, an active effort has been underway throughout the Connecticut River system since 1967 to restore this historic run, particularly in the Westfield River. This stocked anadromous EFH species has been identified in the

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3 NOAA EFH Mapper available at http://sharpfin.nmfs.noaa.gov/website/EFH_Mapper/map.aspx
Little River⁴ and has the potential to be present during one or more life stages within the area of the Facility’s discharge.⁵

EPA has concluded that the limits and conditions contained in this Draft Permit minimize adverse effects to Atlantic salmon, if present, for the following reasons:

- The Plant withdraws no water from Cook’s Brook; therefore no life stages of Atlantic salmon are vulnerable to impingement or entrainment from this facility;
- EPA has reduced the TSS limit at the Plant to be protective of aquatic organisms and address the Little River impairment for siltation;
- EPA is requiring the Plant to evaluate the presence of aluminum in the effluent and minimize any potential sources of aluminum; and
- The permit prohibits any violation of Massachusetts WQSs.

EPA believes that the conditions and limitations contained within the Draft Permit adequately protect all aquatic life, including those species with EFH designation in the Connecticut River system. Impacts associated with issuance of this permit to the EFH species, their habitat and forage, have been minimized to the extent that no significant adverse impacts are expected. Further mitigation is not warranted. If adverse impacts to EFH are detected because of this permit action, or if new information is received that changes the basis for EPA’s conclusion, NMFS will be notified and an EFH consultation will be initiated.

9. Endangered Species Act (ESA)

Under Section 7(a) of the Endangered Species Act, every federal agency is required to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize federally listed endangered or threatened species of fish, wildlife, or plants, or result in the adverse modification of critical habitat of such species. EPA initiates consultation concerning listed species under their purviews with the United States Fish and Wildlife Service (USFWS) for freshwater species, and the National Marine Fisheries Service (NMFS) for marine species and anadromous fish.

EPA has reviewed the federal endangered or threatened species of fish, wildlife, and plants in Hampden County to determine if the issuance of this NPDES permit could potentially impact any such listed species. One species was identified for Hampden County.⁶ According to the USFWS, the small whirled pogonia (Isotria medeoloides) is found in “forests with somewhat poorly drained soils and/or a seasonally high water table,” in Southwick. This species is not aquatic.

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⁶ See listings for Hampden County in Federally Listed Endangered and Threatened Species in Massachusetts at http://www.fws.gov/newengland/EndangeredSpec-Consultation_Project_Review.htm
The federally endangered dwarf wedgemussel (*Alasmidonta heterodon*) has been documented historically in Westfield.\(^7\) No recent observation has been documented for this species.\(^8\) Therefore, it is unlikely that discharges from the Facility would impact this species.

The two endangered species of anadromous fish which occur in Massachusetts, shortnose sturgeon (*Acipenser brevirostrom*) and Atlantic sturgeon (*Acipenser oxyrinchus*), have not been identified in Cook’s Brook.\(^9\) However, as discussed, above, Cook’s Brook and the Little River ultimately drain to the Connecticut River, where these species occur.

According to a NMFS letter dated December 19, 2011\(^{10}\) for the Chicopee Water Pollution Control Facility discharge to the Connecticut River, “extensive sampling and the lack of any strong evidence of Atlantic sturgeon spawning indicates that the presence of this species in the vicinity of the discharge is unlikely.” In addition, the Holyoke Dam separates shortnose sturgeon in the Connecticut River into an upriver group (above the Dam) and a lower river group that occurs below the Dam to Long Island Sound. NMFS determined that adult and juvenile shortnose sturgeon are likely to occur in the vicinity of the Chicopee facility outfall year round, but further determined that Early Life Stages are less likely to be observed in this area of the Connecticut River, since spawning occurs further upstream in the Montague area near the confluence of the Deerfield and Connecticut Rivers.

The Plant is located over 35 river miles upstream of the nearest confluence with the Connecticut River and the Chicopee facility discussed in the paragraph above. In addition, the Westfield River is dammed between the Little and Connecticut Rivers. Based on this assessment and the expected normal distribution of these species, it is highly unlikely that they would be present in the vicinity of this discharge. Therefore, consultation with NMFS under Section 7 of the ESA is not required.

### 10. Monitoring

The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308 (a) of the CWA in accordance with 40 CFR §§122.41 (j), 122.44 (l), and 122.48.

The Draft Permit includes new provisions related to Discharge Monitoring Report (DMR) submittals to EPA and the State. The Draft Permit requires that, no later than one year after the effective date of the permit, the Permittee submit all monitoring data and other reports required by the permit to EPA using NetDMR, unless the Permittee 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”).

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7 See listings for Westfield in “Rare Species Occurrences by Town” at http://www.mass.gov/dfwle/dfw/nhesp/info_by_town.htm

8 See *The Dwarf Wedgemussel Waters of Massachusetts* at http://www.fws.gov/newengland/pdfs/MA_DWM.pdf

9 See documents for shortnose sturgeon and Atlantic sturgeon at http://www.mass.gov/dfwle/dfw/nhesp/species_info/mesa_list/mesa_list.htm

In the interim (until 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.

NetDMR is a national web-based tool for regulated Clean Water Act permittees to submit DMRs electronically via a secure Internet application to EPA through the Environmental Information Exchange Network. NetDMR allows participants to discontinue mailing in hard copy forms under 40 CFR § 122.41 and § 403.12. EPA currently conducts free training on the use of NetDMR, and anticipates that the availability of this training will continue to assist permittees with the transition to use of NetDMR. NetDMR can be accessed at http://www.epa.gov/netdmr. Further information about NetDMR, including contacts for EPA Region 1, information on upcoming trainings, and contact information for Massachusetts, is provided on this website.

The Draft Permit requires the Permittee to report monitoring results obtained during each calendar month using NetDMR, 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 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 must continue to send hard copies of reports other than DMRs to MassDEP until further notice from MassDEP.

The Draft Permit also includes an “opt-out” requests process. Permittees who believe they cannot use NetDMR due to technical or administrative infeasibilities, or other logical reasons, must demonstrate the reasonable basis that precludes the use of NetDMR. These permittees must submit the justification, in writing, to EPA at least sixty (60) days prior to the date the facility would otherwise be required to begin using NetDMR. Opt-outs become effective upon the date of written approval by EPA and are valid for twelve (12) months from the date of EPA approval. The opt-outs expire at the end of this twelve (12) month period. Upon expiration, the Permittee must submit DMRs and reports to EPA using NetDMR, unless the Permittee submits a renewed opt out request sixty (60) days prior to expiration of its opt out, and such a request is approved by EPA.

Until electronic reporting using NetDMR begins, or for those permittees that receive written approval from EPA to continue to submit hard copies of DMRs, the Draft Permit requires that submittal of DMRs and other reports required by the permit continue in hard copy format.

11. State Certification Requirements

EPA may not issue a permit unless the MassDEP certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate Massachusetts WQSs or unless state certification is waived. The staff of the MassDEP has reviewed the Draft Permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR §124.53 and expects that the Draft Permit will be certified.

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Shauna Little, U.S. EPA, Office of Ecosystem Protection, Industrial Permits Branch, 5 Post Office Square, OPE 06-1, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public meeting may be held if the criteria stated in 40 CFR §124.12 are satisfied. In reaching a final decision on the Draft Permit, the EPA will respond to all significant comments and make these responses available to the public at EPA’s Boston office. Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a Final Permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the Final Permit decision, any interested person may submit a petition for review of the permit to EPA’s Environmental Appeals Board consistent with 40 CFR §124.19.

13. EPA and MassDEP Contacts

Additional information concerning the Draft Permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays, from the EPA and MassDEP contacts below:

Shauna Little, EPA New England – Region 1
5 Post Office Square, Suite 100 (OEP06-1)
Boston, Massachusetts 02109-3912
Telephone: (617) 918-1989 FAX: (617) 918-0989
Email: little.shauna@epa.gov

Kathleen Keohane, Massachusetts Department of Environmental Protection
Division of Watershed Management, Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608
Telephone: (508) 767-2856 FAX: (508) 791-4131
Email: kathleen.keohane@state.ma.us

____________________
Date

Stephen S. Perkins, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency
Attachment A: West Parish Filters Water Treatment Plant Topographic Map

Source: http://water.usgs.gov/osw/streamstats/massachusetts.html
Attachment B: Discharge Monitoring Report (DMR) Data

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Flow, pH, TRC, and TSS values measured from 11/30/2009 to 03/31/2012.
Attachment C: West Parish Filters Water Treatment Plant Schematic
NPDES Permit No. MA0040482

Attachment D: West Parish Filters Water Treatment Plant Schematic of Water Flow

Source: http://water.usgs.gov/osw/streamstats/massachusetts.html
Attachment E: Calculation of Estimated 7Q10 and Dilution Factor for Outfall 001

**Estimated 7Q10 at Outfall 001**

Nearest U.S. Geological Gaging Station = 01183500 (@ Westfield River)

7Q10 Flow@Westfield = 77.3 cubic feet per second (cfs)

7Q10 Flow at Outfall 001 is given by the ratio of the drainage area to the known 7Q10@Westfield such that:

\[
\frac{7Q10_{@Westfield}}{\text{Drainage Area}_{@Westfield}} = \frac{7Q10_{@Outfall001}}{\text{Drainage Area}_{@Outfall001}}
\]

Drainage Area@Westfield = 497 square miles (mi\(^2\))

Drainage Area@Outfall001\(^1\) = 0.83 mi\(^2\)

7Q10@Outfall001= QR

Therefore:

\[
\frac{77.3 \text{ cfs}}{497 \text{ mi}^2} = \frac{QR}{0.83 \text{ mi}^2}
\]

And:

\[
QR = \frac{77.3 \text{ cfs} \times (0.83 \text{ mi}^2)}{497 \text{ mi}^2} = 0.1 \text{ cfs}
\]

**Dilution Factor**

\[
\text{Dilution Factor} = \frac{QR + (QP \times 1.55)}{QP \times 1.55}
\]

Where:

- QR = Estimated 7Q10 for the receiving water at Outfall 001 = 0.1 cfs
- QP = Maximum permitted discharge rate = 2.0 million gallons per day (MGD)
- 1.55 = Factor to convert MGD to cfs.

\(\text{Dilution Factor} = \frac{0.1 + (2.0 \times 1.55)}{2.0 \times 1.55} = 1\)

\(^1\) Determined using USGS StreamStats in Massachusetts mapping tool at http://water.usgs.gov/osw/streamstats/massachusetts.html
JOINT PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO THE WATERS OF THE UNITED STATES UNDER SECTIONS 301 AND 402 OF THE CLEAN WATER ACT, AS AMENDED, AND UNDER SECTIONS 27 AND 43 OF THE MASSACHUSETTS CLEAN WATERS ACT, AS AMENDED, AND REQUEST FOR STATE CERTIFICATION UNDER SECTION 401 OF THE CLEAN WATER ACT.

DATE OF NOTICE: June 8, 2012

PERMIT NUMBER: MA0040482

PUBLIC NOTICE NUMBER: MA-014-12

NAME AND MAILING ADDRESS OF APPLICANT:

Mr. Douglas R. Borgatti  
Springfield Water and Sewer Commission  
250 M Street Extension  
Agawam, MA 01001

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

West Parish Filters Water Treatment Plant  
1515 Granville Road  
Westfield, MA 01085

RECEIVING WATER(S): Cook’s Brook, tributary to Little River

RECEIVING WATER(S) CLASSIFICATION(S): Class B

PREPARATION OF THE DRAFT PERMIT:

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) have cooperated in the development of a permit for the above identified facility. The effluent limits and permit conditions imposed have been drafted to assure compliance with the Clean Water Act, 33 U.S.C. sections 1251 et seq., the Massachusetts Clean Waters Act, G.L. c. 21, §§ 26-53, 314 CMR 3.00 and State Surface Water Quality Standards at 314 CMR 4.00. EPA has formally requested that the State certify this draft permit pursuant to Section 401 of the Clean Water Act and expects that the draft permit will be certified.
INFORMATION ABOUT THE DRAFT PERMIT:

A fact sheet (describing the type of facility; type and quantities of wastes; a brief summary of the basis for the draft permit conditions; and significant factual, legal and policy questions considered in preparing this draft permit) and the draft permit may be obtained at no cost at http://www.epa.gov/region1/npdes/draft_permits_listing_ma.html or by writing or calling EPA's contact person named below:

Shauna Little  
U.S. Environmental Protection Agency – Region 1  
5 Post Office Square, Suite 100 (OEP06-1)  
Boston, MA 02109-3912  
Telephone: (617) 918-1989

The administrative record containing all documents relating to this draft permit is on file and may be inspected at the EPA Boston office mentioned above between 9:00 a.m. and 5:00 p.m., Monday through Friday, except holidays.

PUBLIC COMMENT AND REQUEST FOR PUBLIC HEARING:

All persons, including applicants, who believe any condition of this draft permit is inappropriate, must raise all issues and submit all available arguments and all supporting material for their arguments in full by July 7, 2012, to the U.S. EPA, 5 Post Office Square, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing to EPA and the State Agency for a public hearing to consider this draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on this draft permit, the Regional Administrator will respond to all significant comments and make the responses available to the public at EPA's Boston office.

FINAL PERMIT DECISION:

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

DAVID FERRIS, DIRECTOR  
MASSACHUSETTS WASTEWATER MANAGEMENT PROGRAM  
MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

STEPHEN S. PERKINS, DIRECTOR  
OFFICE OF ECOSYSTEM PROTECTION  
ENVIRONMENTAL PROTECTION AGENCY – REGION 1